
The Cambridge South East Transport Order

Transport And Works Act 1992

Transport And Works (Applications And Objections Procedure) (England And Wales) Rules 2006

Transport Assessment

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Executive Summary

AtkinsRéalis has been appointed by the Greater Cambridge Partnership (GCP) to prepare a Transport Assessment (TA) to support a Transport and Works Act Order submission (TWAo) for the Cambridge South East Transport (CSET) Scheme Phase 2.

The aim of the CSET Scheme is to reduce the impact of forecast traffic on the travel corridor by encouraging modal shift from private car journeys to more sustainable modes of transport between the south east of Cambridge and the City Centre.

The Scheme objectives are set out below, and have been designed to be Specific, Measurable, Achievable, Realistic and Time-Bound (SMART).

1. Improve connectivity to employment sites in South East Cambridgeshire and central Cambridge
 - a. Provide improved access to the Granta Park, Addenbrookes Hospital, Cambridge Biomedical Campus and a number of other employment sites in South East Cambridge;
 - b. Increase modal options for commuters travelling to and from employment sites in South East Cambridge and central Cambridge by delivering a high quality public transport network and improved active travel routes for users.
2. Supporting the continued growth of Cambridge and South Cambridge's economy:
 - a. Deliver journey time savings for commuters travelling by public transport to job opportunities in South East Cambridge and central Cambridge;
 - b. Improve journey time reliability for users of the A1307 corridor;
 - c. Provide the transport infrastructure necessary to sustain economic growth.
3. Improve road safety for all users of the A1307 corridor:
 - a. Reduce the number of accidents at identified accident clusters along the corridor;
 - b. Reduce the number of speed related incidents along the corridor;
 - c. Improve the safety of crossing movements for cyclists, pedestrians and equestrians.
4. Relieve congestion and improve air quality in South East Cambridge:
 - a. Encourage use of sustainable transport modes for journeys through South East Cambridge and into central Cambridge;
 - b. Enhance quality of life by relieving congestion and improving air quality in South East Cambridge;
 - c. Relieve pressure at network pinch points;
5. Improve active travel infrastructure and public transport provision in South East Cambridge:
 - a. Deliver a High Quality Public Transport offer between Cambridge and Haverhill;
 - b. Increase frequency of public transport services during peak periods;
 - c. Reduce severance for cyclists, pedestrians and equestrians;
 - d. Increase uptake of sustainable transport modes for commuter journeys.

An evaluation of various schemes to achieve these objectives was undertaken before selecting the currently proposed Scheme for further development to support a TWAo application.

Development Proposals

The Scheme principally consists of a segregated Guided Busway between a new travel/park and ride hub near Babraham and Francis Crick Avenue at the Cambridge Biomedical Campus.

The proposed A11 Travel Hub will provide 1,250 park and ride car parking spaces. This will include 62 blue-badge spaces and 62 electric vehicle charging bays in addition to a public transport interchange. At the A11 Travel Hub site, there will also be provision for 188 cycle parking spaces, 10 coach parking bays, 25 pick-up/drop-off bays and 9 service and maintenance bays. Users of the A11 Travel Hub will be able to complete onward journeys to Cambridge City by accessing new public transport services or by walking and cycling. New public transport services will be provided via a segregated busway which travels northwest for approximately 9km between the A11 Travel Hub and the Cambridge Biomedical Campus with stops at Sawston, Stapleford and Great Shelford. The Public Transport Route is an off-line and dedicated route which bypasses key

bottlenecks into Cambridge City allowing public transport services to bypass traffic congestion on the road network, leading to greater reliability in journey times that would mean public transport can compete more effectively as an alternative to travelling into Cambridge City by private car.

Trip Generation and Demand Assessment

The Local Highway Authority does not provide any parking standards for Travel Hub sites. Consequently, the number of car parking spaces for the A11 Travel Hub site has been calculated from anticipated demand.

Forecast demand for the Scheme has been derived from a combination of strategic transport modelling and boarding and alighting surveys that were carried out in November 2019 at the Babraham Park & Ride site. This indicates that by 2041, the Travel Hub was expected to be serving 203 boarders and 3 alighters in the AM peak hour and 11 boarders and 157 alighters in the PM peak hour. The forecast level of demand can be accommodated by the eight proposed services per hour that will route directly between the A11 Travel Hub and the Cambridge Biomedical Campus.

The Scheme will, thereby, curtail forecast traffic growth on roads within the CSET travel corridor to and from both Cambridge City Centre and the Cambridge Southern Fringe by improving public transport accessibility and enabling a mode shift away from travel by private car to journeys by public transport.

The CSET Scheme is forecast to result in between 3.3 and 3.8 million fewer vehicle kilometres per year travelled on the road network compared to the future situation without it.

1. Introduction

- 1.1. AtkinsRéalis has been commissioned by GCP to prepare a TA for the CSET Phase 2 Scheme which is intended to accompany a TWAO submission for the Scheme. In addition to this, the TA will also inform the Traffic and Transport chapter of the CSET_10_02_00 Environmental Statement.

Context

- 1.2. Cambridge is one of the fastest growing cities in Europe with a rapidly growing population and a high rate of economic growth. The rate of growth that is anticipated to occur in South East Cambridge is expected to increase pressure on the transport system.
- 1.3. There is limited provision for cyclists along the A1307 and A1301 as well as a lack of viable and attractive alternative modal options in the area. Consequently, most commuters travelling into Cambridge do so by private car.
- 1.4. As the Cambridge economy continues to grow there will be increasing strain on the already congested highway network into and around Cambridge City, particular on the A1307 and A1301. As well as this, the growth of South-East Cambridge will increase the need for the wider CSET travel corridor to be improved to support proposed development.
- 1.5. A Cambridge Biomedical Campus (CBC) Transport Needs Review conducted by Atkins in 2018 highlighted that the site was expected to generate 67,500 daily trips by the year 2031¹. Of these daily trips, 46,400 are predicted to be made by car if current travel patterns continue.
- 1.6. The proposed CSET Phase 2 Scheme aims to provide a long-term solution to transport pressures within the CSET corridor. This is through delivering a segregated Guided Busway with an adjacent emergency and maintenance access track (EMAT) that can also be used by pedestrians and cyclists, combined with a new Travel/park and ride Hub Facility next to the A11 at Babraham. The A11 Travel Hub will be located near to the A11/A1307 junction and will accommodate 1,250 car parking spaces alongside 188 cycle parking spaces, a public transport interchange and coach parking facilities.

Scheme Background

Cambridge Southern Fringe

- 1.7. The CSET Phase 2 Scheme corridor is partly located within, and designed to service, an area that is known as the Cambridge Southern Fringe. This area has been identified in the Cambridge Local Plan and South Cambridgeshire Local Plan as a designated growth area. The area has substantial opportunities for long-term employment and residential developments.
- 1.8. The strategic vision for the Southern Fringe is to create a 'distinctive new urban extension to the city... including additional housing close to an existing employment area [and] new employment opportunities'². The following growth is anticipated or has recently occurred within the Southern Fringe:
- Since the Royal Papworth Hospital relocated to the CBC in Summer 2019, there are now approximately 20,000 people currently working at the CBC with the number expected to rise to approximately 26,000 by 2031 as more companies relocate to the site³.
 - The annual total number of patients and visitors to the CBC is expected to increase significantly from approximately 798,000 in 2017 to a predicted 1,382,000 in 2031⁴, which represents a 73% increase.

¹ Atkins on behalf of Cambridgeshire County Council, Cambridge Biomedical Campus Transport Needs Review, Non-Technical Summary, 2018

² Cambridge Local Plan 2018: Appendix D

³ Atkins on behalf of Cambridgeshire County Council, Cambridge Biomedical Campus Transport Needs Review – Table 1, Part 2 Report, April 2018

⁴ Atkins on behalf of Cambridgeshire County Council, Cambridge Biomedical Campus Transport Needs Review – Table 2, Part 2 Report, April 2018

- Residential developments at Clay Farm, Glebe Farm, Trumpington Meadows and Bell School are delivering over 4,000 new homes and new student accommodation⁵.
- AstraZeneca and their research and development arm MedImmune are establishing their new Global Research and Development Centre and Corporate Headquarters at CBC. When fully occupied, more than 2,000 AstraZeneca and MedImmune research and development science jobs will be created across the CBC⁶.

1.9. To support this increase in the area's growth, it is recognised that improvements to local transport will be needed to enable travel to and from the Cambridge Southern Fringe via alternatives to the car to avoid unacceptable adverse impacts on the already congested road network.

Local Transport Network

- 1.10. There are currently existing drivers for change located along the A1301 and A1307 corridors that underlie the need for investment in the CSET Scheme, including:
- Addressing the existing congestion on the A1301 and A1307 which means current public transport provision is unable to offer an attractive alternative to the private car;
 - Addressing the fragmented active travel provision along the existing A1301 and A1307 which needs to be improved to make walking and cycling a more attractive mode of travel.
- 1.11. In addition to these, existing public transport facilities around Cambridge are currently nearing capacity. The three largest park and ride facilities around Cambridge (Babraham Road, Trumpington Road and Madingley Road) were all operating above practical operational capacity (85% occupancy) during weekdays prior to the Covid-19 pandemic.
- 1.12. The CSET Phase 2 Scheme aims to address the issues highlighted above by increasing the number and capacity of Cambridge's Park and Ride hubs in combination with the creation of new active travel infrastructure that connects to the existing routes to create a more cohesive network. The Scheme will, thereby, enable public transport and active modes to become attractive alternatives to trips by private car within the CSET corridor.
- 1.13. The Scheme objectives are set out below, and have been designed to be Specific, Measurable, Achievable, Realistic and Time-Bound (SMART):
- Improve connectivity to employment sites in South East Cambridge and central Cambridge
 - Provide improved access to Granta Park, Addenbrooke's Hospital, Cambridge Biomedical Campus and a number of other employment sites in South East Cambridge
 - Increase modal options for commuters travelling to and from employment site in South East Cambridge and central Cambridge by delivering a high-quality public transport network and improved active travel routes for users;
 - Support the continued growth of Cambridge and South Cambridge's economy
 - Deliver journey time savings for commuters travelling by public transport to job opportunities in South East Cambridge and central Cambridge
 - Improve journey time reliability for users of the A1307 corridor
 - Provide the transport infrastructure necessary to sustain economic growth;
 - Improve road safety for all users of the A1307 corridor
 - Reduce the number of accidents at identified accident clusters along the corridor
 - Reduce the number of speed related incidents along the corridor
 - Improve the safety of crossing movements for cyclists, pedestrians and equestrians;
 - Relieve congestion and improve air quality in South East Cambridge
 - Encourage use of sustainable transport modes for journeys through South East Cambridge and into central Cambridge

⁵ Cambridge City Council, Growth Site Guide (March 2018): Cambridge Southern Fringe, March 2018

⁶ AstraZeneca Website, <https://www.astrazeneca.com/our-science/cambridge.html>, Accessed 10th September 2020

- Enhance quality of life by relieving congestion and improving air quality in South East Cambridge
- Relieve pressure at network pinch points;
- Improve active travel infrastructure and public transport provision in South East Cambridge
 - Deliver a High Quality Public Transport offer between Cambridge and Haverhill
 - Increase frequency of public transport services during peak periods
 - Reduce severance for cyclists, pedestrian and equestrians
 - Increase uptake of sustainable transport modes for commuter journeys.

Site Location

- 1.14. The CSET Scheme is focussed primarily on the A1307 corridor which extends from the Cambridge Southern Fringe to Haverhill. The A1307 corridor is one of Cambridge's key arterial routes linking major employment sites such as the Babraham Research Campus, Granta Park and the Cambridge Biomedical Campus as well as covering communities in the hinterland of Cambridge such as Linton and Haverhill.
- 1.15. However, more recently the CSET Scheme has been extended to cover communities along the A1301 corridor including Sawston, Stapleford and the Shelfords. The A1307 and A1301 corridors in combination form the 'CSET corridor'.

Alternatives

- 1.16. Various options to address both the existing and forecast issues along the CSET corridor have previously been considered and examined. The Proposed CSET Phase 2 Scheme that is the subject of this TA was selected from these potential alternatives as the option that best addressed the existing and forecast issues along the CSET corridor and met the agreed Scheme objectives. The alternative options considered and the process by which the currently proposed Scheme was selected is explained in Volume 2, Chapter 4 of the CSET_10_02_00 Environmental Statement.

Structure of Transport Assessment

- 1.17. The TA is divided into the following chapters:
- **Chapter 2 - Development Proposals:** An outline of the development proposals of the CSET Phase 2 Scheme;
 - **Chapter 3 - Policy Review:** An overview of the national, regional and local transport policies that are relevant to the CSET Phase 2 Scheme;
 - **Chapter 4 - Strategic Modelling and Local Junction Modelling Methodologies:** An overview explaining the methodologies used for the strategic modelling and local junction modelling;
 - **Chapter 5 - Baseline Transport Conditions:** An outline of the baseline transport conditions in the CSET corridor, including an examination of the Personal Injury Collisions within the study area of the CSET Phase 2 Scheme;
 - **Chapter 6 - Trip Generation and Modal Demand:** An outline of the existing Park & Ride usage in Cambridge, the maximum car park accumulation methodology, cycle occupancy methodology and forecasted bus patronage on CSET services;
 - **Chapter 7 - Impacts of the CSET Phase 2 Scheme:** A summary of the impacts of the CSET Phase 2 Scheme including strategic and local junction modelling results;
 - **Chapter 8 - Mitigation:** A summary of proposed mitigation during both operation and construction; and
 - **Chapter 9 - Summary and Conclusion:** The overall summary of the findings and analysis presented in this Transport Assessment.

2. Development Proposals

2.1. This section sets out the development proposals in detail including the site layout, access arrangements and the operation of the Scheme. The CSET Phase 2 Scheme can be broken into three main elements which form the Scheme. These being:

- The A11 Travel Hub;
- The Guided Busway; and
- Emergency and Maintenance Access Track

The Guided Busway

2.2. The Guided Busway is proposed as a segregated route between the CBC and the A11 Travel Hub. The route will be approximately 9km in length that will be two-way and 7.3m wide. The Guided Busway will have a 2.0m grass verge buffer that will run the entirety of the route's length.

2.3. The Guided Busway will have three stops that will serve as mini transport interchanges for local communities as part of a mixed-use trip. The mini-interchanges will have paved waiting areas, approximately 2-3.5m wide either side and an area of hardstanding for disabled parking, cycle parking and drop-off trips.

The Guided Busway Description

2.4. The Guided Busway is described from northwest to southeast. This being, from the CBC to the A11 Travel Hub. The route is divided into the following eight sections:

- Section 1: Francis Crick Avenue on the Cambridge Biomedical Campus
- Section 2: CBC to Granham's Road
- Section 3: Granham's Road to Hinton Way
- Section 4: Hinton Way to Haverhill Road
- Section 5: Haverhill Road to Sawston Road
- Section 6: Sawston Road to High Street
- Section 7: High Street to A11 Travel Hub
- Section 8: The Travel Hub

Section 1: Francis Crick Avenue on the Cambridge Biomedical Campus

2.5. The starting section of the Guided Busway is next to the Cambridge South Railway Station site on Francis Crick Avenue with bus stops either side of Francis Crick Avenue nearby to the Royal Papworth Hospital. The Guided Busway continues southwards along Francis Crick Avenue before diverting at the Francis Crick Avenue/Dame Mary Archer Way/Addenbrooke's Road roundabout junction onto an offline alignment that is dedicated to the Guided Busway.

Section 2: CBC to Granham's Road

2.6. The Guided Busway alignment will run south of Francis Crick Avenue, crossing the DNA route/NCR 11 and then continuing west of Nine Wells Local Nature Reserve, parallel to the mainline railway, before curving southeast towards Granham's Road. This 1.2km section of the route crosses the Hobsons Conduit (a watercourse with historic significance) but it is otherwise located in arable fields.

2.7. NCR 11 will be diverted from its current route adjacent to the railway line via the new CSET Phase 2 Scheme Active Travel Path for approximately 450 metres, before re-joining its existing route parallel to the railway line to the south. However, this alteration to the routing will result in a negligible change in the distance for cyclists of less than 75 meters. Where the DNA route/NCR 11 cross the CSET Phase 2 Scheme, dropped kerbs and tactile paving will be provided.

Section 3: Granham's Road to Hinton Way

2.8. This section of the Guided Busway will cross Granham's Road via a signalised crossing continuing in a south easterly alignment through two arable fields towards Hinton Way. The route will be

situated approximately 200m from the easternmost boundaries of residential properties on Coppice Way in Great Shelford. A priority signal crossing will be deployed at the intersections with Granham's Road and Hinton Way respectively to allow safe crossing of the existing highway and to give priority to users of the Guided Busway.

Section 4: Hinton Way to Haverhill Road

- 2.9. East of Hinton Way, the Great Shelford stop will be a mini-interchange for residents of Great Shelford. The mini-interchange will include a pick-up/drop-off loop as well as 5 blue badge holder parking spaces. In addition, cycle parking spaces will be provided.

Section 5: Haverhill Road to Sawston Road

- 2.10. A new signal crossing is proposed at Haverhill Road with a Guided Busway stop situated immediately southeast of the crossing. The Stapleford stop would be a mini-interchange for Stapleford residents. It would also include a drop-off/pick-up loop with 5 blue badge holder parking spaces and 40 covered cycle parking spaces (20 Sheffield stands) with lighting and CCTV for security purposes.
- 2.11. This section will be approximately 3km long and crosses a bridleway (PRoW 212/2), the River Granta and a restricted byway (PRoW 12/10). The river crossing in this section is called the River Granta (Stapleford) Crossing to differentiate it from a second crossing of the river further south along the route. Where PRoWs cross the CSET Phase 2 Scheme, dropped kerbs and tactile paving will be provided.

Section 6: Sawston Road to High Street

- 2.12. A new signal crossing is proposed with a designated Guided Busway stop immediately to the southeast at Sawston Road. Sawston Stop will be a mini-interchange for Sawston residents. There will be a drop-off/pick-up loop with 5 blue badge holder parking spaces and 40 covered cycle parking spaces (20 Sheffield stands).

Section 7: High Street to A11 Travel Hub

- 2.13. The route will cross Babraham High Street via a priority signal crossing with the route curving in a north easterly direction crossing over the river Granta before entering the A11 Travel Hub site. A bridge will be constructed to allow the Guided Busway and the EMAT to cross over the River Granta. West of the River Granta crossing a farm access track crossing will run across the Guided Busway and EMAT.

Section 8: The Travel Hub

- 2.14. The Guided Busway will terminate at the proposed A11 Travel Hub where the movement of the buses will be segregated from the movement of private vehicles using the three parking areas. Access to the Travel Hub for private vehicles will be via a new three-arm roundabout on the A1307, with the southern arm of the roundabout connecting to the Travel Hub access road. A connection to the Guided Busway will be provided from the Travel Hub access road, thereby allowing buses travelling from the A1307 to access and travel along the Guided Busway.

Emergency and Maintenance Access Track

- 2.15. As part of the CSET Phase 2 Scheme, an emergency and maintenance access track (EMAT) is proposed to run parallel to the Guided Busway. The EMAT will route southeast between CBC and the Travel Hub. The EMAT will measure approximately 9.5km in length. The cross-sectional composition of the EMAT will have the following dimensions:
- i. A 1.5-2.5m grass verge for use by equestrians;
 - ii. A 3.5m wide EMAT that can be used by pedestrians, cyclists and equestrians;
 - iii. A 2m wide verge buffer to separate from the Guided Busway;
 - iv. A 7.3m wide Guided Busway; and
 - v. A 1.5m grass verge
- 2.16. The EMAT will ensure that in the event of a bus breakdown on the Guided Busway or an emergency, there is a safe and convenient way to keep passengers away from the Guided Busway. In addition, the EMAT would allow emergency vehicle access without obstruction.

- 2.17. In the event of a breakdown on the Guided Busway, the EMAT allows for the removal of vehicles from the carriageway. The EMAT also provides a safe refuge for pedestrians if they are required to disembark from a bus due to a breakdown or emergency.
- 2.18. Pedestrians, cyclists and equestrians will be permitted to use the EMAT when not required for maintenance and emergencies.
- 2.19. Between Granham's Road and the CBC, the EMAT will slightly deviate from the Guided Busway and will utilise some of the existing DNA Cycle Path alignment (PPA/0155). Here, a 300m stretch of the existing cycleway that runs alongside the Great Northern Railway line will be widened further to 4.0m to accommodate the high level of active travel demand recorded in this area during the Active Travel User surveys undertaken in November 2022 (see Sections 5.32 to 5.36 below).
- 2.20. Where PRoWs cross the CSET Phase 2 Scheme, dropped kerbs and tactile paving will be provided. The combined numbers of buses forecast to use the Guided Busway during peak periods is up to 10 buses per hour, which equates to a bus approximately every 6 minutes in each direction. This means that there will be plenty of gaps of several minutes between buses, which will allow pedestrians and cyclists to cross the Scheme easily and safely, without the need for controlled crossings, such as Zebra or Pelican crossings.

Great Shelford Mini Interchange

- 2.21. The Great Shelford Mini Interchange will be primarily for the residents of Great Shelford. It will contain waiting shelters for passengers as well as extra space for the stops to be lengthened in the future if required. The Mini Interchange will contain cycle parking provision as well as 5 blue badge bays for parking with a drop-off/pick-up loop for passengers.

Stapleford Mini Interchange

- 2.22. The Stapleford Mini Interchange will contain waiting shelters for passengers as well as the provision of extra space for the stops to be extended in the future if required. Next to the stops there will be cycle parking provision in the form of cycle stands and storage. At the Mini Interchange, 5 blue badge parking spaces will be provided and there will be an area for drop-off/pick-up set downs. Controlled crossings for the EMAT crossing Haverhill Road are provided along with space for an equestrian crossing. For the Guided Busway, a signalised junction is proposed.

Sawston Mini Interchange

- 2.23. The Sawston Mini Interchange stop will contain waiting shelters for passengers as well as the provision of extra space for the stops to be extended in the future if required. Next to the stops there will be cycle parking provision in the form of cycle stands and storage. At the Mini Interchange, 5 blue badge parking spaces will be provided and there will be an area for drop-off/pick-up set downs. Controlled crossings for the EMAT crossing Sawston/Babraham Road are provided along with space for an equestrian crossing. For the Guided Busway, a signalised junction is proposed.

A11 Travel Hub

- 2.24. The proposed A11 Travel Hub will be situated west of the A11 and south of the A1307 on land that is adjacent to the A11/A1307 junction.
- 2.25. The A11 Travel Hub will be served by the Guided Busway and EMAT from where users can transfer from private vehicles to either buses using the Guided Busway or active modes utilising the EMAT to complete their journeys into Cambridge City.
- 2.26. Vehicular access to the travel hub will be via a new roundabout on the A1307. The Guided Busway also connects to the Travel Hub access road, thereby allowing buses travelling from the A1307 to access and travel along the Guided Busway.
- 2.27. Car parking at the A11 Travel Hub will be distributed largely into two areas that are situated in the northern area and southern area of the site with the A11 Travel Hub building and interchange situated at the centre of the site.
- 2.28. Parking for blue badge holders, short-stay/drop-off/pick-up visitors, and for staff and servicing is provided in close proximity to the Travel Hub Building. Within the northern section of car parking, parking bays closest to the Travel Hub Building contain provision for EV charging, equating to 5% of total parking bays. Coach parking bays are located at the northernmost section of the site.

- 2.29. Footways run between the car parks and the Travel Hub Building to provide pedestrian access to to/from the Travel Hub Building.
- 2.30. PRoW Footpath 12/4 will be retained, routing through the A11 Travel Hub site. Where the footpath intersects with a parking access road, a signal-controlled crossing for pedestrians and cyclists will be provided.

Facilities at A11 Travel Hub

- 2.31. Several waiting shelters are proposed at the A11 Travel Hub's central Guided Busway interchange. As well as this, an amenity building to the east of the Guided Busway interchange is proposed. The amenity building will contain a waiting/seating area, an accessible toilet, a baby changing facility, vending machines, and a water fountain.

Site Operation

- 2.32. The proposed site will operate in a similar fashion to other Cambridge Park & Ride sites.
- 2.33. Whilst the A11 Travel Hub will be open 24-hours a day to allow users to access/egress the car and cycle parking areas, the Guided Busway is only expected to be in operation between 05:45-00:27. Private coach parking is expected to be in operation between 07:00-19:00 like the Maddingley Road Park & Ride.
- 2.34. Initially, it is not expected that any out-of-hour bus services or National Express coaches will serve the site. However, extending operating hours or permitting other bus or coach services to use the Guided Busway in the future is not excluded, should this be required.

Parking Provision

Car Parking Provision

- 2.35. The A11 Travel Hub has been designed to accommodate 1,250 car parking spaces. The Cambridge Local Plan and South Cambridgeshire Local Plan do not provide parking standards in relation to Travel Hub sites. Therefore, the number of parking spaces to be provided has been determined from anticipated demand based on outputs from the CSRM2 model. The decision on the number of car parking spaces likely to be needed at the Travel Hub was also informed by occupancy data from the existing Park & Ride site at Babraham Road in Cambridge. Automatic Number Plate Recognition (ANPR) data was collected at the entrance and exit to Babraham Road Park and Ride site between Monday 12th and Friday 16th of June 2017. Analysis was undertaken to understand and compare the relative trip rates per space for the existing Park and Ride site. This provided an occupancy profile for Babraham Road Park and Ride site which was applied to the modelled morning peak ('AM') demand for the A11 Travel Hub.
- 2.36. The finalised occupancy profile for Babraham Road Park and Ride site was applied to the AM in-bound modelled flows for the A11 Travel Hub extracted from the relevant CSRM2 model scenarios and was used to calculate Interpeak and afternoon peak ('PM') model flows, into and out of both the Babraham Road Park and Ride site and the proposed A11 Travel Hub site. To ensure the proposed A11 Travel Hub will have sufficient capacity in the future High Growth modelling scenario, demand associated with the High-Growth scenario was applied to the occupancy profile. By applying this additional future demand, it was determined that 880 parking spaces would be needed, however additional spaces have been accounted for to provide flexibility. This is based on two elements:
- CCC's guidance states that a car park is considered full when it reaches 85% of total capacity, because when a car park reaches an occupancy level of beyond 85% issues arise of circulation, queuing and perception amongst users that they may not find a space in the car park; and
 - GCP's preference for an additional 250 spaces to be included to account for any possible future demand that may emerge during the development process for the new Greater Cambridge Local Plan.

This requirement for additional car park capacity to avoid potential circulation, queuing and user perception issues, as well as provision of a further 250 spaces to account for possible future demand, results in a requirement for a total of 1,250 parking spaces to be provided at the A11 Travel Hub.

- 2.37. Table 2-1 gives a breakdown of the proposed car parking space provision.

Table 2-1 - Breakdown of Car Parking Space Provision

Type of Car Parking Space	Number of Spaces
Standard Car Parking Spaces	1,117
Accessible Blue-Badge Spaces	62
Electric Vehicle Charging Spaces	62
Staff Only/Service Spaces	9
Total	1,250

- 2.38. Accessible Blue-Badge Spaces will be located closest to the Guided Busway interchange and waiting facilities, which are situated at the easternmost section of the car parking.

As highlighted within

- 2.39. Table 2-1 there will be 9 parking spaces for staff working at the site as well as providing parking space for servicing and deliveries. These spaces will be located eastwards of the Guided Busway interchange. Bays will be clearly signed and demarcated to prevent unauthorised parking.

Solar Car Ports

- 2.40. The first three rows in the northern car park area are proposed to be 'Solar Car Ports' where parking will be located under photovoltaic (PV) panels. The PV panels will be mounted on a structure above the parking spaces which will not alter the dimensions of the parking spaces. Initially, 196 spaces will be covered by the solar panels but the Travel Hub site will have ducting to allow future expansion of the Solar Car Ports.

