

P e l l F r i s c h m a n n

North East Cambridge Area Action Plan

High Level Transport Strategy

NEC AAP

Draft subject to endorsement from relevant transport authorities

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Contents

Executive summary	
1. Introduction	1
1.1. General	1
2. Existing Evidence Base	2
2.2. Evidence Base	2
2.3. Study Area	2
2.4. Evidence Base Methodology	3
2.5. Trip Budget	6
2.6. NEC AAP Trip Budget Allowance Per Site	7
2.7. Trip Budget Delivery Plan	9
3. Future Baseline Situation	11
3.1. Introduction	11
3.2. Survey Data and Estimates	11
3.3. Cambridge North Station	11
3.4. Committed Development	12
3.5. The Busway	12
3.6. COVID-19 Pandemic Effects	13
3.7. Section Summary	14
4. Development Quantum	1
4.1. Introduction	1
5. Sustainable Transport Principles	4
5.1. Introduction	4
5.2. Connecting to the wider area	4
5.3. Cycle parking	5
5.4. Safeguarding for future public transport	5
5.5. Last mile deliveries	5
5.6. Street hierarchy	6
5.7. Managing motorised vehicles	6
5.8. Cambridge North Station Interchange Hub	7
6. Trip Generation	8
6.1. Introduction	8
6.2. Trip Rates	8
6.3. Trip Type and Internalisation	10
6.4. Mode Share	12
6.5. Non-Vehicular Trips	19
6.6. Milton Road Crossings	20
7. Measures	22
7.1. Introduction	22
7.2. Strategic Measures	22
7.3. Local Measures	22
7.4. Internal Measures to NEC	23
8. Phasing of Measures and Funding	24
8.1. Introduction	24
8.2. Measures	24

8.3. City Wide Measures	27
9. Monitoring	29
9.2. Frequency of Monitoring	29
9.3. Method of Monitoring	30
10. Conclusion	33

Figures

Figure 1.1: figure captions above figures (max figure width 16cm)	Error! Bookmark not defined.
Figure 1.2: Two pictures in a table (table set to 'no borders')	Error! Bookmark not defined.

Tables

Table 4.1:Development Quantum Employment (SQM)	1
Table 4.2:Development Quantum Residential (Units)	1
Table 6.1: Residential Trip Rates (per Dwelling)	8
Table 6.2: Employment Trip Rates (per 100sqm GFA)	8
Table 6.3: AM Peak Residential Person Trips (0800 – 0900)	8
Table 6.4: PM Peak Residential Person Trips (1700 - 1800)	9
Table 6.5: AM Peak Employment Person Trips (0800 – 0900)	9
Table 6.6: PM Peak Employment Person Trips (1700 – 1800)	10
Table 6.7: Residential Journey Purpose (All Modes)	10
Table 6.8:Residential Person Trips by Journey Purpose (AM Peak 0800 – 0900)	11
Table 6.9: Residential Person Trips by Journey Purpose (PM Peak 1700 – 1800)	12
Table 6.10: Employment Person Trips (AM Peak 0800 - 0900)	12
Table 6.11: Employment Person Trips (PM Peak 1700 - 1800)	12
Table 6.12: Residential External Vehicular Mode Share to Car	13
Table 6.13: Employment External Vehicular Mode Share to Car	13
Table 6.14: Residential Vehicular External Trips (AM Peak 0800 – 0900)	14
Table 6.15: Residential Vehicular External Trips (PM Peak 1700 – 1800)	14
Table 6.16: Employment Vehicular External Trips (AM Peak 0800 – 0900)	15
Table 6.17: Employment Vehicular External Trips (PM Peak 1700 - 1800)	15
Table 6.18: Residential Non-Vehicular External Trips (AM Peak 0800 – 0900)	16
Table 6.19: Residential Non-Vehicular External Trips (PM Peak 1700 – 1800)	16
Table 6.20: Employment Non-Vehicular External Trips (AM Peak 0800 – 0900)	17
Table 6.21: Employment Non-Vehicular External Trips (PM Peak 1700 – 1800)	17
Table 6.22: Overall External Trips (AM Peak 0800 – 0900)	18
Table 6.23: Overall External Trips (PM Peak 1700 – 1800)	18
Table 6.24: Overall External Mode Share (AM Peak 0800 – 0900)	18
Table 6.25: Overall External Mode Share (PM Peak 1700 – 1800)	19
Table 6.26: Overall External Non-Vehicular (AM Peak 0800 – 0900)	19
Table 6.27: Overall External Non-Vehicular (PM Peak 1700 – 1800)	19
Table 6.28: Change in External Non-Vehicular (AM Peak 0800 – 0900)	20
Table 6.29: Change in External Non-Vehicular (PM Peak 1700 – 1800)	20
Table 6.30: Total Pedestrians Movements across Milton Road (in Year 2040)	21
Table 6.31: Total Cycle / e-Scooter Movements across Milton Road (in Year 2040)	21
Table 8.1: Site Specific Measures 2025	24

Table 8.2: Site Wide Measures 2025	Error! Bookmark not defined.
Table 8.3: Strategic Measures 2025.....	Error! Bookmark not defined.
Table 8.4: Site Specific Measures 2025	Error! Bookmark not defined.
Table 8.5: Site Wide Measures 2030	Error! Bookmark not defined.
Table 8.6: Strategic Measures 2030.....	Error! Bookmark not defined.
Table 8.7: Site Specific Measures 2035	Error! Bookmark not defined.
Table 8.8: Site Wide Measures 2035	Error! Bookmark not defined.

Appendices

- Appendix A Text
- Appendix B Text

1. Introduction

1.1. General

- 1.1.1. The transport consultants acting for the Core site, Brookgate, Cambridge Business Park, St Johns and the Cambridge Science Park have compiled this High Level Transport Strategy (HLTS) to provide a framework for which all future planning applications within the North East Cambridge Area Action Plan (hereafter referred to as the AAP) can be assessed. It has been prepared against the background of the September 2019 Transport Evidence Base and Transport Topic Papers along with anticipated and known changes that have occurred in recent years which include the opening of the Cambridge North Station along with the COVID-19 pandemic
- 1.1.2. The Transport Evidence Base includes a vehicular Trip Budget for the AAP which was based on information from surveys undertaken in 2017 prior to the opening of the Cambridge North Station and completion of the A14 works, with separate budgets set for the sites accessed from Milton Road and from Kings Hedges Road. The HLTS includes a brief overview of the Transport Evidence Base along with setting out changes that have occurred since the 2017 surveys which would have affected the baseline. It goes on to estimate the overall number of person trips associated with developer aspirations for each site along with an estimate for trips by modes other than private car likely to be required to ensure that the number of vehicular trips does not exceed the Trip Budget.
- 1.1.3. Finally the HLTS sets out a range of sustainable transport principles that could be used to reduce the reliance on private cars along with how these will be phased and monitored. The key headings that have been covered within this Report include:
 1. Existing Evidence Base;
 2. Revised Baseline;
 3. Development Proposals;
 4. Sustainable Transport Principles;
 5. Trip Generation;
 6. Measures;
 7. Phasing of Measures and Implementation; and
 8. Monitoring.

2. Existing Evidence Base

- 2.1.1. This section considers the september 2019 *North East Cambridge Area Action Plan Transport Evidence Base* and Transport Topic Paper commissioned by Cambridge City Council and South Cambridgeshire District Council, in partnership with Cambridgeshire County Council (CCC) and National Highways (NH), prepared by Mott MacDonald (MM).

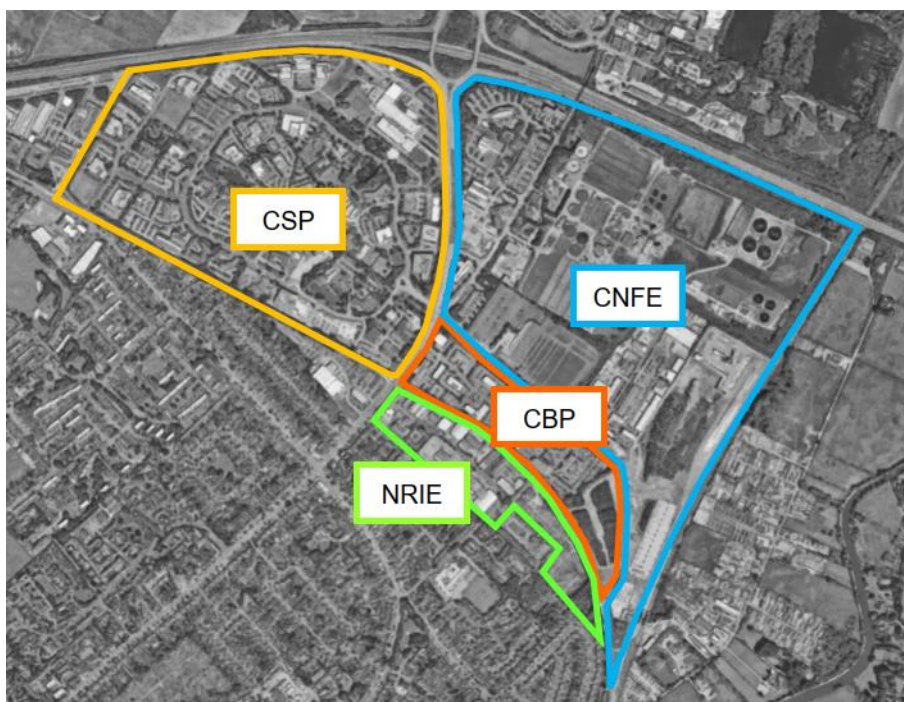
2.2. Evidence Base

- 2.2.1. The Evidence Base establishes a Trip Budget within which development for each site within the AAP can take place without increasing peak hour vehicle trips on the surrounding highway network. It identifies the level of car driver mode shift required to achieve the Trip Budget.
- 2.2.2. The principle of the Trip Budget is to identify the maximum level of external vehicular peak hour development trips to ensure that future development within the AAP does not result in a deterioration in the performance of the immediate highway network compared to the existing situation. It also directs development and growth toward utilisation of non-car means.

2.3. Study Area

- 2.3.1. The Evidence Base carries out a review of baseline transport conditions in and around the study area to establish the potential barriers to pedestrian and cycle movements within and around the study area, existing highway constraints and peak hour traffic movements. The study area is shown in **Figure 2.1** below.

Figure 2.1 AAP Study Area



Source: NEC AAP, 2019

- 2.3.2. The Evidence Base focuses on the Milton Road corridor which provides access to the majority of development sites within the AAP. The corridor is already congested during peak hours and as such requires a different approach to the 'Predict and Provide' method of simply forecasting vehicle trips and providing infrastructure to accommodate those forecasts.
- 2.3.3. The Evidence Base encourages reduced private vehicle use by providing mitigation options and limiting vehicle trips and car parking spaces on the existing development and proposed development accessed from Milton Road to achieve the proposed Trip Budget.

2.3.4. The study area identifies four zones in the Cambridge Science Park (CSP), the Cambridge Business Park (CBP), the Nuffield Road Industrial Estate (NRIE) and the Cambridge Northern Fringe East (CNFE) as shown in **Figure 2.1**.with the CFNE broken down into 5 sites for the purpose of the HLTS and referred to in the document as:

9. Cambridge Science Park (CSP);

10. Cambridge Northern Fringe East (CNFE);

- St John's Innovation Park;
- Cowley Road;
- Merlin Place;
- Brookgate;
- Core Site;

11. Cambridge Business Park (CBP); and

12. Nuffield Road Industrial Estate (NRIE);

- Nuffield Road / Trinity Hall.

2.3.5. The *Evidence Base* did not include the Cambridge Regional College in the original scope of the assessment, but this has now been included in a subsequent Transport Topic Paper. The *Topic Paper* provides a separate evidence base and a separate Trip Budget for the Cambridge Regional College and Cambridge Science Park accessed from Kings Hedges Road. Therefore, the evidence base provides a Trip Budget for Milton Road and a separate Trip Budget for Kings Hedges Road. It should be noted that Cambridge Science Park can be accessed from both Milton Road and Kings Hedges Road and therefore has a combined overall Trip Budget, accounting for each access point.

2.3.6. The Milton Road and Kings Hedges Road Trip Budgets have been calculated separately, i.e. vehicle movements from Milton Road into the Cambridge Science Park and are not accounted for via the Kings Hedges Road Trip Budget and vice versa. This is discussed in further detail at **Section 2.5**.

2.3.7. The Evidence Base and the Trip Budget methodology are summarised below for reference; however, further detail can be found within the report produced by MM, *North East Cambridge Area Action Plan Transport Evidence Base*.

2.4. Evidence Base Methodology

Existing and Proposed Land Uses

- 2.4.1. The current land uses within the study area, fall into the categories of business park (E use classes), industrial manufacturing (B2) or storage and utilities (B8). The Greater Cambridge Shared Planning Service (GCSPS) are tasked with preparing the NEC AAP and have provided the proposed number of jobs and proposed floor areas per site in the Proposed Submission of the AAP.
- 2.4.2. GCSPS estimate that the total study area currently provides 12,034 jobs and has approximately 388,883sqm of commercial floor space. The Proposed Submission AAP establishes the future proposed land uses and development capacities for each site. **Table 2.1** and **Table 2.2** summarises this information, which is the core of the evidence base. The information presented represents the core datasets the evidence base and trip budget are based upon.

