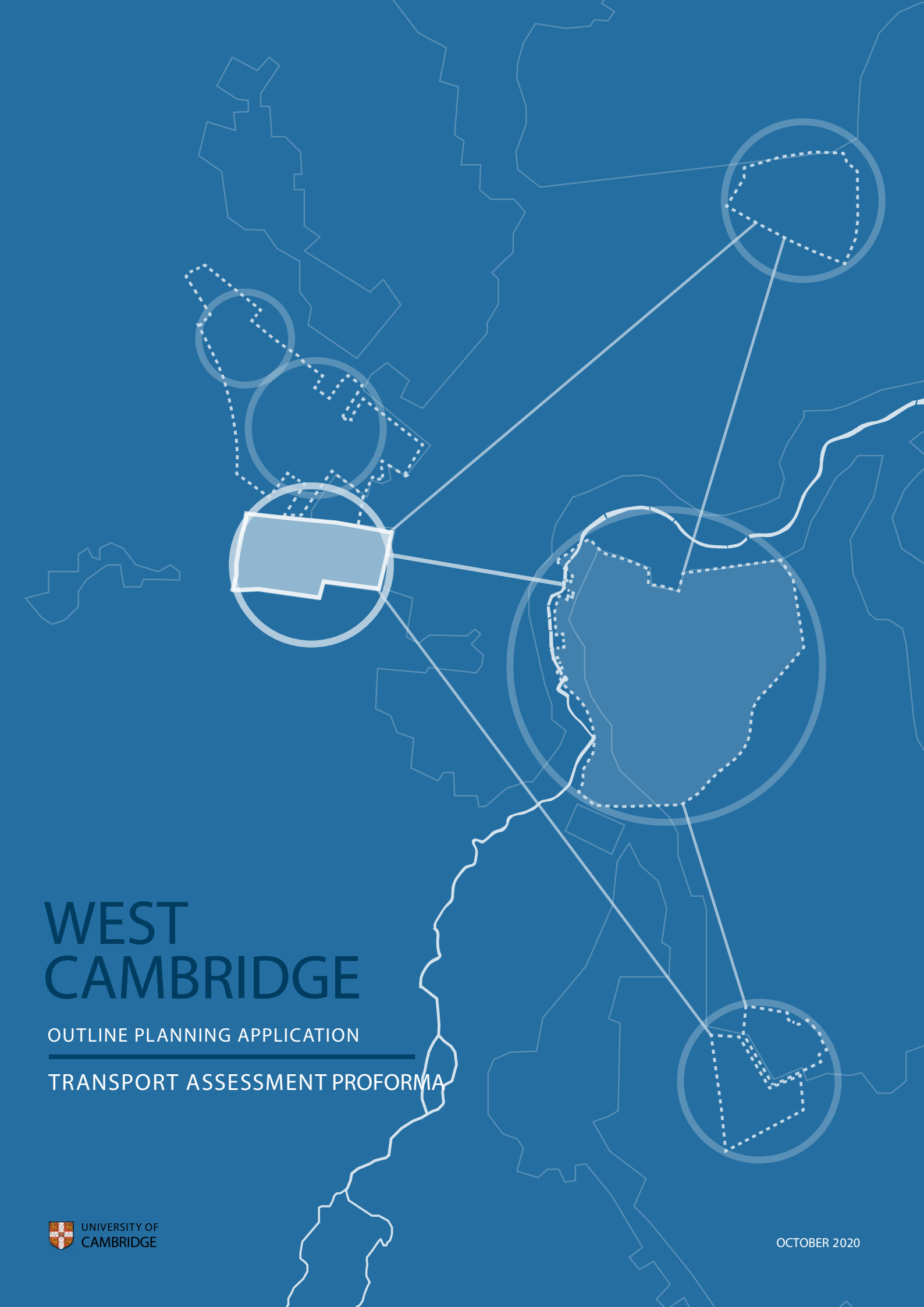


WEST CAMBRIDGE

OUTLINE PLANNING APPLICATION

TRANSPORT ASSESSMENT PROFORMA

UNIVERSITY OF CAMBRIDGE

OCTOBER 2020

STANTEC UK LTD

UNIVERSITY OF CAMBRIDGE

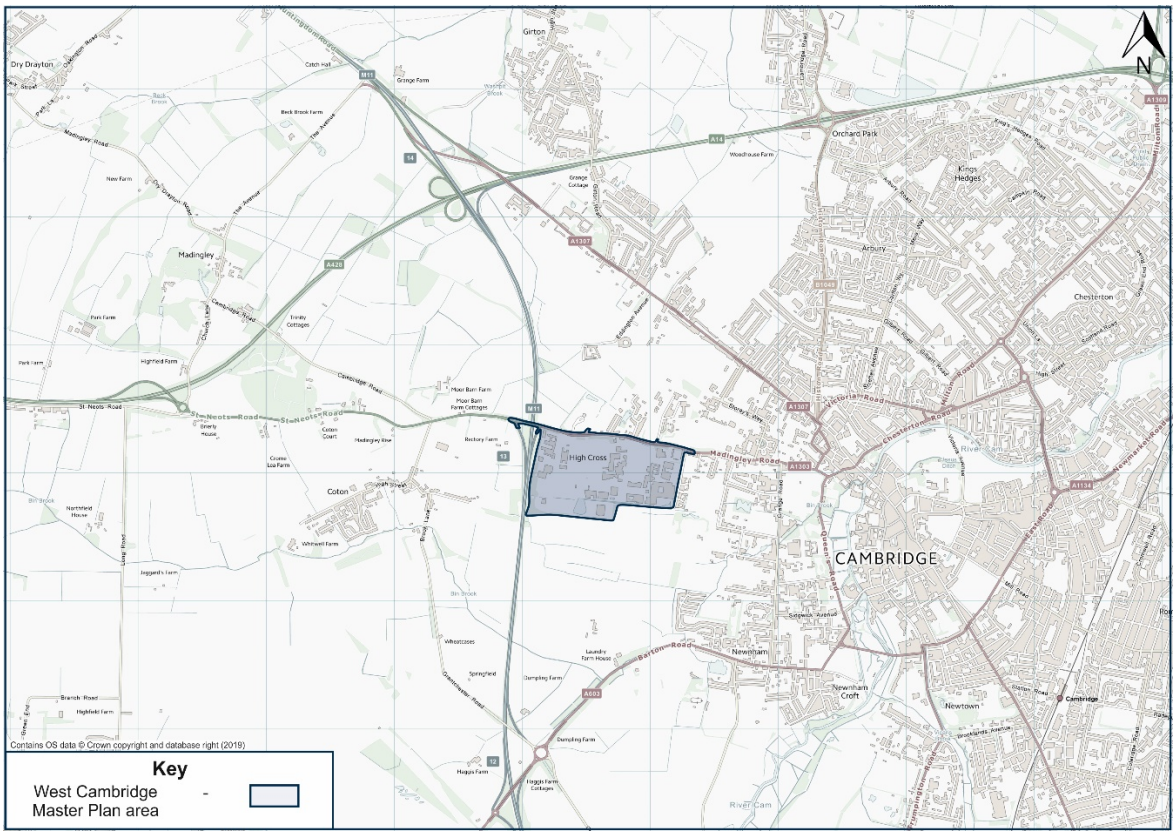
45339 - WEST CAMBRIDGE DEVELOPMENT

Planning Application Transport Assessment Cover Sheet

PROPOSAL

Proposal: describe the proposal

West Cambridge is an academic and commercial research development in the western side of Cambridge promoted by the University of Cambridge, allocated in the Cambridge Local Plan 2018. The location of this Site is shown on the plan below:



The existing masterplan for West Cambridge that was granted an approval in 1999 forms the basis of the current development on the Site. Together with the pre-existing development on the Site, the 1999 masterplan envisaged just under 275,000m^2 of development, approximately 47% of which would be academic, 15% research institute and 22% commercial research.

Policy 19 of the Cambridge Local Plan 2018 promotes the densification of the West Cambridge through a revised masterplan subject to a number of conditions. The University of Cambridge is producing a new masterplan for the Site which increases the amount of development to approximately 500,280m^2. In detail:

Proposal: describe the proposal

Total Existing and Proposed Full Development - Land Use Mix

Land-Use (GFA)	Existing Implemented Development (m^2)	1999 Consent Not Implemented (m^2)	Existing Devt to be Demolished (m^2)	Proposed Additional Devt to Full Devt (m^2)	TOTAL FULL DEVT (m^2)
Academic Research (m^2)	102,259	-27,576	-44,350	200,000	**257,909**
Commercial Research and Research Institute (m^2)	40,386	52,086		170,000	**210,386**
Nursery (m^2)	650			2,500	**3,150**
Shop, Café Restaurant, Pub - A1-A5 (m^2)				1,000	**1,000**
Assembly and Leisure	6,060	-4,060		4,100	**10,160**
Residential (m^2)	10,680		-680		**10,000 (206 units)**
Ancillary Infrastructure (data centre, energy centre)	4,515		-2,540	5,700	**7,675**
Total (m^2)	**164,550**	**83,722**	**-47,570**	**383,300**	**500,280**
Car Parking (spaces)	**3,150**			**4,390 (maximum)**	

BASELINE CONDITIONS

Baseline Survey: Date and location of surveys undertaken

Traffic turning count surveys were undertaken by TSP during the peak hours on Thursday 18th June 2018 at the following junctions:

- Madingley Road / M11 Off-slip;
- Madingley Road / M11 On-slip;
- Madingley Road / Park and Ride access; and
- Madingley Road / High Cross junction / Eddington Avenue.

Further traffic turning count surveys were undertaken during the peak hours on 21st May 2019 by Advanced Transport Research (ATR) at:

- Madingley Road / JJ Thomson Avenue;
- Madingley Road / Clerk Maxwell Road; and
- Madingley Road / Madingley Rise.

Automatic Traffic Count Surveys were also commissioned by the University in June 2015 over a 24-hour period for 14 days to obtain data on composition and weekly / daily traffic variation at the following locations:

- Barton Road – 15m west of junction with Grantchester Road;
- JJ Thomson Avenue – 70m south of Junction with Madingley Road;