Other Motorised User Parking Provision

- 2.41. In addition to car parking, the A11 Travel Hub will also provide the following for motorised users accessing the site:
- 25 designated drop-off bays;
 - 10 coach parking bays for visiting coaches; and
 - 20 motorcycle parking bays.

Cycle Parking Provision

- 2.42. Initially it is planned that the Travel Hub will have 188 cycle parking spaces. However, there will also be provision made to allow for the future expansion of the cycling provision to 314 spaces should demand require.
- 2.43. Currently, there are no specified standards for cycle parking standards for travel hubs in the Cambridge Local Plan or South Cambridgeshire Local Plan. Consequently, in determining the number of cycle parking spaces to be provided, Trumpington Road Park & Ride and Babraham Road Park & Ride have been compared in terms of their cycle parking provision.
- 2.44. Both Trumpington Road Park & Ride and Babraham Park & Ride have a ratio of 1:4 cycle to car parking spaces on the sites. In applying this ratio to the proposed 1,250 car parking spaces at the A11 Travel Hub, this would result in 314 cycle parking spaces.

Cycle parking surveys undertaken highlighted that the cycle parking at the Trumpington Road Park & Ride site and the Babraham Road Park & Ride site rarely reached their capacities. Accounting for this, it is proposed that initial cycle parking provision would be at 60% of the 1:4 ratio, which would provide a total of 188 cycle parking spaces for the A11 Travel Hub.

2.45. Table 2-2 gives a breakdown of cycle parking provision.

Table 2-2 - Breakdown of Cycle Parking Provision

Type of Cycle Parking Space	Number of Spaces
Covered Cycle Stand Spaces (Oversized Cycle Spaces)	38 (10)
Two-Tier Cycle Parking Spaces	80
Cycle Parking Lockers	70
Total	188

Other Site Considerations

Speed Limits

2.46. All internal roads will be subject to a speed limit of 20mph, complemented by speed calming measures such as raised tables at pedestrian crossings to ensure the safety of all users at the site.

A11 Travel Hub Charges

2.47. The Travel Hub will adopt a charging model that is in line with that of other Cambridge Park & Ride sites. It is likely that parking would be free at the Travel Hub for the first 18 hours with charges starting to apply thereafter.

2.48. Fares will apply for users who are completing their journeys via the Guided Busway. These fares will be set by the operator. Charges for coach parking is expected to be the same as that for the Maddingley Road Park & Ride.

Security

2.49. Security proposals for the site comprise CCTV cameras located throughout the Travel Hub and at key interchanges of the Guided Busway. Specific details of CCTV will be set out at the detailed design stage. Street lighting will also be provided covering the whole of the travel hub, including under the canopies for the Solar Car Ports.

2.50. The coach parking will be accessed via a security-controlled barrier.

Site Layout

2.51. The A11 Travel Hub site will be comprised of three parking areas. Each car parking area will contain internal roads to access parking spaces with external roads around the perimeter of each section to allow access to each row of parking spaces. All sections will be signed for wayfinding to ensure users can easily navigate the site and find their vehicle, with pedestrian routes connecting the car parking area to the public transport interchange area.

A11 Travel Hub Internal Roads

2.52. Access to the A11 Travel Hub site will be from the A1307 via a new priority access roundabout and a single carriageway access road. The new roundabout has been designed with sufficient capacity to accommodate the forecast traffic demand determined by the CSRM2 strategic model in both the 2029 Opening Year and 2041 Future Year. The new roundabout is predicted to operate well within capacity in both 2029 and 2041, as demonstrated by the local junction modelling undertaken, the results of which are summarised in sections 7.19 and 7.20 below.

A11 Travel Hub Pedestrian and Cycle Infrastructure

- 2.53. The proposed Internal Pedestrian and Cycle Network will be comprised of hard-surfaced 3m-wide footways that will run perpendicular to each row of car parking spaces and will lead towards the central public transport interchange area.
- 2.54. A 20mph speed limit will be in place across the site thereby providing a more conducive environment for cyclists. Consequently, cycles will not be permitted to use footways. In addition, all internal pedestrian crossings will be located on raised tables. This will be done to encourage low vehicle speeds.
- 2.55. The PRoW that passes through the A11 Travel Hub crosses the access road to the car parking, which is anticipated to carry moderate traffic volumes during peak periods. Therefore, a signal-controlled crossing for pedestrians and cyclists will be provided at this location.

Site Access Arrangements

Pedestrian and Cycle Access

- 2.56. The shared-use pedestrian and cycle path which is routed through the Travel Hub site will be improved through resurfacing with compacted gravel and a widening of the path to 3.5m. The path will also be raised as a means of increasing visibility on the approach to and through the Travel Hub.

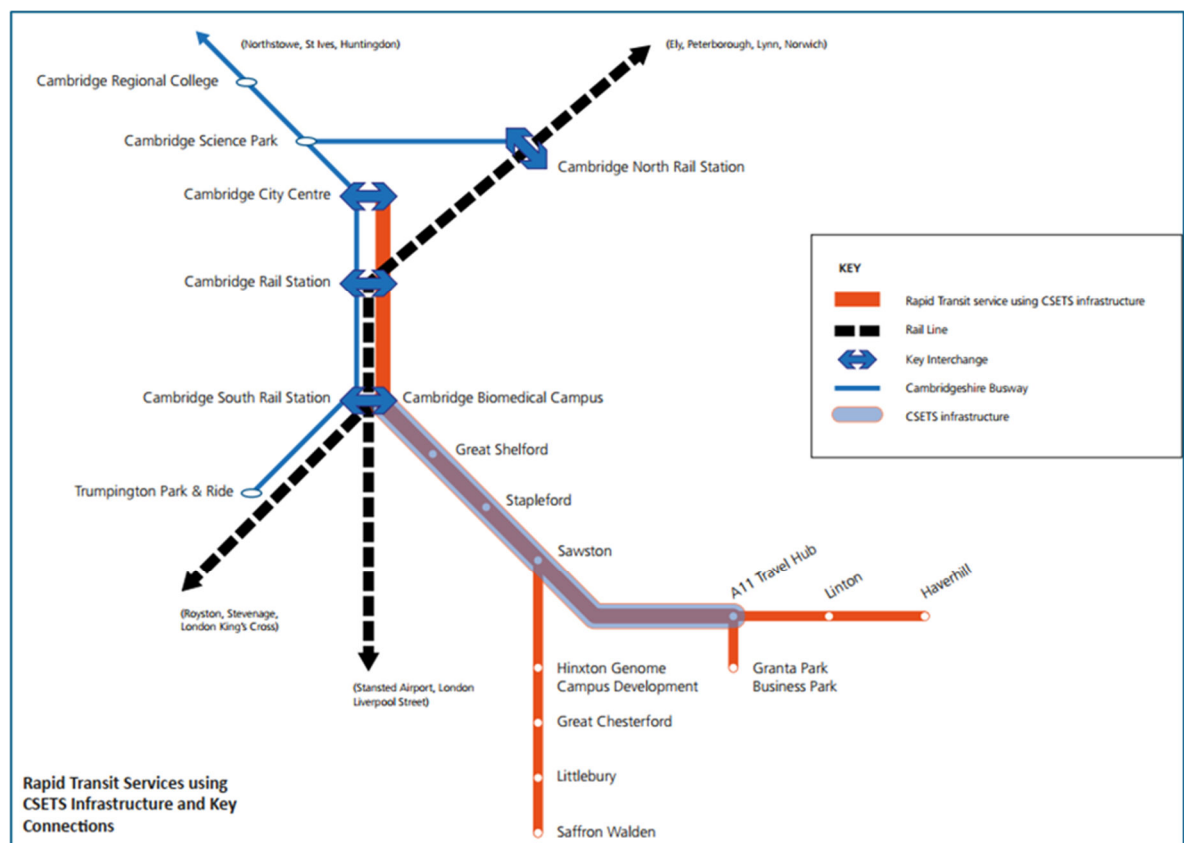
The Guided Busway Access

- 2.57. The Guided Busway is connected to the western boundary of the Travel Hub. A new dedicated bus service will operate between Cambridge City Centre, the CBC and the Travel Hub via the new Guided Busway and utilising the existing Guided Busway between the CBC and the Cambridge Railway Station. Current proposals are for the buses to be road-based with sensor guidance, which is defined as a mode in which the vehicles:
- Are capable of operating on a road; and
 - Are guided wholly or mainly by means of sensors on the vehicle which, by reference to the vehicles' external environment or to the receipt of electromagnetic information, provide data which is used to guide the vehicles.

Bus Service Proposition

- 2.58. Figure 2-1 outlines the proposed service network map that would be introduced as part of the CSET Phase 2 Scheme. This involves eight buses per hour each way with services between Haverhill and Cambridge City Centre.

Figure 2-1 - Proposed CSETS Network Map



Peak Hour Services

- 2.59. Analysis from the Cambridge Strategic Regional Model forecasting loadings suggest that it would be desirable to provide additional capacity during peak periods, particularly as the CSET 2 buses will need to be single-deck if they are to utilise the Cambridgeshire Guided Busway. This is due to a low bridge which precludes the use of double-deck buses. The peak hour proposals are the following.
- 2.60. For the AM peak hour:
- Additional buses to provide a 10-minute headway on CSET 2 between Haverhill Bus Station and Cambridge Bus Station for arrivals between around 07:00 and 08:30; and
 - Additional buses to increase the frequency between the Travel Hub and Cambridge Bus Station from 6 to 8 buses per hour.
- 2.61. For the PM peak hour:
- Additional buses to increase the frequency between Cambridge Bus Station and the A11 Travel Hub from 6 to 8 buses per hour. The additional buses would be used to provide a bus service using the Guided Busway every 15 minutes between Cambridge Bus Station and Haverhill Bus Station, leaving Cambridge between around 15:45 and 16:45.
- 2.62. The overall proposition for services within the corridor is as follows:
- CSET 2 services would start at Little Wratting (an area of new development to the north of Haverhill) and serve the Millfields estate before reaching Haverhill Bus Station. CSET 2 services would run on the A1307 to Linton. At this point, the service would divert from the A1307 to serve Linton village before re-joining the A1307 until reaching the A11 Travel Hub. The service would then utilise the CSET Guided Busway infrastructure to travel to Francis Crick Avenue serving the Cambridge Biomedical Campus and Cambridge South Railway Station. The service would join the existing Cambridgeshire Guided Busway to Cambridge

Railway Station. From Cambridge Railway Station, the service would travel on-street to Cambridge City Centre; and

- Conventional bus services would originate at Haverhill Bus Station. The opportunity would be taken to re-establish direct links between Duddery Hill, Chimswell Way and Arredene Road and Cambridge. The timetable would be written to allow interchange at Haverhill Bus Station with services from Little Wratting. The buses would then proceed to Cambridge as per the existing routing via Horseheath, Linton, Great and Little Abington, Babraham Turn, Babraham Research park, Wandlebury, Addenbrooke's Bus Station and Cambridge City Centre.

- 2.63. Timetabling would be structured to provide a co-ordinated 15-minute headway (two CSET 2 buses, two 13/13A buses) towards Cambridge from Haverhill Sainsbury's and towards Haverhill from Cambridge City Centre.

Services to Granta Park

- 2.64. Two CSET 2 services per hour to serve Granta Park would be co-ordinated with four other buses on the CSET 2 service. Of these four, at least two would run to Granta Research Park (subject to suitable access and terminating facilities being made available) and the remainder would terminate at the A11 Travel Hub. This would give a frequency of a bus every 10 minutes between the A11 Travel Hub, Sawston, Stapleford, Great Shelford, the Cambridge Biomedical Campus, Cambridge South Railway Station, Cambridge Railway Station, and Cambridge City Centre.

3. Policy Review

3.1. This section gives an overview of the national, regional, and local transport and planning policies that are relevant to the CSET Phase 2 Scheme development. These are comprised of the following policies:

National Policy

- National Planning Policy Framework (2024);
- National Planning Practice Guidance (2014): travel plans, transport assessments and statements;
- National Policy Statement (NPS) for National Networks 2024 (p 27-28)
- 2nd National Highways Road Investment Strategies (2020);
- Department for Transport's Transport Investment Strategy (2017);
- Department for Transport's Transport Decarbonisation Plan (2023);
- 10 Point Plan for a Green Industrial Revolution (2020) & Net Zero Strategy: Build Back Better (last updated in 2022);
- Bus Back Better (2021);
- Cycling and Walking Investment Strategy (2022);
- Gear Change (2020) and Gear Change: one year on (2021); and
- Levelling Up Economic Programme (2022).

Regional Policy

- Cambridgeshire County Council Third Local Transport Plan (2011-2031)
- Greater Cambridge Greater Peterborough Strategic Economic Plan (2014);
- Transport Strategy for Cambridge City and South Cambridgeshire (2014);
- Cambridgeshire County Council's Climate Change and Environment Strategy (2022);
- Cambridgeshire County Council's Transport Proposals Database (2023);
- Cambridgeshire and Peterborough Combined Authority Local Transport Plan (2020);
- Cambridgeshire and Peterborough Combined Authority Local Transport and Connectivity Plan (2023); and
- Cambridgeshire County Council Draft Local Cycling and Walking Infrastructure Plan (2022).
- Partnering for Prosperity: the Cambridge – Milton Keynes – Oxford Arc (2017)
- Cambridgeshire County Council Transport Proposal Database (2023)
- Cambridge and Peterborough Economic Growth Strategy (2022)
- Cambridge and Peterborough Independent Economic Review (2018)

Local Policy

- South Cambridgeshire Local Plan (2018);
- Cambridge Local Plan (2018);
- Cambridgeshire County Council's Transport Assessment Requirements (2019);
- Cambridge Air Quality Management Plan (2018-2023);
- Cambridgeshire and Peterborough Local Industrial Strategy (2019);
- Emerging Greater Cambridge Local Plan; and
- Greater Cambridge City Deal (2014).

National Policy

National Planning Policy Framework (2024)

- 3.2. The National Planning Policy Framework (NPPF) provides the UK government's planning policies for England and how they should be applied to developments.
- 3.3. In this Transport Assessment, Chapter 9 'Promoting Sustainable Transport' of the NPPF is most relevant to the CSET Phase 2 Scheme proposals, with paragraphs 109, 111, 115, 116 and 117 holding the most relevance.
- 3.4. Paragraph 109 states *"transport issues should be considered from the earliest stages of plan-making and development proposal, using a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places. This should involve"*:
- *"making transport considerations an important part of early engagement with local communities;*
 - *ensuring patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places;*
 - *understanding and addressing the potential impacts of development on transport networks;*
 - *realising opportunities from existing or proposed transport infrastructure, and changing transport technology and usage – for example in relation to the scale, location or density of development that can be accommodated;*
 - *identifying and pursuing opportunities to promote walking, cycling and public transport use; and*
 - *Identifying, assessing and taking into account the environmental impacts of traffic and transport infrastructure – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains"*⁷
- 3.5. This Transport Assessment as well as the CSET_10_02_00 Environmental Statement demonstrate consistency with this aspect of the NPPF through its consideration of *potential impacts of (future) development on transport networks* .. as well as the CSET Phase 2 Scheme's potential impact on the transport network and on the environmental impacts of the CSET Phase 2 Scheme.
- 3.6. Paragraph 111 also states that planning policies should:
- *"Support an appropriate mix of uses across an area, and within larger scale sites, to minimise the number and length of journeys needed for employment, shopping, leisure, education and other activities;*
 - *Be prepared with active involvement of local highways authorities, other transport infrastructure providers and operators and neighbouring councils, so that strategies and investments for supporting sustainable transport and development patterns are aligned;*
 - *Identify and protect, where there is robust evidence, sites and routes which could be critical in developing infrastructure to widen transport choice and realise opportunities for large scale development;*
 - *Provide for attractive and well-designed walking and cycling networks with supporting facilities such as secure cycle parking (drawing on Local Cycling and Walking Infrastructure Plans); and*
 - *Provide for any large-scale transport facilities that need to be located in the area, and the infrastructure and wider development required to support their operation, expansion, and contribution to the wider economy. In doing so they should take into account whether such development is likely to be a nationally significant infrastructure project and any relevant national policy statements."*⁷
- 3.7. Although the CSET Phase 2 Scheme is not a planning policy, the proposals contain the provision for sustainable transport infrastructure that will increase transport choice for local residents as well as people who work in the wider area. Furthermore, the walking and cycling infrastructure provision within the proposals also meet the criteria mentioned in Paragraph 111. Consequently, the proposals of the development align with this aspect of the NPPF.

⁷ Department for Levelling Up, Housing and Communities (2024). National Planning Policy Framework, available at: [National Planning Policy Framework](#)

- 3.8. Paragraph 115 of the NPPF states that *“In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:*
- *sustainable transport modes are prioritised taking into account of the vision for the site, the type of development and its location;*
 - *safe and suitable access to the site can be achieved for all users;*
 - *the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and National Model Design Code; and*
 - *any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree through a vision-led approach.”⁷*
- 3.9. This TA demonstrates that the CSET Phase 2 Scheme will prioritise sustainable transport modes of transport and that suitable and safe access can be achieved for all users to all aspects of the Scheme. Chapter 8 of the TA demonstrates that any significant impacts from the development on the transport network in terms of capacity, congestion and highway safety can be cost-effectively mitigated.
- 3.10. Paragraph 116 of the NPPF states that *“Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios.”⁷*
- 3.11. ‘Reasonable future scenarios’ are defined in the NPPF as *“a range of realistic transport scenarios tested in agreement with the local planning authority and other relevant bodies (including statutory consultees where appropriate), to assess potential impacts and determine the optimum infrastructure required to mitigate any adverse impacts, promote sustainable modes of travel and realise the vision for the site.”⁷*
- 3.12. Chapters 4, 7 and 8 of this TA demonstrate that the CSET Phase 2 Scheme has been assessed for a range of reasonable future scenarios which have been agreed with CCC through the scope of the CSRM2 strategic modelling and local junction modelling. Chapters 7, 8 and 9 of the TA demonstrate that the impact of the Scheme on highway safety and the residual cumulative impacts on the road network, following mitigation, would not be severe.
- 3.13. Paragraph 117 states that *“Within this context, applications for development should:*
- *give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;*
 - *address the needs of people with disabilities and reduced mobility in relation to all modes of transport;*
 - *create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;*
 - *allow for the efficient delivery of goods, and access by service and emergency vehicles; and*
 - *be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.”⁷*
- 3.14. In relation to these points, the proposals for the CSET Phase 2 Scheme directly promote both pedestrian and cycle movements and facilitate access to high quality public transport. In addition, this Transport Assessment demonstrates that suitable and safe access to the proposed A11 Travel Hub, Guided Bus services and across the Guided Busway and EMAT can be achieved for all users. Access to the CBC for service and emergency vehicles will be maintained during both the construction and operational phases of the Scheme, and provision for charging of plug-in and other ultra-low emission vehicles is proposed at the A11 Travel Hub.

National Planning Practice Guidance (2014)

- 3.15. The National Planning Practice Guidance (NPPG) provides an overview of Travel Plans, Transport Assessments and Statements with advice on how the aforementioned documents are important for identifying mitigating measures to promote sustainable development.
- 3.16. The guidance in relation to Transport Assessments and Statements states that:
- 3.17. *“Transport Assessments and Statements are ways of assessing the potential transport impacts of developments (and they may propose mitigation measures to promote sustainable development. Where that mitigation relates to matters that can be addressed by management measures, the mitigation may inform the preparation of Travel Plans). Transport Assessments are thorough assessments of the transport implications of development, and Transport Statements are a ‘lighter-touch’ evaluation to be used where this would be more proportionate to the potential impact of the development (i.e., in the case of developments with anticipated limited transport impacts).”⁸*
- 3.18. Paragraph 7 of the Transport Assessments sections notes that Transport Assessment should be:
- *“Proportionate to the size and scope of the proposed development to which they relate and build on existing information wherever possible;*
 - *Be tailored to particular local circumstances; and*
 - *Be brought forward through collaborative ongoing working between the local planning authority/transport authority, transport operators, rail network operators, Highways Agency where there may be implications for the strategic road network and other relevant bodies.”*
- 3.19. This Transport Assessment is considered proportionate to the size and scope of the proposed development. The proposals of the development relate directly to the local context as a result of the proposals’ purpose to enable growth in the area but also reduce congestion on the existing network compared to scenario where the proposals are not realised. The scope of the Transport Assessment has been developed in collaboration with the local transport authority and therefore the Transport Assessment aligns with paragraph 7 of the NPPG on Transport Assessments.
- 3.20. Paragraph 15 of the NPPG sets out a list of all the information that should be included in Transport Assessments. This Transport Assessment captures all points raised and is therefore in line with the NPPG.

National Policy Statement for National Networks (2024)

- 3.21. The National Networks National Policy Statement (NNNPS), hereafter referred to as ‘NPS’, sets out the need for, and Government’s policies to deliver, development of Nationally Significant Infrastructure Projects (NSIPs) on the national road and rail networks in England.
- 3.22. In this transport assessment, pages 25, 53 and 105 of the updated NPS⁹ the sections ‘Government’s Policy for addressing need of the national road network’, ‘Accessibility’ and ‘Impacts on transport networks’, hold the most relevance to the CSET Phase 2 Scheme.
- 3.23. The ‘Government’s policy for addressing need of the national road network’ section states that:
- *“Promoting journey choice by enabling more active travel and public transport (including buses, coaches and rail) in urban areas whilst not restricting other transport options. The creation of mobility hubs and improving integration between modes through park-and-ride services, cycle parking provision at rail stations, and the coordination of bus / rail timetables, can all contribute.”*
 - *“Providing genuine choice in transport mode by increasing accessibility to public transport, connecting places and by improving the environment for journeys by active travel, in both urban and rural areas. The government has committed to transforming local transport systems through Bus Back Better strategy and the City Region Sustainable Transport Settlements. In addition, Bus Back Better sets out measures enabling buses to be used by all thereby enhancing levels of accessibility.”*

⁸ Ministry of Housing, Communities & Local Government, 2014. National Planning Practice Guidance. Available at: <<https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements>> [Accessed 3 November 2022]

⁹ Department for Transport (2014). National Policy Statement for National Networks. Available at: [National policy statement for national networks - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/281112/national-policy-statement-for-national-networks.pdf)

- 3.24. The CSETS Phase 2 Scheme is in line with these points listed in the NPS given that is components such as the travel hub, maintenance track, and the Guided Busway itself put pedestrians and cyclists in the centre of the Scheme as well as high quality public transport further enhancing transport connections between Cambridge, Sawston, Shelford, and other communities along the A11 corridor.
- 3.25. The 'Accessibility' section states that:
- *"The Government is committed to creating a more accessible and inclusive transport network that provides a range of opportunities and choices for people to connect with jobs, services and friends and family."*
- 3.26. The CSETS Phase 2 Scheme complies with the aforementioned given the nature of the Scheme which aims to provide high quality public transport infrastructure and services, as well as access to other modes such as cycling and walking.
- 3.27. The 'Impacts on transport networks' section states that:
- *"The Government is committed to sustainable development through facilitating a modal shift to active travel and public transport and reducing transport emissions including through delivering the infrastructure needed to support a transition to alternative fuels including electric vehicles."*

The nature of the CSETs Phase 2 Scheme complies with this section of the NPS as it consists of a travel hub and maintenance track. These components provide sustainable travel alternatives within the A11 corridor and facilitates an increase in active travel and public transport trips between Cambridge, Sawston, Shelford and other communities within the corridor.

2nd National Highways Road Investment Strategy (2020 – 2025)

- 3.28. This second Road Investment Strategy (RIS2) sets a long-term strategic vision for the road network. With that vision in mind, it specifies the performance standards Highways England must meet; lists planned enhancement schemes expected to be built; and states the funding that will be available during the second Road Period (RP2), covering the financial years 2020/21 to 2024/25.
- 3.29. Among the government's priorities listed in Part 3 'Investment Plan' of the RIS2 the section on 'Improving the environment' states:
- *"There is also a fund for Users and Communities, which will continue to support the creation of better facilities for walking and cycling around the network and make it easier for people to get access to public transport where it uses the SRN."*
- 3.30. The aforementioned is of relevance to the CSETS Phase 2 given the improvements in terms of public transport and active travel services and infrastructure the Scheme is proposing.

Department for Transport's Investment Strategy (2017)

- 3.31. The Transport Investment Strategy (TIS) aims to enable the delivery of transport infrastructure to support economic growth, improve productivity and address the needs for housing. TIS has four objectives:
- *"To create a more reliable, less congested and a better-connected transport network that works for users who rely on it;*
 - *To build a stronger, more balanced economy by enhancing productivity and responding to local government priorities;*
 - *To enhance the UK's global competitiveness in increasing the attractiveness of the country as a place to trade and invest; and*
 - *To support the creation of new housing."*
- 3.32. The CSET Phase 2 Scheme aligns with the TIS by:
- Minimising increased congestion along the A1307 and the wider CSET corridor through intercepting private vehicle journeys via a public transport alternative as the CBC continues to grow and further development occurs within South East Cambridge;
 - Improving the linkages between South East Cambridge and key employment centres and biomedical campuses within the travel corridor in order to support enhanced productivity and economic growth in the region; and

- Enabling people to access new employment opportunities in South East Cambridge by increasing the size of the labour market for employers which enhances the international competitiveness of the area.

Department for Transport's Transport Decarbonisation Plan (2023)

- 3.33. The Transport Decarbonisation Plan (TDP) outlines the UK Government's commitments and planned actions to deliver net zero greenhouse gas (GHG) emissions for the transport sector by 2050. The Transport sector is the largest contributor to UK domestic GHG emissions. As part of this, the TDP identifies the wider benefits of improved air quality, health, reduced noise, and congestion as part of transport decarbonisation.
- 3.34. The TDP has the strategic priorities of:
- *"Priority 1: Accelerating modal shift to public and active transport – achieved by increasing the share of journeys taken by cycling and walking and the development and delivery of a cohesive integrated, and affordable net zero public transport network;*
 - *Priority 2: Decarbonising road transport – With all new non-zero emission road vehicles. A fleet of fully zero emission road vehicles will remove the source of 91% of today's domestic transport GHG emissions;*
 - *Priority 3: Decarbonising how we get our goods through decarbonising freight systems and pioneering new zero emission technologies. A shift to zero carbon modes of transport goods and services, including greater use of rail and domestic maritime to achieve a net zero freight system before 2050;*
 - *Priority 4: Place-based solutions – sustainability will be at the heart of levelling up, with every place in the UK having its own net zero emissions transport network before 2050;*
 - *Priority 5: The UK as a hub for green transport, technology, and innovation – The UK will play a key role in the green revolution and will lead the deployment of wider future transport technologies; and*
 - *Priority 6: Reducing carbon in a global economy – the UK will significantly reduce the impact of aviation on the environment through a combination of new aerospace technology such as electric and hydrogen aircraft, development and commercialisation of sustainable aviation fuels, operational efficiencies, and market-based measures."*
- 3.35. The CSET Phase 2 Scheme aligns with the TDP through the following points:
- Facilitating modal shift by provision of new public transport options that provide an attractive alternative to the private car;
 - Supporting the net zero emission targets by potential modal shift and providing sustainable transport options;
 - Supporting decarbonisation by providing public transport connectivity in new areas, cycle parking the transport hub and bus stops, and supporting electric vehicle charging points; and
 - Ensuring the county has resilient transport infrastructure to adapt through the promotion and encouragement of sustainable travel and ensuring future capacity within the county's transport network. The delivery of the CSET Phase 2 Scheme should be seen as essential to support the ongoing growth of Cambridge, and the UK's commitments towards decarbonisation of the transport sector.