Table 2.1 Proposed Land Uses and Floor Areas per Site (provided in the Proposed Submission AAP)

Site/Land Use	Residential Units	Net Office B1 (sqm)	Net Light Industrial B2 (sqm)	Net Storage and Distribution B8 (sqm)	Retail (sqm)	Community (sqm)	Schools (sqm)
Chesterton Sidings: Brookgate	1,250	23,500	4,800	3,900	1,000	200	0
Cowley Rd Ind Estate	450	0	-1,275	8,300	0	0	0
Core Site: AW/City Council	5,500	23,500	0	0	4,150	5,100	12,285
St Johns Innovation Park	0	30,000	0	0	150	0	0
Merlin Place	125	0	0	0	0	0	0
Cambridge Business Park	500	50,000	0	0	1,000	3,000	0
Nuffield Road	450	0	-3,250	-7,750	0	0	0
Trinity Hall Farm Ind Estate	0	1,500	0	0	0	0	0
VW Garages	75	0	0	0	0	0	0
Cambridge Science Park	0	60,000	0	0	1,000	200	0
Cambridge Regional College	0	0	0	0	0	0	0
Total	8,350	188,500	275	4,450	7,300	8,500	12,285

Source: Greater Cambridge Shared Planning Service

Table 2.2 Proposed Jobs per Site (provided in the Proposed Submission AAP)

Site/Land Use	Net Office B1 (jobs)	Net Light Industrial B2 (jobs)	Net Storage and Distribution B8 (jobs)	Retail (jobs)	Community (jobs)	Schools (jobs)
Chesterton Sidings: Brookgate						
Cowley Rd Ind Estate						
Core Site: AW/City Council						
St Johns Innovation Park						
Merlin Place						
Cambridge Business Park						
Nuffield Road						
Trinity Hall Farm Ind Estate						
VW Garages						
Cambridge Science Park						
Cambridge Regional College						
Total						

Source: Greater Cambridge Shared Planning Service

Observed Trips

- 2.4.3. The Evidence Base considers weekday peak hour traffic counts that were collected in March 2017 recorded at the existing site accesses during the AM and PM peak hours along Milton Road and from Kings Hedges Road. **Table 2.3** shows the observed trips per site, except for the NRIE, which is accessed from Nuffield Road.

Table 2.3 Observed 2017 Weekday Peak Hour Vehicle Trips per Site.

Site	Access	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
		Arrive	Depart	Total	Arrive	Depart	Total
CSP	Off Milton Road	1,438	196	1,634	322	1,042	1,364
	Off Kings Hedges Road	656	115	771	102	652	754
	Combined	2,094	311	2,405	424	1,694	2,118
CNFE	Off Milton Road	659	254	913	116	573	689
CBP	Off Milton Road	369	31	400	34	383	417
All	All	3,122	596	3,718	574	2,650	3,224

Source Table 9, NEC AAP Transport Evidence Base, 2019

- 2.4.4. Traffic surveys have not been updated since 2017 and as such may not reflect recent transport improvements in the area such as the completion of Cambridge North Station and completion of the A14 works along with changes to travel patterns associated with the COVID-19 pandemic. Accordingly, the data may not reflect the existing situation.
- 2.4.5. This will likely need to be revisited in the future to look at the post pandemic operation of the local road network.
- 2.4.6. The surveys represent typical traffic levels at a point in time prior and was the best data available at the time of preparing the Evidence Base. Later analysis and further survey work may be undertaken to ensure the assumptions are robust and appropriate and this is considered later in this report.

Trip Rates

- 2.4.7. The AAP has sought to estimate future trips by deriving person trip rates from the 2017 survey results, TRICS trip rates and 2011 census mode share data. These datasets were reviewed and modified to fit local conditions to best fit to the estimated level of jobs/conditions and by residential use to be applied to the study area. **Table 2.4** shows the Census derived person and vehicle trip rates per job for the study area.

Table 2.4 Person and Vehicle Trip Rates

Location	Trip Rate Type	AM Peak (08:00 - 09:00)			PM Peak (17:00 - 18:00)		
		Arrive	Depart	Total	Arrive	Depart	Total
CSP	Vehicle trip rate per job (B1 Business Park)	0.313	0.032	0.345	0.018	0.221	0.239
	Person trip rate per job (B1 Business Park)	0.440	0.045	0.485	0.025	0.311	0.336
CNFE & CBP	Vehicle trip rate per job (B2 Industrial Park)	0.301	0.162	0.463	0.076	0.276	0.352
	Person trip rate per job (B2 Industrial Park)	0.423	0.228	0.651	0.107	0.388	0.495
NRIE	B1 Business Park vehicular trip rate (per 100m2 GFA)	1.208	0.123	1.331	0.069	0.851	0.921
	B2 Industrial Park vehicular trip rate (per 100m2 GFA)	0.382	0.205	0.587	0.096	0.350	0.446
Residential	Vehicle trip rate per dwelling (C3 housing)	0.125	0.366	0.491	0.300	0.141	0.441
	Person trip rate per dwelling (C3 housing)	0.185	0.791	0.976	0.507	0.231	0.738

Source: Table 12, Table 13, Table 14 and Table 15, NEC AAP Transport Evidence Base, 2019

Development Scenarios

- 2.4.8. The trip rates in **Table 2.4** have been applied to several development scenarios to assess the nature of future AAP development. Five potential development scenarios were developed, with key aims to maximise opportunities for internalised trips and effective use of highway capacity.
- 2.4.9. **Figure 2.2** shows the proposals for the study area. The scenarios consisted of the following:
- Housing Infrastructure Bid (HIF) submitted to the Government by Local Authorities in 2018; and
 - Options 1 to 4 - these included different land use options which range from lower to higher scales of mixed development, so that the impact of development can be analysed on the surrounding highway network.

Figure 2.2 AAP Development Scenario Details

Scenario	Site	A1-A5 ancillary retail (m2 GFA)	B1 (m2 GFA)	B2/8 (m2 GFA)	C1 Hotels (m2 GFA)	C3 Dwellings	D1 public services (m2 GFA)	D2 primary education (m2 GFA)
HIF	CSP	1,000	279,937		10,000	564	2,000	
	CNFE	11,164	56,407	0	10,013	8,071	6,817	12,900
	CBP		28,024					
	NRIE					553		
	Total	12,164	364,368	0	20,013	9,188	8,817	12,900
Option 1	CSP	1,000	175,048		10,000	900	2,000	
	CNFE	11,164	126,391	24,000	9,940	4,300	6,817	12,900
	CBP		28,024					
	NRIE					300		
	Total	12,164	329,463	24,000	19,940	5,500	8,817	12,900
Option 2	CSP	1,000	245,048		10,000	650	2,000	
	CNFE	11,164	146,391	36,000	9,940	5,600	6,817	12,900
	CBP		28,024					
	NRIE					400		
	Total	12,164	419,463	36,000	19,940	6,650	8,817	12,900
Option 3	CSP	1,000	290,048		10,000	300	2,000	
	CNFE	11,164	166,391	54,000	9,940	6,800	6,817	12,900
	CBP		28,024					
	NRIE					500		
	Total	12,164	484,463	54,000	19,940	7,600	8,817	12,900
Option 4	CSP	1,000	345,048		10,000	0	2,000	
	CNFE	11,164	66,391	0	9,940	8,140	6,817	12,900
	CBP		28,024					
	NRIE					560		
	Total	12,164	439,463	0	19,940	8,700	8,817	12,900

Source: Project Team

Source: Table 8, NEC AAP Transport Evidence Base, 2019

2.4.10. The above figure shows the scenarios tested an increase in jobs of between 6,200 and 15,000 and an increase in dwellings of between 5,500 and 9,200. The figure demonstrates the trips generated by the different development options that are proposed. In proposing these options, the overarching purpose was to further test whether the trips could be accommodated within the existing network.

Person Trips

2.4.11. The above trip rates were then applied to the five development scenarios, to set out the level of person trips predicted for each scenario that can be accommodated by the network, as shown in **Table 2.5**.

Table 2.5 Person Trip Estimated per Development Scenario

Development Scenario	AM			PM		
	Arrive	Depart	2-Way	Arrive	Depart	2-Way
Existing	5,190	690	5,890	370	3,750	4,120
Plus Consented	7,360	1,010	8,380	560	5,290	5,850
HIF Scenario	10,050	8,460	18,500	5,340	8,120	13,460
Option 1	8,320	5,370	13,690	3,390	6,510	9,900
Option 2	10,530	6,510	17,050	4,100	8,210	12,320
Option 3	12,160	7,460	19,620	4,690	9,490	14,180
Option 4	11,660	8,110	19,770	5,130	9,140	14,260

2.4.12. Source: Table 16, NEC AAP Transport Evidence Base, 2019

2.4.13. The trips shown in **Table 2.5** show:

- Higher overall flows in the AM than in the PM, though with opposite directional emphasis;
- Heavily unbalanced flows in the existing and consented scenarios due to single land use types, but much more balanced flows in the development scenarios due to proposed mixed use; and
- Development scenario person flows are still in the order of two to three times higher than existing person flows and so will require significant car driver mode shift in order that highway networks impacts are minimised.

2.4.14. The Evidence Base sets out that the number of person movements generated by the study area development scenarios could be in the region of two to three times higher than existing movements, and as such, if developed using the business-as-usual approach, there would be a significant increase in the level of traffic in the area which already experiences significant congestion on local and strategic road networks.

2.4.15. As such, the development of the area will require a significant mode shift away from car driver in order that highway network impacts are minimised. The degree of this shift and the scale of associated trip budget is described below.

2.5. Trip Budget

2.5.1. A traffic modelling exercise has been carried out as part of the Evidence Base to understand which development scenario is the most appropriate to establish the Trip Budget for the study area and to set out an appropriate car mode share for the area. The aim of using a trip budget is to provide a level of vehicle trips that new growth within the AAP must keep within to avoid generating additional impacts on the local highway network.

2.5.2. In order to establish existing levels of local highways network performance and to test levels with and without the development scenarios, a LinSig model prepared in support of recent planning applications at the Cambridge Science Park has been used. The LinSig model is based on the 2017 traffic counts described above and reflects the network present at the time. A future year of 2031 was adopted, which reflects the horizon years of the adopted Local Plans.

2.5.3. The overall approach outlined in the Evidence Base was to bring forward development without altering the modelled performance of the local highway network. The principle here is that development must not further increase car driver delay on this part of the network, nor must schemes be proposed that increase highway capacity.

2.5.4. The modelling exercise shows that a substantial change in future travel behaviour is required to allow development to come forward without increasing vehicle trips during the peak hours. The modelling results set out within the transport evidence base show that if a business-as-usual or Predict and Provide approach is taken total delay could multiply by 5 and up to 19 times depending on the development scenario taken forward.

- 2.5.5. It is, therefore, concluded within the evidence base that a development trip budget is required to help support a Vision and Validate approach to development that seeks to maximise opportunities to travel by non-car modes by creating places and providing facilities that enable this.
- 2.5.6. Based on the average of the five development scenarios described above the trip budget, is shown in **Table 2.6**.

Table 2.6 Milton Road Trip Budget, from Transport Evidence Base

Time Period	Development External Vehicular Trip Budget Level
AM Peak Hour	3,900 vehicle trips
PM Peak Hour	3,000 vehicle trips

Source: Table 21, NEC AAP Transport Evidence Base, 2019

- 2.5.7. The above trips are lower than existing levels and therefore require the existing car driver mode share to decrease significantly if development is to be accommodated.
- 2.5.8. Initially, Cambridge Regional College was not included in the Evidence Base, but the *Transport Topic Paper* introduced a trip budget and car parking cap for the Kings Hedges Road junction. The existing trip budget and car park levels apply to trips accessing the AAP area via Milton Road and therefore, the introduction of a trip budget for the Kings Hedges Road access would not result in any reduction in the Milton Road trip budget set out in the Evidence Base.
- 2.5.9. This Kings Hedges Road trip budget would cover trips from both the Regional College and the Cambridge Science Park. In order to generate this information, the count data collected during the 2017 surveys was used. **Table 2.7** shows the trip budget for the Kings Hedges Road junction. This budget is in addition to that presented in **Table 2.6**. It should also be noted that CSP has trip budgets for both Kings Hedges Road and Milton Road.

Table 2.7 Kings Hedges Road Trip Budget

Site	AM Peak		PM Peak	
	Arrive	Depart	Arrive	Depart
Cambridge Science Park	409	106	71	527
Cambridge Regional College	247	18	31	125
Total	656	124	102	652

Source: Table 5, **NEC** Transport Topic Paper, 2021

2.6. NEC AAP Trip Budget Allowance Per Site

- 2.6.1. Whilst the Transport Evidence Base identifies trip budgets for Milton Road, unlike the Kings Hedges Road Trip Budget, the split amongst individual landowners is not defined.
- 2.6.2. Trip budgets have been defined by CCC for commercial and residential development. Ancillary development such as shops and schools are not included where significant external trip attraction is not expected.
- 2.6.3. In separate correspondence to the NEC AAP developers, CCC has defined the proportion of the Trip Budget that each site is allocated. The Trip Budget is allocated according to the overall existing and proposed development (within the Proposed Submission AAP) on a pro rata basis, i.e. the larger the floor area or unit numbers the more vehicle trips are allocated.
- 2.6.4. CCC provided a split between commercial floor space and residential for the AM peak only. These figures have been used to define Trip Budgets for each site. The same commercial to residential proportion was used for the PM peak with trip rates from the Evidence Base used to define the split between arrivals and departures.

2.6.5. **Table 2.8** shows the commercial Milton Road trip budget per development site, with Table 2.9 the residential element.