- Grange Road – 50m north of Clarkson Road; and
- Madingley Road – 150m west of M11 Junction 13.

Further data were also obtained from Highways England's TRADS (now Webtris) database for sites on the strategic trunk road network on the following links:

- M11 Junction 12 – 13;
- M11 Junction 13 – Junction 14;
- M11 between A14 / Huntingdon Road;
- A14 Junction 29 – Junction 30;
- A14 – north east of M11 Junction 14;
- A14 – west of Junction 32; and
- A428 – west of M11 Junction 14

Public Transport Service Summary (bus)			
Number and Operator	**Destinations Served**	**Frequency**	
		Mon-Sat	**Sun**
X3 (Whippet)	Cambridge, West Cambridge, Cambourne, Lower Cambourne, Papworth, Godmanchester, Huntingdon	90	120
8 (Whippet)	Cambridge, Coton, Madingley, Dry Drayton, Bar Hill, Boxworth, Conington, Knapwell, Elsworth, Papworth	Off peak only 3 journeys	No service
Citi 4 (Stagecoach)	Cambridge, Hardwick, Cambourne	20	60
Universal ('U') (Whippet)	Eddington, Cambridge City Centre, Cambridge Rail Station, Addenbrookes Hospital	15	Every 30 mins
X5 (Stagecoach)	Cambridge, St Neots, Bedford, Milton Keynes, Buckingham, Bicester, Oxford	30	30

Existing Bus Stop Locations

Madingley Road

- two outside the Western Access Road – both stops are formed by bus stop flags and timetables. The westbound stop is located in a bus layby;
- two located 210m to the west of the JJ Thomson Avenue junction – both stops are formed by a bus stop flags and timetables. The westbound stop is located in a bus layby;

JJ Thomson Avenue

- two sets of bus stops are located at two locations along JJ Thomson Avenue. All four stops are formed by bus stop flags and poles, the two bus stops for services exiting the site are further supported by bus shelters and timetable information;

Charles Babbage Road

- the bus stops located outside the Institute for Manufacturing building are formed by stop bus flags and poles for both directions;
- the bus stops located outside the Department for Materials Science and Metallurgy building are formed by bus flags and poles for both directions.

Public Transport Gaps and Opportunities Identified

Bus travel is an attractive alternative to the private car for many short- and medium- distance trips, offering the potential to replace car travel locally (such as to adjacent developments), to other destinations across Cambridge, and further afield. As such, public transport forms an essential element of the Access and Movement Strategy for the Development.

The scale of the proposed Development means that there will be both a high quantum of demand for public transport, and a number of locations that will need to be connected to West Cambridge.

The Site would need to be well served by local bus routes to deliver mode shift away from the private car for Journey to Work trips. The University's already active travel policy encourages staff and students to use public transport, cycle or walk wherever possible: to date this has been a highly successful measure and the future development of bus services in this corridor would enable bus mode share to be further enhanced.