10 Point Plan for a Green Industrial Revolution (2020) & Net Zero Strategy: Build Back Better (2022)

- 3.36. The 10 Point Plan sets out the approach by the UK Government to build back better, support green jobs and generate a path towards Net Zero. Areas from the 10 Point Plan relevant to the CSET Phase 2 Scheme are:
- Green public transport, cycling and walking;
 - Protecting our natural environment; and
 - Zero-emission vehicles.
- 3.37. The Net Zero Strategy builds on the foundations set out in the 10 Point Plan. The Net Zero Strategy sets out how the UK can achieve its net zero target by 2050. This includes commitments to:

- “Increase the share of journeys taken by public transport, cycling and walking; and
- Invest £3 billion in the National Bus Strategy, creating integrated networks, more frequent services, and bus lanes to speed up journeys, and support delivery of 4,000 net zero emission buses and the infrastructure needed to support them”.

- 3.38. The CSET Phase 2 Scheme aligns with the 10 Point Plan and the Net Zero Strategy by shifting towards sustainable modes of transport and decarbonising private vehicles by increasing the share of journeys undertaken by public transport.
- 3.39. In addition, the Scheme also supports the shift towards zero emissions through provision of improved public transport access and connectivity to South East Cambridge as attractive alternatives to private car.

Bus Back Better (2021)

- 3.40. Bus Back Better is the national bus strategy for England with the central aim to increase patronage on buses first to pre-pandemic levels and then to exceed it.
- 3.41. The strategy aims to make buses more frequent, faster, more reliable, easier to understand, coordinated and cheaper.
- 3.42. The strategy recognises the role bus networks can play in connecting communities, providing access to employment opportunities as well as boosting economic growth and social inclusion. In order to make bus services more attractive, the strategy advocates this through making bus services faster and more reliable. Bus priority measures achieve this through allocation of road space for bus travel, traffic signal priority, bus gates, and clear and consistent signage. The Bus Back Better Strategy also supports more Bus Rapid Transport networks, using high-capacity buses on segregated bus-only roadways with stops.
- 3.43. The CSET Phase 2 Scheme align well with the Bus Back Better Strategy by:
- Improving public transport connectivity along the CSET Corridor by encouraging modal shift to Public Transport;
 - Improving User Experience of Public Transport through shelters, real-time passenger information, drop-off/pick-up facilities; and
 - Improving passenger satisfaction by providing, better, cheaper, and more frequent services.
- 3.44. Consequently, the CSET Phase 2 Scheme should improve the attractiveness of bus services and provide an alternative to the private vehicle which in turn will contribute to increasing patronage as well as developing the bus network and its connectivity in the South East Cambridge Corridor.

Cycling and Walking Investment Strategy (2022)

- 3.45. The second Cycling and Walking Investment Strategy (CWIS2) follows CWIS1 (2017) and reaffirms the government’s commitment to making walking, wheeling and cycling the natural choices for millions of journeys. The government has committed £2 billion of funding for active travel over 5 years. The primary aim of the investment is for 50% of all journeys in towns and cities to be walked or cycled by 2030.
- 3.46. CWIS2 sets out objectives and financial resources for the period April 2021 to March 2025. The aims and targets in CWIS1, alongside the vision set out in Gear Change (2020) have informed the revised set of 4 objectives to 2025 to:
- Increase the percentage of short journeys in town and cities that are walked and cycled from 41% in 2018/19 to 46% in 2025;
 - Increase walking activity, where walking activity is measured as the total number of walking stages per person per year, to 365 stages per person per year in 2025;
 - Double cycling where cycling activity is measured as the estimated total number of cycling stages made each year, from 0.8 billion stages in 2013 to 1.6 billion stages in 2025; and
 - Increase the percentage of children aged 5 to 10 who usually walk to school from 49% in 2014 to 55% in 2025.
- 3.47. The CSET Phase 2 Scheme contributes towards the goals of this strategy as the A11 Travel Hub will provide an interchange between different modes of transport such as walking, cycling, existing bus services and a new public transport route. The Travel Hub provision also encourages active

travel via cycling through secured and covered cycle parking and lockers. This will help encourage onward active travel through the use of the Active Travel Path which is shared by cyclists and pedestrians.

- 3.48. CSET Phase 2 in coordination with Linton Greenway which is being delivered as part of CSET Phase 1 is expected to positively impact the levels of active travel in South East Cambridge. The new route will enable easier sustainable travel and encourage walking and cycling activity in the area.

Gear Change (2020) and Gear Change: one year on (2021)

- 3.49. The Gear Change Plans outline the government's vision to improve walking and cycling in England. Actions are set out which are required at all levels of government. The most relevant aspects of the strategy are:

- Developing a safe, continuous, direct network for cycling in towns and cities, physically separated from pedestrians, highway traffic and connecting places people want to go. In order to increase cycling, cycling infrastructure will be improved and redesigned;
- Cycling infrastructure should be designed for significant numbers of cyclists and for non-standard cycles;
- Cycle parking must be included in substantial schemes, particularly in city centres, trip generators and in areas where people live; and
- Cycle routes must flow and feel direct and logical.

- 3.50. The CSET Phase 2 Scheme will contribute to the vision outlined in the Gear Change Plans through the active travel provision of the Scheme. The A11 Travel Hub will contain secure and covered cycle parking as well as a waiting room, toilets and lockers to encourage active travel and easy integration with other modes in the area.

- 3.51. The Scheme also promotes active travel via the Active Travel Path which can be used by pedestrians and cyclists which improving active travel connectivity and infrastructure in the travel corridor. CSET Phase 2 coordination with the Linton Greenway is expected to positively impact active travel levels in South East Cambridge.

Levelling Up Economic Programme (2022)

- 3.52. The Levelling Up the United Kingdom White Paper is a major economic programme that seeks to spread opportunities more equally across the country and reduce regional inequalities between the UK in terms of economic performance, services and opportunities. The Levelling Up programme is comprised of 12 national missions of which the following are most relevant to the CSET Phase 2 Scheme:

- Pay, employment and productivity will have risen in every area of the UK;
- Domestic public investment in R&D outside the Greater South East will increase by at least 40%;
- Public transport connectivity across the UK to be 'significantly closer to the standards of London'; and
- Well-being will have improved in every area of the UK.

- 3.53. The CSET Phase 2 Scheme aligns with the Levelling Up Economic Programme as it aims to improve public transport connectivity and accessibility in South East Cambridge. Communities will be connected to large employment sites and hubs in central Cambridge and South East Cambridge thereby supporting growth and productivity in the technology, biomedical and other clusters in South East Cambridge. The Scheme will encourage inward investment and growth of housing and development by future-proofing the transport network, as well as easing congestion and supporting the shift to sustainable public transport modes.

Regional Policy

Cambridgeshire Local Transport Plan (2011 – 2031)

- 3.54. The Cambridgeshire Local Transport Plan (LTP) is the county's plan that encompasses the transport opportunities and challenges in the region and sets out strategies and delivery plans to

address such challenges and bring about the opportunities to improve transport connectivity throughout Cambridgeshire. The plan introduces eight challenges for transport in Cambridgeshire:

- Challenge 1: Improving the reliability of journey times by managing demand for road space, where appropriate and maximising the capacity and efficiency of the existing network.
- Challenge 2: Reducing the length of the commute and the need to travel by private car.
- Challenge 3: Making sustainable modes of transport a viable and attractive alternative to the private car.
- Challenge 4: Future-proofing our maintenance strategy and new transport infrastructure to cope with the effects of climate change.
- Challenge 5: Ensuring people – especially those at risk of social exclusion – can access the services they need within reasonable time, cost, and effort wherever they live in the county.
- Challenge 6: Addressing the main causes of road accidents in Cambridgeshire.
- Challenge 7: Protecting and enhancing the natural environment by minimising the environmental impact of transport.
- Challenge 8: Influencing national and local decisions on land-use and transport planning that impact on routes through Cambridgeshire.

3.55. The Cambridgeshire LTP is of relevance for the CSETS Phase 2 given that this Scheme aims to address several of the challenges listed in the plan. Challenges 1 to 5 are addressed by the implementation of the Guided Busway, the travel hub, and the maintenance track, which all together aim to provoke a mode shift from private vehicle to sustainable modes, improving journey times, making more direct connections therefore reducing the length of commute and making sustainable modes of transport viable, attractive, and accessible for users along the A11 corridor southeast of Cambridge.

3.56. Furthermore, the mode shift to sustainable modes and the use of electric vehicles and provision of electric vehicle charging infrastructure will contribute to minimising environmental impact also addressing Challenge 7.

Greater Cambridge Greater Peterborough Strategic Economic Plan (2014)

3.57. The Greater Cambridge Greater Peterborough (GCGP) Strategic Economic Plan (SEP) aims to release significant potential for continued economic growth of greater Cambridge through a targeted range of interventions.

3.58. The SEP recognises transport corridors, especially, those that are close to key employment centres in Cambridge and Peterborough are experiencing high traffic growth with regular peak time congestion are also constrained in capacity.

3.59. The SEP recognises that the A1307 Haverhill to Cambridge corridor (CSET Phase 2 Scheme) is one of the major schemes promoted by the LEP and supported by GCGP.

3.60. The transport connectivity intervention package is one of the six packages prioritised by the SEP, and has the following aims:

- *“An integrated and reliable transport network that enables efficient movement of goods and people;*
- *A highly connected and efficient rail network linking key destinations;*
- *Sustainable transport capacity to support and unlock growth along key corridors/hubs; and*
- *Good and reliable access to and between the key economic clusters”.*

3.61. The CSET Phase 2 Scheme will contribute in addressing the challenges of high traffic growth with congestion along the CSET transport corridor to key employment sites in and around Cambridge. The Scheme will provide a sustainable alternative to car travel to alleviate the congestion around employment hubs such as the Cambridge Biomedical Centre. The Scheme also aligns with the aims of the SEP transport connectivity package through:

- Addressing commuting needs on a key radial route to Cambridge which serves major employment centres;
- Improving links between key employment centres and housing development along the corridor, thus in turn increasing the size of the labour market available for employers; and

- Improving connectivity between medical and enterprise campuses, employment hubs and Cambridge City Centre, and this supporting the growth of a space for innovation as well as supporting the economic growth of the region.

Transport Strategy for Cambridge City and South Cambridgeshire (2014)

- 3.62. The Transport Strategy for Cambridge City and South Cambridgeshire (TSCSC) provides a policy framework and programme of schemes for Cambridge City, South Cambridgeshire and its transport corridors that extend beyond the boundaries of the districts. As a strategy the TSCSC intends to help facilitate and support new development as well as consider how the transport network and trip patterns may develop in the longer term.
- 3.63. As part of the TSCSC, there are eight strategy objectives. These can be summarised as the following:
- accessibility within, to and from Cambridge and South Cambridgeshire;
 - good transport links between communities, jobs and services;
 - prioritising sustainable alternatives to the private car;
 - meeting air quality target and carbon targets whilst preserving nature;
 - ensuring quality of life;
 - encouraging healthy and active travel; and
 - managing the transport network efficiently.
- 3.64. Included within the TSCSC is consideration of the Haverhill-Cambridge corridor situated along the A1307 which is identified as experiencing queues when travelling into Cambridge as well as the constraints that may further occur with future growth and development planned at the Cambridge Biomedical Campus causing greater pressure on the A1307.
- 3.65. In response to this, identified interventions aim to create a high-quality public transport corridor by bus that serves as an alternative to the private car thereby encouraging modal shift by intercepting trips along the corridor to minimise additional vehicles in the corridor. Proposals for a shared use pedestrian and cycle path along the Guided Busway also supports the encouragement of cycling and walking on the transport network (Policy TSCSC 12 – Encouraging cycling and walking).
- 3.66. Considering the strategic location of the proposed A11 Travel Hub is situated within the Cambridge-Haverhill corridor and is adjacent to the Strategic Road Network (SRN), these aspects of the proposed development can be seen to facilitate sustainable growth (Policy TSCSC 7) by intercepting trips and inciting modal shift for travel towards Cambridge City Centre. Other chapters of this Transport Assessment detail how CSET Phase 2 can support shifts to sustainable modes for the final portion of journeys ensuring sustainable access to jobs and services (Policy TSCSC 9).

Cambridgeshire County Council's Climate Change and Environment Strategy (2022)

- 3.67. CCC's Climate Change and Environment Strategy was developed in response to the declaration of a climate emergency by CCC in May 2019 and updated in 2022.
- 3.68. CCC aims to "*Deliver net zero carbon emissions for Cambridgeshire by 2045, and support communities and our natural environment to adapt and thrive as the climate changes*".
- 3.69. CCC's vision is to deliver net zero carbon emissions in partnership with all stakeholders and the purpose of the strategy is to provide a clear statement of CCC's climate change and environmental objectives.
- 3.70. The Strategy has been developed around three key themes:
- "*Quantifying carbon footprints to inform and deliver Climate Change mitigation through efforts to reduce or prevent carbon emissions*
 - *Adaptation to cope with existing and future impacts of Climate Change; and*
 - *Enhancing and conserving natural capital such as wildlife, plants, air, water, and soils*".
- 3.71. Priority areas for the Climate Change mitigation theme (reducing the carbon footprint) relevant to the CSET Phase 2 Scheme are:

- Low carbon transport – prioritising walking, cycling, and public transport, and supporting the uptake of electric vehicles

- 3.72. By improving public transport connectivity between key employment sites in and around Cambridge, i.e., the Cambridge Biomedical Campus, Granta Park and Cambridge City Centre, the Scheme supports climate change mitigations by providing an attractive alternative to private car.
- 3.73. The Scheme will be part of a resilient transport and highway infrastructure that will help Cambridge adapt through the promotion and encouragement of sustainable travel and ensuring sufficient future capacity within the county's transportation network.
- 3.74. The Scheme will also contribute to reduction in air pollution through the provision of new and improved sustainable transport infrastructure and encouraging a shift to public transport modes. The reduced vehicle emissions can contribute to the protection of the natural capital of the county.

Cambridgeshire County Council's Transport Proposals Database (2023)

- 3.75. The Transport Proposals Database (TPD) was previously known as the Transport Investment Plan (TIP) up until October 2023. The TPD sets out the transport infrastructure, services and initiatives that are required to support the growth of Cambridgeshire.
- 3.76. The TPD is a complete list of all transport schemes that have policy-backing. It indicates the current funding status of schemes and their progress in delivery. The TPD also retains information on completed schemes, and schemes that are currently unfeasible to deliver.
- 3.77. The TPD is of relevance to the CSETS Phase 2 given that this Scheme and its components are present in the list of schemes that have policy-backing. Items 153, 154, and 155 of the Cambridge City and South Cambridgeshire schemes list¹⁰ are related to the proposed Scheme that currently remains unfunded.
- 3.78. In consideration of the CSET Phase 2 Scheme, the following items from TDP's December 2023 scheme list have been identified in Table 3-1.

Table 3-1 - Extract from CCC Transport Investment Plan June 2022

ID	Location	Scheme	Programme scheme is within
153	A1307 corridor, between Babraham Road Park & Ride site and Addenbrooke's Hospital	Bus Priority Measures	GCP CSET Phase 2
154	In the vicinity of Fourwentways, junction of A1307 with A11	New Park and Ride Site	GCP CSET Phase 2
155	CSET Phase 1. Cambridge South East Transport. A1307 corridor, between Granta Park/ new Park & Ride site and Addenbrooke's Hospital	Bus Priority Measures	GCP CSET Phase 2

- 3.79. The items identified in Table 3-1 are reviewed and updated regularly to take account of the changes in policy, legislation, funding, development proposals and scheme delivery.

Cambridgeshire and Peterborough Combined Authority Local Transport Plan (2020)

- 3.80. The Cambridgeshire and Peterborough Combined Authority Local Transport Plan (CPCA LTP) was adopted in January 2020. The CPCA LTP complements local transport policy and scheme development in order to support growth in the combined authority area. There has been particular focus on implementing schemes that tackle transport problems related to congestion and public transport connectivity

¹⁰ Cambridgeshire County Council (2023). Transport Proposals Database: Cambridge City and South Cambridgeshire list. Available at: [Transport Proposals Database - Cambridgeshire County Council](#)

- 3.81. As part of the CSET Phase 2 Scheme, the provision of the travel hub and the development of a Guided Busway route within the A1307 travel corridor is expected to reduce the congestion levels within central Cambridge by intercepting journeys within the travel corridor and extending the reach of sustainable travel options for more people who currently cannot access existing high-frequency public transport links.
- 3.82. This is relevant to the CPCA LTP's consideration of Cambridge's space constraints as a historic city which means greater car capacity provision within the city centre is not a viable nor attractive option. As a result, the CPCA LTP in paragraph 3.51 states that "more people need to walk, cycle or use public transport for their journeys, rather than driving as they do today"¹¹.
- 3.83. In consideration of the growth and development of the Cambridge Biomedical Campus and the role of CSET in providing sustainable access, section 3.81 and 82 states "*The Cambridge Biomedical Campus, located on the south-eastern fringe of Cambridge, is expanding rapidly, and is expected to be home to 26,000 workers by 2031. It will be linked directly to the A1307 corridor by the Cambridge South East scheme, currently being developed by the Greater Cambridge Partnership. This will deliver a segregated public transport corridor from Granta Park to the Cambridge Biomedical Campus and a new Park & Ride site near the A11, which will form part of the CAM network at opening. This will be combined with additional bus priority measures along the A1307 corridor to Haverhill, and a segregated path for pedestrians, cyclists, and horse riders. The improvements described above will significantly enhance the accessibility of the Cambridge Biomedical Campus...*"¹¹.
- 3.84. Policies that are related to CSET Phase 2 have been detailed below in Table 3-2.

Table 3-2 - Relevant CPCA LTP Policies to CSET Phase 2

Policy Item	Theme	Description	Relevant Policies
2.1	Planning and designing developments sustainably	Identifying how travel demand associated with development can be accommodated sustainably	a) Support the provision of sustainable connectivity to and within developments b) The design of parking
2.2	Expanding labour markets	Enabling the transport network to increase the effective size of labour markets by reducing the burden on our transport networks during peak periods, reducing the need to travel and improving accessibility by public transport	c) Support measures to reduce peak demand on the highway network d) Improve the accessibility and connectivity of our public transport links to expand our labour market catchments e) Invest in our highway network to improve accessibility
5.2	Ensuring transport security	Addressing personal safety and security issues on the transport network and improving the security of transport hubs	f) Addressing personal safety and security issues g) Improving the security of public transport stops, stations and hubs
6.2	Transport pricing and affordability	Improving public transport to make it an affordable alternative to the car and increasing affordability of travelling by bus and rail	h) Improve our public transport to provide an affordable alternative to the car i) Increase the affordability of travelling by bus and rail
7.3	Supporting and promoting	Promoting health and wellbeing by increasing the amount of physical activity	j) Reducing physical inactivity through active travel

¹¹ Cambridgeshire and Peterborough Combined Authority, 2020. Available at: <http://cambridgeshirepeterborough-ca.leadgenerastaging.com/wp-content/uploads/documents/transport/local-transport-plan/LTP.pdf> [Accessed 3 November 2022]

Policy Item	Theme	Description	Relevant Policies
	health and wellbeing	undertaken, reducing air pollution, improving the public and urban realm and increasing access to healthcare, leisure, employment and social activities	<p>infrastructure, education, training and promotion</p> <p>k) Reducing air pollution through supporting zero and low emissions transport options and developing green infrastructure</p> <p>l) Increasing ability to access health and social care, and leisure facilities/amenities</p> <p>m) Increasing ability to access wider opportunities – employment, social activities</p>

- 3.85. The CSET Phase 2 Scheme supports the policies outlined within the CPCA LTP. Policy 2.1 is fulfilled as the proposals of the CSET Phase 2 Scheme seek to accommodate future travel demand sustainably through the Guided Busway and EMAT which will allow for sustainable connectivity within the travel corridor and to the Cambridge Biomedical Campus which is important in considering the sustainability role of the A11 Travel Hub in relation to the wider corridor.
- 3.86. Policy 2.2 is met through the CSET Phase 2 Scheme as the A11 Travel Hub and the Guided Busway will accommodate future growth of the Cambridge Biomedical Campus thereby increasing the size of the labour market and reducing congestion in the travel corridor into Cambridge thereby reducing the burden on parts of the transport network.
- 3.87. Policy 6.2 is fulfilled through the CSET Phase 2 Scheme through the offering of free parking at the A11 Travel Hub and improved public transport connectivity and reliability via the Guided Busway that will connect to the Cambridge Biomedical Campus which should induce modal shift and make public transport in the travel corridor a more attractive option.
- 3.88. Policy 7.3 is fulfilled through the EMAT's provision of access to pedestrians, cyclists and equestrians which will support and promote active travel within the travel corridor that can be used for commuting or leisure.

Cambridgeshire and Peterborough Combined Authority Local Transport and Connectivity Plan (2023)

- 3.89. The Local Transport and Connectivity Plan (LTCP) is the Combined Authority's long-term strategy to make transport in Cambridgeshire and Peterborough better faster, greener, and more accessible for everyone.
- 3.90. The LTCP was approved on November 29th, 2023, by the Combined Authority's Board and therefore should be considered in relation to the CSET Phase 2 Scheme.
- 3.91. In the LTCP, there are six revised themes:
- "Productivity
 - Connectivity
 - Climate Change
 - Environment
 - Health
 - Safety"
- 3.92. Within the LTCP, CSET as a project is mentioned under the "East-the biotech corridor and towards Newmarket and Haverhill" section of the policy document. Here, it is stated that:
- 3.93. "CSET will link the [Cambridge Biomedical] campus to other major employment sites along the A1307 corridor towards Haverhill connecting the internationally significant life sciences and R&D clusters at Babraham Research Campus and at Granta Park.

- 3.94. *The Scheme will see a new segregated public transport route between the A11, Sawston, Stapleford and Great Shelford and the Biomedical Campus as well as active travel, bus, and road safety improvements along the A1307. Additional parking spaces will be provided at Babraham Road P&R, along with a new travel hub at the junction of the A11 and A1307. This will allow drivers to transfer to sustainable transport modes well before they approach the city, as well as being integrated with local bus and active travel networks. Alongside the public transport route will be a new active travel path, which will complement the Sawston and Linton Greenways¹².*
- 3.95. Considering these relevant sections of the LTCP, the CSET Phase 2 Scheme does fulfil the plans laid out in this document, the revised themes offered in the LTCP should also be considered as this policy document becomes finalised and published in the future.

Cambridgeshire County Council Draft Local Cycling and Walking Infrastructure Plan (2022)

- 3.96. The Cambridgeshire County Council Draft Local Cycling and Walking Infrastructure Walking Plan (LCWIP) is a policy document that aims to take a long-term approach to developing local cycling and walking networks. Whilst CCC's LCWIP is currently a Draft that at the time of authoring is waiting for approval by CCC's Highways and Transportation Committee, it is important to take note of its contents as this policy comes into fruition over the long-term.

Partnering for Prosperity: the Cambridge – Milton Keynes – Oxford Arc (2017)

- 3.97. The Partnering for Prosperity is a deal that aligns public and private interests behind the delivery of significant east-west infrastructure and major new settlements, and which seeks commitment to faster growth through a joined-up plan for jobs, homes and infrastructure in the Cambridge, Milton Keynes, and Oxford (CaMkOx) arc. This deal for prosperity commits to:
- Deliver new transport infrastructure unlocking opportunities for transformational development;
 - Provide mechanisms and resources to enable new settlements and wider housing growth;
 - Double the rate of housebuilding, attracting the talent and skill that business need to grow;
 - Defining a long-term vision for the arc with the right governance to support delivery;
 - Connect thriving local communities with access to jobs and services, and homes for future generations; and
 - Support quality of life and wellbeing for new and existing residents, respecting the natural environment.
- 3.98. Cambridge, Milton Keynes, and Oxford are amongst the UK's most productive, successful, and fast-growing cities. They host a skilled labour force, cutting edge research facilities and world-class technology clusters. One of these clusters is the Cambridge Biomedical Campus which is within the scope area of the CSETS Phase 2 Scheme and therefore is of relevance to this deal. Furthermore, the Scheme is in line with the first objective of this deal for economic growth through the delivery of new transport infrastructure and services that will improve connectivity and allow more people to access jobs and opportunities.

Cambridge and Peterborough Economic Growth Strategy

- 3.99. The Cambridge and Peterborough Economic Growth Strategy (CPEGS) is a strategy that envisions that Cambridgeshire and Peterborough is the place where unique business, natural and research assets tackle world problems whilst creating good jobs and healthy lives for all our residents in all our places. We are globally leading and competitive, and also more equal and sustainable. This EGS lays out six key topics where investment should be centred to achieve the vision:
- Reducing inequalities: investing in the community and building social capital;
 - Climate and nature: restoring depleted natural capital and addressing impacts of climate change such as water use and flooding;

¹² Cambridgeshire & Peterborough Combined Authority, 2022. Draft Local Transport and Connectivity Plan. Available at: <<https://yourltcp.co.uk/wp-content/uploads/2022/05/Draft-LTCP.pdf>> [Accessed 3 November 2022]

- People: build human capital, the health, and skills of the population to rise productivity and quality of life;
- Infrastructure: from digital and public transport connectivity to water and energy networks;
- Innovation: building on reputation for new thinking, new technologies, and ideas; and
- Financial and systems: improving institutional capital and ability to attract inward investment.

3.100. The CSETS Phase 2 is relevant to the CPEGS given the purposes of the Scheme, which are in line with what the EGS states in its 'Infrastructure' section¹³:

- *"Cambridgeshire and Peterborough faces high demand on existing transport infrastructure, with the CPIER in 2018 recognising the long-term barriers to growth and wellbeing caused by transport congestion and low public transport access. Road congestion is a major issue in Cambridge, with major air quality and related health consequences. Lack of accessibility to employment centres by public transport and prohibitive journey times are especially noteworthy issues in Cambridge and Peterborough."*; and
- *"Innovative multi modal transport solutions, reducing carbon emissions and providing more responsive journey times for commuters are key priorities, alongside local level active travel schemes, better bus networks and infrastructure."*

Cambridge and Peterborough Independent Economic Review (2018)

3.101. The Cambridge and Peterborough Independent Economic Review (CPIER) evidences the fast rate of economic and employment growth in the region and highlights the importance of planning now to ensure that strong growth will be sustainable and more inclusive. This review is based on four possible scenarios of development: densification, dispersal, fringe growth, and the most relevant to this Scheme, transport corridors.

3.102. On transport corridors, the CPIER¹⁴ states that "...Rather, it should be seen primarily as a way of expanding the economic benefits of the urban area. Like densification, it maintains the strength of the city core by not attempting to remove jobs and disperse them. It also has a similar focus on accessibility of goods and services, as all new dwellings are designed to be within easy reach of employment sites. By ensuring good quality public transport is in place before development, the number of those new residents who will use the transport is maximised. This is also likely to be the best way to stretch some of the high-value businesses based within and around Cambridge out into wider Cambridgeshire and Peterborough."

3.103. Furthermore, in relation with major transport infrastructure programmes and relevant to the CSETS Phase 2, the CPIER states the following:

- *"The growth seen in Cambridge and South Cambridgeshire seems very unlikely to be sustained in the future without further and significant investment in infrastructure. Businesses are already noting this as a major concern. A failure to invest in the development of infrastructure in and around Cambridge is the single biggest endogenous risk to growth facing the area."*

Local Policy

South Cambridgeshire Local Plan (2018)

3.104. Adopted by South Cambridgeshire District Council in 2018, the South Cambridgeshire Local Plan (SCLP) sets out land allocations and planning policies of the council to guide future development of the area up until 2031.

3.105. The aim of the SCLP is to balance growth and conservation of the area in order to ensure South Cambridgeshire can remain one of the top places in the country to live and work. This is without compromising the sustainability of communities or the environment.