Table 2.8 NEC AAP Milton Road Trip Budget per Development (Commercial)

Site	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
	Arrivals	Departures	Arrivals	Departures
Chesterton Sidings: Brookgate	185	19	12	145
Cowley Rd Ind Estate	195	20	12	153
Core Site: AW/City Council	110	11	7	87
St Johns Innovation Park	243	25	15	191
Merlin Place	18	2	1	14
Cambridge Business Park	354	36	22	277
Nuffield Road	134	14	8	105
Trinity Hall Farm Ind Estate				
Cambridge Science Park	1375	141	87	1079
Total	2615	267	165	2052

Table 2.9 NEC AAP Milton Road Trip Budget per Development Site (Residential)

Site	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
	Arrivals	Departures	Arrivals	Departures
Cowley Road	10	44	29	13
Nuffield Road	10	44	29	13
Merlin Place	3	12	8	4
St. Johns Innovation Park	0	0	0	0
Orwell House/Core Site	127	544	354	161
Cambridge Business Park	12	49	32	15
Cambridge Science Park	0	0	0	0
Milton Road Site	2	7	5	2
Brookgate	29	123	80	37
Total	193	825	538	245

Table 2.10 - NEC AAP Milton Trip Budget per Development Site (Total)

Site	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
	Arrivals	Departures	Arrivals	Departures
Chesterton Sidings: Brookgate	214	142	92	182
Cowley Rd Ind Estate	206	64	41	167
Core Site: AW/City Council	238	555	361	248
St Johns Innovation Park	243	25	15	191
Merlin Place	21	14	9	18
	365	86	55	292
Nuffield Road	144	58	37	118
Trinity Hall Farm Ind Estate				
Cambridge Science Park	1375	141	87	1079
Milton Road Site	2	7	5	2
Total	2808	1092	703	2297

- 2.6.6. **Table 2.10** presents the Milton Road Trip Budgets per site.
- 2.6.7. It is these aggregate trip levels for the individual sites/areas, rather than the use-specific ones, which provide the budgets against which site-specific allocations will be monitored.
- 2.6.8. In addition to the Milton Road Trip Budget, a separate Trip Budget for Kings Hedges Road has been defined as part of the Transport Topic Paper and is presented in **Table 2.11**. For CSP, this Trip Budget is in addition to the Milton Road Trip Budget.
- 2.6.9. Overall vehicle Trip Budgets for CSP and CRC are defined in **Table 2.11**.

Table 2.11 Overall trip budget for CSP and CRC

Site	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
	Arrivals	Departures	Arrivals	Departures
CSP Milton Road	1375	141	87	1079
CSP Kings Hedges	409	106	71	527
Total Cambridge Science Park	1,784	247	158	1,606
Cambridge Regional College	247	18	31	125

- 2.6.10. The Transport Topic Paper also sets out how the Car Showroom Site on Milton Road will be considered within the context of the Trip Budget approach. The report confirms that the inclusion of the site is unlikely to have a significant impact on the operation of the area as a whole.
- 2.6.11. The site would need to have its own Trip Budget and parking target so as not to add to the existing levels of congestion on Milton Road. To derive this, an assessment will need to review current level of trips generated by the existing land use. At this stage a Trip Budget for this site has not been defined.

2.7. Trip Budget Delivery Plan

- 2.7.1. Section 10 of the NEC AAP transport evidence base, 2019, sets out the necessary mitigation measures the NEC AAP Transport Study outlines as necessary to meet the proposed Trip Budget and car mode share shift. These measures are summarised in **Figure 2.3** below.
- 2.7.2. Further details on how these measures might be delivered is provided in **Section 7** of this report.

Figure 2.3 Proposed Transport Interventions from the Evidence Base

Intervention Description	Ref.	Priority	Phasing Period ¹
Internal Measures			
Spatial framework development promoting connectivity and permeability (improving pedestrian/cycle connectivity to enhance linkages to existing key residential areas, wayfinding and urban realm)	IM1	Essential	ST
Segregated crossing point(s) on Milton Road	IM2	Essential	ST
Crossing points on the busway to reduce barrier effect	IM3	Essential	ST
Highway site access improvements	IM4	Essential	ST
Intra-site shuttle system ²	IM5	Essential	ST / LT
NEC parking strategy (including low levels of onsite parking provision in line with trip budget and parking monitoring and promotion of Controlled Parking Zones / Residential Parking Schemes where required locally)	IM6	Essential	ED / ST / LT
Travel Plan Measures and Travel Monitoring (inc. e-bikes / e-scooters, incentive programmes, transport subsidies, smartphone apps / information messaging, carsharing, home working / hot-desking culture)	IM7	Essential	ED / ST / LT
Potential changes to development mix / quantum to reduce trip budget impact and increase internalisation levels (e.g. monitor secondary school demand and add provision if needed)	IM8	Desirable	ST / LT
Marketing support to attract residents to the area that are more likely to use alternative travel modes other than car	IM9	Desirable	ST / LT
Incentive scheme to maximise resident-to-employee ratio (Potential for a particular housing development associated with employers in the area or for tax reductions for people who work and live in the area)	IM10	Desirable	ST / LT
Local Measures			
New segregated link from Milton Road P&R to site avoiding interaction with Milton Road	LM1	Essential	ED
Additional P&R spaces at key locations	LM2	Essential	ED / ST / LT
Park and cycle opportunities at P&R locations	LM3	Essential	ED / ST / LT
P&R shuttle system ²	LM4	Essential	ED / ST / LT
Variable Message Signage (VMS) at key locations to inform drivers of P&R spaces and congestion issues at Milton Rd / Milton Interchange	LM5	Desirable	ED / ST / LT
Strategic Measures			
Additional bus services – extra service buses to enhance links to key areas	SM1	Essential	ST / LT
Additional rail services to be delivered by rail operating companies	SM2	Essential	ST / LT
Delivery of already planned cycle improvements	SM3	Desirable	ST / LT
Plugging gaps in the wider cycle network to enhance routes to key residential areas	SM4	Desirable	ST / LT
Delivery of the wider PT network (e.g. CAM)	SM5	Desirable	ST / LT
Source: Mott MacDonald and input received from key stakeholders during workshop on 26/02/2019			
[1] ED – Early Delivery; SL – Short Term; LT – Long Term. See Section 10.3 below.			
[2] This could be delivered as a combination of mass transit options. Potentially taking the form of a bus service in the short term, with other alternative solutions fulfilling this role or assisting in the mid-long term (see Section 7.3.2 for more information). Such alternatives would have to be compatible with future travel systems introduced in Cambridge and nearby environs.			

Source: Table 55, NEC AAP Transport Evidence Base, 2019

3. Future Baseline Situation

3.1. Introduction

- 3.1.1. The Transport Evidence Base utilises data that predates several significant developments and transport initiatives in the area. The potential effects of the COVID-19 pandemic are also not reflected in the baseline. This section sets out a number of changes since the 2017 surveys and 2011 Census data which was also used that should be considered as the strategy for the area develops.
- 3.1.2. It is important that the strategy for the NEC AAP reflects the changes in traffic and movement following the pandemic and the effects of wider mobility measures.

3.2. Survey Data and Estimates

- 3.2.1. The NEC AAP details that surveys were undertaken in 2017, which no longer reflects the area as it is now, as a number of transport improvements have come forward since this date, most notably Cambridge North Station. It is expected that a greater number of trips would now be routing through the Milton Road corridor, and subsequently CNFE, to access the station and may result in a trip budget that does not reflect actual conditions. Furthermore, this may have resulted in an over-representation in the number of vehicles accessing the CNFE, as staff and visitors can now use Cambridge North Station instead.
- 3.2.2. It would therefore be prudent to undertake new surveys to collect data for comparison to that collected in March 2017. The Evidence Base also notes that the traffic surveys are only for a single neutral day count on the local highway network, which was then used to create the junction models; for a study area as large as the NEC AAP, it would be more appropriate to collect survey data for a week to ensure that the data accurately captures the true extent of trips accessing Milton Road. A wider strategic transport model and / or microsimulation would also be appropriate for the study area, rather than the LinSig models used currently. This could then show the full extent of trip routing on the wider highway network and the behaviour of drivers during peak congestion periods.
- 3.2.3. WSP, consultants for St John's Innovation Park (SJIP), undertook traffic surveys on the local road network in June 2019, which could be provided to CCC for input to the Evidence Base. This would make the Evidence Base more reliable and representative of the AAP area as a whole. The traffic surveys collected, on behalf of SJIP, at all key access junctions to the Innovation Park and signal-controlled junctions on Milton Road, show that in the AM Peak Hour there were 990 two-way vehicle trips and 752 two-way vehicle trips in the PM Peak Hour accessing the CNFE area, an increase of 8% since those reported in the AAP during the 2017 surveys.
- 3.2.4. Additionally, the job estimates were reverse calibrated to be appropriate to the sites, otherwise when applied to TRICS trip rates, it would have predicted traffic flows that are noticeably higher than observed counts. It would be more appropriate to carry out traffic surveys and to request the estimated job figures from developers within the AAP to more accurately calculate the trips accessing the site. Currently surveys only assess the signalised junctions on Milton Road and trips are allocated across the Cambridge Northern Fringe Area as a whole. This area also contains Cambridge North Station and the Anglian Water site and so the estimates may not show the true number of trips accessing the sites.

3.3. Cambridge North Station

- 3.3.1. Cambridge North Station opened to passengers in 2017, which has seen high levels of usage, as it provides access to key employment and residential locations to the north of Cambridge. The Office of Rail and Road calculated that there were 812,972 passengers' entries and exits in 2018-19, which grew to 949,550 in 2019-20, an increase of 16.8%¹. This continued level of growth is expected into the future and micro mobility transport options available from the station, such as ebikes and e-scooters (currently in place and operated by Voi) are encouraging more trips to be made sustainably. The NEC AAP

¹ Table 1410 - Passenger entries and exits and interchanges by Station, Office of Rail and Road, 2020

Transport Evidence Base notes that the car driver mode share of 29% should be in place for 2030, which is very ambitious and may be possible with measures outlined above, however it is not clear whether early discussions have been held with public transport operators and developers to ensure that the measures would be supported and feasible.

- 3.3.2. The NEC AAP Transport Evidence Base notes that shuttle bus services could be operated between Cambridge North Station and the wider NEC area, supporting the level of internalisation of the area (see Internalisation Topic Paper), to the aspiration of 15%-20%. A number of sites already offer this service to staff, such as the shuttle bus operated between St John's Innovation Park to Cambridge North Station and Cambridge Science Park to Cambridge North Station.

3.4. Committed Development

- 3.4.1. GCSP supplied the details of consented schemes within the study area, as shown in **Table 3.1**, however, during the production of the Transport Evidence Base, no sites still in the early planning stages were included, such as those likely to have submitted planning applications by 2030 and so would have an effect on the areas within the AAP.

Table 3.1 Consented Schemes within the Study Area

Site	Land Use	Description	GFA (m ²)
CSP	B1, B1a, B1b	Plots 1/21, 22, 25, 29-30, 420, 440 & 250	89,024
CNFE	B1a	Coulson Group office by existing building	2,593
	B1a	Brookgate office by Cambridge North Station	9,762
	C1	Brookgate hotel (217 beds) by Cambridge North Station	9,940

Source: Table 7, NEC AAP Transport Evidence Base, 2019

- 3.4.2. More recently, the following schemes have submitted planning applications, which will not have been considered in the base year and should be accounted for within associated Trip Budgets:
- St John's Innovation Park
 - Ref 20/03523/FUL and 20/03524/FUL
 - Cambridge Science Park
 - Ref 21/02627/FUL - 198 Cambridge Science Park
 - Ref 20/03444/FUL - 127 Cambridge Science Park

3.5. The Busway

- 3.5.1. The Busway provides services between Huntingdon, St. Ives, Cambridge and Addenbrooke's Hospital. The Busway provides an effective strategic public transport and a high-capacity walking/cycling route throughout Cambridge. The Busway opened in August 2011, the number of journeys has increased from around 20,000 per month to approximately 25,000 passengers per month, an increase in the region of 25%. During the autumn of 2011 there were reductions in car travelling across the three cordon points most likely to have been affected by people using the busway rather than travelling by car. There was a reduction of 2.3% in cars crossing these cordon points compared with an increase of 1.2% across the rest of the cordon².
- 3.5.2. It is evident from the information above that the implementation of the busway and its increased take up would not be covered within the 2011 census data used within the Evidence Base. Similarly, to the use of Cambridge North Station it would be more appropriate to undertake updated surveys or use Smarter Journeys data (which includes the busway as a mode of travel) to accurately reflect the use of the busway and the impact this has of private car use for commuting purposes.

² Cambridge Transport Strategy

- 3.5.3. This is of particular note, when considering the number of development sites on the fringe of Cambridge which are coming forward and will be linked to the City via Busways for example the developments at Northstowe, Cambourne and Waterbeach. The provision of busways will provide a good alternative to car travel to and from the City for these developments.

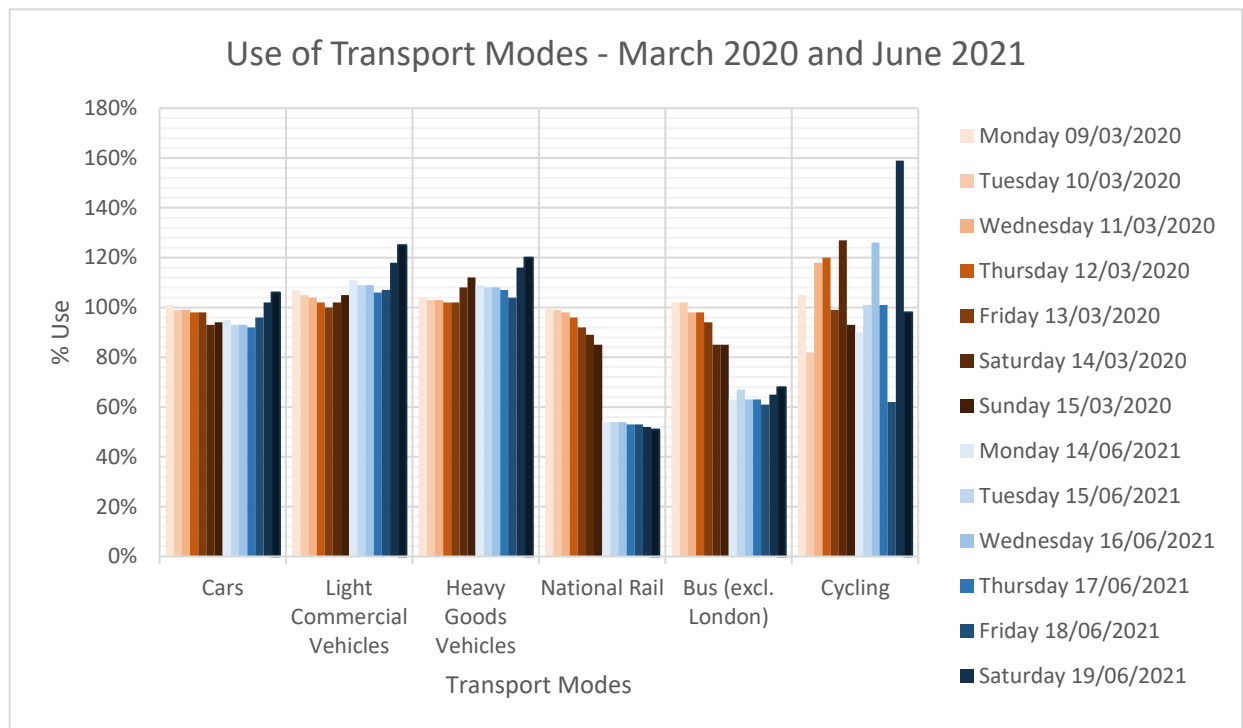
3.6. COVID-19 Pandemic Effects

- 3.6.1. The COVID-19 pandemic brought significant changes to how, where and when we work, with a very substantial increase in the number of people working from home. Data from the ONS notes that the level of workers carrying out any activities from home increased by 9.4% into 2020, to 35.9%³ across the UK. The ONS Annual Population Survey on homeworking estimated that in 2019, 15.7% of residents 'ever work from home', which increased to 53.4% in 2020, within the Cambridge Local Authority area, and from 22.2% in 2019 to 46.9% in 2020 within the South Cambridgeshire Local Authority area⁴. As attitudes towards working from home are changing, a number of employees may continue to work fully or partly from home, reducing the number of commuting movements to the NEC AAP area. Furthermore, it is anticipated that the traditional peak will no longer continue due to people's reservations on being on crowded public transport, so there is likely to be a higher level of peak spreading as an outcome of COVID-19.
- 3.6.2. The Department for Transport has released statistics on transport use since March 2020 across Great Britain, to show the change in use throughout the COVID-19 pandemic. **Figure 4** shows the level of usage from a week before the pandemic 9th - 15th March 2020 and the most recent week available, 14th - 20th June 2021, which shows that levels of car and cycle usage have returned to pre-pandemic levels, whilst levels of public transport use remain low, at 54% for a weekday average on National Rail services in 2021, when the advice from the UK Government was still to work from home where possible.