The Public Transport Strategy has been developed to cater for the demand flows identified earlier, and in the context of existing - and committed - public transport service proposals in the area. The proposals will cater for several user groups, including:

- staff working on various University (and other) employment sites, largely travelling at peak times;
- staff travelling between different University and NHS Trust sites within the city, generally during the working day;
- intercepting staff travelling into West Cambridge from the north and east by car;
- residents living in the Development sites accessing employment, retail and leisure activities in Cambridge city centre or via one of the rail stations, travelling throughout the day;
- students travelling to and from the University teaching, research, leisure and accommodation facilities, travelling throughout the day; and
- business visitors to West Cambridge, largely travelling to the city by rail within the working day.

Pedestrian and Cycle Gaps and Opportunities Identified

It is widely acknowledged that walking forms the most important mode of travel for local trips, and across the UK offers the greatest potential to replace short distance car trips of less than 2km (as set out in previous Government Policy such as PPG13).

Similarly, and also across the UK, cycling offers the greatest potential to replace short- and medium-distance car trips up to 5km. Local evidence referred to by the Highway Authorities suggests that people within Cambridge walk and cycle further distances than the national average. As such, walking and cycling form essential elements of the Access and Movement Strategy for the Development.

Connections to the Site would need to be respond to:

- ensure good permeability through West Cambridge;
- strengthen links between West Cambridge and the adjacent North West Cambridge; and to
- improve access to the surrounding area, including to the City Centre.

Accident Analysis

Road traffic collision personal injury summary data were obtained from Cambridgeshire County Council for the full five-year period between February 2014 and February 2019. The observed number of combined link and minor junction personal injury collisions (PICs – formerly known as personal injury accidents), and major junction personal injury collisions are considered on each link and junction within the Study Area.

The comparable number that could be anticipated on these links and junctions was also calculated with reference to the Department for Transport's Design Manual for Roads and Bridges, Volume 13.

A total of 22 collisions were observed within the study area. Of the observed incidents:

- none were classified as a fatal in severity;
- four were classified as a serious injury collision;
- only one slight PIC was recorded within the West Cambridge development (along JJ Thomson Avenue);
- no PICs were recorded along Clerk Maxwell Road; and
- 18 were classified as slight in severity.

Whilst West Cambridge will not result in any detriment to the existing highway safety conditions within the site vicinity, as part of the West Cambridge Development Transport Mitigation Strategy remedial measures are proposed.

DEVELOPMENT TRIPS

TRIP Rate Methodology: Provide a short description of the methodology to calculate trip rates.

Background

Within the context of an assessment of the Key Phase 1 of West Cambridge Development with relatively small development impact, it was agreed that a more local approach to the assessment of impact was appropriate.

Further, then to understand the potential traffic impact and assignment of the Full Phase of the Proposed West Cambridge Development, the analysis was extended – acknowledging that West Cambridge is being brought forward within the context of some considerable uncertainty, including:

i) the scale of local residential development identified in the Cambridge Local Plan 2018;

ii) the impact of the A14 Huntingdon – Cambridge Improvement Scheme granted a Development Consent Order by the Secretary of State in May 2016, construction approaching completion;

iii) the A428 Black Cat to Caxton Gibbet Enhancement Scheme recently circulated for consultation;

iv) Highways England's need to consider measures along the M11, and the inclusion within the March 2020 Road Investment Strategy 2 statement that the M11 Junction 13 is a "RIS3 Pipeline" Scheme for 2025 - 2030; and

v) the impact of a series of other transport schemes – including - inter alia – the Oxford – Cambridge Expressway, and East-West Rail.

As such, the Full Development information provided within the Transport Assessment is to inform the assessment of the Transport Cap - to finance the necessary development mitigation. The detail included within this assessment will be reviewed subsequently in the context of the applications for later phases in the context of further clarity being reached.

The Stantec Spreadsheet Transport Model

The Spreadsheet Transport Model was originally developed by Stantec (then operating as Peter Brett Associates) in conjunction with the Highway Authorities – Cambridgeshire County Council and the Highways Agency (now operating as Highways England) - to assess development trips resulting from the adjacent North West Cambridge Development. It has since been expanded to include the West Cambridge site, as well as the additional modelling zones for other development sites in the wider Cambridge area.

The modelling process estimates trip numbers generated by the West Cambridge Development and other developments in the Cambridge area by combining a series of processes:

- the spreadsheet-based part of the modelling process produces trip matrices for different scenarios, transport modes and time periods;
- these matrices can then be assigned to the appropriate transport and development network in OmniTrans (the transport modelling software).

The Transport Model has since been subjected to detailed review by Cambridgeshire County Council, and has been expanded to include the West Cambridge site, as well as the additional modelling zones for other Local Plan allocations within in the wider Cambridge area.

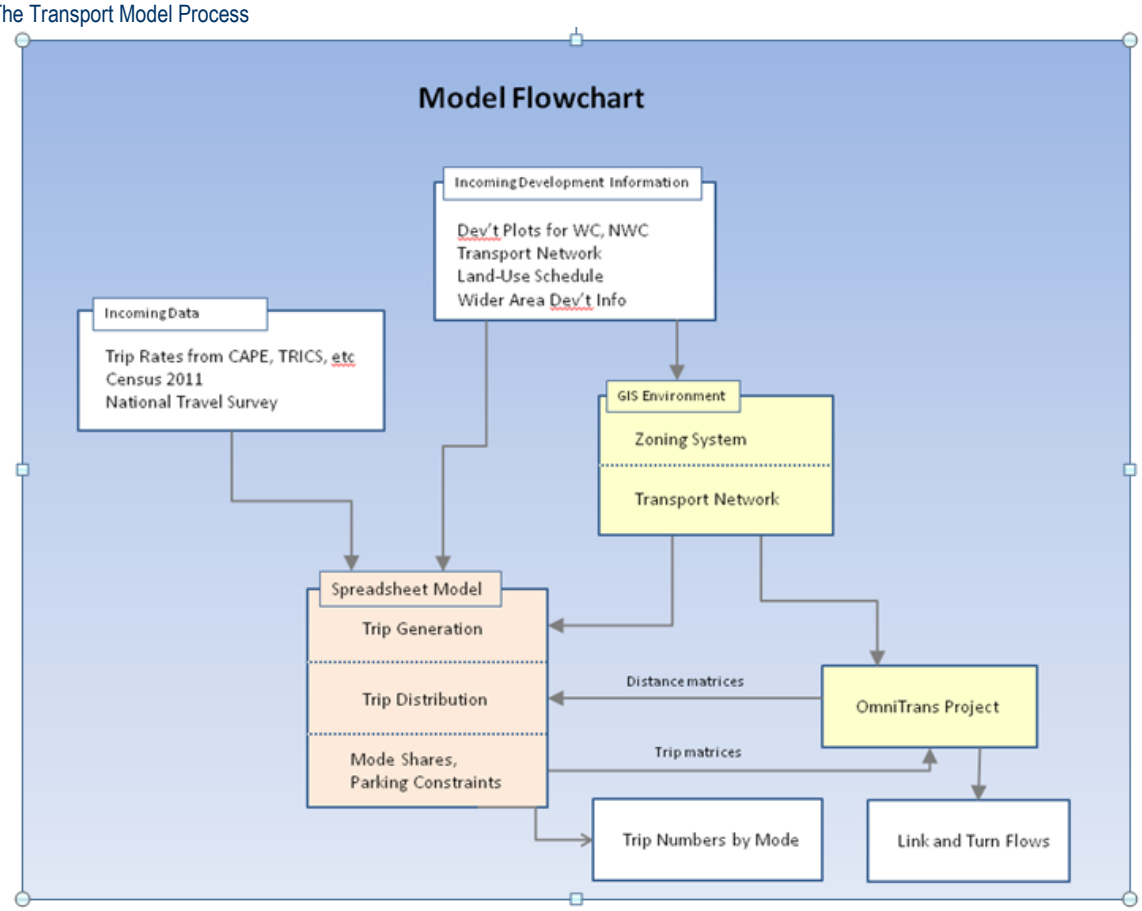
TRIP Rate Methodology: Provide a short description of the methodology to calculate trip rates.

