Greater Cambridge Local Plan

Transport Evidence Report (Part 4)

Draft Plan Update

Cambridgeshire County Council

October 2025

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This Greater Cambridge Local Plan Transport Evidence Report has been produced by Cambridgeshire County Council. It forms part of the transport evidence that supports the emerging Greater Cambridge Local Plan.

Iterations of the Transport Evidence Report have been published as follows:

- Was first published in November 2020 alongside the First Conversation Local Plan consultation.
- Greater Cambridge Local Plan Transport Evidence Report (Preferred Option Update) 2021 – an updated version of the 2020 report which supported the Greater Cambridge Local Plan First Proposals (Preferred Option) consultation. The update incorporates and supersedes the Nov 2020 version.
- Greater Cambridge Local Plan Transport Evidence Report (Part 4) - Draft Plan Update (2025) – this 2025 report provides an update to the Preferred Option Update (2021), including additional information supporting the Draft Plan. It is a continuation of and should be read alongside the 2021 Report.

16. Introduction to Part 4

16.1.1 Part Three of this report examined the transport impacts of the Preferred Option for the emerging Greater Cambridge Local Plan (GCLP) that covers the period to 2041.

16.1.2 Part Four of this report re-examines the transport evidence in further detail to inform the confirmation of the emerging preferred development strategy for the GCLP draft plan stage. The information has been considered alongside other evidence bases to inform the refinement of the Preferred Option to ensure a sustainable, deliverable development strategy.

16.2 Report Structure

16.2.1 The remainder of Part Four is structured as follows:

- Chapter 17: Changes since the Strategic Spatial Options 2020
- Chapter 18: Informing an Emerging Preferred Development Strategy for Draft Plan
- Chapter 19: Analysis of the Emerging Preferred Development Strategy for Draft Plan Full Built Out
- Chapter 20: Emerging Preferred Development Strategy for Draft Plan Summary and Conclusions

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17. Changes since the Strategic Spatial Options 2020

17.1 Update of model versions

17.1.1 All the modelling undertaken in support of the local plan was undertaken in the Cambridge Sub-Regional Model (CSRM). The eight Strategic Spatial Options tested in the initial round of modelling (reported in Part 1) were tested using the E-Series, which was the current version of CSRM at the time the runs were undertaken. In the period in between the Strategic Spatial Options tests and the Preferred Option 2021, CSRM was updated, and the F-Series was developed. The main changes between the E-Series and the F-Series are as follows:

- Updates to the Transport Assessment Guidance (TAG July 2020) Values to ensure, including values of time and fuel costs.
- Enhanced representation of cycling, which enabled the impact of different levels of cycle provision on the choice of mode of travel to be captured in more detail.
- Extending the modelling of Park & Ride to enable users to park and continue their journey by bus **or** Active modes which is termed Park & Active.
- Improved level of detail for the various transport networks and zoning in the study areas of the Greater Cambridge Partnership (GCP) and Cambridgeshire and Peterborough Combined Authority (CPCA) transport schemes.

17.1.2 The Base year of CSRM is 2015 and therefore the data was at the upper end of acceptability in 2020 as data used in transport models should be no more than 6 years old. A full revalidation of the model was planned for 2020, but this was prevented by the pandemic and national lockdowns. Therefore, a Present Year Validation (PYV) was undertaken using existing 2019 data to extend the life of the model until such time as a full revalidation could be undertaken.

17.1.3 The changes made to CSRM in the creation of the F-Series resulted in not just a new future year but also a new base year as the updates included alterations to the structure of the model and the modes it can test. The result of this is that it was possible that the results of tests using the F-Series could be different to those undertaken in the E-Series and therefore, the decision was taken to rerun one of the Strategic Spatial Options reported in Part 1 of the Transport Evidence Report in the F-Series. This allows for a direct comparison between the E- and F-Series in both the 2041 Baseline and the with development option. Strategic Spatial Option 2 (SO2) was chosen as the development mix contained within it is the closest to the Emerging Preferred Option 2021 development mix.

17.2 Core Analysis

17.2.1 The key metrics used in this comparison are:

- Total trips in the model
- Total Travel Time in the model
- Total Delay in the model
- Car mode share (absolute and difference from Baseline)
- Sector Origin/Destination of trips

17.2.2 These metrics were chosen as they provide a good indication of the performance of both individual sites and the model as a whole. The following sets out the comparison of the results for these metrics in both the E- and F-Series models.

17.2.3 Table 79 below shows the total number of trips in both the E-Series and F-Series.

Table 79: Total Trips in the E-Series and F-Series models

Scenario	E-Series Trips	F-Series Trips	Difference in total trips between E-Series and F-Series
2041 Baseline	2,006,589	1,849,260	-157,329
SO2	2,153,188	1,988,194	-164,994
Additional trips in SO2	+ 146,599	+ 138,934	-7,665

17.2.4 As is shown in Table 79 the total number of trips is lower in the F-Series than in the E- Series. This represents a reduction of 7.5% in both the 2041 Baseline and SO2 which is not considered to be significant.