³ Table 2 - Percentage (%) of employed population in each work from home status, Homeworking hours, rewards and opportunities in the UK: 2011 to 2020, ONS, 2021

⁴ Table 11 & 12 - Homeworking by Local/Unitary Authority of residence in the UK, January to December 2019 & 2020, Estimates of homeworking in the United Kingdom, ONS, 2020.

Figure 3.1 Use of Transport Mode Shares 2020 and 2021



Source: Domestic transport use by mode: Great Britain, since 1 March 2020, Department for Transport, 2021

- 3.6.3. Substantial shifts in commuting behaviours could in turn offer the opportunity to explore increased use of walking, cycling, rail, bus and micro mobility to the NEC AAP zone, for those returning to the office. Local authorities are keen to encourage the uptake of micro mobility and cycling, several councils have been reallocating road space to allow for safe provision for cycling and other potential micro-mobility modes of travel such as e-scooters.

3.7. Section Summary

- 3.7.1. This section has set out the key transport initiatives which have not been considered within the baseline data of the Transport Evidence (2019). It is recommended that up-to-date mode share data from Smarter Journeys is used in replacement of 2011 Census data and updated traffic surveys are undertaken to reflect the implementation of Cambridge North Station and improvements to the Busway.
- 3.7.2. As the Transport Strategy is developed and future planning applications are submitted, the effect of the measures outlined in this section should be considered to ensure the current (at the time of writing) situation is reflected in any analysis.
- 3.7.3. It is understood that CCC are proposing to update wider modelling to reflect the position in 2022. This can be used to ensure the approach set out in the Evidence Base and Trip Budgets are appropriate.

4. Development Quantum

4.1. Introduction

- 4.1.1. The cumulative development quantum proposed by the developers for their sites are shown in the tables below for the commercial element of the AAP area over time.

Table 4.1:Development Quantum Employment (SQM)

Site	Base	2025	2030	2035	2040
Core Site	0	5,900	36,152	57,114	77,175
St. John's	31,454	44,861	57,827	91,157	92,038
Brookgate	10,000	85,000	85,000	137,900	137,900
Science Park	241,548	260,378	301,912	341,802	389,756
Business Park	32,300	42,300	62,300	82,300	102,300
Cowley Road	37,292	38,000	39,000	40,000	40,322
Nuffield Road	28,798	25,000	22,000	20,000	17,798
Merlin Place	4,415	4,415	4,415	4,415	4,415
Regional College	0	0	0	0	0
VW Garage	0	0	0	0	0
Trinity Hall Farm	0	1,500	1,500	1,500	1,500
Total	385,807	507,354	610,106	776,188	863,204

- 4.1.2. The cumulative development quantum proposed by the developers is shown in the tables below for the residential element of the AAP area.

Table 4.2:Development Quantum Residential (Units)

Site	Base	2025	2030	2035	2040
Core Site	0	0	1,949	3,898	5,848
St. John's	0	0	0	0	0
Brookgate	0	550	550	1,550	1,550
Science Park	0	0	0	0	0
Business Park	0	0	0	350	500
Cowley Road	0	100	250	350	450
Nuffield Road	0	100	250	350	450
Merlin Place	0	25	75	100	125
Regional College	0	0	0	0	0
VW Garage	0	75	75	75	75
Trinity Hall Farm	0	0	0	0	0
Total	0	850	3,149	6,673	8,998

- 4.1.3. The development quantum proposed by the developers differs from that in the Proposed Submission AAP document. Table 4.3 shows the differences between the developer aspirations and the Proposed Submission AAP for the commercial element.

Table 4.3:Development Quantum

Employment (SQM)			
Site	Developer Aspiration	Proposed Submission AAP	Net Change
Core Site	77,175	25,050	52,125
St. John's	92,038	55,255	36,783
Brookgate	137,900	41,923	95,977
Science Park	389,756	313,142	76,614
Business Park	102,300	80,192	22,108
Cowley Road	40,322	40,322	0
Nuffield Road	17,798	17,798	0
Merlin Place	4,415	4,415	0
Regional College	0	0	0
VW Garage	0	0	0
Trinity Hall Farm	1,500	1,500	0
Total	863,204	579,597	+283,607

- 4.1.4. The Table below shows the differences between the developer aspirations and the draft AAP for the residential element.

Table 4.4:Development Quantum Residential (Units)

Residential (Units)			
Site	Developer Aspiration	Proposed Submission AAP	Net Change
Core Site	5,848	5,500	348
St. John's	0	0	0
Brookgate	1,550	1,250	300
Science Park	0	0	0
Business Park	500	450	50
Cowley Road	450	450	0
Nuffield Road	450	450	0
Merlin Place	125	125	0
Regional College	0	0	0
VW Garage	75	75	0
Trinity Hall Farm	0	0	0
Total	8,998	8,300	698

- 4.1.5. The Transport Strategy demonstrates the higher developer aspirational development mix & quantum are achievable and deliverable from a transport perspective. By developing a strategy for the higher aspirational development quantum, this strategy can also be applied to the AAP development mix to mitigate any transport impacts.

5. Sustainable Transport Principles

5.1. Introduction

- 5.1.1. A number of sustainable transport principles will be required to support the aspirations of the North East Cambridge (NEC) Area Action Plan (AAP) of low car use and changing travel behaviour. These sustainable transport principles will assist development sites in achieving the trip, parking and modal split targets prescribed in the AAP and ensure sufficient capacity is provided across public transport, walking and cycling infrastructure to cater for the predicted level of non-car trips across North East Cambridge. The Proposed Submission NECAAP sets out the below policy approach to support sustainable transport and a modal shift across North East Cambridge:
- **Policy 16: Sustainable connectivity**
 - **Policy 17: Connecting to the wider network**
 - **Policy 18: Cycle and Micro-mobility parking**
 - **Policy 19: Safeguarding for public transport**
 - **Policy 20: Last mile deliveries**
 - **Policy 21: Street hierarchy**
 - **Policy 22: Managing motorised vehicles**
- 5.1.2. Each development will need to embrace these sustainable transport principles to shift travel away from the use of private car in order to meet the prescribed trip and parking budgets.
- 5.1.3. The below list has been prepared to give clarity on what sustainable transport principles developers are considering applying within the NECAAP area.

5.2. Sustainable connectivity

- 5.2.1. Infrastructure improvements and measures have been outlined in the NECAAP that aim to enhance connectivity through the principle of walkable neighbourhoods and healthy towns to reduce the need to travel and encourage sustainable travel. Many of these infrastructure improvements to pedestrian and cycle connections have been outlined in Table 55 of the Transport Evidence Base and will be outlined in Sections 7 and 8 of this report. Approaches to internalise and reduce motor vehicle use that each development will consider include:
- Digital infrastructure (see Digital Infrastructure Topic Paper);
 - Online information for journey planning;
 - Mobility as a service (Maas);
 - Micro-Mobility;
 - Demand responsive transport and ride sharing;
 - Smart / mobile ticketing;
 - Cycle taxis;
 - Electric Car Clubs;
 - Last mile deliveries; and
 - Future proofing for technological improvements and the use of autonomous vehicles (see Future Mobility Topic Paper).
- 5.2.2. These measures would aim to make sustainable travel possible for everyone, link NEC to the wider area and discourage the use of cars.

5.3. Connecting to the wider area

- 5.3.1. Masterplanning at the development management stage should aim to improve the wider connectivity between North East Cambridge and the surrounding areas through providing crossings for non-motorised users to reduce severance on key desire lines, including:
- Crossing the A14;

- Crossing the Cambridgeshire Guided Busway;
- Crossing the railway;
- Crossing Milton Road; and
- Crossing the Business Park 'boundaries'.
- Each development will consider the integration of all connections and routes at the masterplanning stage which includes:
 - Providing an extensive network of interconnected high-quality routes; and
 - Maintaining desire lines, providing legible, direct and unhindered passage, and ensuring enough space is designed-in for landings for bridge and underpass approaches at appropriate gradients to accommodate the most vulnerable users.

5.4. Cycle parking

- 5.4.1. To reflect the low car usage of the AAP and to meet the required trip budgets, each development will need to consider how to encourage cycling. Providing cycle parking infrastructure to meet the needs of development will be fundamental to delivering the sustainable transport principles of the NECAAP. Each development will consider the following:

- Providing cycle parking in excess of the minimum standard;
- Accommodating non-standard cycles and provision for electric charging points;
- Providing cycle parking infrastructure that is convenient to new and adjacent residential and business communities that is flexible, safe, secure and integral to the public realm;
- Providing covered and secure long stay cycle parking; and
- Providing innovative solutions to cycle parking infrastructure.

- 5.4.2. Each development will consider cycle parking at the masterplanning stage to ensure it is integrated into the development, public realm and is ideally located.

5.5. Safeguarding for future public transport

- 5.5.1. North East Cambridge should be designed around sustainable active modes which will provide connecting access to public transport services at mobility hubs. It is envisaged mobility hubs will comprise interchanges between public transport and other mobility options for first/last mile journey and will also include spaces for cycle parking, dockless cycle hire schemes and emerging micro-mobility modes. They will also support local wayfinding across the NEC area through signposting, maps and live public transport information.
- 5.5.2. Each development, coordinated between development sites, should consider the principles of mobility hubs and their locations across the NEC area on key walking and cycling routes and main arrival points to the area.

5.6. Last mile deliveries

- 5.6.1. To reduce vehicle trips associated with deliveries to the NEC area, last mile deliveries could be undertaken, where possible, by cycle. To facilitate this method of delivery, consolidation centres could be located at strategic points within the NEC area to transfer parcels onto smaller cargo-logistic bikes. This concept of last mile deliveries could comprise:
- A delivery hub located at the Cambridge Science Park Local Centre;
 - An additional hub potentially located close to Milton Road;
 - A delivery hub of up to 1,500m² to enable consolidation of deliveries;
 - Last-mile deliveries will be encouraged to be provided by sustainable modes and bulkier items to use electric vehicles; and
 - Innovative solutions and technology should also be considered to further reduce the number of delivery trips and manage onwards 'last-mile' deliveries.

5.7. Street hierarchy

- 5.7.1. The NECAAP outlines a street hierarchy to ensure there is functional street network for vehicular access which takes into account sustainable transport principles:
- Streets should be designed to lower vehicle speeds;
 - High-quality provision for walking and cycling is required to ensure these remain the main choice of travel mode; and
 - Space efficient car parking should be provided in 'car barns' so that residents and workers who need to occasionally use cars, can access private or shared cars.
- 5.7.2. Primary streets will provide the main vehicular access into and within North East Cambridge which should:
- Include high quality segregated paths and cycle paths for all non-vehicular users, including micro-mobility; and
- 5.7.3. Give priority to active sustainable modes at and across junctions using primary streets and side roads.
- 5.7.4. Secondary streets will provide access to the wider area for essential emergency vehicles, as well as servicing commercial, community and residential properties, off-plot car parking in car barns (including car-pool hire schemes) and to provide access for people with mobility issues. These should be designed to:
- Provide full permeability and priority for active sustainable modes;
 - No through routes for non-essential traffic, with filtered permeability to enable access for essential vehicles;
 - Public realm designed for low traffic volumes and speeds below 20 mph; and
 - Any loading bays, drop-off/pick-up points and vehicle parking for people with mobility issues, should be integrated into the public realm. Innovative solutions should be considered to 'manage the kerb'.
- 5.7.5. Each development will consider the above street hierarchy within site masterplans along with exploring the potential for car-free zones, space for drop-off / pick-up and delivery vehicles and integration with public realm.