The modelling process estimated all trip numbers generated by the West Cambridge Development and other developments in the Cambridge area by combining a series of processes:

- the spreadsheet-based part of the modelling process produced trip matrices for different scenarios, transport modes and time periods;
- these trip matrices are then assigned on the transport network using the transport model software.

The main features of the Transport Model structure are shown figuratively:

The Transport Model Process



These component parts are:

i) the Spreadsheet Model, comprising of the various elements to assess:

- the Development Land-Use Data - the assembly and calculation of land use data for all the development zones in the model for Housing, and for 'Other Uses' - for non-housing land uses;
- trip generation by land-use types, using a series of agreed data sources – including TRICS data and person trip surveys undertaken at West Cambridge;
- distribution by land-use types, using a Gravity Model, calibrated with reference to available data (such as the Census, and journey-to-work survey data);
- the trip matrices – created by mode, by land-use;

TRIP Rate Methodology: Provide a short description of the methodology to calculate trip rates.

- adjustments to account for deterrence to car travel – such as car parking constraints;

ii) the Network and Zoning System:

- transport network - a detailed road network was developed for the wider Cambridge area, including all of South Cambridgeshire and parts of Essex and Hertfordshire. The existing road network was extracted from a national digital road network (Navteq data) which included measured link speeds from GPS systems for individual links in the network, enabling network distances and travel times to be calculated;

- zoning system – all development is loaded onto the network by a series of zones. These zones were devised in GIS, based on Census single and multiple output areas in and around Cambridge. Outside of Cambridge, these areas broaden to single and multiple wards, with larger zones representing local authorities on the periphery of the zoning system. In addition to the Census-based zones around the periphery of the model, a series of smaller zones were introduced for development areas, with multiple zones used for North West Cambridge and West Cambridge so that relatively short trips can be modelled sufficiently - typically by foot or bicycle;

iii) Post-Processing of Trip Matrices - the matrices of development trips by mode, output from the Spreadsheet Model for each scenario, are imported into OmniTrans, the transport model software, and assigned to the appropriate network.

Further details of the Stantec Spreadsheet Model are contained in Technical Note 7A, contained in Appendix 12.1 of the Transport Assessment.

The Transport Model has been approved for this application by Cambridgeshire County Council.

TRIP RATES AND NUMBERS

The West Cambridge Development trip rates have been derived for all the land uses, including those existing and proposed for the West Cambridge site from various sources:

- Academic Research - derived from person trip survey data undertaken at the Department of Materials Science and Metallurgy at West Cambridge;

- Commercial Research - trip rates from a synthesised 12 hour data set has been calculated for Commercial Research assessed with reference to four recent Commercial Development applications as follows:

  - Cambridge Biomedical Campus – January 2016;

  - AstraZeneca – October 2014;

  - Abcam – January 2016; and

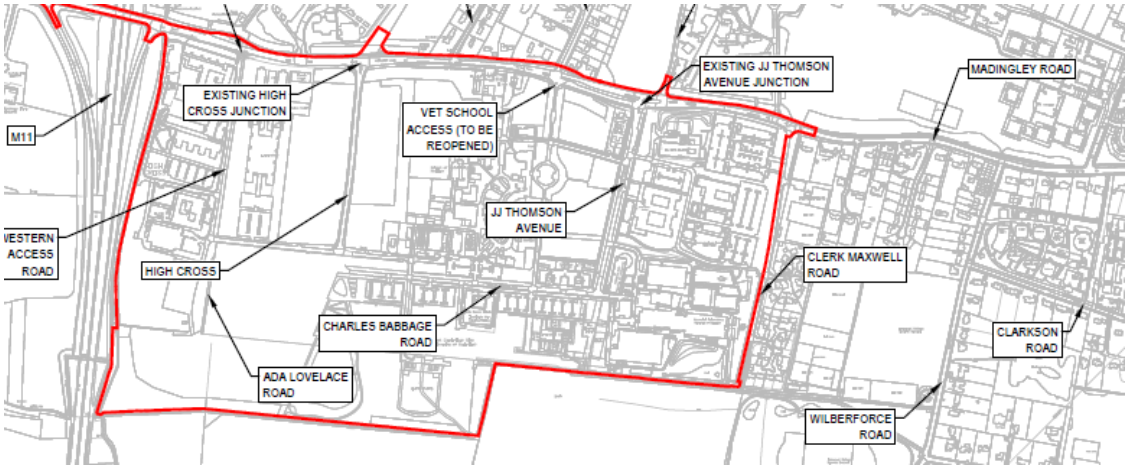
  - CCL Phase 7 Cambridge Science Park – February 2016;

- Commercial - in the wider area development zones - TRICS trip rate for Office per employee;

- for all Other land uses – use has been made of the appropriate TRICS trip rates.