¹³ CPCA, (2023). Cambridge and Peterborough Economic Growth Strategy (p. 13). Available at: [Research & Strategy | CPCA | Combined Authority \(cambridgeshirepeterborough-ca.gov.uk\)](https://www.cambridgeshirepeterborough-ca.gov.uk/research-strategy-cPCA-combined-authority)

¹⁴ CPCA (2018). Cambridge and Peterborough Independent Economic Review. Available at: [CPIER - Final Report](#)

3.106. Chapter 10 'Promoting and Delivering Sustainable Transport and Infrastructure' mentions that whilst South Cambridgeshire is a rural district containing several isolated villages with car as a transport mode of necessity, the connectivity offered by private car needs to be managed with mitigation of the effects of air quality and congestion.

3.107. The relevant policy from chapter 10 is listed below:

Policy TI/2: Planning for Sustainable Travel

3.108. Policy TI/2 whilst mainly addressed to developers has relevance to CSET Phase 2 due to condition that *"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"*¹⁵.

3.109. Taking this policy into consideration, CSET Phase 2 through its proposals demonstrates increased accessibility to the Cambridge Biomedical Campus and potentially further onward travel to Cambridge City Centre via the Guided Busway and EMAT which satisfies this particular policy by catering for travel demand through increasing accessibility to public transport, walking and cycling through the Scheme.

Cambridge Local Plan (2018)

3.110. The Cambridge Local Plan (CLP) was adopted in 2018 and contains Cambridge City Council's strategy, objectives and vision for spatial planning requirements and future development up until 2031. Within the CLP, Section 2 'The Spatial Strategy' and Section 9 'Providing Infrastructure to Support Development' are most relevant to the CSET Phase 2 Scheme and are detailed below for review:

Policy 5: Sustainable transport and infrastructure

3.111. Policy 5 sets out that proposals for developments must be in line with the implementation of the Cambridgeshire Local Transport Plan and the Transport Strategy for Cambridge and South Cambridgeshire with Cambridge City Council working with other partners to implement transport schemes that improve connectivity across the region and increases the use of sustainable modes of transport to and from Cambridge.

3.112. Specifically, the following is supported in principle:

- *"delivery of local and strategic transport schemes, subject to the outcome of up-to-date, detailed assessments and consultation, where appropriate;*
- *Promoting greater pedestrian and cycle priority through and to the city centre, district centres and potentially incorporating public realm and cycle parking improvements;*
- *Promoting sustainable transport and access for all to and from major employers, education and research clusters, hospitals, schools and colleges;*
- *Working with partners in supporting the TSCSC's aim for a joined-up city-wide cycle and pedestrian network by addressing 'pinch-points', barriers and missing links;*
- *Linking growth to the proposed city-wide 20 mph zone; and*
- *Easing pressure on the air quality management area (AQMA) in the city centre."*¹⁶

3.113. Taking this policy into consideration, the CSET Phase 2 Scheme through the proposed A11 Travel Hub should fulfil primarily the first three and final principles. This is as part of GCP's Transport Investment Plan which through the Guided Busway will promote sustainable transport and access to the Cambridge Biomedical Campus as well as active travel access onwards to the city centre through the parallel active travel path for cyclists and pedestrians. In addition to this, by intercepting private car journeys within the travel corridor and inducing modal shift onto public transport, this should contribute to the easing air quality near to the city centre.

¹⁵ South Cambridgeshire District Council, 2018. South Cambridgeshire Local Plan Chapter 10 Sustainable Transport and Infrastructure. Available at: <<https://www.scambs.gov.uk/media/17743/chapter-10-sustainable-transport-and-infrastructure.pdf>> [Accessed 3 November 2022]

¹⁶ Cambridge City Council, 2018. Cambridge Local Plan October 2018. Available at: <<https://www.cambridge.gov.uk/media/6890/local-plan-2018.pdf>> [Accessed 3 November 2022]

Policy 17: Cambridge Biomedical Campus (including Addenbrooke's Hospital) Area of Major Change

- 3.114. Policy 17 states that development proposals for the Cambridge Biomedical Campus will be permitted where development can be demonstrated *"to meet local, regional or national health care needs or for biomedical and biotechnology research and development activities within class B1(b), related higher education and sui generis medical research institutes.*
- 3.115. *Associated support activities for the site as a whole, including a hotel, seminar conference and centre and small scale A1 (local shop), A3 (café), A4 (public house) and D1 (creche) type uses, would be acceptable to meet the needs of employees and visitors and to add to the vibrancy of the area"*¹⁶.
- 3.116. The most relevant elements of criteria to CSETS Phase 2 for development in the Cambridge Biomedical Campus are that proposals should:
- 3.117. *"include measures to enhance access to the Cambridge Biomedical Campus including for cyclists, pedestrians, wheelchair users and other disabled people, and mitigate the impact on the existing road network and parking in the surrounding area;*
- 3.118. *include provision for the extension of existing conventional bus services, the Cambridgeshire Guided Busway and Park and Ride services to meet the needs of the resident and working populations, including disabled people"*¹⁶.
- 3.119. Taking these points into consideration against the context of Cambridge Biomedical Campus' future growth and development, the CSET Phase 2 Scheme will support the enhancement and further provision of public transport, pedestrian and cycle access to the Cambridge Biomedical Campus helping facilitate its growth.

Policy 80: Supporting sustainable access to development

- 3.120. Policy 80 states *"Development will be supported where it demonstrates that prioritisation of access is by walking, cycling and public transport, and is accessible for all"*¹⁶.
- 3.121. The CSET Phase 2 Scheme supports Policy 80 through the provision of improved public transport through the Guided Busway and improved cycle and pedestrian access through the EMAT.

Policy 81: Mitigating the transport impact of the development

- 3.122. Policy 81 states that development will only be permitted where there is not an unacceptable transport impact and as a result development proposals will require transport assessments to be undertaken which conform to thresholds set in the latest Cambridgeshire County Council guidance.
- 3.123. This Transport Assessment for the development of the CSET Phase 2 Scheme fulfils this policy by assessing the impact of the development proposals in line with CCC guidance.

Cambridgeshire County Council's Transport Assessment Requirements (2019)

- 3.124. Transport Assessment guidance has been produced by CCC with the intention of providing guidance for developers, their agents, applicants, and local authority officers on when a Transport Assessment is required and what it should contain.
- 3.125. Guidance provided by CCC gives different thresholds for when a Transport Assessment is needed which is conditional on land use proposed in a development. It is advised that any development which produces more than approximately 400 person trips per day or proposes 100 or more parking spaces will require a Transport Assessment.
- 3.126. As the proposed A11 Travel Hub will contain an excess of 100 parking spaces and will likely meet the threshold of person trips generated per day this Transport Assessment is required to outline the impact of the proposed development by elaborating the existing transport conditions, future transport conditions and how the development may impact future years.

Cambridge Air Quality Management Plan (2018-2023)

- 3.127. Air Quality in Cambridge is monitored through the Local Air Quality Management (LAQM) process. An Air Quality Management Area (AQMA) was introduced in 2004 as a result of excessive Nitrogen Dioxide (NO₂) with the intentions to improve air quality and to bring levels below the National Air Quality objectives.

- 3.128. The Cambridge Air Quality Action Plan outlines the priorities for maintaining and improving air quality as Cambridge continues to grow. Cambridge City Council, the Greater Cambridge Partnership and Cambridgeshire County Council have worked together to identify a range of actions required.
- 3.129. The Action Plan has been developed in recognition of the legal requirement to work towards Air Quality Strategy (AQS) objectives under Part IV of the Environment Act 1995 and relevant regulations made under said part and to meet the requirements of the Local Air Quality Management (LAQM) statutory process. The key objective of this plan is to encourage, enable and require, where appropriate, the shift from internal combustion engine vehicles to low emission petrol hybrid and ultra-low emission electric vehicles.
- 3.130. The plan priorities are to tackle emissions from transport through a range of hard and soft measures. The relevant areas of action are:
- Reduce emissions from all traffic/other traffic by providing better public transport; and
 - Maintaining low emissions through the planning process and long-term planning.
- 3.131. The CSET Phase 2 Scheme aligns with LAQM through:
- Providing public transport improvements and improved Travel Hub facilities that will encourage modal shift to more sustainable transport modes thereby reducing the number of single occupancy vehicle trips into Central Cambridge;
 - Reducing the impact of transport on the environment including air quality from emissions by providing new and improved public transport connectivity, cycling parking facilities at the hub and at bus stops and electric vehicle charging points; and
 - Be operated by electric public transport vehicles, reducing the emissions generated by the high-quality passenger transport fleet when compared to standard buses.

Cambridgeshire and Peterborough Local Industrial Strategy (2019)

- 3.132. The Cambridgeshire and Peterborough Local Industrial Strategy sets out how Cambridgeshire and Peterborough will maximise the economy's strengths and remove barriers that remain to ensure the economy is fit for the future. The Local Industrial Strategy outlines three priorities for Cambridgeshire and Peterborough's economy:
- Improve the long-term capacity for growth in Greater Cambridge by supporting the foundations of productivity;
 - Increase sustainability and broaden the base of local economic growth; and
 - Expand and build upon the clusters and networks that have enabled Cambridge to become a global leader in innovative growth.
- 3.133. The strategy recognises the importance of transforming transport and infrastructure capacity to maximise economic growth in the area. The businesses surveyed to inform the evidence base presented in the Local Industrial Strategy suggested that insufficient infrastructure is hampering productivity growth and is set to increase as a problem over the next decade. The existing transport network in Cambridge was designed for a small town and is now struggling to cope with the weight of commuters looking to work in the city and on the periphery.
- 3.134. The strategy highlights that the transport issues will significantly reduce the success of Greater Cambridge if they are not dealt with. It cites that transport in the region is a limitation, with businesses stressing that 'better road networks and finding a solution to reduce traffic congestion in Cambridge' was a key priority¹⁷.
- 3.135. The delivery of the CSET Phase 2 Scheme is well aligned with the three priorities of the Cambridgeshire and Peterborough Local Industrial Strategy. The Scheme will deliver additional capacity to the transport network and provide improved connectivity to key economic hubs.

¹⁷ Department for Business, Energy & Industrial Strategy, 2019. Cambridgeshire and Peterborough Local Industrial Strategy. Available at: < <https://www.gov.uk/government/publications/oxford-cambridge-arc-local-industrial-strategies/cambridgeshire-and-peterborough-local-industrial-strategy> > [Accessed 3 November 2022]

- 3.136. The Scheme will also support ongoing growth at the Cambridge Biomedical Campus, Granta Park, Babraham Research Campus and holds potential to unlock further undeveloped land in Southeast Cambridge, encouraging investment and sustained economic growth.
- 3.137. The delivery of the CSET Phase 2 Scheme should be seen as essential to supporting the ongoing growth of Cambridge, addressing existing issues across Southeast Cambridge, futureproofing the transport network, and enabling future transport solutions.

Emerging Greater Cambridge Local Plan

- 3.138. The Greater Cambridge Local Plan is an emerging document that will replace the respective local plans of Cambridge City Council and South Cambridgeshire District Council. The plan is expected to be adopted in 2024 or 2025. This plan is still emerging but as it develops, it must be considered alongside the existing local plans.

Greater Cambridge City Deal (2014)

- 3.139. The Greater Cambridge City Deal is a deal between the national government and Greater Cambridge to allow Greater Cambridge to maintain and grow its status as a prosperous economic area in the country. It acknowledges the region's strong track record of delivering growth and seeks to support those existing, and new, businesses in achieving their full potential. This deal aims to:
- create an infrastructure investment fund with an innovative Gain Share mechanism;
 - accelerate delivery of 33,480 planned homes;
 - enable delivery of 1,000 extra new homes on rural exception sites;
 - deliver over 400 new Apprenticeships for young people;
 - provide £1bn of local and national public sector investment, enabling an estimated £4bn of private sector investment in the Greater Cambridge area¹⁸;
 - create 45,000 new jobs; create a governance arrangement for joint decision making between the local councils.
- 3.140. According to the deal, in order to increase jobs and economic growth, the city region needs to accommodate businesses and research centres and the people who work in them ensuring ease of movement between key economic hubs. To achieve this, and quoting the deal:
- 3.141. *"The backbone of the proposed strategy is a transport network to link areas of population and employment within the City Deal area. There will be new orbital bus routes around Cambridge and new high quality public transport links into Cambridge on key corridors, connecting with major employment centres. There will be a comprehensive network of pedestrian and cycle routes within Cambridge and the main radial routes will have high quality bus priority measures."*¹⁹
- 3.142. The Greater Cambridge City Deal is of relevance to the CSETS Phase 2 given the nature of this Scheme. The Scheme is in line with the aforementioned statement by providing new, direct, and segregated public transport, active travel infrastructure and a travel hub that aims to intercept private vehicle journeys and induce a mode shift towards sustainable transport modes.

Summary of Policy Review

- 3.143. The policy review has examined a wide range of policies that sit at the national, regional, and local level. Overall, there are numerous policies that the CSET Phase 2 Scheme relates to and adheres to. Through highlighting the Scheme's alignment with policies, it has shown that the CSET Phase 2 Scheme will achieve numerous strategic policy objectives by improving the public transport network in Southeast Cambridge and within South Cambridgeshire by intercepting private car journeys and inducing modal shift onto sustainable modes of transport through the Guided Busway and EMAT. These will facilitate journeys by public transport and active travel.

¹⁸ It should be noted that the GCP are now discussing funding opportunities with the Ministry of Housing, Communities and Local Government (MHLG).

¹⁹ Deputy Prime Minister's Office (2014). Greater Cambridge City Deal. Available at: [Greater_Cambridge_City_Deal_Document.pdf \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/304421/Greater_Cambridge_City_Deal_Document.pdf)

- 3.144. In summary, the Scheme has a well aligned strategic fit with multiple policies and offers the potential for further undeveloped land to be unlocked for further investment and sustained economic growth as well as supporting sustainable growth of the CBC which stands as a centre of international importance in biomedical research.

4. Strategic Modelling and Local Junction Modelling Methodologies

Strategic Modelling Overview

- 4.1. This section of the TA summarises the Strategic Modelling work that has been undertaken by Atkins to assess the impact of the CSET Phase 2 development on the local highway network. The modelling framework used has been developed by Cambridgeshire County Council and is actively used by the Greater Cambridge Partnership and the Greater Cambridge Shared Planning Service for assessing their respective major schemes and Local Plan scenarios. The spatial detail of the transport model covers the Cambridgeshire Districts of Cambridge City, South Cambridgeshire, Huntingdonshire, and East Cambridgeshire, with all adjacent districts (Bedfordshire, Fenland, Suffolk, Essex, and Hertfordshire) included in the model as several external zones with certain key towns in those district zones picked out as specific zones (such as Newmarket, Haverhill and Royston). The model consists of a demand model, coupled to assignment models for highway, public transport (rail, bus, guided bus and Park and Ride) as well as cycle and walk networks. The model is a traditional four stage transport model (Trip Generation, Trip Distribution, modal split and assignment) which provides mode specific forecasts from future years, pivoted from the demand model base year (in this case 2015).
- 4.2. CCC's Cambridge Sub-Regional Model (CSRM2) has been used to model the impact of the CSET Phase 2 Scheme on the wider highway network. The CSRM2 amalgamates transport demand, transport infrastructure with modelling on housing and employment. The use of the CSRM2 model has been discussed with the CCC Transport Modelling Manager and it is considered appropriate for the assessment of the impact of the CSET Phase 2 Scheme, given the intention of the Scheme to change travel behaviour and support housing and employment growth within the CSET corridor. The characteristics and outputs of the CSRM2 transport modelling framework which are particularly relevant to the CSET corridor are its ability to provide forecasts of Guided Bus, Park and Ride, cycle and walking and conventional bus whilst comparing directly with the conditions of the prevailing car-based highway mode across the forecast years.

Strategic Modelling Methodology

- 4.3. CSRM2 has a 2019 base year, as well as future years of 2029 and 2041, each year assesses scenarios of 'Do Minimum' (DM) and 'Do Something' (DS). The 'Do Minimum' scenarios represent a forecasted future without the CSET Phase 2 Scheme, whereas the 'Do Something' scenarios represent a future with the Scheme. The comparison between two scenarios shows the net impact of the CSET Phase 2 Scheme. The DM scenarios include proposed developments and infrastructure schemes within the modelled area that are classified as near certain, more than likely and reasonably foreseeable to be delivered. Proposed developments are listed, and classified regarding their likelihood of being implemented, in the Uncertainty Log. Therefore, the Uncertainty Log lists those proposed developments and infrastructure schemes that have been included in the DM scenarios.
- 4.4. The original Cambridgeshire SATURN model was built for 2026 and forecasted for 2041, however it has been updated to a 2029 opening year to reflect the revised opening year of the CSET Phase 2 Scheme. The 2041 future year has remained as it was in the the original Cambridgeshire SATURN model. The supply side of the model will remain closely aligned the 2026 network apart from some adjustments to reflect interpolated 2029 values. Demand for the 2029 model has been interpolated using demand matrices from 2026 and 2041. For this TA, the focus is on the park and ride patronage and net changes in highway demand due to modal transfer and better public transport connectivity.
- 4.5. In November 2023, Transport Appraisal Guidance (TAG) unit M4 covering Forecasting and Uncertainty was updated to include Appendix B which details the Department for Transport (DfT) expectations of how models developed before the Covid 19 pandemic should be adjusted in a proportionate manner to provide suitably adjusted forecasts to reflect the residual (but potentially permanent) change in travel patterns that Covid 19 has left as a legacy. The guidance puts forward three potential methods of adjustment, the simplest and most transparent being Method 3 whereby

post-model adjustments are made to demand forecasts. Method 3 was adopted by the DfT and applied to their own National Transport Model (NTM) demand forecasts, with reductions being applied to trip purpose and vehicle type. The same method and purpose reductions that were applied to NTM have been applied to the CSETS forecasts.

Local Junction Modelling Methodology

- 4.6. In addition to the strategic modelling, detailed junction capacity modelling was undertaken using industry-standard computer simulation software to inform parameters to be used in the strategic traffic model and examine the impact of the proposed development on the local highway network. The scope of the local junction modelling was agreed through Transport Assessment scoping discussions held between Atkins and CCC. The formal scoping response provided by CCC is included in Appendix A.2.
- 4.7. In reporting the results of the local junction modelling, the junction approach arms are assessed on the delay per passenger car unit (PCU) equivalent in seconds, the maximum queue lengths in PCU's and the traffic demand to capacity ratio presented as ratio of flow to capacity (RFC) for priority junctions, including roundabouts, and Degree of Saturation (DOS) for signal-controlled junctions.
- 4.8. Demand to capacity ratios of below 80% indicate that junctions are operating well within practical capacity and delays and traffic congestion are unlikely. Ratios between 80 and 90% indicate that junctions are approaching practical capacity and that delays and traffic congestion can occur during periods when traffic levels are above typical levels. Ratios between 90 and 99% indicate that a junction is operating over practical capacity, but within theoretical capacity, meaning that some intermittent traffic congestion and delay is likely. Demand to capacity ratios over 99% indicate junctions are operating over both practical and theoretical capacity and frequent and persistent traffic congestion and delay is therefore highly likely.

Local Junction Modelling Scope

- 4.9. Following agreement with CCC on the scope of the local junction assessments required, the following junctions have been subject to detail junction modelling:
- A1307/A11 Junction
 - A1307/Travel Hub Roundabout
 - Francis Crick Avenue/CGB Junction
 - Francis Crick Avenue/Dame Mary Archer Way/Addenbrookes Road Junction

5. Baseline Transport Conditions

- 5.1. This section outlines the baseline transport conditions in the wider CSET corridor which includes a description of the existing park and ride facilities that serve Cambridge. In addition, there is an audit of both the local walking and cycling facilities and the local highway network.

Existing Cambridge Park & Ride Capacity

- 5.2. There are five existing 'inner' Park & Ride sites that serve Cambridge by bus. These are: Madingley Road, Trumpington, Babraham Road, Newmarket Road and Milton. These sites were designed to relieve congestion and parking pressure in Cambridge City by intercepting trips on approach to the city.
- 5.3. Table 5-1 details the number of spaces available at each of the Park & Ride sites. The Babraham Road Park & Ride site is situated in closest proximity to the proposed A11 Travel Hub for the CSET Phase 2 Scheme.

Table 5-1 - Car Parking Spaces at Existing Cambridge Park & Ride sites

Park & Ride Site	Total Amount of Parking Spaces
Madingley Road	930
Trumpington	1,600
Babraham Road	1,458
Newmarket Road	873
Milton	792
Total	5,653

- 5.4. An assessment of mean utilisation rates across all five existing 'inner' Park & Ride sites found that, across all five sites, mean utilisation rates were at approximately 74% of capacity on a weekday, 44% on a Saturday and 22% on a Sunday. Recorded weekday mean utilisation rates were highest at the Trumpington Park & Ride and the Babraham Road Park & Ride sites, which are the two closest sites to the proposed A11 Travel Hub. From this assessment, it was determined that both Trumpington and Babraham Road Park & Ride sites were reaching 100% occupancy more frequently in 2018 and 2019 and therefore were exceeding practical capacity when taking into consideration CCC's operational target practical capacity level of 85%.

Babraham Road Park & Ride

- 5.5. The Babraham Road Park & Ride site currently represents the existing Park & Ride provision within the CSET travel corridor and is located on the border between Cambridge City and South Cambridgeshire to the south east of Cambridge City Centre.
- 5.6. The Babraham Road Park & Ride contains the following facilities:
- 1,458 parking spaces – of which there are 16 Parent and Child bays, 10 Blue Badge Holder bays and 4 electric vehicle charging bays; and
 - 250 cycle parking spaces with cycle lockers available.
- 5.7. In addition, there is a waiting area that contains indoor heating, vending machines, disabled accessible toilets and a baby changing area.

Bus Services

- 5.8. Babraham Road Park & Ride is served by a dedicated Park & Ride bus service. Service levels are outlined below in Table 5-2.

Table 5-2 - Babraham Road Park & Ride Service Levels

	Weekday services and departure times	Saturday services and departure times	Sunday services and departure times
Outbound to Cambridge	6 buses per hour 06:48-18:36	6 buses per hour 07:48-18:24	5 buses per hour 08:50-17:20
	4 buses per hour 18:48-19:43	5 buses per hour 18:36-19:43	2 buses per hour 17:35-17:50
Inbound to Babraham Road Park & Ride	6 buses per hour 07:12-17:48	6 buses per hour 08:12-17:36	5 buses per hour 09:20-17:50
	5 buses per hour 18:00-18:56	5 buses per hour 17:48-18:36	2 buses per hour 18:05-18:20
	4 buses per hour 19:16-20:16	4 buses per hour 18:56-19:56	

Stagecoach (2022); Trveline (2022)

- 5.9. The service tends to operate on a frequency of one bus every 12 minutes between Babraham Road Park & Ride and Cambridge City Centre. Along the route, the service calls at the CBC (Addenbrooke's Hospital), Hills Road Sixth Form College, Cambridge Leisure Park, Cambridge Railway Station and Downing Street.
- 5.10. Average travel times from Babraham Road Park & Ride to the CBC is 5 minutes, 11 minutes to Cambridge Railway Station and 21 minutes to Cambridge City Centre (Downing Street). Figure 5-1 details the full route of the Babraham Park & Ride Route.

Figure 5-1 - Babraham Road Park & Ride Route



Source: <https://cambridgeparkandride.info/babrahamroad.shtml> [Accessed 21 September 2022]

Boarding and Alighting Surveys

- 5.11. Boarding and alighting surveys were undertaken at the Babraham Park & Ride site between Tuesday 19th and Thursday 21st November 2019. The bus boarding and alighting survey data taken from surveys undertaken in 2019 is considered to still be representative given that, from the Quarterly Transport Data Update information provided by CCC's Policy and Data Insights team, recorded passenger numbers at the Babraham Road Park & Ride site have recovered to within +/- 10% of pre-Covid levels between March and September 2024.
- 5.12. These surveys counted the number of passengers boarding and alighting from each Park & Ride service between 0600-2100. The results of these surveys are summarised in Table 5-3.

Table 5-3 - Summary of Boarding and Alighting Surveys

Time Period	Average Number of Boarders	Maximum Number of Boarders
0700-0800	38	62
0800-0900	37	85
Time Period	Average Number of Boarders	Maximum Number of Boarders
1600-1700	30	60
1700-1800	28	78

- 5.13. From the boarding and alighting surveys, it was determined that demand can still be accommodated with passengers standing when considering accepted 'seated plus standing' capacities and the approximate capacity of double decker buses, which is around 80 passengers in total when all seated plus standing passengers are included, although it should be noted that this capacity can vary slightly depending on the specific model and configuration of the bus.

Park & Ride Charges

- 5.14. Babraham Road Park & Ride offers users who drive to the site free parking for up to 18 hours, after which a charge applies. The following charges are:
- 18-24 hours: £10
 - 24-28 hours: £20
 - 48-72 hours: £30
- 5.15. There is a maximum stay of 72 hours with payments taken through the RingGo app or via mobile phone through a code listed on the information board of the Park & Ride site.
- 5.16. Cycle parking at the Sheffield stands is free, but users of the cycle lockers are charged £10 a month by CCC.

Bus Fare

- 5.17. Park & Ride buses at Babraham Road Park & Ride are operated by Stagecoach.
- 5.18. Bus fares are £3 for a city centre return (inclusive of stops in between) as well as a £2.50 short hop return that is available between Babraham Road Park & Ride and Addenbrooke's hospital. Group tickets can also be bought for a city centre return for £8.50.
- 5.19. In addition, normal Stagecoach tickets can be bought which includes singles, Dayriders and Megariders. All tickets can be bought from the driver either through cash or contactless card payments. Up to three children can travel free with each fare-paying adult.
- 5.20. Concessionary passes allow free travel after 0930 and anytime at weekends. Children travelling with concessionary pass holders require separate tickets.

Proposed Site Location – A11 Travel Hub

- 5.21. The proposed site of the A11 Travel Hub is situated south of the A1307 (Cambridge Road) and west of the A11 which is approximately 500m from the village of Babraham.

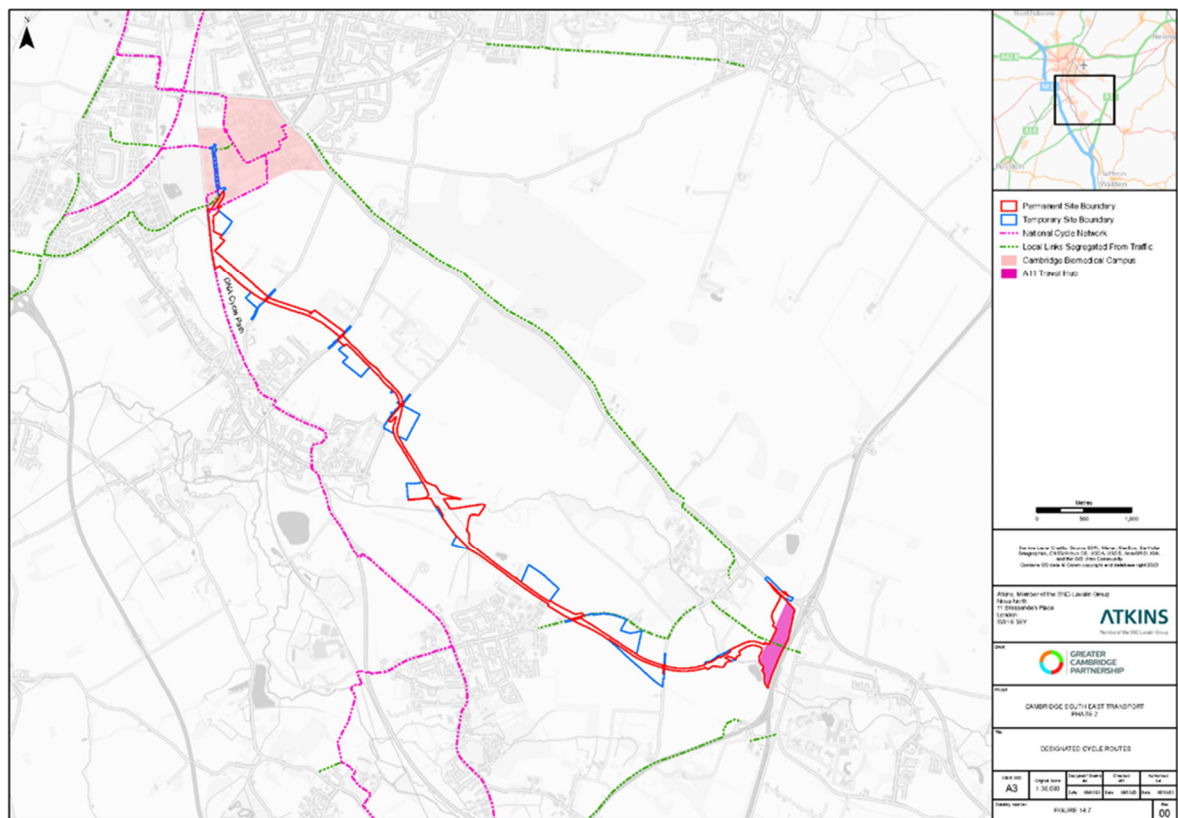
Site Context

- 5.22. The site the A11 Travel Hub is proposed to be built on is largely agricultural fields with drainage ditches and vegetation. The western boundary of the site is situated adjacent to an underground high-pressure gas main that travels from north to south.