17.2.5 The reason for these differences is that the values of time and fuel costs that were current when the F-Series was created were more prohibitive to travel than the values that were current when the E-Series was created.

17.2.6 The major change between the E- and F-Series is in the level of Park & Ride patronage, the change seen is due to the way that the F-Series has been updated to capture Park & Active trips. These trips were not previously captured which means that the level of car trips to and from the various Park & Ride sites is more accurate in the F-Series as trips that park but walk or cycle to their final destination are now captured.

17.3 E-Series Versus F-Series Results

17.3.1 The following section sets out the differences in the model results for just the development sites included in SO2. These trips were chosen as it allows the impact of the development associated with SO2 to be isolated from the impact of the structural changes to the model between E- and F-Series.

Table 80: Total Travel Time (Total pcu-hours)

Scenario	AM Peak	Inter Peak	PM Peak	Total
Edge - non-Green Belt (SO2) – E-Series	2,205	1,295	3,122	6,622
Edge - non-Green Belt (SO2) – F Series	3,641	1,722	4,411	9,774
Difference	1,436	427	1,289	3,152

17.3.2 The travel time for the trips associated with the development sites in SO2 show an increase in all the peak periods in the F-Series compared to the E-Series. This is most likely due to the introduction of improved cycling connectivity and Park & Active trips which means although the overall number of trips is lower in the F- than E-Series the time taken is longer due to the increased proportion of trips using slower modes of travel in the F-Series.

Table 81: Delay (Total pcu-hours)

Scenario	AM Peak	Inter Peak	PM Peak	Total
Edge - non-Green Belt (SO2) – E-Series	723	413	1,614	2,750
Edge - non-Green Belt (SO2) – F Series	899	292	1,055	2,246
Difference	176	-121	-559	-504

17.3.3 The levels of delay reported in F-Series versus E-Series shows a slight reduction in the level of delay in the Inter-Peak and the PM Peak but a slight increase in the AM Peak but over the day the delays are reduced. As with the travel time this is related mostly to the introduction of better representation of cycling and Park and Active trips from P&R Sites which result in mode shift to Active Travel modes.

Table 82: Car mode share

Scenario	E-Series Car mode share	F-Series Car mode share	% change between E-Series and F-Series
2041 Baseline	64.2%	64.9%	+ 0.7%
SO2	63.2%	63.8%	+ 0.6%
% change between 2041 Baseline and SO2	- 1%	- 1.1%	-

17.3.4 As is shown in Table 82 above the difference between the E- and F-Series is negligible as the difference in car mode share is less than 1%. This indicates that the changes to the model made in the creation of the F-Series have not significantly changed the car mode shares.

Summary

17.3.5 An analysis of the results from the comparison of the E- and F-Series models indicates that the differences between the models is not significant. The differences in the number of trips, car mode shares and delay are less than 10% although as shown in table 80, the travel time does increase due to the increased use of cycling within the Series model. The result of the tests undertaken is that the use of the F-Series for the testing of the Preferred Option is still appropriate and offers slightly more refined results for some modes.

18. Informing an Emerging Preferred Development Strategy for Draft Plan

18.1 Introduction

18.1.1 Part 3 of this document, published in September 2021, assessed the Preferred Option 2021 development strategy included in the Greater Cambridge Local Plan First Proposals consultation 2021. Since that consultation, updates to Local Plan evidence, including an updated and increased objectively assessed need for jobs and homes in particular, creates the need to revisit the Preferred Option development strategy.

18.1.2 This chapter provides additional analysis of previously completed modelling runs that informed the Preferred Option 2021, to further explore the transport merits of broad locations for development that have the potential to provide the higher numbers of homes and jobs required in the Emerging Preferred Development Strategy for Draft Plan 2025.

18.1.3 The remainder of this chapter looks at the relative performance of different broad development locations to help inform the choice of sites in the Emerging Preferred Development Strategy for Draft Plan. The locations investigated further are as follows:

- Edge of Cambridge - Green Belt, and
- Potential additional New Settlement options

18.2 Review of transport performance of new locations to meet additional need

Edge of Cambridge - Green Belt

18.2.1 Beyond the potential land at the Cambridge Biomedical Campus (CBC), the Preferred Option 2021 did not include any allocations on the edge of Cambridge within the Green Belt.