ACCESS AND PARKING

Vehicle access will be provided to the Development by a series of existing, enhanced and new vehicular access points off Madingley Road. These will be delivered through the duration of the Development, to a programme to be determined. These access points are shown below, and described in detail:



- the existing traffic signal controlled High Cross junction - which could be subjected during Phase 1 to an enhancement to include a ban on the right turn in to / right turn out from the site from Madingley Road;

- the existing JJ Thomson Avenue priority junction – which could be subjected during later Post - Phase 1 phases to a traffic signal-controlled upgrade as part of the Greater Cambridge Partnerships' Madingley Road Cycle Scheme;

- the existing Clerk Maxwell Road priority junction, which could be used to access a potential car park (other access options are being considered); and

- a new traffic signal controlled, restricted movement (right in / left out), access junction onto Madingley Road at the western end of the site, which would connect to the Western Access Road. This would be delivered during later - Post Key Phase 1 phases. This junction would intercept strategic traffic movements between the site and the west, including from the M11 – this early interception would help to maintain conditions at other local junctions – such as High Cross.

Cycle parking spaces will be provided as a minimum in accordance with the following standards set out in the Cambridge Local Plan 2018:

Minimum Cycle Parking Provision Proposals

Land-Use	Cycle Parking Provision - Minima
Offices	2 space for every 5 members of staff or 1 per 30 sq. m Gross Floor Area (whichever is greater) Some visitor parking on merit
Non-residential higher and further education	2 for every 5 members of staff Cycle parking for 70 per cent of students based on anticipated peak number of students on site at any one time

To accommodate the likely circa 3,600 students and 7,200 staff within Key Phase 1, the Development would be provided with around 7,000 cycle parking spaces to reflect these standards.

ACCESS AND PARKING

The proposed maximum car parking standards to be applied at West Cambridge have been derived with initial reference to the maximum car parking standard applied at the adjacent North West Cambridge Development, and to the Cambridge Local Plan 2018 – with reference to the current car parking patronage at West Cambridge.

Car Parking Maximum Provision Proposals

Land-Use	Development Phase	Car Parking Provision
Academic Research	Initial	1 car parking space per 4 staff
		No provision for students
	Later	1 car parking space per 5 staff
		No provision for students
Commercial Research	Initial	1 car parking space per 40m^2 GFA
	Later	1 car parking space per 70m^2 GFA

This would result in the following maximum levels of car parking being provided:

Car Parking Provision

Development Phase	Car Parking Provision (spaces)
Extant Consent Car Parking Provision	3,150
Key Phase 1	2,570 (maximum)
Full Development	4,390 (maximum)

At least 5% of the total number of car parking spaces should be reserved for disabled people, rounded up to the nearest whole space.

The University will manage the agreed Parking Strategy on a long-term basis, and positively seek to reduce car parking provision if appropriate as West Cambridge progresses. Each individual Reserved Matters application will contain a Monitoring Review of the on-site Estate Car Parking Strategy Assessment across West Cambridge. This Review will reflect the Framework included in the Transport Assessment, and would include:

- existing car park provision and occupation;
- existing car park permit allocations;
- short-term changes to the on-site car parking requirements, including:
  - building on car parks;
  - construction activity on car parks;
  - completion of new car parking spaces;
  - building floor space closures / occupations;
- accessibility car parking issues; and
- construction car parking.

Cambridge City Council, forming part of the Greater Cambridge Shared Planning Service, has issued the Sustainable Design and Construction Supplementary Planning Document which details the necessary provision of electric vehicle (EV) charging points. The University supports emerging green transport initiatives, and would provide a number of EV charging stations within the future permanent car parking provision reflecting this SPD. This would cater for both all-day parking slow charging as well as the fast charging points.

DISTRIBUTION

Distribution Methodology: Provide a short description of the methodology to calculate trip distribution.

Different distribution methodologies were applied depending upon the specific West Cambridge land-use:

- Academic Research staff distribution is based on a travel survey of the University of Cambridge staff working at the West Cambridge site in 2016. The distribution included development zones at the residential end by calculating the overall number of staff per residential unit, from the survey (separately for staff resident within Cambridge and staff resident outside Cambridge), and applying these rates to the residential units forecast for the development zones;

- Commercial Research and Commercial staff distribution was synthesised using a gravity model, with the matrix of weights calculated using a distance weight for each distance band, calculated using Census journey-to-work data as the distance decay component; and

- the distribution of the student trips to West Cambridge is estimated using the location of each of the university colleges and an estimate of their overall student numbers.

Whilst later travel survey data have been obtained by the University, these travel patterns are not significantly different to those used in this assessment and would not affect these results. Indeed, with the adopted Monitor and Manage approach requiring a reassessment of the impact and mitigation requirements of later phases prior to a detailed consent - see the next section for more detail – the data used this assessment would be refreshed.

IMPACT ASSESSMENT

Committed Developments

Discussions with Highways England and Cambridgeshire County Council identified the strategic residential and employment developments that needed to be considered as part of this assessment. In summary, the following totals were applied:

- Residential 49,813 dwellings
- Employment 45,180 jobs

These sites are summarised in Tables 2.5 and 2.6 of the Transport Assessment, repeated at the end of this document.

Junctions Assessed (include location and tool – ARCADY, PICADY, LINSIG etc.)

The following junctions have been assessed:

- M11 J13 Off Slip Signalised Junction – LinSig;
- M11 J13 On Slip – PICADY;
- Madingley Road / Park and Ride / High Cross Signalised Junctions – LinSig;
- Madingley Road / JJ Thomson Avenue Priority Junction – PICADY;
- Madingley Road / Madingley Rise Priority Junction – PICADY; and
- Madingley Road / Clerk Maxwell Priority Junction – PICADY.

These have been assessed for:

- 2019 (Existing Conditions);
- Key Phase 1 (referred to as 2021); and
- Full Development (referred to as 2031).

Headline Conclusions

The Transport Assessment concludes that the local highway network operates towards capacity in 2019 during the network peak hours.

It concludes that conditions are made no worse for Key Phase 1 - the Extant Development has a higher trip generation than the Key Phase 1, and an improved public transport, travel demand management scheme and reduction in car parking provision is proposed.

The assessment of the Full Development demonstrates that – unconstrained - the further increase in the car movements to later phases of the West Cambridge development would result in a deterioration of conditions.

The assessment of the Full Development mitigation measures – focussed on non-car modes of travel – demonstrates that the conditions are made no worse as a consequence of the Full Development.

MULTI MODAL MITIGATION PACKAGE OFFERED

Background to the Mitigation approach

Whilst West Cambridge has been allocated within the Local Plan, this development is being brought forward within the context of wide-reaching transport planning uncertainty, including:

- the scale of local residential development identified in the 2018 Cambridge Local Plan;
- the form and delivery programme of area-wide strategic transport schemes to improve non-car movement in the Cambridge Sub-Region, especially along the A428 / A1303 Corridor;
- the impact of the A14 Huntingdon – Cambridge Improvement Scheme - construction due to complete shortly in a phased manner;
- the A428 Black Cat to Caxton Gibbet Enhancement Scheme, details recently issued for consultation;
- Highways England's need to consider and define the measures along the M11, and the inclusion within the March 2020 Road Investment Strategy 2 statement that the M11 Junction 13 is a "RIS3 Pipeline" Scheme for 2025 - 2030; and
- the impact of a series of other transport schemes – including - inter alia - the Oxford – Cambridge Expressway, and East-West Rail.