Existing Walking and Cycling Infrastructure

- 5.23. Cambridge and South Cambridge has a network of pedestrian and cycle routes. Several of the routes are located within proximity to the proposed route of the CSET Guided Busway. Figure 5-2 highlights local cycling routes that are nearby to the CSET Phase 2 Scheme.

Figure 5-2 - Local Cycling Routes



National Cycle Route 11

- 5.24. National Cycle Route (NCR) 11 (outlined in Appendix C) is a signed cycleway connecting Harlow in Essex to King's Lynn in Norfolk that is part of the UK's National Cycle Network. South of Cambridge, NCR 11 routes northward running in parallel to both A1301 and the existing London Liverpool Street railway line.
- 5.25. The route passes through multiple villages including Whittlesford, Sawston, Stapleford and the Shelfords. The route comprises a mixture of on-carriageway and segregated sections which utilise local shared-use routes that are segregated from traffic where necessary.
- 5.26. North of Great Shelford and on approach to the Cambridge Biomedical Campus, NCR 11 becomes what is locally known as the 'DNA Path' where it connects with the Guided Busway and continues north towards Cambridge City Centre.

Provision along the A1307

- 5.27. Along the A1307, there is segregated shared-use pedestrian and cycleway on the north side of the carriageway between the Cambridge Biomedical Campus and Babraham Research Campus' (BRC) roundabout. The route measures between 2.0m and 3.0m wide and is interrupted by dropped kerbs and give-way markings for pedestrians and cyclists to give way to vehicles at minor junctions. The section of the route between CBC and Babraham Road Park & Ride is lit by overhead streetlights placed at approximately 75m intervals along both sides of the carriageway.

The Sawston Greenway

- 5.28. The Sawston Greenway, approved by the GCP Executive Board in October 2020 is a proposed 5km long route to enable cyclists, walkers and equestrians to travel sustainably from Sawston to Cambridge.
- 5.29. Consideration of the Sawston Greenway must be given to ensure proper integration with proposals for the CSET Phase 2 Scheme. At the GCP Executive Board in November 2024, the Board

resolved to agree the early delivery of a section (approximately 270m) of the Sawston Greenway on Francis Crick Avenue to link with the CSET Phase 2 Scheme.

Access to Employment Sites

- 5.30. There are several potential employment sites in South Cambridgeshire that could be accessible via cycling from the proposed A11 Travel Hub. These employment sites include; the CBC, Babraham Research Campus (BRC) and Granta Park.
- 5.31. Currently there is a lack of cycling infrastructure that surrounds the proposed A11 Travel Hub site which would be able to provide onwards cycling connectivity to employment sites.

Active Travel User Surveys

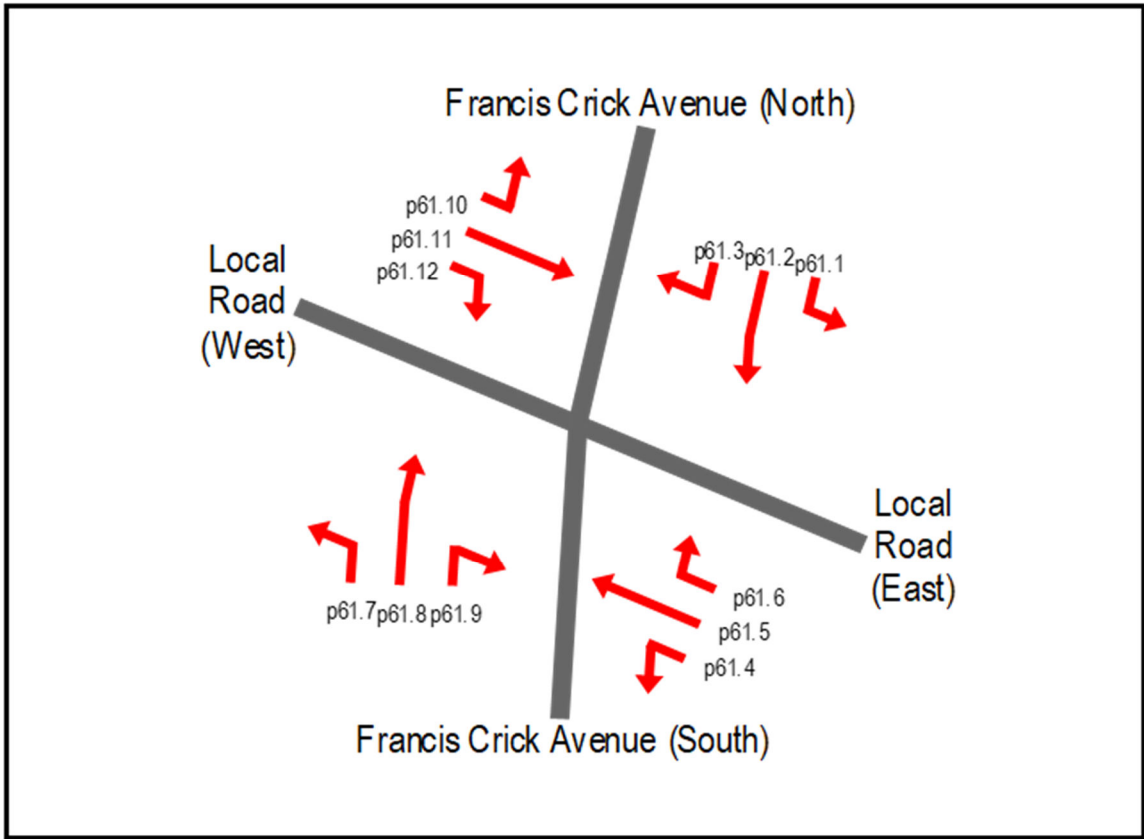
- 5.32. Pedestrian, cycle and equestrian flow data has been obtained for the key active travel links and Public Rights of Way (PRoW) which interact with the proposed route of the CSET Guided Busway. This survey data has been obtained from the following source:
- Sawston Greenway Active Travel User Surveys, undertaken between 0700 and 2200 over a three-day period in November 2022 (Tuesday 15th, Wednesday 16th and Thursday 17th November 2022). The weather was noted to be cloudy with sunny intervals with temperatures of between 11 and 16 degrees Celsius over the three-day survey period.
- 5.33. The Sawston Greenway Active Travel User Surveys captured all turning movements made by pedestrians, cyclists and equestrians at the Francis Crick Avenue/Cambridgeshire Guided Busway and Francis Crick Avenue/Dame Mary Archer Way/Addenbrooke's Road junctions. Diagrams depicting the movements captured on the Francis Crick Avenue/Cambridgeshire Guided Busway Junction and on the Francis Crick Avenue/Dame Mary Archer Way/Addenbrooke's Road Junction are shown in Figure 5-3 and **Error! Reference source not found.** reports the average total movements over the three-day period in November 2022 in which the surveys were undertaken at the Francis Crick Avenue/Cambridge Guided Busway junction.

Table 5-4 - Average total movements over a 3-day period at Francis Crick Av/Guided Busway Junction

Reference	Pedestrian	Cyclist	Equestrian
p61.1	49	6	0
p61.2	83	26	0
p61.3	98	216	0
p61.4	1216	83	0
p61.5	348	509	0
p61.6	89	4	0
p61.7	68	215	0
p61.8	137	16	0
p61.9	873	49	0
p61.10	78	241	0
p61.11	287	511	0
p61.12	37	186	0

- 5.34. Figure 5-4 respectively. The references for each turning movement (p61.1, p.61.2 etc) correspond to the 'Reference' column in **Error! Reference source not found.** and Table 5-5.

Figure 5-3 - Active travel survey diagram depicting all movements captured at the Francis Crick Avenue/Cambridgeshire Guided Busway Junction

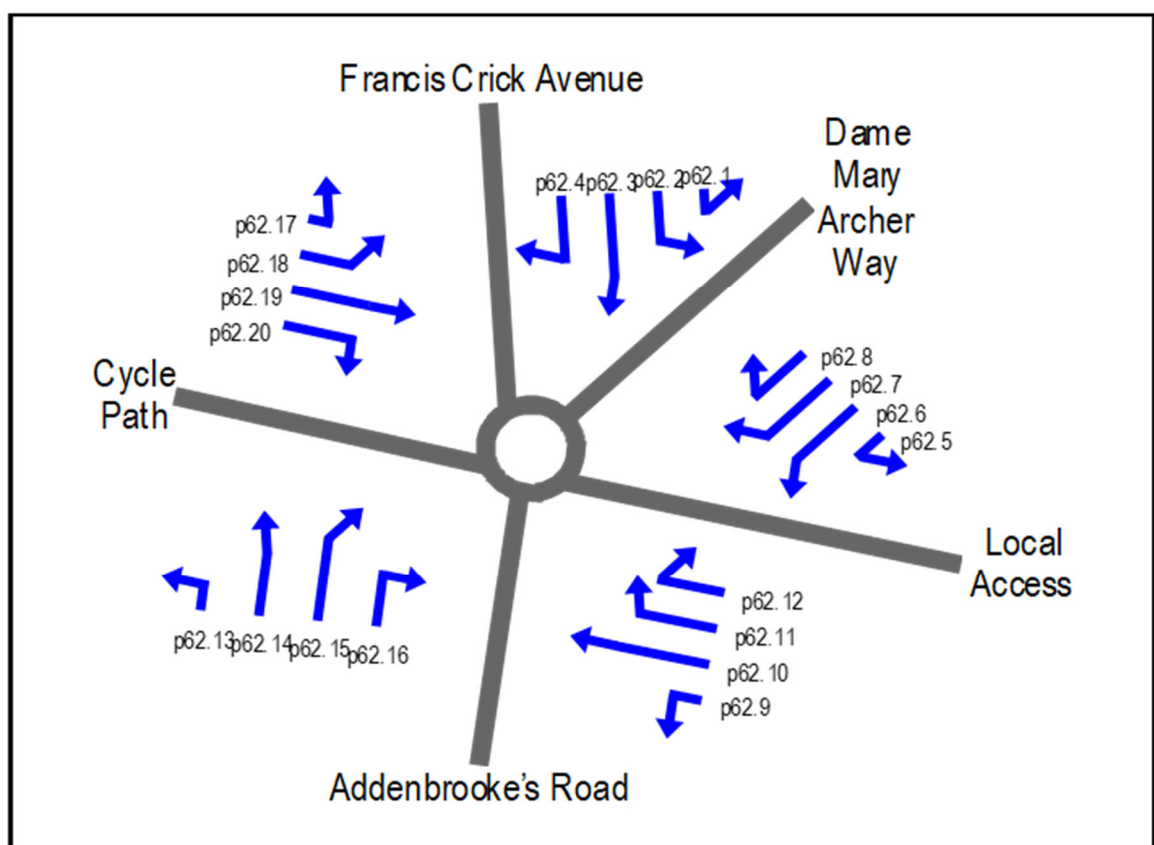


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p61.7	68	215	0
p61.8	137	16	0
p61.9	873	49	0
p61.10	78	241	0
p61.11	287	511	0
p61.12	37	186	0

Figure 5-4 - Active travel survey diagram depicting all movements captured at the Francis Crick Avenue/Dame Mary Archer Way/Addenbrooke's Road Junction



5.36. Table 5-5 reports the average total movements over the three-day period in November 2022 in which the surveys were undertaken at the Francis Crick Avenue/Dame Mary Archer Way/Addenbrooke's Road Junction.

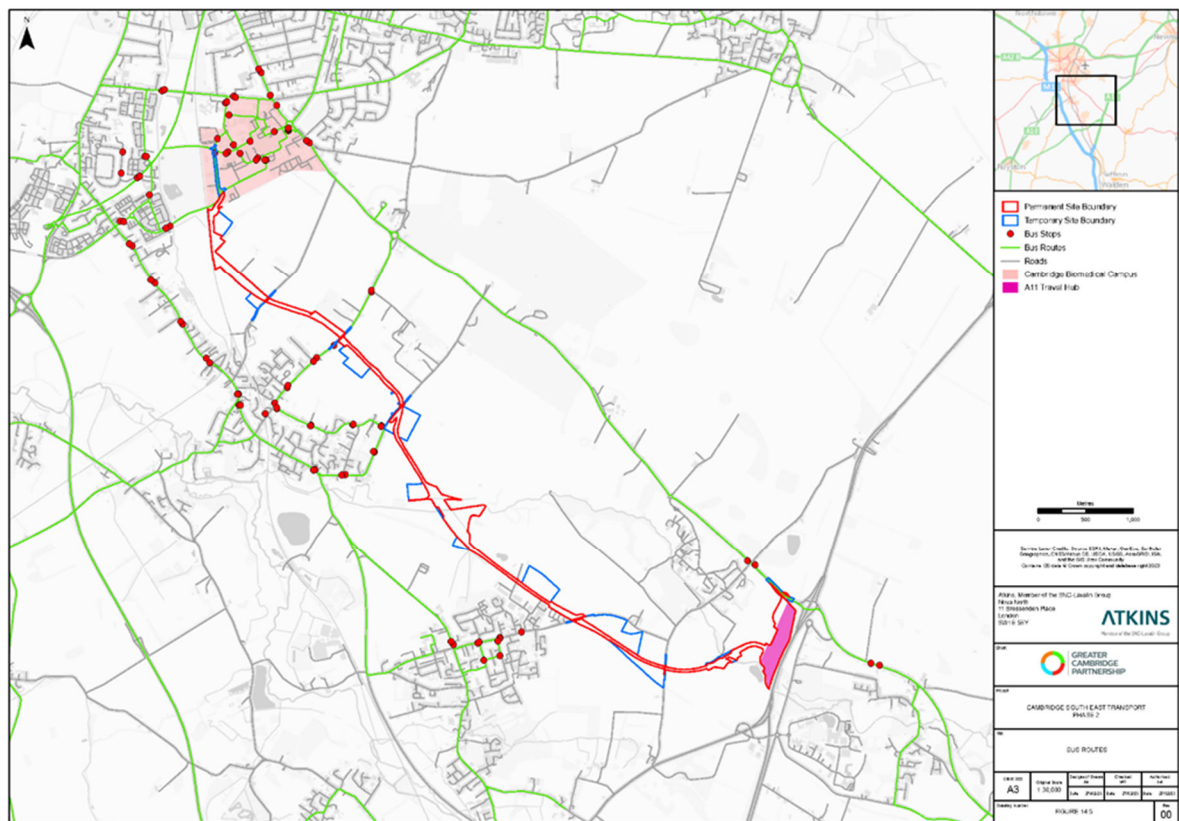
Table 5-5 - Average Total Movements over a 3-day period on Francis Crick Av/Dame Mary Archer Wy/Addenbrooke's Rd Junction

Reference	Pedestrian	Cyclist	Equestrian
p62.1	59	29	0
p62.2	3	0	0
p62.3	40	41	0
p62.4	23	284	0
p62.5	3	1	0
p62.6	51	69	0
p62.7	9	12	0
p62.8	47	48	0
p62.9	0	0	0
p62.10	0	0	0
p62.11	2	0	0
p62.12	8	1	0
p62.13	14	17	0
p62.14	31	38	0
p62.15	45	44	0
p62.16	1	0	0
p62.17	28	314	0
p62.18	8	9	0
p62.19	2	0	0
p62.20	10	19	0

Existing Public Transport

- 5.37. A desktop study of existing public transport facilities within the wider CSET corridor has been conducted as part of this TA, a summary of which is provided below.
- 5.38. Existing bus routes in the vicinity of the Scheme are shown in Figure 5-5.

Figure 5-5 - Bus Routes in CSET corridor



Other Local Bus Services

- 5.39. Whilst existing Park & Ride bus services to and from Cambridge within the CSET corridor have been outlined, other local bus services do exist within the wider CSET corridor. These local services are outlined in Table 5-6.

Table 5-6 - Local Bus Services in CSET corridor

Route No.	Operator	Route	Frequency
7	Stagecoach East	Saffron Walden – Cambridge	Half Hourly (Monday – Saturday); Hourly (Sunday)
7A	A2B Bus and Coach	Duxford – Whittlesford – Sawston – Whittlesford – Duxford	Approximately every 2 hours between 09:00 and 16:00 (Monday – Saturday)
13	Stagecoach East	Cambridge - Haverhill	Hourly
13A	Stagecoach East	Cambridge – Haverhill	Hourly (Monday – Saturday)
31	A2B Bus and Coach	Cambridge – Fowlmere – Barley	Approximately every 2 hours between 0700-1400 (Monday – Friday); Approximately every 2 hours between 0937-1357 (Saturday)
32	A2B Bus and Coach	Trumpington P&R – Hauxton – Trumpington P&R	Approximately every half hour between 0700-1145 and 1500-1800 (Monday to Friday); Approximately every half hour between 0700-0900 and 1600-1800

Route No.	Operator	Route	Frequency
			(Saturday); Approximately every half hour 0900-1100 and 1600-1800 (Sunday)
101	CG Myall & Son	Whittlesford – Saffron Walden	Tuesdays Only
132	CG Myall & Son	Cambridge – Duxford – Saffron Walden	Half Hourly (Monday – Saturday); Hourly (Sunday)
607	Stagecoach East	Trumpington – Sawston Village College	1 bus per day (Monday-Wednesday)
X13	Stagecoach East	Cambridge – Haverhill	3 services between 07:00-08:00; 1 service at 16:10 (Monday to Friday)

Source: Stagecoach East; A2B Bus and Coach; Triline [Accessed 26 September 2022]

- 5.40. The closest bus stop to the A11 Travel Hub is Babraham High Street which is located in the village of Babraham. This is situated approximately 650m northeast of the proposed A11 Travel Hub site. This stop itself is served by the number 13 bus service.

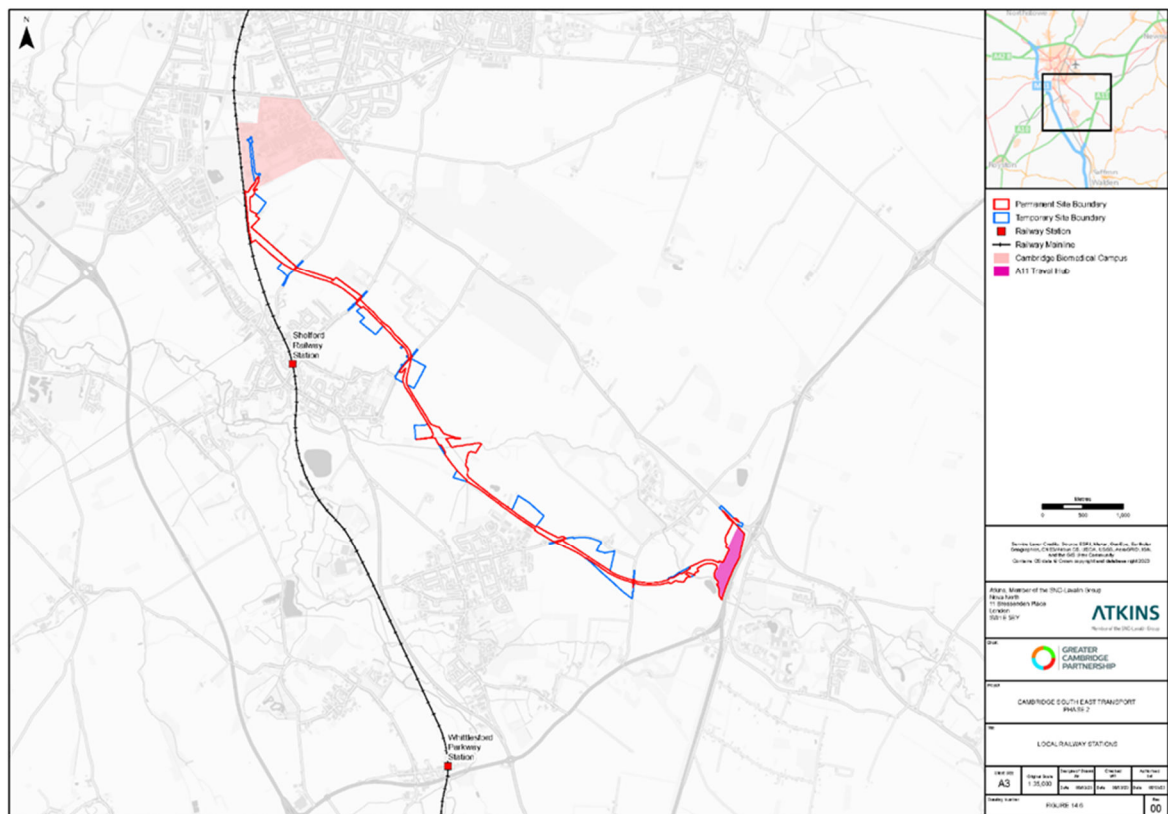
Existing Performance of Key Bus Services

- 5.41. Using journey time data collected by Bus Open Data Service (BODS) between February and April 2019, a comprehensive analysis has been undertaken to understand the performance of two key bus services relevant to the study area:
- Stagecoach East Route 13 along the A1307 corridor;
 - Stagecoach East Route 7 along the A1301 corridor.
- 5.42. The analysis focuses on the journey time and variability of Cambridge-bound services in the morning peak period and non-peak period. It only considers data on weekdays during school and university semesters, which is expected to generate the highest possible travel demand in the morning peak and lead to the worst traffic congestion. The BODS journey time data from 2019 is considered to still be representative given that, from the Quarterly Transport Data Update information provided by CCC's Policy and Data Insights team, vehicular flows recorded between March and September 2024 on both the strategic and local highway network in the Greater Cambridge area have recovered to within +/- 10% of pre-Covid levels.
- 5.43. Compared to non-peak periods, Route 13 services currently on average take 5 additional minutes to travel from A11 to the CBC in the morning peak and are delayed for a further 8 minutes between the CBC and the city centre. This reflects the traffic congestion along the A1307 in the morning peak as buses do not operate on dedicated lanes. Delays on these sections of the road are consistent and well-known, as the scheduled timetable of Route 13 has been adjusted to allow for additional travel time in the morning peak. Route 7 is currently the main bus service serving the A1301 corridor. The three inner sections of Route 7 (between Stapleford and Cambridge) each take 50% longer to complete in the morning peak compared to the scheduled run time, suggesting significant delays along the A1301 (north of Stapleford) and A1307 (between CBC and Cambridge centre).

Local Railway Services

- 5.44. Within the CSET scheme travel corridor and wider area two railway stations have been identified as being situated within proximity to the Scheme, particularly in the Western area of the CSET travel corridor. These are Shelford Railway Station and Whittlesford Parkway Railway Station. Figure 5-6 highlights the identified railway stations within the wider area of the CSET scheme.

Figure 5-6 - Local Rail Services



Shelford Railway Station

- 5.45. Shelford Railway Station is situated to the west of the CSET Phase 2 Scheme. This is a small local station that serves the villages of Stapleford and the Shelfords with no direct bus access. Services at Shelford Railway station run between Cambridge and London Liverpool Street.
- 5.46. Services operate every 30 mins during peak periods and every hour during off-peak periods. Shelford Railway Station does not have provision for car parking but does have outdoor cycle parking with provision for 6 cycle parking spaces.

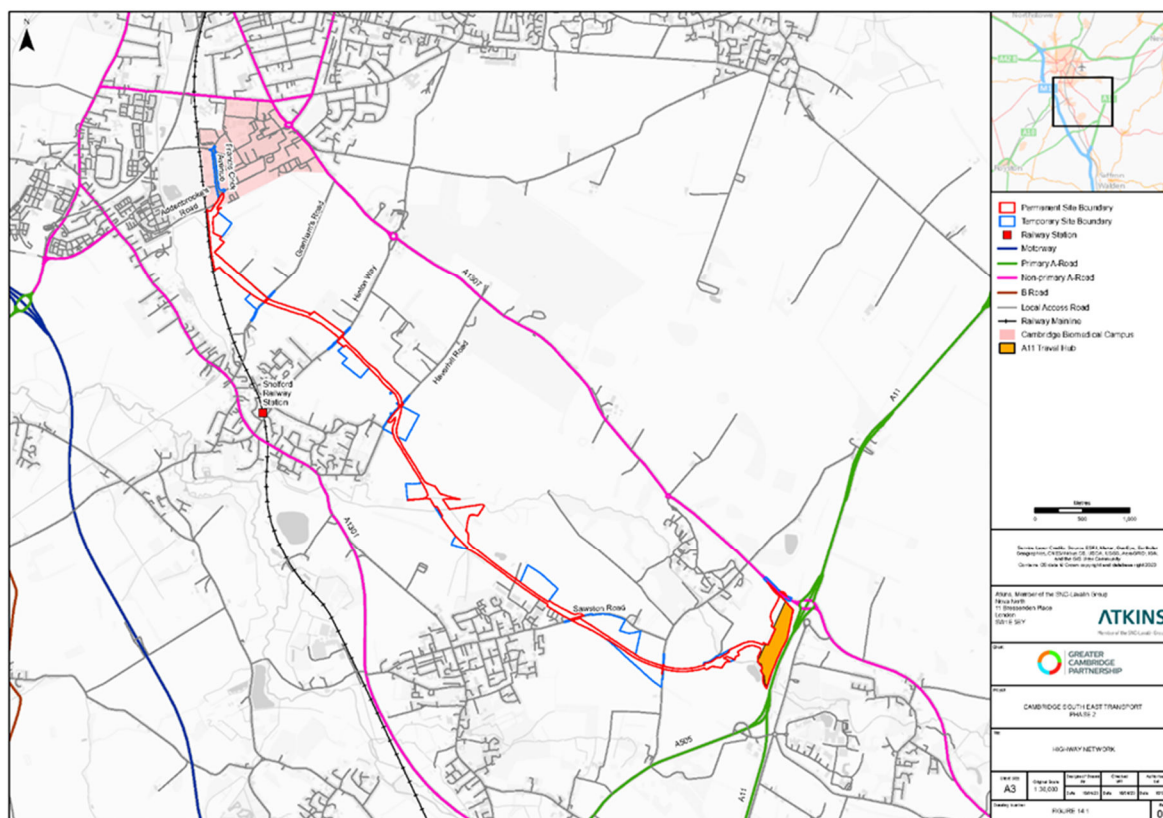
Whittlesford Parkway Station

- 5.47. Whittlesford Parkway Station is situated southwest of the CSET scheme. This station is situated on the West Anglia Mainline. The Station is staffed and has ticket retailing facilities.
- 5.48. The station has car parking provision with 383 spaces including 2 blue badge holder spaces. In addition, there are 48 cycle parking spaces. Cycle parking is offered through sheltered stands. The closest bus stop is Station Road West (Bus Stop ID: CMBGDAWD) served by the 7A bus service.
- 5.49. Rail services operate every 15 minutes during peak periods and approximately every 30 minutes. Services run between Cambridge and Liverpool Street.