5.8. Managing motorised vehicles

- 5.8.1. In order to achieve the objectives of the NECAAP the overall number of vehicle movements in North East Cambridge will have to be carefully managed. To achieve this each development has been allocated its own external vehicle trip budget which will limit the number of vehicle trips allowed to and from each site in the peak hour periods along with challenging car parking budgets. These trip budgets have been outlined and detailed further in Section 1 of this report.
- In order to support the principle of the vehicle trip and parking budgets, each development will be required to align with the below principles:
 - Existing developments within North East Cambridge will need to significantly reduce their existing car parking allocation/occupancy;
 - New developments will adopt a restrictive approach to car parking;
 - A site-wide residential parking strategy should be developed to incorporate neighbourhoods of car-free housing, particularly close to centres of activity and mobility hubs. For ancillary uses, parking should be limited to operational and blue badge use only;
 - Modal filter/bus gate (to ensure no through route to traffic) will be considered at key points across the AAP, including on Cambridge Science Park.
 - To create a place that positively encourages walking and cycling instead of car use for short trips, car parking will be accommodated off-plot within car barns rather than immediately outside properties;
 - Car barns should be provided throughout the area and incorporate electric charging points for all spaces as well as appropriate space for motorbikes, scooters and car-pool hire scheme vehicles; and

- To mitigate potential parking displacement, parking demand and capacity in the areas within a 2km distance from North East Cambridge will be monitored throughout the Plan period. Should monitoring reveal parking displacement, additional mitigation agreed through travel plans will need to be implemented before further development can take place.

5.9. Cambridge North Station Interchange Hub

- 5.9.1. Cambridge North Station serves as the main public transport stop for the NEC area. In order to accommodate the increased level of public transport trips routing through the station there is the potential to improve the interchange opportunities at the station across a range of modes and to serve as a mobility hub for first/last mile trips across the NEC area.
- 5.9.2. There is potential that this interchange could accommodate two mass transit routes from St Ives and the proposed Waterbeach route, bus services into the city centre and across the wider area, and link to the railway network. The interchange would need to consider catering for existing technologies and trends in travel but also provide flexibility and be able to evolve as new technologies come forward; for example, including spaces for emerging micro-mobility modes.

6. Trip Generation

6.1. Introduction

- 6.1.1. This Chapter sets out the estimated number of trips by each mode for the various Sites within the AAP based on trip rates included in the Evidence Base, with data provided for the weekday morning and evening peak hours.

6.2. Trip Rates

- 6.2.1. Table 6.1 provides a summary of the residential person trip rates per dwelling for the weekday morning (0800 – 0900) and evening (1700 – 1800) peak hours as set out the in the Transport Evidence Base.

Table 6.1: Residential Trip Rates (per Dwelling)

Period	Arrivals	Departures
AM Peak (0800 – 0900)	0.185	0.791
PM Peak (1700 – 1800)	0.507	0.231

- 6.2.2. Table 6.2 provides a summary of the employment person trip rates per 100sqm Gross Floor Area for the weekday morning (0800 – 0900) and evening (1700 – 1800) peak hours as set out the in the Transport Evidence Base.

Table 6.2: Employment Trip Rates (per 100sqm GFA)

Period	Arrivals	Departures
AM Peak (0800 – 0900)	1.692	0.202
PM Peak (1700 – 1800)	0.125	1.245

- 6.2.3. Table 6.3 and Table 6.4 set out the estimated number of residential person trips, i.e. by all modes including car, public transport and active modes, for each of the various Sites within the AAP for the AM Peak and PM Peak respectively, with no residential on the St. John's, Science Park and Regional College Sites. The figures represent gross values and do not take into account internal trips discussed later.

Table 6.3: AM Peak Residential Person Trips (0800 – 0900)

Site	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Core Site	0	0	0	0	361	1542	721	3083	1082	4626
St. John's	0	0	0	0	0	0	0	0	0	0
Brookgate	0	0	102	435	102	435	287	1226	287	1226
Science Park	0	0	0	0	0	0	0	0	0	0
Business Park	0	0	0	0	0	0	65	277	93	396
Cowley Road	0	0	19	79	46	198	65	277	83	356
Nuffield Road	0	0	19	79	46	198	65	277	83	356
Merlin Place	0	0	5	20	14	59	19	79	23	99
Milton Road	0	0	5	20	9	40	19	79	22	93
Total	0	0	148	633	578	2471	1239	5298	1673	7151

Table 6.4: PM Peak Residential Person Trips (1700 - 1800)

Site	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Core Site	0	0	0	0	988	450	1976	900	2965	1351
St. John's	0	0	0	0	0	0	0	0	0	0
Brookgate	0	0	279	127	279	127	786	358	786	358
Science Park	0	0	0	0	0	0	0	0	0	0
Business Park	0	0	0	0	0	0	177	81	254	116
Cowley Road	0	0	51	23	127	58	177	81	228	104
Nuffield Road	0	0	51	23	127	58	177	81	228	104
Merlin Place	0	0	13	6	38	17	51	23	63	29
Milton Road	0	0	13	6	25	12	51	23	60	27
Total	0	0	406	185	1584	722	3396	1547	4584	2088

6.2.4. Table 6.5 and Table 6.6 set out the estimated number of employment person trips, i.e. by all modes including car for each of the Sites based on the development quantum's in **Chapter 4**; the numbers represent gross figures and do not take into account any internalisation.

Table 6.5: AM Peak Employment Person Trips (0800 – 0900)

Site	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Core Site	0	0	100	12	612	73	966	115	1306	156
St. John's	532	64	759	91	978	117	1542	184	1557	186
Brookgate	169	20	787	94	1491	178	2333	279	2333	279
Science Park	4087	488	4406	526	5108	610	5783	690	6595	787
Business Park	547	65	716	85	1054	126	1393	166	1731	207
Cowley Road	631	75	643	77	660	79	677	81	682	81
Nuffield Road	487	58	423	51	372	44	338	40	301	36
Merlin Place	75	9	75	9	75	9	75	9	75	9
Milton Road	0	0	0	0	0	0	0	0	0	0
Total	6528	779	7908	944	10351	1236	13108	1565	14580	1741

Table 6.6: PM Peak Employment Person Trips (1700 – 1800)

Site	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Core Site	0	0	7	73	45	450	71	711	96	961
St. John's	39	392	56	559	72	720	114	1135	115	1146
Brookgate	13	125	58	579	110	1097	172	1717	172	1717
Science Park	302	3007	325	3242	377	3759	427	4255	487	4852
Business Park	40	402	53	527	78	776	103	1025	128	1274
Cowley Road	47	464	48	473	49	486	50	498	50	502
Nuffield Road	36	359	31	311	28	274	25	249	22	222
Merlin Place	6	55	6	55	6	55	6	55	6	55
Milton Road	0	0	0	0	0	0	0	0	0	0
Total	482	4803	584	5819	765	7616	968	9645	1077	10728

6.3. Trip Type and Internalisation

- 6.3.1. Whereas the vast majority of trips associated with employment uses would be traditional commuter trips during the peak hours with people travelling to or from work, residential trips would include a wider range of journey purposes including journeys to / from education, leisure and retail in addition to commuting and other trips (also see Internalisation Topic Paper).
- 6.3.2. It is anticipated that the vast majority of primary education for the residential element would be catered for within the AAP. The presence of the Cambridge Regional College will also ensure that an element of the higher education is catered for within the AAP. Data from the TEMPRO database suggests that 46.7% of all trips during the AM Peak are education related with 13.9% during the PM Peak education related.
- 6.3.3. Local facilities within the AAP are likely to include health and fitness clubs along with eateries, and as such cater for residents and employees.
- 6.3.4. It is anticipated that the Core Site proposed town and local centres would include convenience shops that would cater for an element of the weekday retail trips during the morning and evening peak periods.
- 6.3.5. There is currently in excess of 385,000sqm of employment floorspace within the AAP which is planned to reach an estimated 580,000sqm based on figures within the AAP and potentially up to 860,000sqm based on Developer aspirations, with the TEMPRO database suggesting circa 34.5% of all residential trips during both the AM Peak and PM Peak Periods would be associated with employment travel.
- 6.3.6. Table 6.7 sets out the potential split of residential journeys based on the TEMPRO database for wider Cambridge which emphasises the relatively high proportion of educational trips during the AM Peak Period and a higher proportion of shopping and "other" trips which encompasses leisure and recreational trips along with visits to friends and relatives.

Table 6.7: Residential Journey Purpose (All Modes)

Journey Purpose	AM Peak	PM Peak
Employment	35%	35%
Education	45%	15%
Shopping	10%	20%
Other	10%	30%

- 6.3.7. Given that the Core Site includes education, leisure and retail facilities along with a significant quantum of existing and proposed employment opportunities within the wider AAP, it has been assumed that 15% of the residential employment trips along with 33% education, 20% shopping and 20% other trips would be internal during both the AM and PM Peak Periods resulting in 25% of the overall residential trips being internal during the AM Peak Hour and 20% during the PM Peak Hour, with the lower overall percentage during the PM Peak primarily as a result of fewer educational trips.
- 6.3.8. Overall, the quantum of internal trips equates to circa 9% of the total number during the AM Peak Hour (0800 – 0900) and 10% during the PM Peak Hour (1700 – 1800) with the remainder being external and having an origin or destination outside of the AAP.
- 6.3.5 Table 6.8 and Table 6.9 set out the estimated number of internal and external residential trips by journey purpose within the wider AAP based on the above assumptions, with Table 6.910 and Table 6.11 setting out the estimated number of internal and external employment trips; the internal arrival figure of 375 trips in 2040 (Table 6.10) mirrors the 375 residential employment departure trips in 2040 (Table 6.8), and so on, with the 375 internal departures 15% of the overall number of residential employment departure trips in 2040.

Table 6.8: Residential Person Trips by Journey Purpose (AM Peak 0800 – 0900)

Journey Purpose	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Employment	0	0	52	221	202	865	434	1854	585	2503
External	0	0	44	188	172	735	369	1576	498	2128
Internal	0	0	8	33	30	130	65	278	88	375
Education	0	0	67	285	260	1112	558	2384	753	3218
External	0	0	45	191	174	745	374	1597	504	2156
Internal	0	0	22	94	86	367	184	787	248	1062
Shopping	0	0	15	63	58	247	124	530	167	715
External	0	0	10	42	39	166	83	355	112	479
Internal	0	0	5	21	19	82	41	175	55	236
Other	0	0	15	63	58	247	124	530	167	715
External	0	0	10	42	39	166	83	355	112	479
Internal	0	0	5	21	19	82	41	175	55	236
Total	0	0	148	633	578	2471	1239	5298	1673	7151
External	0	0	108	464	424	1811	908	3884	1226	5242
Internal	0	0	40	169	154	660	331	1415	447	1909

Table 6.9: Residential Person Trips by Journey Purpose (PM Peak 1700 – 1800)

Journey Purpose	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Employment	0	0	142	65	554	253	1189	542	1604	731
External	0	0	121	55	471	215	1010	460	1364	621
Internal	0	0	21	10	83	38	178	81	241	110
Education	0	0	61	28	238	108	509	232	688	313
External	0	0	41	19	159	73	341	155	461	210
Internal	0	0	20	9	78	36	168	77	227	103
Shopping	0	0	81	37	317	144	679	309	917	418
External	0	0	54	25	212	97	455	207	614	280
Internal	0	0	27	12	105	48	224	102	303	138
Other	0	0	122	55	475	216	1019	464	1375	627
External	0	0	82	37	318	145	683	311	921	420
Internal	0	0	40	18	157	71	336	153	454	207
Total	0	0	406	185	1584	722	3396	1547	4584	2088
External	0	0	297	135	1161	529	2489	1134	3360	1531
Internal	0	0	108	49	423	193	907	413	1224	558

Table 6.10: Employment Person Trips (AM Peak 0800 - 0900)

Split	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
External	6528	779	7874	936	10221	1205	12830	1500	14205	1653
Internal	0	0	33	8	130	30	278	65	375	88
Total	6528	779	7908	944	10351	1236	13108	1565	14580	1741

Table 6.11: Employment Person Trips (PM Peak 1700 - 1800)

Split	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
External	482	4803	574	5797	727	7533	887	9467	967	10488
Internal	0	0	10	21	38	83	81	178	110	241
Total	482	4803	584	5819	765	7616	968	9645	1077	10728

6.4. Mode Share

- 6.4.1. The share to each mode has been based on survey data where possible along with information included in the Evidence Base, with the mode share to car reducing over time and non-car mode shares increasing, with the aim of setting out the mode share to car required to maintain the overall

number of vehicular movements within the agreed trip budgets for individual sites and across the NEC as determined by Cambridgeshire County Council.

- 6.4.2. Table 6.12 and Table 6.13 set out the estimated mode share to car for the residential and employment floorspace respectively, with Table 6.14 through Table 6.17 setting out the estimated number of vehicular movements associated with each Site. Separate tables have been prepared for the residential and employment uses on the grounds that separate vehicular trip budgets have been provided thereby resulting in different mode share to car.