These would have a significant and substantial effect upon the strategic and local movements of vehicles across the region, and influence the future access and movement strategy of West Cambridge – particularly in the mid- to late phases of the Development.

The outline planning application will be determined prior to the detailed definition of these measures. As discussed with the Joint Authorities (Cambridge City Council – the planning authority, Cambridgeshire County Council – the local highway authority, and Highways England – the strategic highway authority), a more flexible and suitable "Monitor and Manage" approach (sometimes alternatively referred to as an Adaptive Phased Approach) to the definition of the necessary mitigation has been adopted, incorporating:

- a graduated approach – the assessment process reflecting current transport planning policy where travel demand management measures are introduced first, followed by any necessary highway infrastructure measures to mitigate the residual traffic impact; as well as
- an adaptive approach – where, to maintain future flexibility, the proposed mitigation for later phases responds to the quanta of development within the individual phase proposals, the timescales for the delivery, changes in future travel behaviour patterns, emerging transport policy, and the current uncertainty relating to the area-wide transport enhancement proposals delivered by others.

To provide resilience, an independent transport strategy has also been identified in this Transport Assessment that would also adequately mitigate the transport impact of the Development in isolation, should there be delays to the deliveries of these schemes. As such, the West Cambridge outline planning application does not rely on strategic mitigation solutions.

A developer contribution would be provided by the University to fund the necessary Transport mitigation measures, and would be applied in an agreed manner by the Joint Authorities. This will include contributions to the area-wide strategic transport schemes to improve non-car movement in the Cambridge Sub-Region - especially along the A428 / A1303 Corridor.

Transport Strategy for West Cambridge

The overall transport strategy for the Development responds to a number of important national regional and local objectives, which may be summarised as follows:

- first – by delivering employment development within a sustainably located location within Cambridge, enabling development occupiers to use sustainable modes of travel instead of private cars;
- providing development components, development layout and disposition of uses designed from the outset to be inherently sustainable, pedestrian and cyclist friendly, being based upon the provision of an integrated transport system as well as minimising the distance to travel overall;
- encouraging the use of sustainable forms of transport such as walking, cycling, and public transport, thus reducing the dependency on the motor vehicle;
- minimising the vehicular traffic impact of the Development – the University supports emerging green transport initiatives, and would provide EV charging stations to the City Council requirements;
- accords with the wider transport strategy for Cambridge, hence assisting in their delivery by providing appropriate developer contributions to area-wide strategic transport schemes to improve non-car movement in the Cambridge Sub-Region, especially along the A428 / A1303 Corridor;
- assisting in reducing the number and severity of personal injury collisions on the local roads; and
- implementing a Travel Plan / Travel Demand Management strategy for the Development.

These are considered in more detail by mode.

Measures directed at controlling and reducing vehicular trip generation

A series of measures will be implemented to control and reduce car trips, including:

- management of car parking within the Development - the provision of an appropriate level of car parking within the Development, combined with a series of parking management measures to reinforce the efficacy of this approach, are central to the Development travel demand management strategy. Each individual Reserved Matters application will contain a Monitoring Review of the on-site Estate Car Parking Strategy Assessment across West Cambridge, reflecting the Framework included in Appendix 8.2 of the Transport Assessment;
- the University supports emerging green transport initiatives, and would provide EV charging stations to the City Council requirements, which would cater for both all-day parking slow charging as well as the fast charging points;
- management of car parking off-site - support to the establishment of on-street residents-only controlled car parking zones, or a parking prohibition, or another method to manage car parking;
- physical interventions to preserve and improve conditions – including:
  - contributions towards the reduction in the existing Madingley Road speed limit;
  - three minor road safety schemes in the locality.

Pedestrians and Cyclists

A mitigation strategy has been developed to improve conditions for cyclists and pedestrians - this would be likely to increase the number of those choosing walking or cycling as their mode of travel.

On-site Infrastructure

Pedestrian and Cycle connections through new areas of development within West Cambridge will be reviewed so that these will both:

- ensure quality accessibility and connectivity to the surrounding areas; and
- significantly enhance and improve the linkages between existing developments by providing direct quality links on desire lines.

To improve conditions for pedestrians and cyclists on-site, the following will be provided:

- quality footway / cycleway infrastructure.
- high levels of conveniently located quality cycle parking.
- all major occupiers providing shower and changing room facilities.
- managing cycle parking provision.

By completion of the West Cambridge Development, the Site will be provided with permeable footways and cycleways across the Site, with further pedestrian crossings delivered on the site access roads along the Western Access Road, to complement those provided earlier on High Cross, JJ Thomson Avenue and Clerk Maxwell Road. These links will be supported with controlled crossings on Madingley Road.

Off-site Infrastructure

Developer contributions are being offered by the University to area-wide strategic transport schemes – especially to improve cycle and pedestrian movements along Madingley Road – to assist in its delivery.

To enhance the existing Pedestrian and Cyclist connectivity further, the following pedestrian and cycle infrastructure measures will be provided by the Development:

- an on-going review of future road safety issues, with a fund to deliver road safety mitigation if required;
- enhancements on movements through the Site along the corridor to the north – to Eddington Avenue and Madingley Rise towards North West Cambridge;
- enhancements along the Coton Path / Adams Road / Burrell's Walk route into the City – including contributions towards the widening of the existing Bins Brook Bridge; and
- extending an independent corridor eastwards directly towards the City Centre – along Grange Road, West Road, Queen's Green and Silver Street.

To provide further environmental enhancement in the locality of West Cambridge, the University will contribute towards the costs of the necessary traffic regulation order to implement a further reduced speed limit along Madingley Road between the Development's Western Access Road and High Cross junctions. The lower vehicle speeds will provide benefit for existing users of Madingley Road, as well as for the pedestrians and cyclists generated by West Cambridge.

Pedestrians and Cyclists

Public Transport

The provision of a quality bus strategy will encourage the use of bus to form a significant percentage of the mode share for short, medium, and longer distance trips, and would reflect local and national policy guidance and strategies.

A mitigation strategy has been developed to improve conditions for those travelling by public transport - this would be likely to increase the number of those choosing this mode as their mode of travel.