Existing Local Highways

- 5.50. As part of this Transport Assessment, key local highways that surround the proposed A11 Travel Hub and are situated within the CSET corridor have been identified and their baseline conditions outlined. Figure 5-7 highlights the highways within the CSET corridor and within proximity of the proposed A11 Travel Hub that form part of the Local Highway Assessment.

Figure 5-7 - Identified Local Highways



A1307 (south)

- 5.51. The southern section of the A1307 consists largely of a single carriageway A-road which routes southeast-northwest between Haverhill and Cambridge. Between the A11 and Haverhill Road, the route is largely subjected to a 60mph speed limit. However as part of the CSET Phase 1 scheme, 50mph limits have been introduced on the section between Babraham High Street and the A11.
- 5.52. The speed limit on the A1307 decreases on the approach to Cambridge City Centre. Between Haverhill Road and Cherry Hinton Roundabout the A1307 is subject to a 50mph limit. Between Cherry Hinton Roundabout and Granham's Road, the A1307 is subject to a 40mph speed limit. Further west, on approach to central Cambridge, the A1307 is subject to a 30mph speed limit.
- 5.53. At the A11/A1307 interchange, the A1307 widens to a dual carriageway and includes an eastbound bus lane that was recently completed as part of the CSET Phase 1 scheme.

A11

- 5.54. The A11 is a dual-carriageway A-road which routes northeast between the M11 and Norwich. It is part of the Strategic Road Network (SRN) under the management of National Highways. It is subject to a 70mph speed limit for most of its route. North of A505/A11 junction, the A11 increases in width from 2 lanes to 3 lanes before reducing back down again to 2 lanes north of the A11/A1307 interchange.

A505

- 5.55. The A505 is a dual-carriageway Primary A-road that routes northeast between the A1(M) at Letchworth Garden City and the A11 near Babraham. The A505 serves as a key commuter route by connecting the neighbouring counties of Hertfordshire and Bedfordshire to Greater Cambridge.
- 5.56. Between its junction with the A1301 and A1307, the route is subject to a 50mph speed limit for its entirety. On the northern side of the A505, there is a shared pedestrian and cycleway approximately 1.5m in width that allows access to and from Whittlesford Parkway Station.

A1301

- 5.57. The A1301 is a single carriageway A-road routing north between A11 near Hinxton and Trumpington. The A1301 runs parallel to the A1307 for the majority of its route which bypasses Sawston, before heading through built-up areas in the villages of Stapleford and Great Shelford. For the southernmost section, the A1301 is subject to a 50mph speed limit. At the northern section approach to Stapleford, the A1301 is subject to a 30mph speed limit.

Granham's Road

- 5.58. Granham's Road is an unclassified single carriageway routing north between the A1301 and the A1307. It is subject to a national speed limit of 60mph for the majority of its route, except on the approach to Shelford to the south where the speed limit is reduced to 30mph.

Hinton Way

- 5.59. Hinton Way is a single carriageway unclassified road routing north between the A1301 and the A1307 and is subject to a speed limit of 30mph.

Haverhill Road

- 5.60. Haverhill Road is an unclassified road routing north between the A1301 and the A1307, subject to a national speed limit of 60mph for most of its route. On approach to Stapleford, the speed limit is reduced to 40mph and then to 30mph.

Babraham High Street

- 5.61. Babraham High Street is an unclassified single carriageway road that routes north through the village of Babraham and intersects with the A1307. The road acts as a local access route and connects the village of Babraham to both the A11 to the north and the A505 to the south. Babraham High Street is subject to a national speed limit of 60mph for the southern part of its route, reducing to 30mph through the village of Babraham.

Sawston Road

- 5.62. Sawston Road is an unclassified single carriageway road that routes east to west connecting Babraham High Street to the village of Sawston. Sawston Road is subject to a national speed limit of 60mph.

Congestion and Delay

- 5.63. As an important road providing vital connection to Cambridge's growing employment hubs, the A1307 corridor is used most heavily during peak periods when commuters typically travel to and from work. Therefore congestion and delays are expected to occur along the corridor during peak periods when demand is the highest, which affects both private vehicle drivers and public transport users if buses and cars share the same lanes, as is currently the case on the A1307 other than for a short dualled section of the eastbound A1307 (approximately 750m in length) on the approach to the A1307/A11 roundabout, for which the inner lane currently serves as a bus lane.

- 5.64. A traffic congestion and delay analysis has been conducted using TrafficMaster data collected on weekdays between April and November (except July and August) in 2019. July and August data are not used as they are the typical summer break periods for school and university in the UK, which would not adequately represent the true maximum delay given the prominence of the education sector in Cambridge. The TrafficMaster data from 2019 is considered to still be representative given that, from the Quarterly Transport Data Update information provided by CCC's Policy and Data Insights team, vehicular flows recorded between March and September 2024 on both the strategic and local highway network in the Greater Cambridge area have recovered to within +/- 10% of pre-Covid levels.

- 5.65. The journey times during the morning (8-9 AM) and evening peak (5-6 PM) periods in their respective peak directions are compared to those of the inter periods and shown in Figure 5-8 and Figure 5-9. The key findings are:

- In the morning peak, severe delay of the northbound traffic is not observed on the section of the A1307 between the A11 and the Hinton Way roundabout. However, the entire section

between Hinton Way and Cambridge city centre is highly congested, which is expected to result in about 7 minutes of delay;

- The 1.5 kms stretch between the Hinton Way roundabout and the CBC which usually takes about 3 minutes to drive during the inter-peak would take more than 8 minutes during the morning peak; and
- In the evening peak, major congestion is observed for the southbound traffic between Cambridge city centre and Granham's Road, which is about 750 metres south of the Biomedical Campus. Drivers on average will take about 3.5 minutes longer to reach Granham's Road from the city centre, after which significant delays are not observed

Figure 5-8 - Northbound journey time along the A1307 in AM peak (weekday 2019)

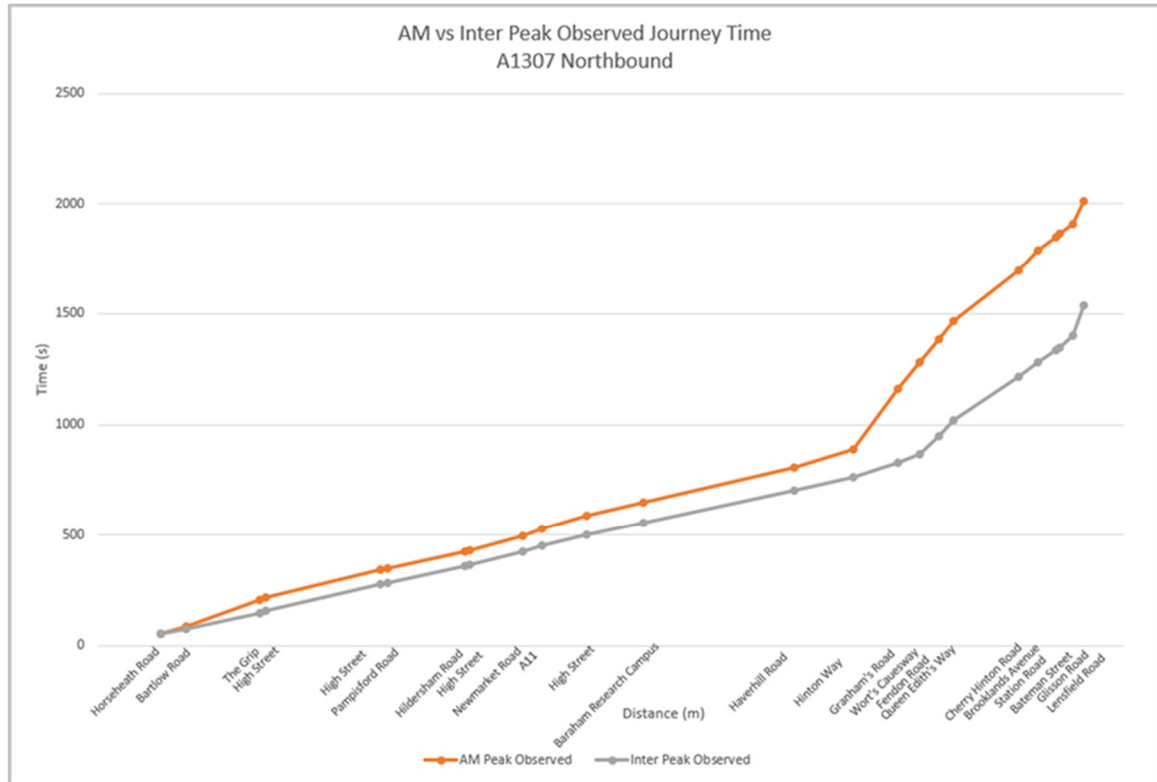
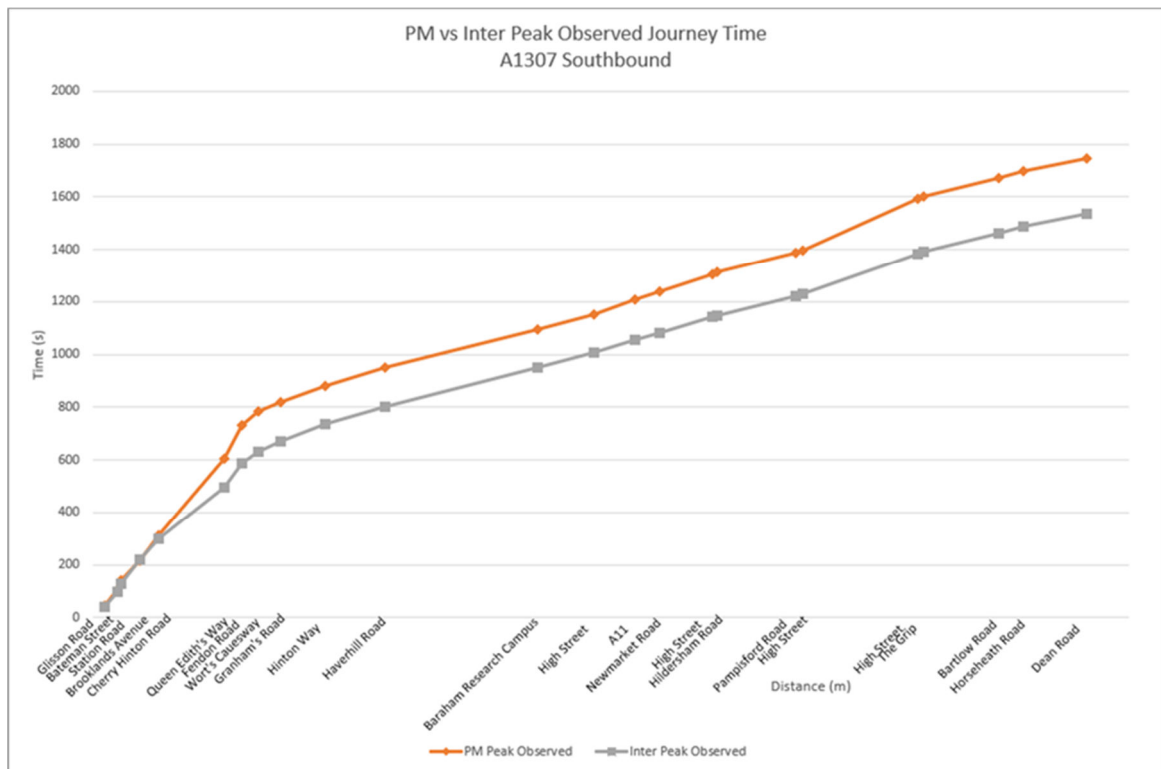


Figure 5-9 – Southbound journey time along the A1307 in PM peak (weekday 2019)



Key Junctions

A11/A1307 Roundabout

- 5.66. The A11/A1307 Roundabout is a priority-controlled grade separated roundabout with sufficient circulatory width for two lanes of traffic. The A11 passes below the roundabout with conventional merge/diverge lanes connecting to the A1307 roundabout. A1307 roundabout approaches are both dual-lane.

Surveys

- 5.67. GCP commissioned data collection exercises to be undertaken comprising of traffic surveys, non-motorised user surveys and counts, and qualitative surveys of users at existing park & ride sites.

Existing Cambridge Park & Ride Surveys

- 5.68. Several surveys were undertaken at Trumpington Park & Ride and Babraham Road Park & Ride during the following periods:
- 27th to 29th November 2018
 - 18th to 20th June 2019; and
 - 19th to 21st November 2019.

The data from surveys undertaken in 2018/19 is considered to still be representative given that, from the Quarterly Transport Data Update information provided by CCC's Policy and Data Insights team, Park and Ride bus passenger numbers recorded in the Greater Cambridge area between March and September 2024 have recovered to within +/- 10% of pre-Covid levels, and have now exceeded the recorded pre-Covid levels in some cases.

Cycle Parking Occupancy Surveys

- 5.69. Cycle parking occupancy counts were undertaken between 0500 and 2100 on Tuesday, Wednesday and Thursday of the periods outlined above.

- 5.70. Occupancy counts included formal cycle parking spaces/lockers and any cycles parked informally adjacent to the cycle parking to inform the number of cycle parking spaces that could be provided at the proposed A11 Travel Hub.

Bus Boarding and Alighting Surveys

- 5.71. Bus boarding and alighting surveys were undertaken in June 2019 and November 2019 at the Trumpington Park & Ride and the Babraham Road Park & Ride. The surveys counted the number of passengers boarding and alighting each service between 05:00 and 21:00.

Future Baseline Flows

- 5.72. To determine baseline traffic flows within the CSET corridor, average annual weekday traffic flows over a 24-hour period were extracted from the CSRM2 F-Series model. These flows were taken from the 'Do Minimum' (DM) scenario in the year 2029, the future year in which the scheme is anticipated to open. The DM scenario reflects the local highway network where the scheme has not been constructed. The DS scenario will be compared to a DM scenario in Chapter 7 of this TA to assess the impacts the CSET Phase 2 Scheme will have on the surrounding local highway network. DM flows are listed below in Table 5-7.

Table 5-7 - Do Minimum 2029 Baseline Flows

Highway	DM 2029 Daily Traffic Flows
Granham's Road	4,750
Hinton Way	8,350
Haverhill Road	7,150
Babraham High Street	2,550
Hauxton Road	32,500
Addenbrooke's Road west of A1301	14,250
Addenbrooke's Road east of A1301	10,500
A1301 Cambridge Road – Addenbrooke's Road to Granham's Road	12,900
A1301 Cambridge Road – Hinton Way to Bury Road	13,800
A1301 Cambridge Road – Bury Road to Cambridge Road	9,550
Cambridge Road	12,200
Babraham Road	9,450
Sawston Road	1,200
A1307 Babraham Road – A11 to the Travel Hub access	18,100
A1307 Babraham Road – Travel Hub access to Haverhill Road	19,150
A1307 Babraham Road – Haverhill Road to Hinton Way	22,950
A1307 Babraham Road – Hinton Way to Granham's Road	17,750
A11 – A505 to A1307	57,400
A11 east of A1307	43,400
A505 – M11 to A11	32,600

Accident Data Analysis

- 5.73. The Accident Data Analysis chapter examines the Personal Injury Collisions (PIC) data within the surrounding vicinity of the CSET Phase 2 scheme. This is done to identify any patterns or cluster sites of PICs that may need to be taken into consideration as part of the development proposals.
- 5.74. The study area for the Collision Data Analysis encompasses the CSET travel corridor as well as the surrounding area. The study area includes the A1301/A505 junction as well as the A1307/A11 junction which is located immediately to the north-east of the proposed A11 Travel Hub.
- 5.75. The study area also covers the south of Cambridge City which resides north of the CBC.
- 5.76. Figure 5-10 highlights the distribution of Personal Injury Collisions (PICs) within the study area between years 2015 and 2019. Additional data was obtained from CCC to include the years 2022 to 2024 in the analysis which are shown in Figure 5-11. Years 2020 and 2021 are not included in the analysis due to the Covid-19 pandemic that occurred during this period and, therefore, to depict accident distribution within the corridor under normal conditions.

Figure 5-10 - Distribution of Personal Injury Collisions 2015-2019

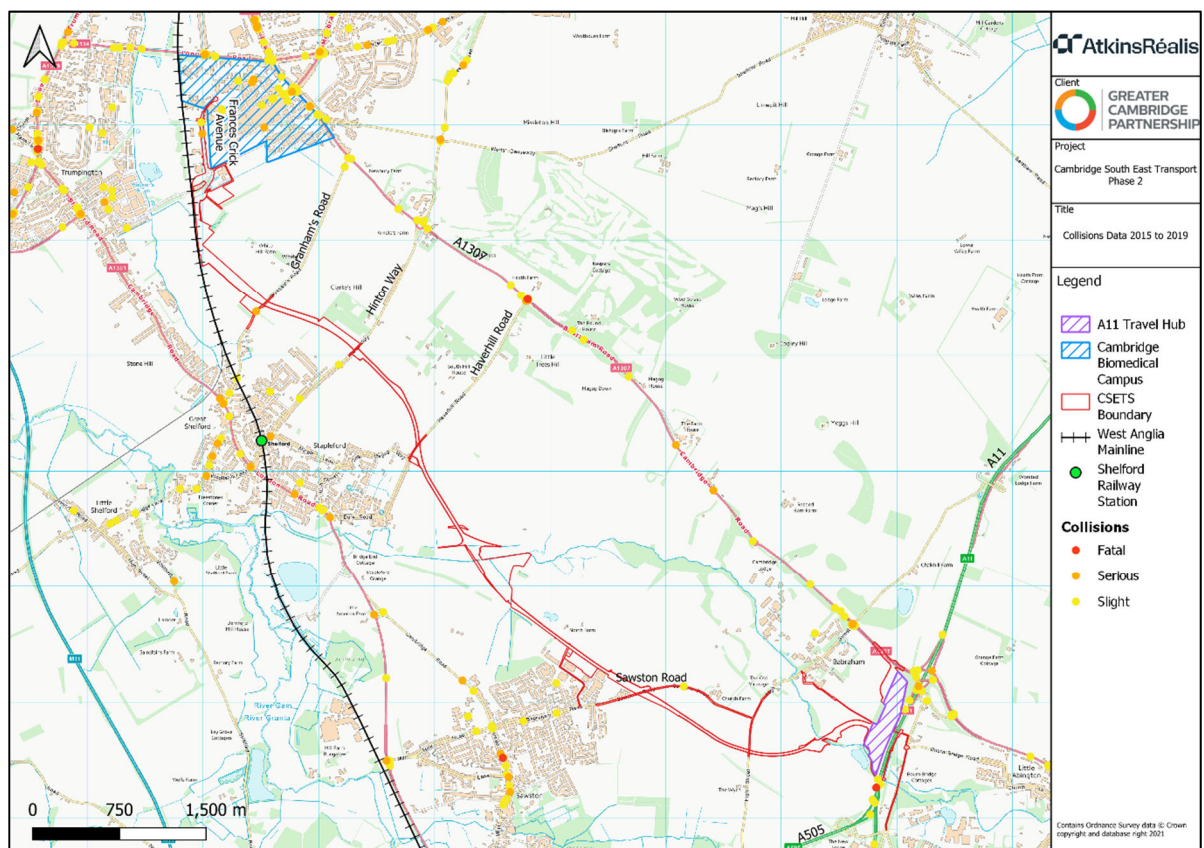
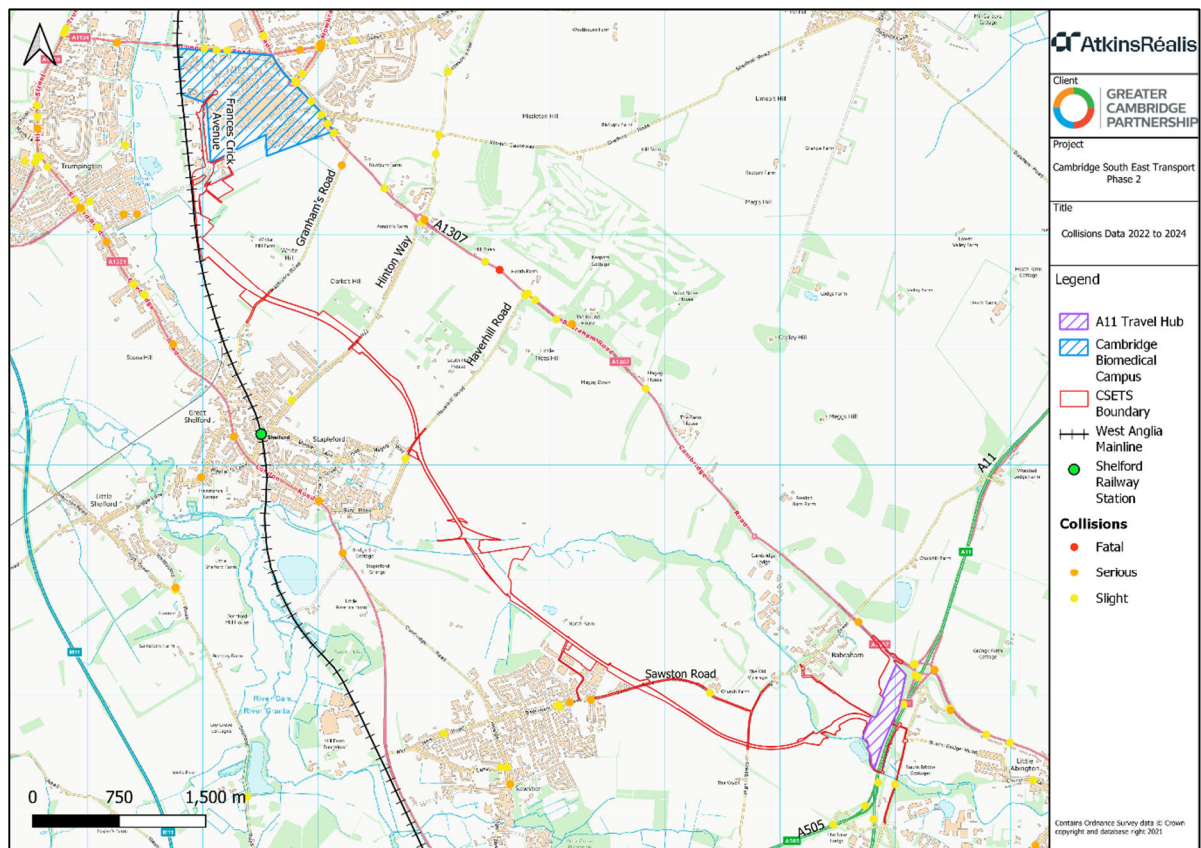


Figure 5-11 - Distribution of Personal Injury Collisions 2022-2024



- 5.77. In total there were 530 recorded PICs within the study area from data recorded between January 2015 to December 2019. On the other hand, between January 2022 and April 2024 there were a total of 182 PICs recorded within the study area, for a grand total of 712 PICs.
- 5.78. A breakdown of PICs by year and severity are outlined in Table 5-8.

Table 5-8 - Summary of Personal Injury Collisions (January 2015 - December 2019 & January 2022 – April 2024)

	Slight		Serious		Fatal		Total	
	Incidents	Casualties	Incidents	Casualties	Incidents	Casualties	Incidents	Casualties
2015	93	109	9	9	1	1	103	119
2016	90	111	16	24	0	0	106	135
2017	85	101	27	31	2	2	114	134
2018	71	85	25	29	1	1	97	115
2019	83	92	26	31	1	3	110	126
2022	55	71	22	24	1	1	78	96
2023	56	76	19	19	0	0	75	95
2024	22	29	6	6	1	1	29	36
Total	555	674	150	173	7	9	712	856

- 5.79. In general, the number of incidents in each severity category and casualty numbers have remained relatively consistent across the period. It has been noted that there had been a marked increase in incidents and casualties between 2015 and 2016. Compared to pre-pandemic years, incidents and casualties show a marked decrease in years 2022 and 2023.

Analysis of Specific Locations

- 5.80. This section outlines in further detail the PICs that have occurred on key highways and areas within the CSET travel corridor to identify if there are any accident clusters or trends.

A1307/A11 Interchange

- 5.81. Between 2015 and 2019 at the A1307/A11 interchange, a total of nine accidents were recorded. Of these accidents one was 'serious' and eight were 'slight' in their severity. Two incidents involved cyclists with one incident involving a sole cyclist who had injured themselves at the location.
- 5.82. Upon examination of the distribution of the PICs at the A1307/A11 Interchange, there appears to be a cluster of PICs at the north-western section of the interchange with other PICs occurring at the other junction points of the interchange.
- 5.83. The data for years 2022 to 2024 shows that this junction continues to be a cluster for incidents, with a total of six registered during this period. Of these six, five were 'slight' and one was 'serious'.

Babraham High Street

- 5.84. Between 2015 and 2019 on Babraham High Street, a total of two accidents were recorded, both occurred the Babraham High Street/A1307 junction and were slight in severity.
- 5.85. However, no accidents were recorded along this road between 2022 and 2024.

Sawston Road & The A1301 Babraham Road

- 5.86. Between 2015 and 2019 at the Sawston Road & the A1301 Babraham Road location, three accidents were recorded all of 'Slight' severity. One accident involved a cyclist whilst the others only involved vehicles. One accident was recorded on Sawston Road close to Church Farm. The other two accidents were located at the Babraham Road/Churchfield Avenue Junction and close to the Babraham Road/Tower Road Junction respectively.
- 5.87. Between 2022 and 2024, this site continued to register multiple collisions, for a total of seven during this period. Five of the collisions were 'slight' and two were 'serious', three of the incidents involved cyclists, and one involved a child crossing the street.

Haverhill Road

- 5.88. Between 2015 and 2019, on Haverhill Road only one accident occurred which was Serious in severity and involved three vehicles. This occurred at the Haverhill Road/A1307 junction.
- 5.89. Between 2022 and 2024 6 accidents were registered on Haverhill Road, all of them 'slight', with five of them occurring at the junction with Babraham Road, four of which involved cyclists.

Hinton Way

- 5.90. On Hinton Way, three accidents have been recorded between 2015 and 2019. 1 Accident was recorded as serious whilst the two other accidents have been recorded as slight in severity. 1 accident involved a cyclist whilst the other accidents recorded involved vehicles only. The 3 accidents were located on the southern-half section of Hinton Way with one accident located close to Shelford Railway Station.
- 5.91. Whereas, between 2022 and 2024, only two 'slight' and one 'serious' accident were recorded. The serious accident involved a casualty of a cyclist at the roundabout junction with Babraham Road.

Granham's Road

- 5.92. On Granham's Road 7 accidents have been recorded between 2015 and 2019. Of these, 1 accident was Serious whilst the other 6 accidents recorded were Slight in severity. 1 accident involved a pedestrian and cyclists, 1 accident involved a motorcyclist and pedestrian, with another 2 accidents involving cyclists.
- 5.93. By comparison, between 2022 and 2024, only one 'slight' accident was reported on Granham's road.

Summary

- 5.94. The predicted reduction in traffic flows on the A1307 in the AM and PM peak hours and the proposed improvements to active travel infrastructure as a result of the CSET Phase 2 Scheme will

also help to improve road safety for all users of the A1307 corridor by reducing the potential for conflicts, both between individual vehicles and between vehicles and active travel users. These positive effects of the proposed CSET Phase 2 Scheme should be considered in association with the targeted road safety measures currently being introduced as part of CSET Phase 1.

6. Forecast Demand

- 6.1. This chapter outlines the demand at Trumpington P&R and Babraham Road P&R sites and the methodologies used to calculate maximum car park accumulation for the A11 Travel Hub and the cycle parking occupancy. As well as this, the forecasted patronage for the CSET Phase 2 Scheme is also detailed.