18.2.2 A range of Edge of Cambridge - Green Belt locations were tested within Strategic Spatial Option 3 (SO3) for the period 2020-41. SO3 located all development on the edge of Cambridge within the Green Belt, such that the detailed conclusions regarding the transport performance of the Strategic Spatial Option as a whole (section 5.5) are relevant to considering the transport merits of locating development within this broad area.

Potential additional new settlement options

18.2.3 No additional new settlement options were included in the Preferred Option 2021, noting that development adjacent to Cambourne was proposed as an expansion to the existing settlement. The Preferred Option 2021 also included accelerated delivery of the existing allocations at Northstowe and Waterbeach. The increased objectively assessed need for homes and jobs creates a justification for considering the case for locating development at an additional new settlement location in principle, and beyond that for considering the relative performance of different locations.

18.2.4 The Strategic Spatial Options (SO) tests reported in Part 1 included a number of hypothetical broad locations for possible new settlements. These were spread throughout South Cambridgeshire and allowed the impact of a new settlement to be assessed in a wide range of potential locations. These runs assumed no site-specific mitigation.

18.2.5 The sensitivity tests carried out as part of the testing of the eight identified Strategic Spatial Options looked at different levels of development, this showed that increased levels of development with more balanced mixes of development resulted in lower car mode shares, whilst use of active travel modes increased. At the same time the public transport mode share remained broadly the same (see 5.6.12) as journeys are shorter due to remaining within the same site due to internalisation of trips. This indicates that the size and the mix of development are as important in determining the level of car trip generation associated with a site as the location of the site.

18.2.6 The Strategic Spatial Options tests also included accelerated delivery at the previously consented New Towns of Northstowe and Waterbeach, together with new settlement scale development close to Cambourne and a range of other locations around South Cambridgeshire.

18.2.7 The next section of this report looks at the model results to enable understanding of the relative performance of each of the locations tested in the Strategic Spatial Options. The performance of these sites has been compared against the existing large sites included in the Preferred Option 2021 including Northstowe and Waterbeach to show how the locations compare against sites already being delivered. The new settlements are also compared against Bourn Airfield as this site has planning permission and the Extension to Cambourne North of the A428 as this is included in the Preferred Option 2021.

18.3 Model Results

Metrics considered

18.3.1 To determine performance of the various sites in transport terms, the following metrics were used:

- Additional car trips per dwelling/Job
- Car mode share (%)
- Car trip destination average distance (km)
- Trip internalisation (%)

18.3.2 These metrics help to identify the number of additional vehicles on the highway network and the resultant impact these trips may have on travel patterns within the Greater Cambridge Area.

18.3.3 The level of additional car trips per dwelling provides an absolute number of new car trips generated by each potential location while the car mode share shows this as the proportion of all new trips generated by each site. The proportion of internalisation and car trip average distance provide an indication of whether the trips remain locally within the vicinity of the proposed site or travel longer distances.

18.3.4 Together these metrics help demonstrate how well each of the potential broad locations for additional new settlements perform in transport terms and provide an indication of whether additional site-specific mitigation may improve performance further, for example by facilitating and encouraging shorter trips to switch to active modes and public transport.

Caveats

18.3.5 The results of these assessments must be understood in the following context.

- There is no site-specific mitigation included for the prospective new sites in the Strategic Spatial option. It is important to note that mitigation would improve the performance of individual sites.
- A number of the sites are split across both the City of Cambridge and South Cambridgeshire, this can result in the areas in Cambridge and South Cambridgeshire appearing to perform very differently even within the same site. This is due to the assumptions in the model and therefore the remainder of this section focuses on the performance of the areas within Cambridge City as this is more likely to be the performance of the site were it to come forward.

- This work is assessing the relative performance of the sites in the Strategic Spatial Options from a purely transport perspective. It is acknowledged that there are planning considerations that will need to be included in any decisions to allocate each site.

Additional Car Trips

Table 83: Additional car trips per additional dwelling or job

Development Location	SO1	SO2	SO3	SO4	SO6	SO7	SO8
New Settlements comparator location: Northstowe New Town Phase 3	2.2	2.2	2.2	2.2	2.2	2.2	2.2
New Settlements comparator location: Waterbeach New Town	2.5	2.5	2.6	2.6	2.5	2.6	2.5
New Settlements comparator location: Bourn Airfield New Village	2.9	2.9	3.0	3.0	3.0	2.9	3.0
New Settlements comparator location: Extension to Cambourne North of A428*	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Cambridge Urban Area: North-East Cambridge	1.1	1.1	-	-	1.1	1.1	1.1
Edge of Cambridge: Non-Green Belt: Cambridge East	1.3	1.3	-	-	-	1.3	1.3
Edge of Cambridge: Green Belt (SO3)	-	-	1.4-1.6	-	-	-	-
New Settlement G: South of Cambourne	-	-	-	3.1	-	-	3.0
New Settlement F: South West of Cambridge 2	-	-	-	4.0	-	-	-
New Settlement E: South West of Cambridge 1	-	3.5	-	-	-	-	-
New Settlement D: South of Cambridge 3	-	-	-	3.7	-	-	-
New Settlement C: South of Cambridge 2	-	3.8	-	-	3.7	-	-
New Settlement B: South of Cambridge 1	-	-	-	-	-	3.7	-
New Settlement A: South East of Cambridge	-	-	-	3.1	-	-	-

* Note: This version of Cambourne was not included in the Strategic Spatial Options but was included in the Preferred Option 2021 and is included here for comparison.