The scale of the proposed Development means that there will be both a high quantum of demand for public transport, and a number of locations that will need to be connected to West Cambridge.

On-site Infrastructure

In order to maintain the attractiveness of bus services to the Site, the following additional measures would be provided:

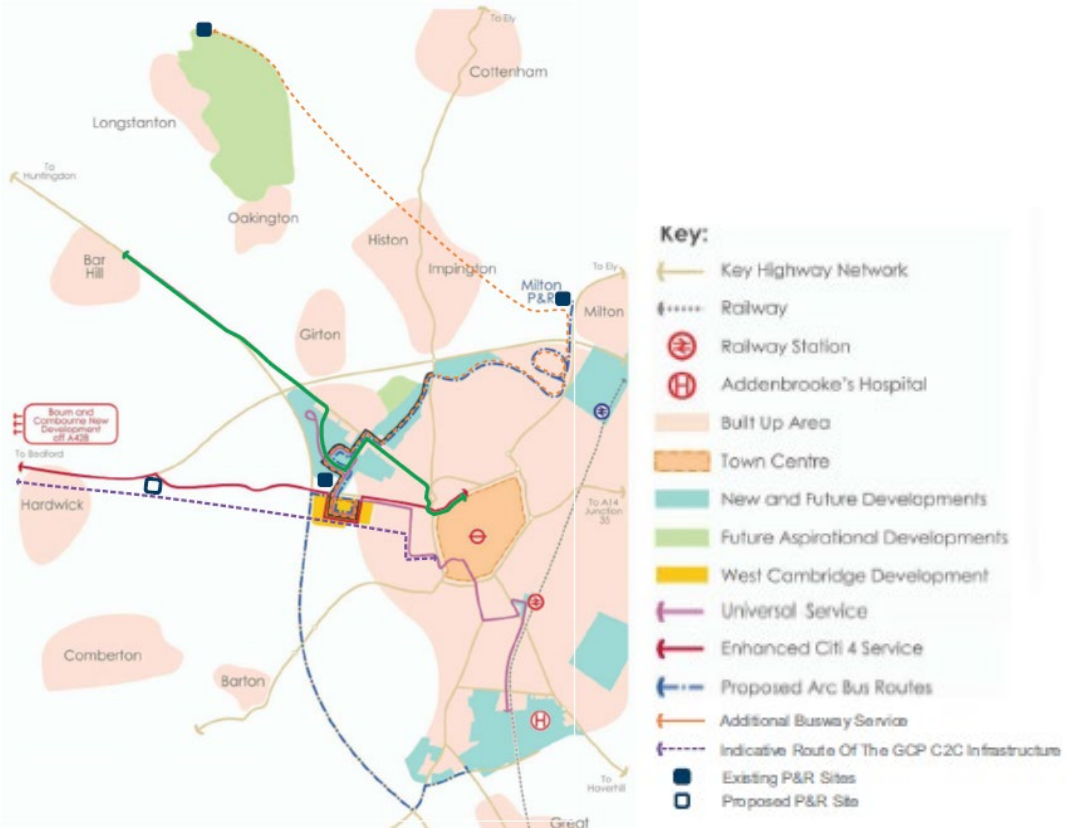
- high quality bus stops on new links served by buses;
- further bus priority measures - selected vehicle detection for buses through any new traffic signal controlled junctions to improve the flow of buses or enable passengers to access facilities; and
- a review of the information and incentives on offer.

Bus Service Strategy

The necessary financial support will be offered to enable a comprehensive Public Transport Strategy for West Cambridge to be brought forward in a phased manner, to reflect the emerging Development construction phasing.

Enhanced bus services to support Key Phase 1 will be phased in to align with the Development quantum and consequent growth in demand.

Pedestrians and Cyclists



Further public transport measures will be implemented as the Development continues. These will be based upon a review of the earlier provision to ensure that all measures are focussed.

The proposed final Bus Service provision is summarised as follows:

Following discussions with the Joint Authorities, developer contributions are being offered by the University to area-wide strategic mass transit transport schemes to improve non-car movement in the Cambridge Sub-Region, especially to improve bus movement along the A428 / A1303 Corridor.

To provide resilience, should there be a delay to the delivery of this mass transit scheme these contributions could alternatively form part of a “Monitor and Manage” response to the necessary transport mitigation (see below), funding an independent transport strategy as identified in this Transport Assessment. Notwithstanding, it is agreed that the A428 / A1303 Corridor mass transit scheme is the preferred response, and it would be made more certain by being aided by the financial support offered by the University.

Contributions to the following new and enhanced bus services will be phased in to align with the Development quantum and consequent growth in demand:

- **Universal** - during Key Phase 1, the route would be as the current Universal service – from North West Cambridge and West Cambridge via Cambridge Rail Station and the guided busway to Cambridge Biomedical Campus and Addenbrooke’s Hospital.

  From the start of Key Phase 2 – from 54% build-out - the frequency would be increased on Weekdays to every 10 minutes over the core North West Cambridge to Cambridge Rail Station section, with alternate journeys continuing to Addenbrooke’s Hospital. The Saturday service would be maintained at every 20 minutes between North West Cambridge and the Rail Station.

Pedestrians and Cyclists

- **Arc** - the proposed Arc service would reflect Cambridgeshire County Council's earlier public transport proposals (referred to within the Greater Cambridge Partnership documentation as the "Orbital service").

  The Arc service would be introduced during Key Phase 2 at around 80% build-out, and would operate on up-to 20-minute frequency from Milton Park & Ride via Cambridge Science Park, Darwin Green, North West Cambridge and West Cambridge to Trumpington Meadows, the Cambridge Biomedical Campus and Addenbrooke's Hospital. The service would operate between West Cambridge and Trumpington Meadows via the M11 motorway.

- **Guided Bus** - there is potential for an additional service operating as a variation to the existing Guided Busway Service B, between Hinchingbrooke – Huntingdon – Cambridge. These journeys would leave the Busway at Orchard Park East, then operate via NIAB (Darwin Green), North West Cambridge to West Cambridge, thereby providing direct links from the A14 corridor.

  Services would commence during Key Phase 2 at around 80% development build-out,, with a frequency of up to every 15 minutes during Weekday peak periods.

- **Citi 4** – during Key Phase 1, the existing 20-minute frequency Citi 4 service would be diverted via JJ Thomson Ave, Charles Babbage Rd and High Cross.

  In the future, should a service reflecting the earlier GCP proposals be delivered by the Joint Authorities as part of an emerging area-wide strategy, any University-led proposal to divert and enhance the Citi 4 service would be rescinded as it would be replaced by these area-wide proposals. If not, on completion of West Cambridge the 20-minute through-service to Cambourne would be enhanced by short-workings between the city centre and West Cambridge; these would also operate every 20 minutes to give a 10-minute combined frequency over this section.