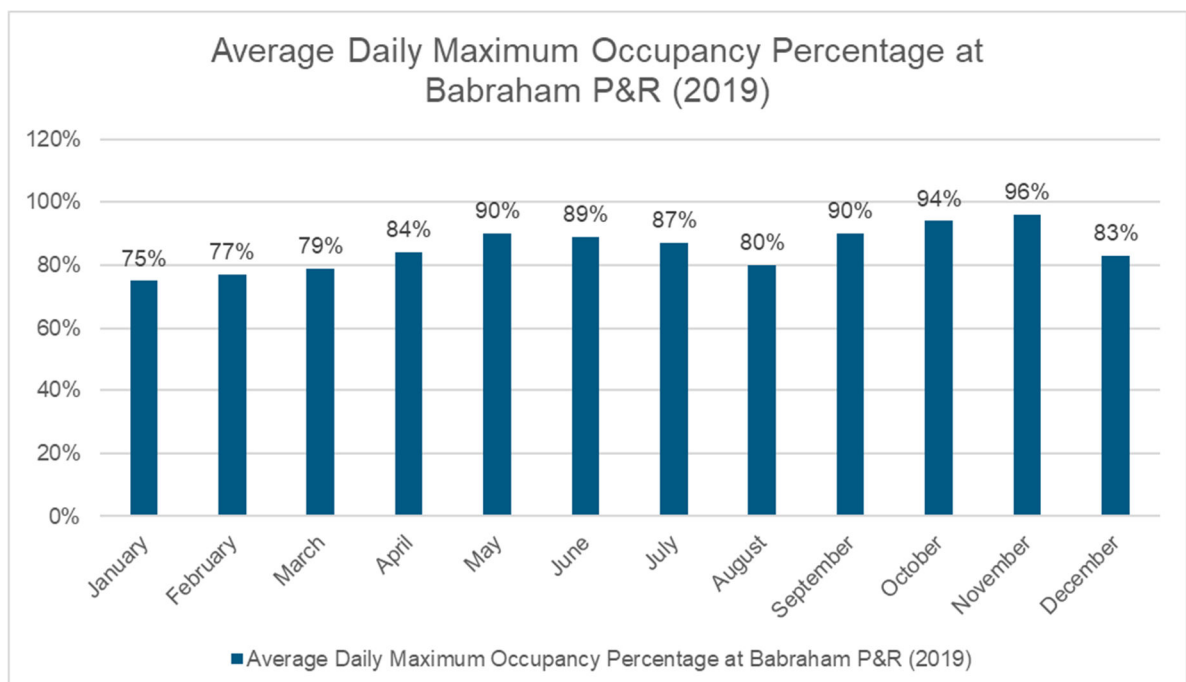
Existing usage at Cambridge Park & Ride sites

- 6.2. Around the periphery of Cambridge City, there are currently five Park & Ride (P&R) sites in operation. The P&R sites serve to intercept car trips to Cambridge City by transferring the 'final mile' of car journeys onto buses. This is done with the aim of reducing traffic congestion and relieving parking pressure within Cambridge. The following sites are:
- Maddingley Road P&R;
 - Milton P&R;
 - Newmarket Road P&R;
 - Babraham Road P&R; and
 - Trumpington P&R;
- 6.3. Of these sites, Trumpington P&R and Babraham Road P&R are situated to the south of Cambridge City and are in proximity to the proposed CSET Phase 2 alignment. Therefore, these sites are most relevant when examining the current usage of the Cambridge P&R sites and how this may impact demand and the development of the CSET Phase 2 scheme.
- 6.4. It should also be noted that CCC's guidance states that a car park is considered to be full when it reaches 85% capacity because, at levels beyond 85% occupancy, issues arise of circulation, queuing and a perception amongst users that they may not be able to find a space in the car park.

Babraham Road P&R usage

- 6.5. Maximum daily occupancy data compiled by CCC was taken to calculate a monthly average of the daily maximum occupancy percentage to reflect the extent of capacity being reached at the Babraham Road P&R Site.
- 6.6. These results are reported in Figure 6-1.

Figure 6-1 - Average Daily Maximum Occupancy Percentage at Babraham P&R (2019)

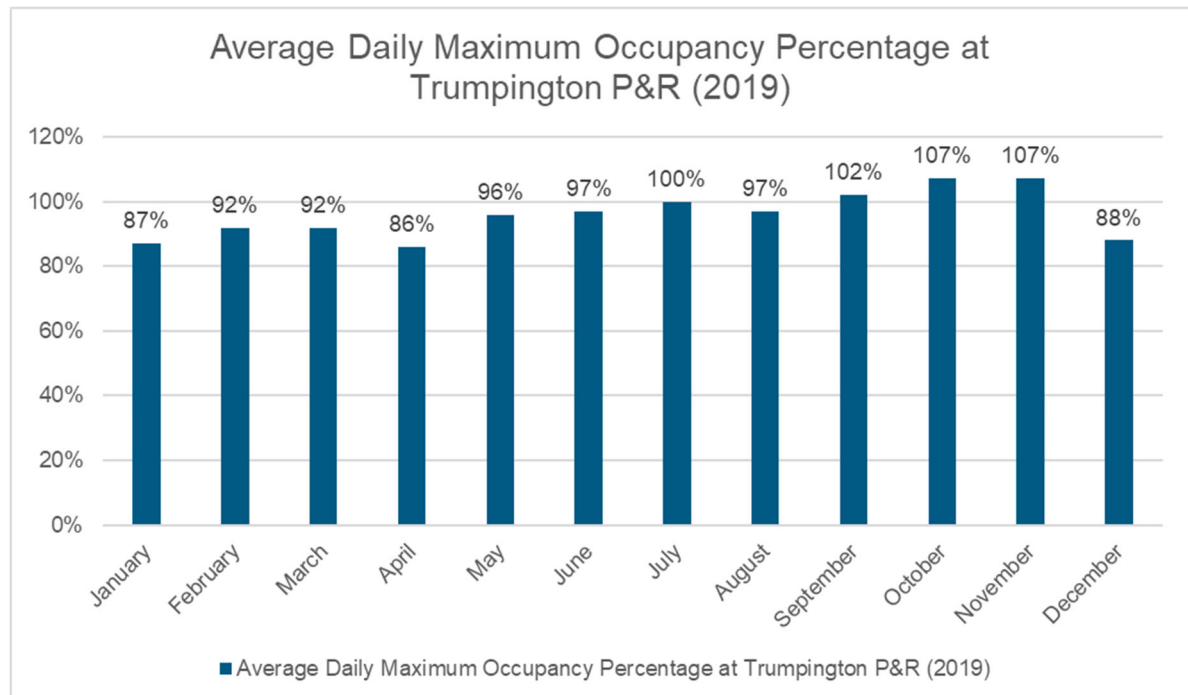


- 6.7. Overall, average maximum capacity at the Babraham P&R site remains relatively consistent throughout the year. However, for several months of the year the occupancy exceeds 85%, which is the target practical maximum operational capacity.

Trumpington P&R usage

- 6.8. Maximum daily occupancy data compiled by Cambridgeshire County Council was taken to calculate a monthly average of the daily maximum occupancy percentage to reflect the extent of capacity being reached at the Trumpington P&R site.
- 6.9. These results are reported in Figure 6-2.

Figure 6-2 - Average Daily Maximum Occupancy Percentage at Trumpington P&R (2019)



- 6.10. The data suggests that the Trumpington P&R site operated over 100% capacity for several months during 2019. Although this appears to be an anomaly, the most likely explanation is that vehicles were recorded not only accessing the Trumpington Park and Ride site with the intention of parking and using the Park and Ride bus services, but also accessing the John Lewis Customer Delivery Hub and potentially traffic also dropping-off and picking-up pupils at the nearby Trumpington Meadows Primary School. These additional vehicles would have been recorded entering and leaving the site but will only have parked briefly within the site and potentially not in designated parking bays.
- 6.11. Nonetheless, car park occupancy data recorded throughout the 2019 period suggest that the Trumpington P&R was exceeding its original operational capacity. A proposed capacity expansion to provide an additional 260 parking spaces was completed and opened for public use in April 2020.

Maximum Car Park Accumulation Methodology and Occupancy Profile

- 6.12. The maximum car park accumulation methodology for the occupancy profile of the A11 Travel Hub utilises the occupancy profile devised for the Babraham P&R site. This is due to Babraham P&R having peak trip rates that are similar to other P&R sites for the AM and PM. From this it is considered likely that the A11 Travel Hub will operate in a similar manner to the other P&R sites, especially given that it is situated in the same travel corridor as Babraham P&R.
- 6.13. The occupancy profile calculated for Babraham P&R was applied to the AM inbound modelled flows for the A11 Travel Hub site which were extracted from the CSRM Core 2026 DS model scenario.

From this, the future occupancy of the A11 Travel Hub has been calculated. A future forecast occupancy profile is shown in Table 6-1.

Table 6-1 - Travel Hub Occupancy Profile for 2029

Hour Starting	In	Out	Occupancy	% Occupied
06:00	42	0	42	3%
07:00	280	16	305	24%
08:00	240	6	539	43%
09:00	132	5	666	53%
10:00	71	15	722	58%
11:00	45	19	748	60%
12:00	37	38	747	60%
13:00	33	39	741	59%
14:00	33	59	716	57%
15:00	14	81	649	52%
16:00	63	245	468	37%
17:00	29	231	265	21%
18:00	25	140	150	12%
19:00	8	53	105	8%
20:00	3	23	85	7%
21:00	3	7	81	6%

Atkins

Cycle Parking Methodology and Occupancy Profile

- 6.14. Cycle parking occupancy surveys at the Babraham Road P&R site were conducted in November 2019 to calculate an average cycle parking trip rate per car parking space for the Babraham Road P&R site. The trip rate per space was applied to the number of car parking spaces proposed at the A11 Travel Hub to determine a cycle parking rate for the site.
- 6.15. Trip rates per space were calculated at hourly intervals using the 16-hour cycle parking occupancy survey period between 0500-2100 at Babraham Park & Ride to provide a cycle parking arrival and departure occupancy profile for the A11 Travel Hub Site. The A11 Travel Hub cycle profile is detailed in Table 6-2.

Table 6-2 - Forecasted Travel Hub Cycle Parking Occupancy Profile

Hour starting	In	Out	Parked	% Occupancy (188 spaces)
06:00	0	0	138	73%
07:00	0	0	138	73%
08:00	0	5	133	71%
09:00	1	27	101	54%
10:00	1	36	65	35%
11:00	1	12	54	29%
12:00	0	1	60	32%
13:00	1	1	60	32%

Hour starting	In	Out	Parked	% Occupancy (188 spaces)
14:00	2	2	59	31%
15:00	1	1	62	33%
16:00	9	0	71	38%
17:00	7	1	77	41%
18:00	22	2	103	55%
19:00	23	0	125	66%
20:00	9	1	133	71%
21:00	3	1	129	69%

Atkins

Forecasted CSET Patronage

6.16. Forecast bus patronage for the year 2041 was estimated using CSRM model outputs, with reference to the proposed CSET bus service proposition. The results are shown in

6.17. Table 6-3.

Table 6-3 - Forecasted Annual CSET Bus Patronage by 2041

Bus Service	Passengers (million)
Do Minimum 2041	
13/X13	0.8
Citi 7	0.2
Total	1.0
Do Something 2041	
13	0.4
CSET 2 (Haverhill corridor)	2.1
Citi 7	0.2
Total	2.7
Impact of CSET Phase 2 Scheme	+1.7 (+170%)

6.18. The daily figures from the CSRM2 model forecasts include 2,900 guided bus and 1,400 daily Park and Ride users, giving a total of 4,400 users per typical weekday. This results in approximately 1.1 million annual passengers during weekdays, which has then been uplifted to include weekend trips. In total, the CSRM2 modelling demonstrates that there will be a predicted uplift in annual bus passenger numbers within the CSETS corridor of 1.7 million (+170%) per year due to the CSET Phase 2 scheme, when compared to the 2041 DM scenario without the scheme in place

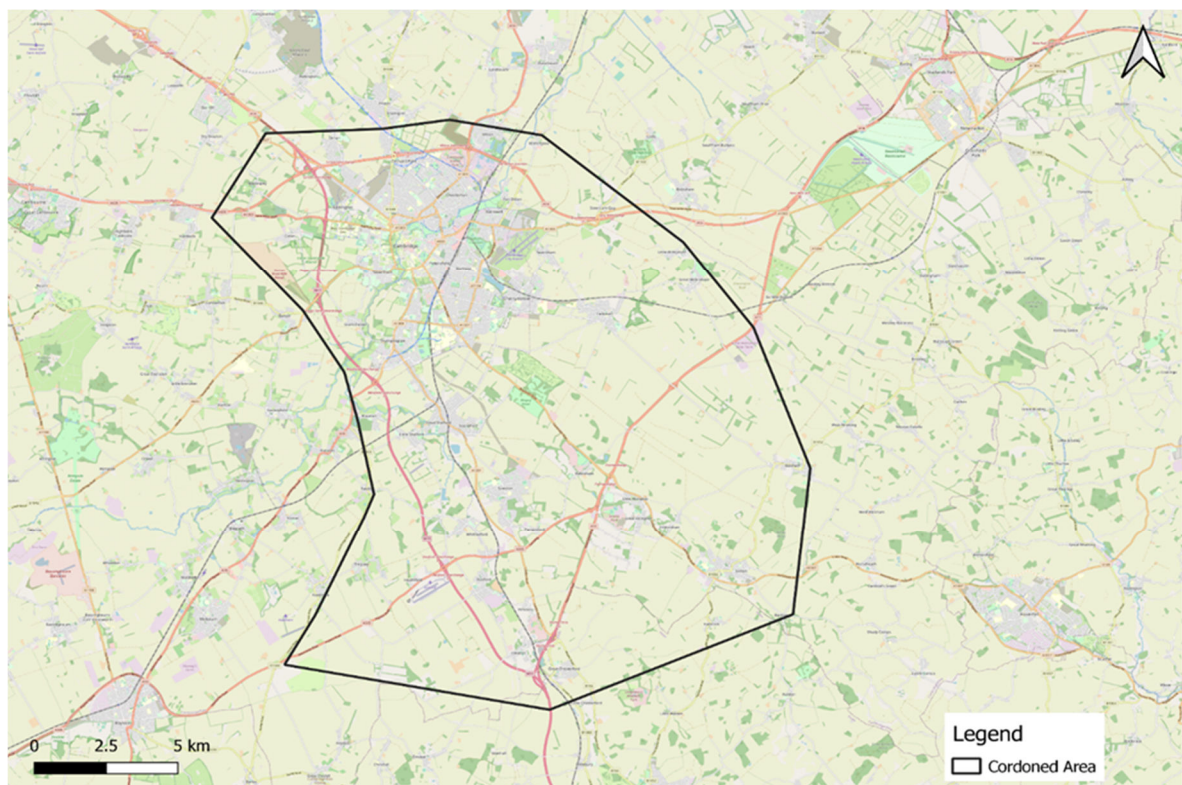
7. Impacts of the CSET Phase 2 Scheme

- 7.1. This chapter reports the public transport and active travel benefits of the CSET Phase 2 Scheme, as well as the forecasted impacts of the Scheme in both the Construction and Operational phases.

Strategic Modelling

- 7.2. In assessing the impact of the CSET Phase 2 Scheme, the strategic modelling undertaken highlights the impact of the scheme on the wider highway network that surrounds the scheme. The wider area has been determined with the creation of a cordon known as the 'Affected Road Network' (ARN) which defines the parameters of the wider highway network that has been included in the strategic modelling. The ARN is defined as transport links which show a change in flow as a result of introduction of the scheme. This includes the impacts of changes in bus service provision for on-road and segregated running sections. The service pattern of bus routes for the Scheme passes from Haverhill through to the build-up area of Cambridge city, hence the ARN encompasses the city. The A11 Travel Hub draws car-based traffic from a number of adjacent corridors which means the ARN is mapped to include sections of the M11 to the west and the A11 and Balsham Road to the east. This cordon is shown in Figure 7-1.

Figure 7-1 - ARN Area for Strategic Modelling



Forecast change in traffic patterns

- 7.3. The Scheme will result in a change in traffic patterns. This is due to a combination of traffic rerouting to access the A11 Travel Hub and secondary rerouting of traffic in response to changes in road network capacity arising from traffic rerouting to access the A11 Travel Hub.
- 7.4. The predicted changes in traffic patterns are relatively minor, with some roads seeing increases in traffic flows and others showing a reduction. Overall, there is a reduction in traffic volumes as demonstrated by analysis of the change in total vehicle kilometres travelled across the road network.

Total Vehicle Kilometres Travelled

- 7.5. Results from the strategic modelling indicate that when comparing the DS to the DM forecast years, the total number of vehicle kilometres (VehKM) travelled across the affected road network reduces considerably. Table 7-1 details the annualised estimated VehKM reductions.

Table 7-1 - Annualised Estimated VehKM Reduction in DS Scenarios across the ARN

Year	Annualised Estimated VehKM Reduction (million)
2029	3.8
2041	3.3

- 7.6. As shown in Table 7-1, under the DS scenarios of 2029 and 2041, there is a reduction in the total number of VehKM travelled across the ARN with an estimated annual reduction of 3.8 and 3.3 million in 2029 and 2041 respectively. The reduction in VehKM is an estimate from the CSRM2 traffic model built up by examining forecast changes in vehicle flows as a result of the scheme. The change in flow identified for each link across the ARN is multiplied by the corresponding network link lengths for each modelled time period (Morning Peak, Evening Peak and Interpeak). The resultant daily change in weekday average is expanded up to give an annualised estimate of vehicle kilometre change to include both weekdays and weekends for the modelled years (2029 and 2041).
- 7.7. Consequently, as a result of the forecast reduction in the total number of VehKM travelled across the ARN as a result of the Scheme, the CSET Scheme is expected to have a beneficial effect on levels of traffic congestion and delay across the road network.

Volume to Capacity Results

- 7.8. Volume to capacity ratios (V/C) at junctions on the road network are an indicator of where traffic congestion and delay has the potential to occur.
- 7.9. Volume to capacity ratios of below 80% indicate that junctions are operating well within practical capacity and delays and traffic congestion are unlikely. Ratios between 80 and 90% indicate that junctions are approaching practical capacity, and that delays and traffic congestion can occur during periods when traffic levels are above typical levels. Ratios between 90 and 99% indicate that a junction is operating over practical capacity, but within theoretical capacity, meaning that some intermittent traffic congestion and delay is likely. Volume to capacity ratios over 99% indicate junctions are operating over both practical and theoretical capacity and frequent and persistent traffic congestion and delay is therefore highly likely.
- 7.10. The reported V/C results from the CSRM2 SATURN model comparing the 2029 DS to the DM scenarios, where the change in V/C is 5% or more, are presented in Table 7-2 and Table 7-3 respectively.

Table 7-2 - 2029 Volume over Capacity Results in the AM Peak

Name of junctions where changes of note occur (+/- 5% or more)	Volume over Capacity (%)		Difference (%)
	DM	DS	
Westbound on Long Road approaching Trumpington Road	87	105	18
Southbound on Cherry Hinton Road at Queen Edith's/Robin Hood Junction	84	90	6
Westbound on Babraham Road approaching Cambridge Road in Sawston	92	86	-6
Northbound A1307 approaching the Babraham Research Campus entrance roundabout	90	85	-5

- 7.11. In the AM peak, the largest reported increase in V/C was 18% on Long Road at the junction with Trumpington Road. The largest reported decrease in V/C was 6% westbound on Babraham Road approaching Cambridge Road in Sawston. It should be noted that where junctions are close to capacity, a small change in flow can have a very significant impact on the reported capacity of a link. This is particularly the case where there may be critical flare length on the approach. In these circumstances, only small changes in the overall flow or indeed in the relative turning proportions can have a significant impact on the overall link capacity in instances where the designated flare length is already filled with queued traffic. Therefore, although the predicted overall reduction in VehKM is spread across the network, due to the reassignment of traffic this can lead to either an increase or a decrease in V/C depending on the alignment of specific junctions.
- 7.12. At the two locations described in Table 7-2 which are either on or adjacent to the A1307 and A1301 corridors, decreases in V/C in the AM Peak are predicted by the CSRM2 SATURN model. Elsewhere on the highway network, marginal changes are reported.

Table 7-3 - 2029 Volume over Capacity Results in the PM Peak

Name of junctions where changes of note occur (+/- 5% or more)	Volume over Capacity (%)		Difference (%)
	DM	DS	
Northbound on Gonville Place approaching Parkside/Mill Road Junction	90	101	11
Southbound on Cherry Hinton Road at Queen Edith's/Robin Hood Junction	93	101	8
Eastbound on Fulbourn Road at Queen Edith's/Cherry Hinton Road junction	100	91	-9
Access representing Bartlow off the A1307 south of Horseheath	83	77	-6

- 7.13. In the PM peak, the largest reported increase in V/C northbound on Gonville Place approaching Parkside/Mill Road Junction. Here the reported difference was an increase by 11% bringing the V/C to 101%.
- 7.14. An increase in V/C of 8% is also reported southbound on Cherry Hinton Road at Queen Edith's/Robin Hood Junction. On the other hand, the largest V/C decrease was of 9% eastbound on Fulbourn Road at Queen Edith's/Cherry Hinton Road junction, bringing the V/C down to 91% from 100%.
- 7.15. Elsewhere on the highway network, marginal changes are reported.

Local Junction Modelling

- 7.16. In reporting the results of the local junction modelling, the junction approach arms are assessed on the delay per passenger car unit (PCU) equivalent in seconds, the maximum queue lengths in PCU's and the traffic demand to capacity ratio presented as ratio of flow to capacity (RFC) for priority junctions, including roundabouts, and Degree of Saturation (DoS) for signal-controlled junctions.

A11/A1307 Roundabout

- 7.17. Local junction modelling was undertaken for the A11/A1307 grade-separated roundabout. The modelling results are reflected below in Table 7-4.

Table 7-4 - Summary of the A11/A1307 Junction Performance

Approach	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2019 Observed								
A1307 East Arm	0.8	2.42	0.44	A	0.5	1.98	0.33	A
A11 South Arm	1.0	3.80	0.48	A	0.7	2.61	0.40	A
A1307 West Arm	0.2	1.43	0.15	A	1.2	3.08	0.55	A
A11 North Arm	0.6	4.00	0.35	A	0.2	7.08	0.20	A
2029 Base + DM								
A1307 East Arm	1.0	2.87	0.49	A	0.6	2.45	0.38	A
A11 South Arm	0.9	3.19	0.45	A	0.7	2.60	0.40	A
A1307 West Arm	0.2	1.55	0.15	A	1.0	3.02	0.50	A
A11 North Arm	0.5	4.20	0.31	A	0.3	7.59	0.21	A
2029 Base + DS								
A1307 East Arm	0.7	2.13	0.42	A	0.5	1.91	0.30	A
A11 South Arm	0.9	3.26	0.46	A	0.7	2.61	0.41	A
A1307 West Arm	0.2	1.45	0.14	A	1.1	2.93	0.51	A
A11 North Arm	0.4	3.68	0.29	A	0.2	6.58	0.17	A
2041 Base + DM								
A1307 East Arm	1.1	3.06	0.53	A	0.6	2.56	0.37	A
A11 South Arm	1.0	3.44	0.49	A	0.8	2.74	0.43	A
A1307 West Arm	0.2	1.64	0.16	A	1.2	3.37	0.54	A
A11 North Arm	0.5	4.60	0.31	A	0.3	8.21	0.23	A
2041 Base + DS								
A1307 East Arm	0.8	2.27	0.44	A	0.5	2.01	0.31	A
A11 South Arm	1.0	3.46	0.49	A	0.8	2.68	0.42	A
A1307 West Arm	0.2	1.51	0.15	A	1.1	3.09	0.53	A
A11 North Arm	0.4	3.97	0.31	A	0.2	6.47	0.16	A

- 7.18. Within the modelling results, it is evident to see the RFC remains within desirable capacity when examining the 'Do Something' scenarios as all arms of the junction remain under 0.85. Comparisons of RFC shows there are only incremental variations between DM and DS scenarios for both the 2029 and 2041 modelled years. In the 2029 results the RFC decreases on all arms except the A11 South Arm in the AM and the A11 South Arm and A1307 West Arm in the PM where the RFC minorly increases by 0.01. In the 2041 results the RFC decreases on all arms of the junction.

A11 Travel Hub Roundabout

- 7.19. Local junction modelling was undertaken for the proposed A11 Travel Hub Roundabout that would be constructed as part of the scheme on the A1307 to create an access junction for the A11 Travel Hub site entrance/exit. The result of this modelling is reflected in Table 7-5.

Table 7-5 - Summary of the A11 Travel Hub Roundabout Junction Performance

Approach	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2029 DS								
Cambridge Rd SE Arm	1.1	3.28	0.52	A	0.4	2.13	0.27	A
Site access	0.0	2.82	0.01	A	0.2	2.68	0.14	A
Cambridge Rd NW Arm	0.3	2.18	0.21	A	1.4	4.27	0.58	A
2041 DS								
Cambridge Rd SE Arm	1.0	3.20	0.51	A	0.4	2.12	0.26	A
Site access	0.0	2.78	0.01	A	0.2	2.67	0.14	A
Cambridge Rd NW Arm	0.3	2.15	0.20	A	1.4	4.38	0.58	A

- 7.20. The modelling results indicate that all junction arms remain within capacity in the DS scenario as no RFC results are over 0.85. This junction was not modelled in the DM scenario as the junction will only be constructed if the CSET scheme progresses. The RFC either remains the same or slightly decreases between the 2029 and 2041 DS scenarios.

Francis Crick Avenue/Dame Mary Archer Way/Addenbrooke's Road Roundabout

- 7.21. Local junction modelling was undertaken for the Francis Crick Avenue/Dame Mary Archer Way/Addenbrooke's Road Roundabout. These results are reported below in Table 7-6. A 2022 Baseline year was used due to the availability of observed traffic count data at this junction from surveys undertaken in November 2022. The DS scenarios reflect the significant revisions to the junction required to facilitate the movements of buses using the junction to access the CSET Guided Busway.