Table 6.12: Residential External Vehicular Mode Share to Car

Site	AM Peak Hour (0800 – 0900)					PM Peak Hour (1700 – 1800)				
	Base	2025	2030	2035	2040	Base	2025	2030	2035	2040
Core Site	-	-	43%	21%	14%	-	-	43%	21%	14%
St. John's	-	-	-	-	-	-	-	-	-	-
Brookgate	-	26%	26%	9%	9%	-	26%	26%	9%	9%
Science Park	-	-	-	-	-	-	-	-	-	-
Business Park	-	-	-	16%	16%	-	-	-	16%	16%
Cowley Road	-	60%	31%	22%	16%	-	60%	31%	22%	16%
Nuffield Road	-	60%	33%	22%	15%	-	60%	33%	22%	15%
Merlin Place	-	60%	25%	19%	15%	-	60%	25%	19%	15%
Milton Road	-	60%	30%	18%	15%	-	60%	30%	18%	15%

Table 6.13: Employment External Vehicular Mode Share to Car

Site	AM Peak Hour (0800 – 0900)					PM Peak Hour (1700 – 1800)				
	Base	2025	2030	2035	2040	Base	2025	2030	2035	2040
Core Site	-	70%	20%	13%	10%	-	70%	20%	13%	10%
St. John's	60%	33%	25%	16%	16%	60%	33%	25%	16%	16%
Brookgate	60%	25%	13%	8%	8%	60%	25%	13%	8%	8%
Science Park	55%	41%	35%	31%	27%	55%	41%	35%	31%	27%
Business Park	66%	50%	35%	26%	21%	66%	50%	35%	26%	21%
Cowley Road	60%	30%	30%	30%	30%	60%	30%	30%	30%	30%
Nuffield Road	60%	25%	25%	25%	25%	60%	25%	25%	25%	25%
Merlin Place	66%	30%	25%	25%	25%	66%	30%	25%	25%	25%
Milton Road	-	-	-	-	-	-	-	-	-	-

Table 6.14: Residential Vehicular External Trips (AM Peak 0800 – 0900)

Site	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Core Site	0	0	0	0	124	532	122	520	122	520
St. John's	0	0	0	0	0	0	0	0	0	0
Brookgate	0	0	21	91	21	91	21	89	21	89
Science Park	0	0	0	0	0	0	0	0	0	0
Business Park	0	0	0	0	0	0	8	36	12	51
Cowley Road	0	0	9	38	12	49	11	49	11	46
Nuffield Road	0	0	9	38	12	52	11	49	10	43
Merlin Place	0	0	2	10	3	12	3	12	3	12
Milton Road	0	0	2	10	2	10	3	11	3	11
Total	0	0	43	186	174	746	179	765	180	771

Table 6.15: Residential Vehicular External Trips (PM Peak 1700 – 1800)

Site	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Core Site	0	0	0	0	341	155	333	152	333	152
St. John's	0	0	0	0	0	0	0	0	0	0
Brookgate	0	0	58	27	58	27	57	26	57	26
Science Park	0	0	0	0	0	0	0	0	0	0
Business Park	0	0	0	0	0	0	23	10	33	15
Cowley Road	0	0	24	11	32	14	31	14	29	13
Nuffield Road	0	0	24	11	34	15	31	14	27	13
Merlin Place	0	0	6	3	8	3	8	4	8	3
Milton Road	0	0	6	3	6	3	7	3	7	3
Total	0	0	119	54	478	218	490	223	494	225

Table 6.16: Employment Vehicular External Trips (AM Peak 0800 – 0900)

	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Core Site	0	0	70	8	112	12	112	12	114	12
St. John's	319	38	250	30	245	29	247	29	249	30
Brookgate	102	12	193	23	192	23	183	21	183	21
Science Park	2248	268	1806	216	1788	213	1793	214	1781	213
Business Park	361	43	358	43	369	44	360	43	361	43
Cowley Road	379	45	192	23	196	23	200	24	201	24
Nuffield Road	292	35	105	12	91	11	82	10	72	8
Merlin Place	49	6	22	3	18	2	18	2	19	2
Milton Road	0	0	0	0	0	0	0	0	0	0
Total	3750	448	2997	357	3010	357	2994	354	2980	352

Table 6.17: Employment Vehicular External Trips (PM Peak 1700 - 1800)

	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Core Site	0	0	5	51	6	83	5	83	5	86
St. John's	24	235	19	184	18	180	18	182	18	183
Brookgate	8	75	13	142	14	141	13	135	13	135
Science Park	166	1654	133	1329	132	1316	132	1319	132	1310
Business Park	27	265	26	263	27	271	26	265	26	266
Cowley Road	28	279	14	141	14	144	14	148	14	148
Nuffield Road	22	215	8	77	6	67	6	61	5	53
Merlin Place	4	36	2	16	1	13	1	13	1	14
Milton Road	0	0	0	0	0	0	0	0	0	0
Total	277	2759	220	2206	219	2217	216	2206	214	2195

6.4.3. Table 6.18 through Table 6.21 set out the estimated number of external non-vehicular trips by Site for the residential and employment uses, with the figures representing the movements leaving the wider AAP area and not the individual sites, i.e. for example trips between the Core Site and the Science Park are treated as internal for this exercise, with movements across Milton Road discussed separately.

Table 6.18: Residential Non-Vehicular External Trips (AM Peak 0800 – 0900)

Site	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Core Site	0	0	0	0	165	705	457	1955	747	3192
St. John's	0	0	0	0	0	0	0	0	0	0
Brookgate	0	0	60	258	60	258	209	895	209	895
Science Park	0	0	0	0	0	0	0	0	0	0
Business Park	0	0	0	0	0	0	44	187	62	267
Cowley Road	0	0	6	25	26	109	41	173	56	240
Nuffield Road	0	0	6	25	25	106	41	173	57	243
Merlin Place	0	0	1	6	8	36	12	51	16	67
Milton Road	0	0	1	6	5	22	12	52	15	64
Total	0	0	75	322	289	1237	815	3487	1162	4968

Table 6.19: Residential Non-Vehicular External Trips (PM Peak 1700 – 1800)

Site	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Core Site	0	0	0	0	452	206	1253	571	2046	932
St. John's	0	0	0	0	0	0	0	0	0	0
Brookgate	0	0	166	75	166	75	574	261	574	261
Science Park	0	0	0	0	0	0	0	0	0	0
Business Park	0	0	0	0	0	0	120	55	171	78
Cowley Road	0	0	16	7	70	32	111	51	154	70
Nuffield Road	0	0	16	7	68	31	111	51	156	71
Merlin Place	0	0	4	2	23	10	33	15	43	20
Milton Road	0	0	4	2	14	6	33	15	41	19
Total	0	0	206	94	793	361	2235	1018	3184	1451

Table 6.20: Employment Non-Vehicular External Trips (AM Peak 0800 – 0900)

Site	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Core Site	0	0	30	4	446	48	747	78	1030	106
St. John's	213	25	509	61	734	88	1296	155	1308	156
Brookgate	68	8	579	68	1284	152	2107	247	2107	247
Science Park	1839	220	2599	310	3320	396	3990	476	4814	575
Business Park	186	22	358	43	685	82	1023	121	1356	161
Cowley Road	252	30	448	53	457	54	467	55	469	55
Nuffield Road	195	23	315	37	274	32	247	29	217	25
Merlin Place	25	3	52	6	54	6	54	6	56	7
Milton Road	0	0	0	0	0	0	0	0	0	0
Total	2778	332	4889	582	7255	858	9931	1168	11357	1331

Table 6.21: Employment Non-Vehicular External Trips (PM Peak 1700 – 1800)

Site	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Core Site	0	0	2	22	24	332	35	558	44	771
St. John's	16	157	38	374	54	540	96	953	97	963
Brookgate	5	50	40	427	92	946	147	1554	147	1554
Science Park	136	1353	192	1913	245	2443	295	2936	356	3542
Business Park	14	137	26	263	51	504	74	754	98	999
Cowley Road	19	186	33	330	33	337	33	344	33	346
Nuffield Road	14	143	23	232	19	202	17	182	14	160
Merlin Place	2	19	4	38	4	40	4	40	4	41
Milton Road	0	0	0	0	0	0	0	0	0	0
Total	205	2044	358	3599	521	5345	699	7322	792	8377

- 6.4.4. Table 6.22 and Table 6.23 set out the estimated overall number of vehicular and non-vehicular external trips for the AM and PM Peak Hours respectively, with the non-vehicular trips split further into walk, cycle / e-scooter and public transport trips in the next section. The exercise suggests a total of 4,283 two-way vehicular movements in the AM Peak Hour which falls within the overall trip budget of 4,379 movements taking into account the residential trip budget (1,017) and employment trip budget (3,362); the employment trip budget includes the Kings Hedges Road allowance for the Science Park. There would be an estimated 3,128 two-way movements during the PM Peak Hour which again falls into the overall trip budget.
- 6.4.5. Table 6.24 and Table 6.25 set out the potential share to each mode for the wider AAP with the mode share to car representing the share required to achieve the overall trip budget. It is acknowledged that

these percentages would change over time taking account of changes in technology and travel habits over the course of time as the AAP is built out, with the proportion to each mode discussed further in the next Section.

Table 6.22: Overall External Trips (AM Peak 0800 – 0900)

Trips	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Residential	0	0	119	508	464	1983	994	4252	1342	5739
Vehicular	0	0	43	186	174	746	179	765	180	771
Non-Vehicular	0	0	75	322	289	1237	815	3487	1162	4968
Employment	6528	779	7886	939	10266	1216	12925	1522	14336	1684
Vehicular	3750	448	2997	357	3010	357	2994	354	2980	352
Non-Vehicular	2778	332	4889	582	7255	858	9931	1168	11357	1331
Total	6528	779	8005	1447	10729	3199	13919	5774	15679	7423
Vehicular	3750	448	3040	543	3185	1103	3173	1119	3160	1123
Non-Vehicular	2778	332	4965	904	7545	2095	10746	4654	12519	6300

Table 6.23: Overall External Trips (PM Peak 1700 – 1800)

Trips	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Residential	0	0	325	148	1271	579	2725	1242	3678	1676
Vehicular	0	0	119	54	478	218	490	223	494	225
Non-Vehicular	0	0	206	94	793	361	2235	1018	3184	1451
Employment	482	4803	578	5804	739	7562	915	9528	1006	10572
Vehicular	277	2759	220	2206	219	2217	216	2206	214	2195
Non-Vehicular	205	2044	358	3599	521	5345	699	7322	792	8377
Total	482	4803	903	5953	2010	8141	3640	10769	4684	12248
Vehicular	277	2759	339	2260	697	2434	706	2429	708	2420
Non-Vehicular	205	2044	564	3693	1314	5706	2934	8340	3977	9828

Table 6.24: Overall External Mode Share (AM Peak 0800 – 0900)

Mode	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Bus	8%	8%	11%	9%	11%	10%	12%	12%	11%	12%
Rail	8%	8%	11%	9%	11%	10%	12%	12%	11%	12%
Walk	8%	8%	12%	13%	14%	13%	16%	17%	18%	19%
Bicycle / e-Scooter	14%	14%	24%	26%	28%	26%	32%	33%	34%	36%
Motorcycle	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Passenger / Taxi	2%	2%	3%	3%	4%	3%	4%	4%	4%	4%

Car Driver	57%	57%	38%	38%	30%	34%	23%	19%	20%	15%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 6.25: Overall External Mode Share (PM Peak 1700 – 1800)

Mode	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Bus	8%	8%	11%	11%	10%	11%	12%	12%	12%	11%
Rail	8%	8%	11%	11%	10%	11%	12%	12%	12%	11%
Walk	8%	8%	12%	12%	13%	14%	17%	16%	19%	18%
Bicycle / e-Scooter	14%	14%	24%	24%	26%	28%	33%	32%	37%	35%
Motorcycle	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Passenger / Taxi	2%	2%	3%	3%	3%	4%	4%	4%	4%	4%
Car Driver	57%	57%	38%	38%	35%	30%	19%	23%	15%	20%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

6.5. Non-Vehicular Trips

- 6.5.1. Table 6.26 and Table 6.27 set out the estimated number of Non-Vehicular trips by mode for the wider AAP, with Table 6.28 and Table 6.29 setting out the potential change by mode relative to the Base Year, being the number of trips that need to be accommodated on the transport network

Table 6.26: Overall External Non-Vehicular (AM Peak 0800 – 0900)

Mode	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Bus	528	63	844	136	1207	335	1612	698	1753	882
Rail	528	63	844	136	1207	335	1612	698	1753	882
Walk	500	60	943	190	1509	419	2257	977	2754	1386
Bicycle / e-Scooter	945	113	1887	370	3018	838	4406	1908	5383	2709
Motorcycle	139	17	199	27	226	63	322	140	250	126
Passenger / Taxi	139	17	248	45	377	105	537	233	626	315
Total	2778	332	4965	904	7545	2095	10746	4654	12519	6300

Table 6.27: Overall External Non-Vehicular (PM Peak 1700 – 1800)

Mode	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Bus	39	388	96	628	210	913	440	1251	557	1376
Rail	39	388	96	628	210	913	440	1251	557	1376
Walk	37	368	107	702	263	1141	616	1751	875	2162
Bicycle / e-Scooter	70	695	214	1403	526	2283	1203	3420	1710	4226
Motorcycle	10	102	23	148	39	171	88	250	80	197

Passenger / Taxi	10	102	28	185	66	285	147	417	199	491
Total	205	2044	564	3693	1314	5706	2934	8340	3977	9828

Table 6.28: Change in External Non-Vehicular (AM Peak 0800 – 0900)

Mode	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Bus	0	0	316	73	679	272	1084	635	1225	819
Rail	0	0	316	73	679	272	1084	635	1225	819
Walk	0	0	443	130	1009	359	1757	918	2254	1326
Bicycle / e-Scooter	0	0	942	258	2073	725	3461	1796	4438	2596
Motorcycle	0	0	60	11	87	46	183	123	111	109
Passenger / Taxi	0	0	109	29	238	88	398	216	487	298
Total	0	0	2187	572	4767	1764	7968	4323	9741	5968

Table 6.29: Change in External Non-Vehicular (PM Peak 1700 – 1800)

Mode	Base		2025		2030		2035		2040	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
Bus	0	0	57	239	171	525	401	863	518	987
Rail	0	0	57	239	171	525	401	863	518	987
Walk	0	0	70	334	226	773	579	1384	838	1794
Bicycle / e-Scooter	0	0	144	708	456	1588	1133	2725	1640	3531
Motorcycle	0	0	12	45	29	69	78	148	69	94
Passenger / Taxi	0	0	18	82	55	183	136	315	189	389
Total	0	0	359	1649	1109	3662	2729	6296	3772	7783

6.6. Milton Road Crossings

- 6.6.1. Milton Road bisects the AAP with the Science Park and Regional College to the west and the remainder of the sites to the east, with the vehicular capacity of Milton Road the primary reason for the introduction of the vehicular trip budgets for each site and the AAP as a whole. The redevelopment of the area as envisaged through the AAP would result in an increased number of non-vehicular trips crossing Milton Road, with existing crossings at the Guided Busway and by the entrance to the Science Park. Increases in the number of non-vehicular trips crossing Milton Road have the potential to impact traffic flows or cause queuing and safety concerns for pedestrians and cyclists waiting to cross.
- 6.6.2. The number of trips crossing Milton Road is anticipated to increase with time as development comes forward and include the following:
- Internal trips between the Science Park and College to the west and the remainder of the AAP to the east.
 - External rail trips linked to the Science Park and College, some of which would use shuttle services with others walking and cycling / scooting.
 - External southbound bus trips linked to the Science Park and College.
 - External northbound bus trips associated with the remainder of the AAP area.