Framework Travel Plan

West Cambridge's quality Framework Travel Plan has been prepared, and will form an essential part of the delivery of quality non-car transport to West Cambridge.

To ensure effective implementation and management of the Framework Travel Plan and transport strategy, the University will provide and support the following:

- sufficient staff resource be allocated to provide a Development Transport Coordinator – supported in this role by:

  - individual Sustainable Travel Behaviour Champions identified from within the community to assist in delivering sustainable travel proposals; and
  - individual workplace Travel Plan Coordinators to implement and manage their own measures and strategies;

- the establishment and running of the Transport Stakeholders' Group consisting of key stakeholders - including the University, planning and highway authorities, public transport operators, and representatives of the Development;

- a one-off fall-back Fund for the implementation, management, monitoring and review of the Framework Travel Plan and funding necessary measures in the event of significant variation from the forecast traffic impact for a sustained period of time

Framework Travel Plan
In the event of significant variation from forecast values for a sustained period of time, the Development Transport Coordinator, working with the Transport Stakeholders Group, will consider the need for (and, if necessary, implement) measures designed to help meet the forecast outcomes over time.

Further physical highway network capacity interventions
The capacity assessment of the junctions within the locality using the worst case forecast Full Development future year flows has identified that the Madingley Road Corridor would operate above capacity. It is acknowledged that this future year assessment is overly conservative - the first-principles Transport Modelling assessment adopted for this development would represent a worst case, and the methodology adopted to assess the future year flows would not assess likely reassignment effects across the network. A strategy to manage completely these worst case increased movements along Madingley Road by physical measures has not been developed as: ▪ the necessity for it reflects the University responding to a worst case assessment, which is unlike to materialise; ▪ such schemes requiring significant additional infrastructure would be contrary to policy; ▪ to increase the physical scale of the Madingley Road carriageway to provide sections of three-lanes width to respond to peak hour conditions would be contrary to any enhanced urban design aspirations for this area, resulting in a poorer environment for pedestrians and cyclists; and ▪ a reduction in through-flow would have a benefit to conditions along this route. As such, the strategy to respond to these junction capacity issues along Madingley Road Corridor should rely upon strategic solutions, within the context of the existing local transport policy.

Summary of the Transport Mitigation strategy
This suite of measures aimed at mode shift, demand management and improvement of conditions on the network would manage the transport effects of the Development in a flexible manner which could accommodate unforeseen future changes.

CONCLUSIONS

West Cambridge is a sustainably-located development, allocated within the Cambridge Local Plan 2018. It relates to the intensification of development for academic and commercial research, and various associated facilities.

The Transport Assessment prepared to support this application concludes that:

i) the Development accords well with national and local transport policy – supporting its allocation within the Cambridge Local Plan 2018;

ii) the Development also accords well with important local transport and planning policy requirements, and would assist in the delivery of essential area-wide strategic transport schemes to enable development to the west of Cambridge:

iii) as the outline planning application has been submitted in the context of uncertainty relating to local development and infrastructure mitigation, as agreed with the Key Stakeholders, the adopted Adaptive Phased Approach provides a robust and reasonable manner of assessment, in a flexible manner;

iv) that a detailed assessment of the vehicular trip generation of the initial Key Phase 1 of development shows that - when compared to the traffic impact of the consented, mitigated West Cambridge Development, that the impact of the Development proposals is less;

v) as there may be a degree of variability in future projections (which can be attributed to a number of factors including fuel prices, Government policy etc), the traffic management strategy formulated for West Cambridge is pragmatic and resilient to change;

vi) further assessments of Development impact beyond the Key Phase 1 have been provided to inform the derivation of a Transport Cap to finance future mitigations. The proposed Transport Strategy will be reviewed and supported by additional assessments of the future emerging conditions on the network, and mitigation strategies will be refined and agreed for these phases;

vii) the overall transport strategy for the Development responds to important national regional and local objectives; and as such

viii) there are no transport-based reasons why outline planning consent should not be granted for the West Cambridge Development.

September 4th, 2020

Transport Assessment Table 2.5: Strategic Development - Residential

Development	Growth 2011 – 2031
Clifton Road Industrial Estate	550
Clay Farm and Showground	2,165
North West Cambridge (within SCDC area)	1,155
North West Cambridge (within City Council area)	1,850
NIAB/Darwin Green Main	1,593
NIAB Frontage	187
Eastern Gateway, Soham	600
Land between Huntingdon Road and A14 (NIAB1 or Darwin Green 2 and NIAB)	1,000
North Ely, Ely	2,960
Cambridge East (North of Newmarket Road)	1,300
Cambridge East (North of Cherry Hinton within SCDC area)	420
Cambridge East (North of Cherry Hinton within City Council area)	780
Trumpington Meadows (Cambridge Southern Fringe – within SCDC area)	615
Trumpington Meadows (Cambridge Southern Fringe - within City Council area)	558
Cambourne	499
Northstowe Phase 1	1,500
Northstowe Phase 2	1,945
Waterbeach New Town	2,050
Born Airfield New Village	1,360
Cambourne West	1,200
Alconbury Weald	3,485
Eastern Expansion, St Neots	2,570
Eastern Expansion, St Neots (Loves Farm East)	1,092
Wyton Airfield and Wyton on the Hill	2,540

Development	Growth 2011 – 2031
Bearscroft Farm	753
Small Scale Development - various (within City Council area)	4,760
Small Scale Development - various (within SCDC area)	3,916
Windfall Development – not determined (within SCDC area)	4,152
Windfall Development – not determined (within City Council area)	2,258
Total	**49,813**

Transport Assessment Table 2.6: Strategic Development – Employment (Jobs)

Development	Growth 2011 - 2031
Wider City Centre Area	5,786
Station Area	1,558
Sainsbury Laboratory	150
Addenbrooke's	5,210
New Museums	232
City House	299
The Edinburgh Building, Shaftsbury Road	2,411
Northstowe	5,817
Cambourne	2,304
Granta Park	2,592
Hinxton Hall	831
Babraham	831
Landbeach	1,473
West Cambridge and North West Cambridge (City Council area)	3,873
West Cambridge and North West Cambridge (SCDC area)	2,234
Northern Fringe (City Council area)	2,411
Northern Fringe (SCDC area)	1,136
ARM / Capita Park (City)	396
Others (SCDC)	1,767
Waterbeach New Town	1,367
Bourn Airfield	2,153
Small Scale Employment (<150 jobs)	349
Total	**45,180**

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