Table 7-6 - Summary of Francis Crick Avenue/Dame Mary Archer Way/Addenbrooke's Road Junction Performance

Approach	AM		PM	
	DoS (%)	Mean Max Queue (PCU)	DoS (%)	Mean Max Queue (PCU)
Baseline 2022				
Francis Crick Ave – Left onto Dame Mary Archer Way	1.7	0.0	3.0	0.0
Francis Crick Av - Ahead	12.8	0.1	60.7	8.9
Dame Mary Archer Wy (E) – left onto Addenbrookes Rd	11.5	0.1	40.1	5.5
Dame Mary Archer Wy (E) – Ahead	1.9	0.0	0.6	0.0
Addenbrooke's Rd (S) – Ahead to Francis Crick Ave	34.1	0.3	5.1	0.0
Addenbrooke's Rd (S) – Ahead to Roundabout	39.0	0.3	12.4	0.1
Do Minimum 2029				
Francis Crick Ave – Left onto Dame Mary Archer Way 4/1	16.2	0.5	15.6	0.1
Francis Crick Av – Ahead 4/2	13.6	0.3	46.3	4.9
Dame Mary Archer Wy (E) – left onto Addenbrookes Rd 10/1	6.0	0.0	23.0	0.1
Dame Mary Archer Wy (E) – Ahead 10/2	7.0	0.0	7.3	0.0
Addenbrooke's Rd (S) – Ahead to Francis Crick Ave 1/1	37.7	0.3	7.8	0.0
Addenbrooke's Rd (S) – Ahead to Roundabout 1/2	35.3	0.3	9.0	0.0
Do Something 2029				
Francis Crick Ave – Left onto Dame Mary Archer Way 10/1	29.7	0.2	41.2	2.0
Francis Crick Av – Ahead 11/1	46.7	0.0	39.3	0.0
Dame Mary Archer Wy (E) – left onto Addenbrookes Rd 1/1	26.2	0.9	48.0	1.2
Dame Mary Archer Wy (E) – Ahead 2/1	25.4	0.3	51.5	0.8
Addenbrooke's Rd (S) – Ahead to Francis Crick Ave 5/1	77.1	12.1	17.0	0.1
Addenbrooke's Rd (S) – Ahead to Roundabout 6/1	68.1	1.1	19.1	0.1
NB Bus Route 13/1	5.9	0.2	5.9	0.2
SB Bus Route 16/1	4.3	0.2	4.3	0.2
Do Minimum 2041				
Francis Crick Ave – Left onto Dame Mary Archer Way 4/1	18.1	0.6	17.6	0.1
Francis Crick Av – Ahead 4/2	15.4	0.3	53.0	6.7

Approach	AM		PM	
	DoS (%)	Mean Max Queue (PCU)	DoS (%)	Mean Max Queue (PCU)
Dame Mary Archer Wy (E) – left onto Addenbrookes Rd 10/1	6.6	0.0	26.7	0.2
Dame Mary Archer Wy (E) – Ahead 10/2	7.8	0.0	8.5	0.0
Addenbrooke's Rd (S) – Ahead to Francis Crick Ave 1/1	42.0	0.4	8.9	0.0
Addenbrooke's Rd (S) – Ahead to Roundabout 1/2	39.3	0.3	10.1	0.1
Do Something 2041				
Francis Crick Ave – Left onto Dame Mary Archer Way 10/1	33.6	0.3	47.0	2.6
Francis Crick Av – Ahead 11/1	51.6	0.0	44.5	0.0
Dame Mary Archer Wy (E) – left onto Addenbrookes Rd 1/1	31.0	0.9	58.3	2.1
Dame Mary Archer Wy (E) – Ahead 2/1	27.9	0.6	58.4	0.8
Addenbrooke's Rd (S) – Ahead to Francis Crick Ave 5/1	86.3	21.7	19.3	0.1
Addenbrooke's Rd (S) – Ahead to Roundabout 6/1	75.3	2.6	21.5	0.1
NB Bus Route 13/1	5.9	0.2	5.9	0.2
SB Bus Route 16/1	4.3	0.2	4.3	0.2

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- 7.22. Examining the results, the Addenbrooke's Road (S) arm in the DS 2041 AM Peak scenario is the only arm to exceed desirable capacity with a degree of saturation reported at 86.3%. However, this arm of the junction only slightly exceeds capacity, which is a threshold of 85%, with a Mean Max Queue of 21.7 PCU. Apart from the Addenbrookes Road arm, all junction arms in the respective DS scenarios are predicted to operate well below the 85% Degree of Saturation threshold.

Francis Crick Avenue/Cambridgeshire Guided Busway Junction

- 7.23. Local junction modelling was undertaken for the Francis Crick Avenue/Cambridgeshire Guided Busway Junction. A 2022 Baseline year was used due to the availability of observed traffic count data at this junction from surveys undertaken in November 2022. The results are reported below in Table 7-7.

Table 7-7 - Summary of Francis Crick Avenue/Cambridgeshire Guided Busway Junction Performance

Link Name	AM		PM	
	DoS (%)	Mean Max Queue (PCU)	DoS (%)	Mean Max Queue (PCU)
Baseline 2022				
Francis Crick Avenue (N)	13.7	2.3	39.8	8.2
Guided Busway (E)	7.8	0.4	7.8	0.4
Guided Busway (W)	19.1	0.9	16.1	0.7
Francis Crick Avenue (S)	37.9	7.6	13.9	2.3
Do Minimum 2029				
Francis Crick Avenue (N)	26.9	4.9	31.8	6.0
Guided Busway (E)	7.8	0.4	7.8	0.4
Guided Busway (W)	16.4	0.7	16.4	0.7
Francis Crick Avenue (S)	39.3	8.0	26.4	4.8
Do Something 2029				
Francis Crick Avenue (N)	26.9	4.9	45.4	9.8
Guided Busway (E)	7.8	0.4	7.8	0.4
Guided Busway (W)	29.4	1.3	29.4	1.3
Francis Crick Avenue (S)	40.6	8.3	41.2	8.6
Do Minimum 2041				
Francis Crick Avenue (N)	29.7	5.5	36.1	7.1
Guided Busway (E)	7.8	0.4	7.8	0.4
Guided Busway (W)	16.4	0.7	16.4	0.7
Francis Crick Avenue (S)	43.4	9.2	29.9	5.5
Do Something 2041				
Francis Crick Avenue (N)	29.7	5.5	51.7	12.0
Guided Busway (E)	7.8	0.4	7.8	0.4
Guided Busway (W)	29.4	1.3	29.4	1.3
Francis Crick Avenue (S)	44.9	9.7	46.6	10.3

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- 7.24. Junction modelling results for the Francis Crick Avenue/Cambridge Guided Busway Junction indicates that all arms of the junction will operate within capacity in the DS scenarios in both 2029 and 2041.

Local Junction Modelling Summary

- 7.25. The local junction modelling undertaken for the A11/A1307 grade-separated roundabout, the proposed A11 Travel Hub access roundabout and the Francis Crick Avenue/Cambridgeshire Guided Busway signalised junction indicates that all arms of each of these junctions will operate within capacity with minimal queuing and delay in the 2029 and 2041 DS scenarios with the CSET Phase 2 Scheme in place. For the Francis Crick Avenue/Cambridgeshire Guided Busway signalised

junction, only marginal increases in DoS and queuing were noted between the DM and DS scenarios in 2029 and 2041. For the A11/A1307 grade-separated roundabout, the operation of the roundabout shows a slight improvement with the CSET Phase 2 Scheme in place when compared with the DM scenario in 2029 and 2041.

- 7.26. For the Francis Crick Avenue/Dame Mary Archer Way/Addenbrooke's Road roundabout, the design of the existing roundabout would be revised significantly with the CSET Phase 2 Scheme in place in order to accommodate a signal-controlled cut-through for northbound buses travelling between the Guided Busway and FCA. However, the modelling results predict that in the 2029 DS scenario all arms of this junction will operate within capacity, with a maximum DoS of 77.1% and queue of 12.1 PCUs on the Addenbrooke's Rd South arm of the junction in the AM Peak. In the 2041 DS scenario, the DoS on this arm is predicted to increase to 86.3% and the queue to 21.7 PCUs in the AM Peak, however it should be noted that a DoS of between 80 and 90% indicates that the junction arm is approaching practical capacity, rather than operating over-capacity. All other arms of the junction are predicted to operate well within capacity with minimal queuing and delay in the 2041 DS scenario.

Public Transport Accessibility Benefits

- 7.27. The proposed Scheme will provide a more frequent, faster, and more reliable bus service for local communities along its route and for those communities beyond the Scheme that will be served by bus routes using it. This includes the communities of Great Shelford, Stapleford, Sawston, Linton, Haverhill, Great Chesterford, Littlebury and Saffron Walden. It will therefore significantly improve public transport accessibility for a substantial number of people to employers, leisure facilities, health providers, education establishments and other amenities as is the case for Cambridge Biomedical Campus (CBC), and Granta Park, which according to the LTP, lacks good public transport accessibility.

Active Travel Benefits

- 7.28. The Scheme will include a new shared-use pedestrian and cycle path along its length. This will enhance facilities for pedestrians and cyclists by providing a new route, fully segregated from road traffic, connecting local communities to employers, leisure facilities, health providers, education establishments and other amenities. The Park and Active Travel forecast for 2041 for the A11 Travel Hub modal analysis forecasts a total of 800 users per day, which represent a combination of walk and cycle trips.
- 7.29. All PRow will also be reinstated following construction of the Scheme, with only very minimal alterations to their routings. The most notable change will be to NCR 11 to the south of the Addenbrooke's Road, where it currently runs adjacent to the railway line. NCR 11 will be diverted via the new CSETS shared-use pedestrian and cycle path for approximately 450m, before re-joining its existing route parallel to the railway line to the south. However, this alteration to the routing will result in a negligible change in the distance for cyclists of less than 75m.
- 7.30. Where PRow cross CSETS, dropped kerbs and tactile paving will be provided. The combined number of buses forecast to use CSETS during peak periods is up to 10 buses per hour, which equates to a bus approximately every 6 minutes in each direction. This means that there will be plenty of gaps of several minutes between buses, which will allow pedestrians and cyclists to cross the Scheme easily and safely, without the need for controlled crossings, such as Zebra or Pelican crossings.
- 7.31. The PRow that passes through the Travel Hub crosses the access road to the car parking, which is anticipated to carry moderate traffic volumes during peak periods. Therefore, a signal-controlled crossing for pedestrians and cyclists will be provided at this location.
- 7.32. The proposed CSETS active travel interventions will produce a wide range of benefits deriving from the improvements in the infrastructure and congestion relief, such as improved air quality, and better journey quality and ambience. For more detail of the magnitude of said benefits refer to section 1.8 of the CSET_21_02_00 Economic Dimension Addendum.

Construction

- 7.33. This section provides a broad overview of the construction phase of the CSET Phase 2 Scheme. A more detailed assessment of the predicted impacts of construction traffic is provided in CSET_10_55_00 Appendix 14.1 'Traffic and Transport Data' of the CSET_10_ Environmental Statement. The over-arching document setting out the commitments to ensure effective planning, management and control of the construction works for the CSET Phase 2 Scheme is the CSET_10_07_00 Appendix 2.4 Code of Construction Practice (CoCP).
- 7.34. Subject to the required permissions being in place, it is currently anticipated that construction will commence in Q4 2026 and will be completed in Q4 2028. Table 7-8 details an overview of the construction programme.

Table 7-8 - Overview of CSET Phase 2 Scheme Construction Programme

Construction Works Phases	Period (Overall Q1 2026 – Q1 2028)
Set-up Site Compound	Q4 2026 – Q2 2027
Phase A – A1301 tie-in to Compound 1	Q4 2026 – Q2 2027
Phase B – Main Compound to Structure 3	Q1 2027 – Q4 2028
Phase C – High Street to Bridge Structure 3	Q2 2027 – Q4 2027
Phase D – High Street to Sawston Road	Q4 2026 – Q3 2027
Phase E – Sawston Road to Structure 2	Q2 2027 – Q2 2028
Phase F – Haverhill Road to Bridge Structure 2	Q4 2026 – Q3 2027
Phase G – Hinton Way to Haverhill Road	Q3 2027 – Q2 2028
Phase H – Granhams Road to Hinton Way	Q3 2027 – Q2 2028
Phase I – Granhams Road to Bridge Structure 1	Q2 2027 – Q4 2027
Phase J – Addenbrookes Road R'about to Bridge Structure 1	Q1 2027 – Q2 2027
Phase K – Francis Crick Avenue	Q4 2026 – Q2 2028
Bridge Structure 3	Q1 2027 – Q2 2028
Bridge Structure 2	Q2 2027 – Q3 2028
Bridge Structure 1	Q2 2027 – Q1 2028

Milestone

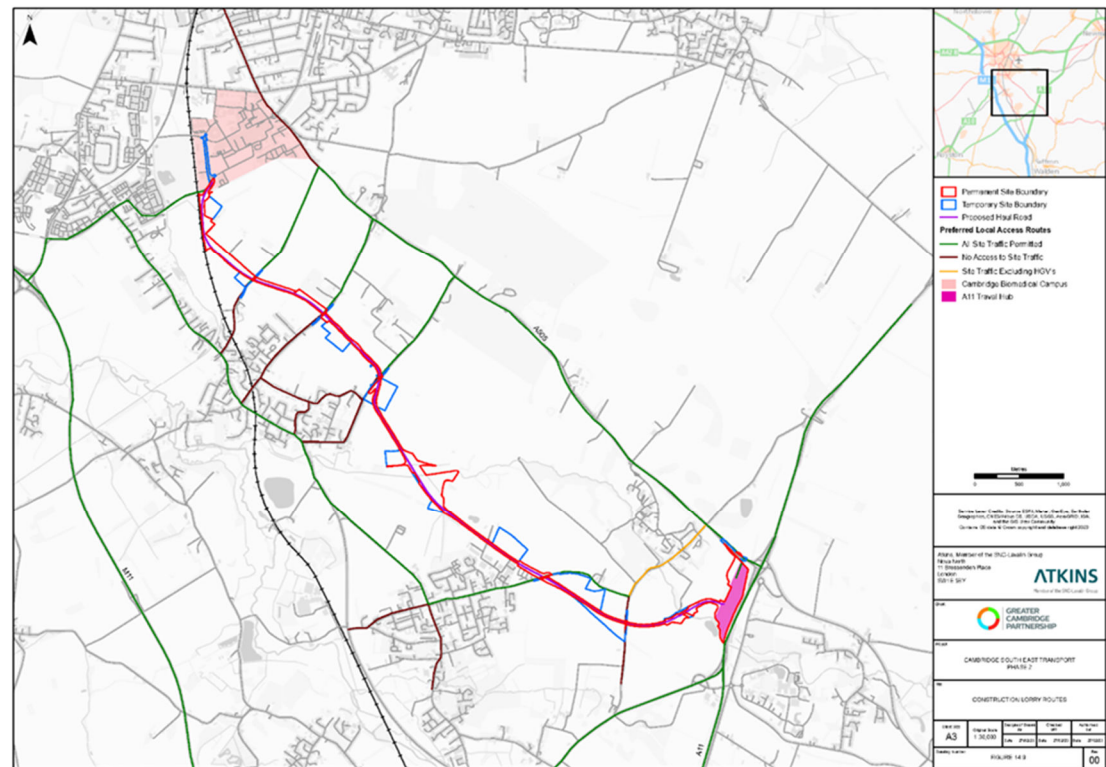
Construction Site Logistics

- 7.35. The core operating hours for most of the construction activities will follow construction industry standard working hours. These are:
- Monday to Friday: 08:00 to 18:00; and
 - Saturday: 08:00 to 16:00.
- 7.36. These operating hours are subject to the agreement of National Highways (NH) and CCC Street-works team depending on the section of road being worked upon. Night works between 20:00 and 06:00 will be restricted to activities that cannot be completed during the day, such as carriageway surfacing, because of the very adverse impact the associate temporary traffic management arrangements would otherwise have on traffic congestion and delay.
- 7.37. It is estimated that a daily construction workforce of up to 450 workers will be required during the busiest periods of construction activity.
- 7.38. The contractor appointed to construct CSETS will engage with all relevant stakeholders to coordinate construction works such that disruption is minimised as far as practicable. This will include coordination of temporary traffic management arrangements and construction vehicle access, which is described in detail in chapters 4, 7, 8 and 9 of the CSET_10_07_00 Appendix 2.4 CoCP.

Construction Vehicle Routing

- 7.39. There will be several construction compounds established along the route of the Scheme. These will consist of a main compound at the Travel Hub off the A1307 Cambridge Road and five satellite compounds placed at highway intersections along the planned route.
- 7.40. Medium and heavy construction vehicles accessing the compound sites will be restricted to designated routes to and from the main road network, via either M11 Junction 11 (Compounds 2, 3, and 7), or via the A11/A1307 junction (Compounds 1, 4, 5, and 6). The proposed construction lorry routes to each of the construction compounds is shown in Figure 7-2.
- 7.41. Detailed arrangements for the routing of construction vehicles and the transportation of the construction workforce will be further developed prior to commencement of construction and specified in the pre-construction CoCP that will be prepared once a contractor is appointed.

Figure 7-2 - Construction Vehicle Routing



- 7.42. Additional traffic flows generated by construction of the CSET Phase 2 Scheme will result from the deliveries of materials and equipment to compounds and commuting by the construction workforce
- 7.43. Table 7-9 presents the increase in peak daily traffic flows along the designated lorry routes forecast to be generated by the construction of CSETS during the busiest periods of activity. It also presents the 2029 DM forecast traffic flows for these roads, as well as the proportional change in traffic flows due to the additional construction traffic.

Table 7-9 - Increase in daily traffic flows along lorry routes

Road	2029 DM daily traffic (AAWT24)		CSET peak daily construction traffic		Proportional increase	
	All Vehs.	HDVs	All Vehs.	HDVs	All Vehs.	HDVs
Granham's Rd	4,742	142	96	48	2.0%	33.8%
Hinton Wy	8,327	135	48	24	0.6%	17.8%
Haverhill Rd	7,172	75	72	36	1.0%	48.0%
Babraham High St	2,533	34	42	0	1.7%	0.0%
Hauxton Rd	32,512	787	288	144	0.9%	18.3%
Addenbrooke's Rd west of A1301	14,249	248	288	144	2.0%	58.1%
Addenbrooke's Rd east of A1301	10,505	174	120	60	1.1%	34.5%
A1301 Cambridge Rd - Addenbrooke's Rd to Granham's Rd	12,931	283	126	84	1.0%	29.7%
A1301 Cambridge Rd - Granham's Rd to Hinton Wy	13,813	344	126	84	0.9%	24.4%
A1301 Cambridge Rd - Hinton Wy to Bury Rd	9,582	289	126	84	1.3%	29.1%
A1301 Cambridge Rd - Bury Rd to Cambridge Rd	12,218	170	126	84	1.0%	49.4%
Cambridge Rd	9,488	147	126	84	1.3%	57.1%
Babraham Rd*	1,201	17	126	84	10.5%	494.1%
Sawston Rd	1,201	17	42	0	3.5%	0.0%
A1307 Babraham Rd - A11 to the Travel Hub access	18,112	574	348	174	1.9%	30.3%
A1307 Babraham Rd – Travel Hub access to Haverhill Rd	19,159	573	192	96	1.0%	16.8%
A1307 Babraham Rd - Haverhill Rd to Hinton Wy	22,965	521	144	72	0.6%	13.8%
A1307 Babraham Rd - Hinton Wy to Granham's Rd	17,762	804	96	48	0.5%	6.0%
A11 - A505 to A1307	57,437	3,276	278	139	0.5%	4.2%
A11 east of A1307	43,404	2,632	70	35	0.2%	1.3%
A505 - M11 to A11	32,631	1,814	139	70	0.4%	3.8%

**Note that Babraham Road in Sawston currently experiences a low level of daily HDV traffic (17 per day, or 1-2 per hour). This is predicted to increase to a maximum of 84 per day (or approximately 6 per hour during typical working hours for construction personnel) during the construction of the CSET Phase 2 Scheme. However, an additional 4 or 5 HDVs per hour, or one HDV every 10 minutes, is not expected to have a material impact on the operation of Babraham Road.*

- 7.44. Temporary traffic management arrangements will be required: where CSETS intersects roads; to create temporary access for construction compounds; for utility diversions; and to create the vehicular access junction for the Travel Hub off the A1307.

- 7.45. The temporary traffic management arrangements that are anticipated to be in place for more than a month are as follows:
- Phase K Francis Crick Avenue: Lane closures & temporary traffic lights for 61 weeks
 - Phase I & H interface on Granham's Road: Temporary traffic lights for 56 weeks
 - Phase H & G interface on Hinton Way: Temporary traffic lights for 44 weeks
 - Phase G & F interface on Haverhill Road: Temporary traffic lights for 80 weeks
 - Phase E & D interface on Babraham/ Sawston Road: Temporary traffic lights for 80 weeks
 - A1307 Babraham Road (near A11 roundabout): Lane closures & temporary traffic lights for 22 weeks
- 7.46. All the temporary traffic management arrangements will be in accordance with applicable requirements as set out in Chapter 8 of the Traffic Signs Manual published by the DfT.
- 7.47. The temporary traffic lights at the intersection of CSETS with Granham's Road, Hinton Way, Haverhill Road and Sawston Road required during construction will be configured such that traffic on these roads will only receive a red signal to allow construction traffic to cross them. This will minimise any delay caused to drivers on these roads which carry relatively low traffic volumes.
- 7.48. Francis Crick Avenue provides one of the key strategic routes regularly used by ambulances for emergency access. Consequently, access for emergency services will be retained throughout the construction programme. The temporary traffic management arrangements on Francis Crick Avenue will be fully coordinated and agreed with CBC and the emergency services prior to implementation to ensure that access for ambulances and other emergency services is not unduly compromised. The commitment to undertaking coordination with CBC and the emergency services is detailed in chapters 4 and 5 of the CSET_10_07_00 Appendix 2.4 CoCP.

Construction impacts on Public Rights of Way

- 7.49. Where Public Rights of Way (PRoW) cross the Scheme, it will not be safe to keep these open during construction. Consequently, all the PRoW that cross the Scheme will be temporarily closed for most of the construction programme and there are no practical temporary diversions available.
- 7.50. However, users of the two PRoW from Sawston that cross CSETS can alternatively use Sawston Road that has a segregated shared-use pedestrian and cycle path along one side of it and will be kept open during construction where it crosses the Scheme.
- 7.51. The results of the Active Travel User surveys undertaken to inform the Walking, Cycling and Horse-riding Assessment Report (WCHAR) included in Appendix S indicated that the PRoW are used mainly for recreation purposes. The effects of the temporary closure of these PRoW during the construction phase of the CSET Phase 2 Scheme is assessed in detail in chapter 13 'Population and Human Health' of the CSET_10_02_00 Environmental Statement Volume 2 Main Report.
- 7.52. All PRoWs will be reinstated following construction of the Scheme, with only very minimal alterations to their routings.

8. Mitigation

- 8.1. This section of the Transport Assessment summarises measures to mitigate any potential adverse impacts during both operation and construction of the Scheme.

Operational Phase

Embedded mitigation

- 8.2. The proposed Scheme incorporates the following elements to mitigate any potential adverse impacts during operation:
- Active travel route along the EMAT;
 - Retention of all PROW across the Guided Busway Busway;
 - Signal controlled junctions at the intersections of the Guided Busway with roads;
 - New roundabout on the A1307 for access to the Travel/Park and Ride Hub design with sufficient capacity to accommodate forecast traffic demand;
 - Solar Car Ports with ducting to allow for future expansion;
 - 62 Parking spaces with EV charging provision close to the central interchange to facilitate the uptake in EVs as part of the UK government's transport decarbonisation plan;
 - Cycle Parking provision that is secure, accessible and convenient;
 - A signal-controlled crossing where the PROW crosses the Travel Hub access road;
 - Ample car parking provision in the Travel Hub to cater for additional future demand; and
 - Mini interchanges along the Guided Busway to improve public transport accessibility for local communities.

Further mitigation

- 8.3. The proposed Scheme is forecast to have an overall beneficial transport impact by facilitating a switch from the use of the private car for journeys to and from Cambridge to more sustainable modes of transport.
- 8.4. Some specific locations have been identified as areas where volume over capacity (V/C) changes may occur. These include:
- Northbound on Gonville Place approaching Parkside/Mill Road Junction – the operational performance of this junction could be monitored post-opening of the Scheme. Optimisation of the traffic signals at this junction could potentially be explored as a means to resolve a possible increase in northbound queues resulting from the predicted increase in V/C on the Gonville Place arm of the junction.
 - Westbound on Long Road approaching Trumpington Road – the operational performance of this junction could be monitored post-opening of the Scheme. Optimisation of the traffic signals at this junction could potentially be explored as a means to resolve a possible increase in westbound queues resulting from the predicted increase in V/C on the Long Road arm of the junction.
- 8.5. For both of the locations described above, CCC as the Local Highway Authority (LHA) should regularly monitor the operational performance of the road network and adjust or optimise traffic signal timings/settings as necessary on a regular basis as part of their normal duties, therefore additional monitoring should not be required as a result of implementation of the Scheme.

Construction Phase

- 8.6. The only potential significant adverse effect predicted during construction is additional driver delay on Francis Crick Avenue due to temporary traffic management arrangements that could affect ambulances accessing Addenbrookes Hospital. To mitigate this potential adverse effect, the outline Construction Traffic Management Plan (CTMP) included in Chapter 9 of the CSET_10_07_00

CoCP will be updated to include monitoring proposals to ensure that there are no undue delays for emergency services, with the monitoring of delays on FCA during the construction phase to be undertaken by the Principal Contractor.

8.7. The CoCP also sets out the general measures to be put in place to minimise adverse impacts during construction. These will include:

- Restrictions on operating hours to normal working periods, with a few exceptions where unavoidable;
- Use of designated and signposted construction lorry routes;
- Measures to encourage construction workforce to commute by sustainable modes of transport;
- Temporary traffic management arrangements to ensure the safety of the public and minimise disruption;
- Vehicle cleaning on exit from work-sites;
- Requirement for vehicle payloads to be covered where appropriate;
- Traffic marshals or Banksmen to manage vehicle access to work-sites; and
- Temporary haulage routes along the alignment of the Guided Busway to minimise construction traffic movements on the local road network.

9. Summary and Conclusion

Summary

- 9.1. AtkinsRéalis have been appointed by the Greater Cambridge Partnership (GCP) to prepare a Transport Assessment (TA) to accompany a planning application for the Cambridge South East Transport (CSET) Phase 2 Scheme. The CSET Phase 2 Scheme is a priority project for the GCP, which aims to maximise the potential for journeys to be undertaken by sustainable modes of transport and reduce the impact of forecast traffic and congestion on the highway network to the south-east of Cambridge.
- 9.2. The Scheme seeks to provide additional public transport capacity within the CSET corridor and will deliver a Guided Busway and an adjacent Emergency and Maintenance Access Track (EMAT), which will have a dual use as an active travel route, as well as a new A11 Travel/Park and Ride Hub facility. The Cambridge Southern Fringe, which includes CBC, is currently experiencing high levels of employment growth which would be expected to generate a significant number of car trips on the highway network in the future if no suitable alternatives are provided.
- 9.3. The existing Babraham Road Park & Ride, which serves the A1307 corridor and is the nearest Park & Ride site to the proposed A11 Travel Hub, is known to operate with average weekday capacity which is above CCC's desired operational capacity of 85%. With very limited existing Park & Ride capacity serving the south east of Cambridge, the A11 Travel Hub is intended to provide additional capacity to serve this part of the network into the future.
- 9.4. The key Route 13 and Route 7 bus services serving the A1307 and A1301 corridors respectively, both currently experience significant delays during the morning peak on their inbound journeys towards Cambridge city centre as a result of buses mixing with general traffic on congested highways. The CSET Phase 2 Scheme would provide a dedicated Guided Busway which would allow buses using this infrastructure to avoid existing congestion hotspots, with resulting improvements in both journey times and journey time reliability for buses to and from Cambridge city centre.
- 9.5. For pedestrians and cyclists, active travel provision along the existing A1301 and A1307 is fragmented and requires improvement to promote walking and cycling as an attractive mode of travel. The CSET active travel route aims to improve this, providing a continuous route between the A11 Travel Hub and CBC and better connections to the villages of Sawston, Stapleford and Shelford.
- 9.6. With the CSET Phase 2 Scheme in place, an additional 1.7 million journeys are forecast to take place by bus annually in 2041 within the CSET corridor, in comparison with the DM scenario without the Scheme. This clearly demonstrates that the Scheme would provide the capacity to facilitate additional journeys by bus and a modal shift away from car use for access into Cambridge from the south east. The Scheme will therefore reduce the level of forecast traffic growth that would otherwise arise from planned growth and development in and to the south of Cambridge.
- 9.7. Strategic modelling of the highway network using the CSRM2 SATURN model demonstrates that there would be substantial reductions in total vehicle kilometres driven in both 2029 and 2041 with the CSET Phase 2 Scheme in place, as well as reductions in traffic levels on several key highway links. Consequently, it will have an overall beneficial impact on the operational performance of the highway network.

Conclusion

- 9.8. This TA demonstrates that the CSET Phase 2 Scheme meets its overall scheme-specific objectives and improves sustainable transport options for journeys to and from Cambridge from the south-east. The 2029 and 2041 Do Something scenarios, as modelled, show that the Guided Busway and A11 Travel Hub increase demand for public transport within the area, removing a portion of car trips from the local highway network, whilst the improved active travel provision provided by the dual use of the EMAT facility will promote an increase in active travel trips.
- 9.9. Consequently, the Scheme will have an overall beneficial impact on the operational performance of the highway network by lessening forecast traffic growth that would otherwise arise from planned

growth and development in, and to the south of, Cambridge. It thereby, facilities planned development and enabling economic and population growth in the region.