- External walking and cycling / scooting trips associated with the remainder of the AAP area.
- 6.6.3. Whereas the majority of internal non-vehicular trips between the AAP sites east and west of Milton Road would use one of the crossings, only a proportion of the external non-vehicular trips would given that origins / destinations would include existing and proposed development north of the A14 along with development to the south within wider Cambridge with trips passing through the Nuffield Estate in addition to using the Milton Road corridor.
- 6.6.4. Table 6.30 and Table 6.31 set out an estimate of the potential number of people and cyclist / e-scooters crossing Milton Road during the peak hour and per minute based on the following assumptions:
- 75% of Science Park Rail Passengers walk or cycle to / from the station, with the other 25% catching an internal shuttle bus.
 - 33% of bus passengers cross Milton Road, with others travelling in the opposite direction or using the Guided Busway
 - 50% of external walk and cycle trips cross Milton Road, with the remainder heading north or south.
 - 50% of internal residential employment trips cross Milton Road.

Table 6.30: Total Pedestrians Movements across Milton Road (in Year 2040)

Time Period	AM Peak (0800 - 0900)		PM Peak (1700 – 1800)	
	Eastbound	Westbound	Eastbound	Westbound
Hourly	1377	2171	1487	1117
per Minute	23	36	25	19

Table 6.31: Total Cycle / e-Scooter Movements across Milton Road (in Year 2040)

Time Period	AM Peak (0800 - 0900)		PM Peak (1700 – 1800)	
	Eastbound	Westbound	Eastbound	Westbound
Hourly	1883	2540	1736	1507
per Minute	31	42	29	25

- 6.6.5. There are currently two crossing points which will to increase to a minimum of three and potentially four with an additional crossing provided at the northern Cowley Road junction and potentially in the vicinity of the Cambridge Business Park access. The above trips would be split across all three / four crossings, albeit not necessarily evenly with the southern crossings potentially more heavily used depending on detailed design of the various sites within the AAP.
- 6.6.6. The AAP proposes a bridge to facilitate these movements although this has urban design and land take implications in respect of ramp landings. An at grade solution is therefore preferable but requires further modelling works utilising the movement numbers provided in the tables above. Such modelling is proposed to be undertaken by the developer teams in 2022 and will for its own report for consideration and agreement by the various transport and local authorities. There is a further proposal for an underpass between the Science Park and St. John's Innovation Park.

7. Measures

7.1. Introduction

- 7.1.1. An area wide infrastructure package will be required to support the aspirations of the North East Cambridge (NEC) Area Action Plan (AAP) of low car use and changing travel behaviour. A package of specific transport measures will assist development sites in achieving the trip, parking and modal split targets prescribed in the AAP and ensure sufficient capacity is provided across public transport, walking and cycling infrastructure to cater for the predicted level of non-car trips across North East Cambridge. The package of site wide measures will support increased accessibility by all modes across the whole NEC area and align with future strategic transport proposals across the city.
- 7.1.2. The NEC AAP Transport Evidence Base provided a list of transport interventions to support the delivery of sites within the NEC area. A summary of the potential measures which could be included within the area wide infrastructure package for the NEC area is provided below. This report builds upon the list of transport measures contained within Table 55 of the AAP Transport Evidence Base. It is also noted that with technological change in the transport market there is the potential for these to be substituted by new and emerging forms of transport infrastructure (see Future Mobility Topic Paper).
- 7.1.3. The below list has been prepared to give clarity on what measures developers are considering within the area wide infrastructure package. A more detailed review of infrastructure phasing and timing is provided below in Section 8.

7.2. Strategic Measures

- 7.2.1. The following strategic measures have been considered by the developers and their consultants, and the local planning and transport authorities, to be relevant as part of the area wide infrastructure package. This covers broad transport measures which are not necessarily focused on the NEC area, but which nonetheless would provide benefits for developments in the NEC area such as addressing gaps in existing transport provision and providing improved connectivity to the wider Cambridge area:
- Provision of additional bus services to/from NEC area;
 - Provision of additional rail services to/from Cambridge North Station;
 - Delivery of planned wider cycle infrastructure such as the Chisholm Trail and the Waterbeach Greenway;
 - Waterbeach to Cambridge Better Public Transport and Active Travel project;
 - Plugging gaps in the wider cycle network to enhance routes to nearby residential areas; and
 - Delivery of a wider Public Transport network.

7.3. Local Measures

- 7.3.1. The following local measures have been considered by the developers and their consultants, and the local planning and transport authorities, to be relevant as part of the area wide infrastructure package. These measures would aim to maximise use of current non-car transport provision including the nearby Milton Park and Ride site and to improve local connectivity to the NEC area.
- 7.3.2. Provision of a new segregated cycle link from Milton Road P&R to site avoiding interaction with Milton Road. An indicative plan of how this could be provided is shown below in Figure x;
- Provide additional parking spaces at the Milton Road Park & Ride site;
 - Explore Park and Cycle opportunities at nearby Park and Ride sites;
 - Provide an internal shuttle bus service from Cambridge North Station serving the NEC area;
 - Provide a shuttle bus service to the Milton Park and Ride site;
 - Provide Variable Message Signs (VMS) at key locations on the A14 and A10 to inform drivers of P&R spaces and congestion issues at the Milton Interchange; and
 - Potential Cycle link to Milton Road Park and Ride indicative route plan

7.4. Internal Measures to NEC

7.4.1. The following NEC specific measures have been considered by the developers and their consultants to be relevant as part of the area wide infrastructure package. These measures would aim to promote permeability across the NEC area and to provide first mile/last mile connectivity by a range of travel modes to/from Cambridge North Station and mobility hubs.

- Provision of crossing points of Milton Road;
- Masterplanning of development schemes coming forward within the NEC to promote public transport, walking and cycling through wayfinding, high quality public realm and permeability;
- Provision of crossing points of the guided busway for pedestrians and cyclists;
- Compliance with the AAP vehicle trip and parking budget;
- Travel Plan measures and monitoring;
- Vehicle trip and car parking monitoring; and
- Marketing support to clearly set out the principles of sustainable transport to attract potential residents to the area that are more likely to use alternative modes to the private car.

8. Phasing of Measures and Funding

8.1. Introduction

8.1.1. The tables below show the proposed funding strategies.

8.2. Measures

8.2.1. It is noted that the tables below, show the dates when the measures will need to be installed by and that they could be brought forward sooner as required.

Table 8.1: Site Specific Measures 2025

Site Specific Measures 2025					
Measure	Delivered By	Funding	Implementation Date	Required	Table 55 Reference
Secure high-quality cycle parking	All Sites	Developer Led	Pre-Occupation of each phase	To encourage cycling uptake	IM7
Site Specific Travel Plan (e.g. Travel Apps, and other sustainable measures outlined in Chapter 7)	All Sites	Developer Led	Pre-Occupation of each phase	To encourage sustainable transport uptake	IM7
Enhanced Street Network – including new cycle and pedestrian routes.	All Sites	Developer Led	Pre-Occupation of each phase	To encourage sustainable transport uptake	IM1
Implement new signage, wayfinding, street naming and art-work to promote improved pedestrian and cycle access.	All Sites	Developer Led	Pre-Occupation of each phase	To encourage sustainable transport uptake	IM1
Commitment to provide constrained car parking. All car parking will adhere to a Car Park Management Plan. All car parking should consider car clubs as a strategy for reducing car ownership.	All Sites	Developer Led	Pre-Occupation of each phase	To limit car usage	IM6
On-site Mobility hubs to encourage sustainable travel as outlined in Chapter 7.	Core Site / Science Park	Developer Led	Pre-Occupation of each phase	To encourage sustainable transport uptake	IM7
Initial Shuttle Bus Service: Shuttle buses could be provided across the AAP with all developers visiting several sites (and potentially Milton Road P&R).	All Sites	Developer Led	Pre-Occupation of each phase. The bus service will need to be reviewed yearly as new phases and potential routes come forward.	To facilitate bus movement across the AAP Area.	IM5
Highway Site Access Improvements	All Sites	Developer Led	Pre-Occupation and Road Safety Audit Stage 1 for any new access onto highway	Road Safety	IM4

Table 8.2 Site Wide Measures 2025

Site Wide Measures 2025					
Measure	Delivered By	Funding	Implementation Date	Required	Table 55 Reference
Removal of parking on east side of Cowley Road to make way for a shared cycleway.	Core Site / St Johns	Developer / Council	By 2025	To encourage cycling / walking	SM4
Improvements will be made to the existing Jane Coston Bridge interface with Cowley Road.	GCP	GCP led funding associated with Phase 1 of Waterbeach Greenway.	By 2025	To encourage cycling / walking	SM4
Public Transport Strategy	All Sites	Developer	By 2025	To ensure future capacity on the public transport network	SM1
Last mile connections from the station / P&R provided through shuttle service and Micromobility solutions with Mobility Hubs at key locations on route.	All Sites	Developer Led	By 2025	Improve Connectivity across the AAP area	LM3

Table 8.3 Strategic Measures 2025

Strategic Measures 2025					
Measure	Delivered By	Funding	Implementation Date	Required	Table 55 Reference
Waterbeach Greenway - Phase 1	GCP	GCP	By 2025	To encourage cycling / walking	SM3 / LM1
Increased Busway capacity to / from St Ives	Strategic	Stagecoach committed to improving capacity pre-Covid	By 2025	Reduce Car travel into Cambridge from the north	SM1
Milton Road Corridor Improvements	Strategic	GCP	By 2025	Improve Cycleways and Busways	SM3
Chisholm Trail	Strategic	GCP	By 2025	Improve wider cycle network	SM3
Mere Cycleway	Strategic	GCP	By 2025	Improve wider cycle network	SM3

Table 8.4 Site Specific Measures 2030

Site Specific Measures 2030					
Measure	Delivered By	Funding	Implementation Date	Required	Table 55 Reference
Enhanced street network within the Core Site and removal of Water Treatment Works. Including new green links through the site linking to Waterbeach Greenway.	Core Site	Developer Led	Upon removal of the Water Treatment Plant	To encourage cycling / walking and improve permeability through the AAP area	IM1
Enhanced Route from Station through to Milton Road	Core Site	Developer Led	Upon removal of the Water Treatment Plant	To encourage cycling / walking and improve permeability through the AAP area	IM1
Improved access to frontage along Busway	CSP / Cambridge Business Park / Nuffield	Developer Led	By 2030	To improve access to/across busway	IM3
Improved cycling / pedestrian routes through and around site from the west	CSP	Developer Led	By 2030	To encourage cycling / walking and improve permeability through the AAP area	IM1

Table 8.5 Site Wide Measures 2030

Site Wide Measures 2030					
Measure	Delivered By	Funding	Implementation Date	Required	Table 55 Reference
Facilitate underpass/bridge to provide links between St Johns site to the east of Milton Road and Science Park to the west	All Sites	Developer-led	By 2030	Improve Connectivity across the AAP Area	IM2
Preliminary design for at-grade / bridge solution to southern Cowley Road / Milton Road junction to provide dedicated cycle and separate pedestrian crossing facilities	All Sites	Developer-led	By 2030	Improve Connectivity across the AAP Area. Improve connectivity from the station	IM2
Enhanced Shuttle service between Park and Ride / CSP and rest of AAP area. Short term use of electric buses with longer term Autonomous Vehicle pods and shuttles.	All Sites	Developer-led	By 2030	Improve bus connectivity across the site	LM4

Table 8.6 Strategic Measures 2030

Strategic Measures 2030					
Measure	Sites / Delivering Body	Funding	Implementation Date	Required	Table 55 Reference
Links to Waterbeach Phase 2 Greenway through site to station and onto Chisholm Trail	All Sites	Developer / GCP	By 2030	Improved walking and cycling links from the north	SM3
Green links through site under A14 and down to Cambridge North Station.	All Sites	Developer / GCP	By 2030	Improved walking and cycling links from the north	SM3 / IM1
Busway Link from Waterbeach to AAP site	All Sites	Developer / GCP / Waterbeach Development	By 2030	Improved bus links from the north	SM5

Table 8.7 Site Specific Measures 2035

Site Specific Measures 2035					
Measure	Sites / Delivering Body	Funding	Implementation Date	Required	Table 55 Reference
Later Phases to build on previous site specific measures	All Sites	Developer Led	Pre-Occupation of each phase	To encourage sustainable transport	N/A

Table 8.8 Site Wide Measures 2035

Site Wide Measures 2035					
Measure	Sites / Delivering Body	Funding	Implementation Date	Required	Table 55 Reference
Green links through site and bridge over railway line	All Sites	Developer-led	By 2035	Provide walking and cycling links to local green space	SM4
Provision of additional capacity at P&R	Local Authority	TBC	By 2035	Enhanced P&R facilities	LM2
Support for provision of facility to complement P&R proposals and live data capture	All Sites	TBC	By 2035	Enhanced P&R facilities	LM5
Additional bus services to key locations e.g. Town Centre	Local Authority	TBC	By 2035	Additional Bus Capacity	SM1

8.3. City Wide Measures

- 8.3.1. There are a series of City Wide Measures which will also help to support the strategy, these are listed below:

- **City Access** - To tackle the current and forecast increase in traffic, congestion and pollution in and around Cambridge city centre, the GCP's City Access project is working to improve public transport and offer people better choices for their journeys.
- **Waterbeach to Cambridge** – This will provide a direct busway link into the AAP area by connecting to the existing busway north of the A14. It will provide a sustainable movement corridor for travel to and from Waterbeach where 10,000 new homes are planned. As part of the scheme, park and ride provision is being reviewed and the potential to connect to Milton Park and Ride via a seamless segregated link which is a key measure outlined in the NEC AAP Transport Strategy.
- **Cambourne to Cambridge** - Cambourne to Cambridge (C2C) Better Public Transport Project is one of four corridor schemes that form a key part of the Greater Cambridge Partnership's (GCP) sustainable transport programme (the Waterbeach route outlined above is another of the 4 corridor routes).
- **Greater Cambridge Greenways** - The Greater Cambridge Greenways will make it easier both to travel in a pleasant and sustainable way into and out of Cambridge and to enjoy our countryside for leisure purposes. They will also help to make local journeys such as school and nursery runs safer and easier. In some cases these are new routes, or routes with new sections, whilst others will be based on existing paths.
- **Cross City Cycling** - The Cross City Cycling project is a network of five cycling routes to make it safer and easier for people to travel between their home and places of work, education and leisure. Scheme B provides improved links to Cambridge North rail station and the science park.

8.4. Funding

- 8.4.1. Work undertaken by the council has estimated that a developer contribution of £120m will be required. Further funding to account for the full cost of the transport measures being implemented will likely be provided by other funding streams.
- 8.4.2. It is anticipated that the costs of the mitigation associated with the transport works for the AAP will be divided between the developers in a fair and proportionate manner. A potential method is set out below:
- Agreed total person trip rates could be derived and converted into 'Development Units' (e.g. 500 two-way person trips = 1 Development Unit) that can be applied across land uses (e.g. 1 Development Unit = xx homes = yy sq.m. B1 = zz sq.m. B2 etc.).
 - It is noted that the total-two-way trips per development, will likely be absolute and not account for linked trips between developments.
 - In order to establish the contribution per development, the total costs of the AAP Transport measures could be divided by the number of Development Units to give a cost per unit, which can then be applied to developments as they come forward.
 - The costs of the AAP Transport measures may need to be re-apportioned to take account intensification of development sites (over and above that which is agreed as part of the transport strategy). If previous developers have already signed Section 106 Agreements committing themselves to a higher proportion of the costs than they would now incur, an 'under-payment' could be collected in the later tranches of their contribution, thus enabling them to contribute a revised lower amount. However, should all of a developer's contributions already have been made to the infrastructure fund, then it is likely that no automatic reimbursement would occur.
 - The Council is likely to be the most suitable organisation to collect and hold the infrastructure fund but decisions on how and when to spend accumulated funds should be taken by a combination of public sector organisations.
 - There will be a suitable mechanism put in place to monitor and scrutinise the spending of the infrastructure fund. It is proposed that a panel with representations from the relevant developers and other organisations as well as the public sector interests be established to take on this role.

9. Monitoring

- 9.1.1. Monitoring will be key to ensuring that future development does not exceed the NEC Trip Budget or car parking cap once the development is fully built out and may help to identify any further measures necessary to meet targets.
- 9.1.2. As a minimum, the monitoring strategy will need to quantify:
- AM and PM Vehicle trips associated with the NEC AAP;
 - AM and PM Vehicle trips for each individual land interest (this and the above as a key measure for the Trip Budget);
 - Journey to work mode share;
 - Mode share for journeys made by residents; and
 - On-site cycle and car park usage.
- 9.1.3. The NEC AAP notes that the monitoring regime could be expanded to include off-site parking, such as the areas within an 800m distance (approximately a 10-minute walking distance) as the development comes forward. This would include Chesterton East, West and South, Kings Hedges areas to the south and Milton to the north. The detail of such monitoring will need to be agreed where associating this car parking with NEC AAP activity will be difficult.
- 9.1.4. It is proposed that each individual site prepares a monitoring report. The individual reports will then be combined to provide a summary for the NEC AAP.
- 9.1.5. A Transport Review Group which will comprise representatives of each site, GCSP, CCC and National Highways will be set up as part of the future delivery of the development. The annual monitoring summary will be coordinated by a representative of the landowners, on an annual rotational basis.
- 9.1.6. The scope of the Transport Review Group would be as follows:
- Receive monitoring reports from each individual site to review;
 - Monitor the effectiveness of the bus services serving the development;
 - Determine the appropriate course of action if targets are not met;
 - Consider the case for and if appropriate approve amendments to the mitigation measures required to reduce single occupancy vehicle movements; and
 - Consider the need for any actions to mitigate any unforeseen transport impacts.
 - Enforcement? At what measurable point does further development stop if measures are deemed to not be working?

9.2. Frequency of Monitoring

- 9.2.1. Ongoing monitoring will be required to ensure each development adhering to their respective Trip Budgets and to indicate any early warning signs that specific sites are exceeding their allocated number of trips.
- 9.2.2. It is anticipated that continuous monitoring of vehicle trips would be undertaken via the implementation of cameras at individual site access and on main vehicle corridors within the AAP network i.e., on Milton Road and King Hedges Road. Where sites act as through routes to other locations, appropriate analysis will be required to ensure this is considered.
- 9.2.3. The cameras would be used to collate entry and exit counts of the NEC AAP as a whole and each individual development site. CSP currently use Vivacity to monitor the number of people arriving and departing the site for all modes. It is anticipated that a similar approach would be undertaken throughout the whole NEC AAP. This is discussed in detail below under title *“Method of Monitoring”*.
- 9.2.4. The principle of continually monitoring vehicle trips will allow clear averages (across days of the week and through the year) to be defined and indicate any warnings that specific sites are exceeding their allocated proportion of the trip budget. The approach is considered essential where comparisons

against a Trip Budget are to be made through the build out period and once the full NEC AAP is delivered.

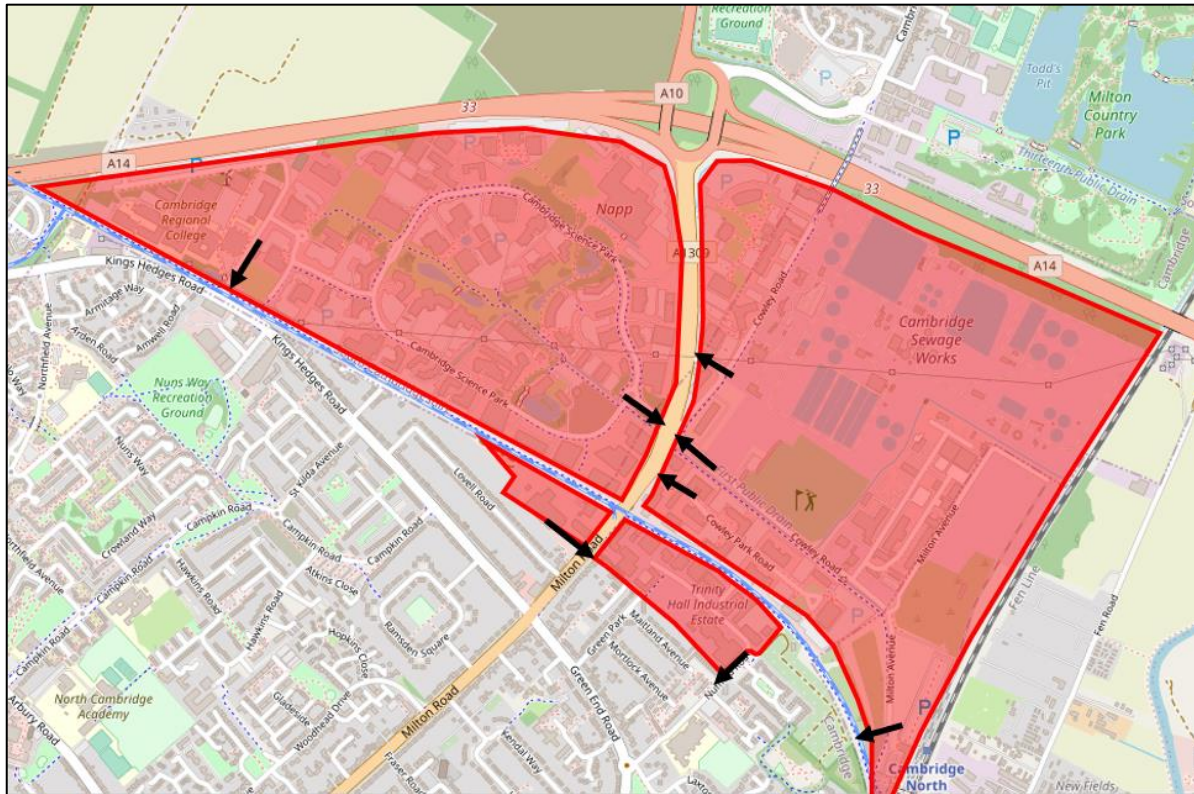
- 9.2.5. Reports will be produced on a quarterly basis setting out the vehicle trips for each site. These will be high level reports simply stating if each site is on target to achieve their Trip Budget for the year.
- 9.2.6. The quarterly reports will be submitted to the Transport Review Group to ensure each development and the AAP as a whole is adhering to their individual trip budget and the AAP as a whole would be in line with the trip budget. It is understood quarterly reports may not be possible to produce continuously, However, the AAP considered that there should be no more than 6 months between quarterly reports on vehicle trips.
- 9.2.7. An annual report will also be produced by each site for review by the Transport Review Group. This will be a more comprehensive report stating mode split information and demonstrating seasonal variations in traffic flow data. These annual reports will be in line with the SMART journey process. It is envisaged the Annual Report will coincide with the timing of annual surveys undertaken by SMART Journeys during October.
- 9.2.8. The Annual Reports would define:
- Implemented development floor areas /units;
 - Job numbers (where relevant);
 - Implemented mobility measures;
 - Vehicle trips;
 - Journey mode splits; and
 - Cycle and car parking occupancy.
- 9.2.9. The reports would also suggest potential mitigation measures and new initiatives that could be implemented if sites or the AAP as a whole are exceeding their trip budgets.
- 9.2.10. A threshold of +/- 5% has been suggested by CCC to assess the Trip Budgets. Consistent measurements above this threshold would necessitate action to be undertaken. Reporting and consideration of attainment of the Trip Budgets will need to have due regard to seasonal changes in mode of travel, school trips and other elements that may impact the level of trips travelling to and from the AAP and each development.
- 9.2.11. The approach also recognises the need for flexibility in applying the Trip Budget and the phased delivery of the NECAAP. There are likely to be significantly changes across the build out period which is forecast across a 20-year period. Changes in technology, mobility requirements and infrastructure will all factor into this.

9.3. Method of Monitoring

Vehicle Trips

- 9.3.1. CSP currently uses Vivacity monitoring cameras placed at site accesses that count trip arrivals and departures by all modes, 24/7. This live monitoring system will allow sites to respond actively to any possible breaches in trip caps. This also ensures that an average number of trips can be collected, rather than only a single day or short snapshot survey.
- 9.3.2. This approach is something that is actively being pursued by NEC developers to ensure a joined-up strategy and consistency for all developers.
- 9.3.3. **Figure 9.1** shows the location of the different corridors within the AAP where Vivacity cameras could be located providing a cordon to the area.

Figure 9.1 AAP Traffic Corridors



- 9.3.4. Entrance points to individual sites will also need to be monitored to define adherence to the vehicle trip budget for each site. Earlier in this report, site specific trip budgets have been defined. Each site will need to be adhered to by each NEC developer.
- 9.3.5. As described above a +/-5% threshold has been suggested by CCC. If a development is exceeding their allocated trip budget, they will within their quarterly report suggest initiatives they will introduce at the site to reduce their private vehicle movements. A more comprehensive review of their vehicle movements would be given within their annual report describing the impact on any measures implemented on the vehicle trip numbers.

Journey Mode Splits

13. Questionnaire surveys will act as a validation to the continual monitoring and ensure that the staff and residential modal splits are sufficient to adhere to the vehicle trip budget.
14. Whilst monitoring will not influence travel behaviours singularly, all sites will be members of SMART Journeys programme, which supports and encourages greater access to sustainable forms of travel e.g. walking, cycling, rail, bus or micro-mobility (e-scooters). Where possible (for businesses), this will be undertaken through SMART Journeys which majority of existing businesses will already be signed up to. Tenants will be asked to sign up to SMART Journeys upon occupation.
15. The annual survey conducted by SMART Journeys will be used to define mode splits for journeys to work to help ratify the information being produced quarterly by the continual monitoring of the road corridors and site accesses within the AAP.
16. With regard to the residential elements of the AAP. The mode shares will also be defined by a survey annually via a travel diary type surveys. These will be undertaken at the same time as the SMART journey surveys and will form part of the reporting process to ratify the continual monitoring being undertaken.
17. These detail surveys as described will be undertaken annually and detailed report will be developed and submitted to the Transport Review Group demonstrating each site is adhering to their allocated trip budget.

Travel Plans

- 9.3.6. All sites will produce a Travel Plan and set out hard infrastructure improvements that will be included as part of the development proposals, such as the improvements to Cowley Road to increase safety and accessibility for pedestrians and cyclists in the CNFE.
- 9.3.7. The Travel Plans will be reviewed annually, which is a standard approach, they will be updated to reflect the annual mode share results and to reflect the average data taken from the continual monitoring.
- 9.3.8. If a site is exceeding their proportion of the allocated trip budget, then the measures they have set out within the travel plan will be implemented to reduce their reliance on single occupancy vehicle movements. The measures to be implemented will be discussed with the Transport Review Group.

Cycle and Car Parking

- 9.3.9. The preferred method of monitoring on-site car/cycle parking will be to install automatic counters that define usage at all times. This method is preferred to single snapshot surveys. This, similarly, to the continual monitoring of the site access and AAP corridors will allow for seasonal changes to be accounted for.
- 9.3.10. However, the need for snapshot surveys is recognised where existing or temporary car/cycle parking is in place. A week-long survey will be undertaken indicating usage across each day. This is of particular importance during the construction phase of development, whilst new sustainable infrastructure is being implemented.
- 9.3.11. In line with the Evidence Base criteria, parking surveys of local streets will also be required as part of the annual monitoring.

Public Transport Monitoring

- 9.3.12. The capacity of public transport will also be monitored as part of the strategy. This will be implemented through primarily the mode share questionnaire undertaken annually and the cameras installed at site access points, where mode share can be established.
- 9.3.13. Usage data will be requested from operators to ensure it tallies with the data being reported from the continual monitoring and the annual surveys. This information will be included within the annual report presented to the Transport Review Group.

10. Conclusion