18.3.6 Table 83 above indicates that the level of additional car trips generated per additional dwelling or job for the sites at Edge of Cambridge Green Belt (tested within SO3) are similar to the Cambridge Urban Area and other Edge of Cambridge sites, including North East Cambridge and Cambridge East, included in the Preferred Option 2021. It is also clear that all of the Edge of Cambridge locations generate significantly fewer car trips than the proposed new settlement locations as well as already established new settlements such as Northstowe, Waterbeach, the extension to Cambourne to the south of Cambourne and Bourn Airfield as included in the Preferred Option 2021. The level of additional car trips per dwelling or job of sites on the edge of Cambridge is shown to be roughly half of that seen at even the best performing New Settlement.

18.3.7 It is also clear from the information in Table 83 that all the broad locations for New Settlements are shown to generate higher levels of additional car trips per dwelling or job than is the case for Waterbeach New Town, Northstowe, and Bourn Airfield, with figures between 3.0 and 4.0 additional car trips per dwelling. New Settlement G South of Cambourne generates the lowest level of any of the potential broad locations for development with 3.0 to 3.1 additional car trips per dwelling. Waterbeach New Town is projected to generate between 2.5 to 2.6 additional car trips per dwelling and Northstowe 2.2 additional car trips per dwelling in each of the eight spatial Options.

18.3.8 As Table 83 shows the level of car trip generation varies for each of the potential new settlement locations

- New Settlement G: South of Cambourne was shown to generate 3.0 to 3.1 additional car trips per dwellings. The lower figure is recorded in the larger development.
- New settlement F: South West of Cambridge 2 was shown to generate 4.0 additional car trips per dwelling and is the worst performing of the possible broad locations identified
- New Settlement E: South West of Cambridge 1was shown to generate 3.5 additional car trips per dwelling or job.
- New Settlement D: South of Cambridge 3 was shown to generate 3.7 additional car trips per dwelling or job.
- New Settlement C South of Cambridge 2 generates 3.7 and 3.8 additional car trips
- New Settlement A: South East of Cambridge generates 3.1 additional car trips per dwelling, which is on a par with the level of trips associated with New Settlement G South of Cambourne.

18.3.9 The difference seen in the performance of Edge of Cambridge sites and the potential New Settlement locations is most likely to be due to the lack of existing facilities close to the new settlement locations, meaning that residents are required to travel further to access employment and services. The lack of existing sustainable travel choices also means that more journeys need to be made by private car. On the whole, the best performing New Settlement Locations are those located on (or close to) high quality public transport routes. This is evidenced by the fact that New Settlement G: South of Cambourne is the best performing new settlement location this is due to the proximity of the existing Cambourne settlement with its jobs and services but also the presence of the Cambourne to Cambridge Busway in the modelling which provides for sustainable access into Cambridge.

Car Mode Share

Table 84: Car Mode Share (%)

Development Location	SO1	SO2	SO3	SO4	SO6	SO7	SO8
New Settlements comparator location: Northstowe New Town Phase 3	59%	59%	59%	59%	59%	59%	59%
New Settlements comparator location: Waterbeach New Town	57%	56%	57%	57%	57%	56%	57%
New Settlements comparator location: Bourn Airfield New Village	56%	56%	56%	56%	56%	56%	56%
New Settlements comparator location: Extension to Cambourne North of A428*	62%	62%	62%	62%	62%	62%	62%
Cambridge Urban Area: North-East Cambridge	24%	24%	-	-	24%	25%	25%
Edge of Cambridge: Non-Green Belt: Cambridge East	28%	27%	-	-	-	28%	28%
Edge of Cambridge: Green Belt (SO3)	-	-	27% - 36%	-	-	-	-
New Settlement G: South of Cambourne	-	-	-	56%	-	-	56%
New Settlement F: South West of Cambridge 2	-	-	-	71%	-	-	-
New Settlement E: South West of Cambridge 1	-	64%	-	-	-	-	-
New Settlement D: South of Cambridge 3	-	-	-	65%	-	-	-
New Settlement C: South of Cambridge 2	-	68%	-	-	66%	-	-
New Settlement B: South of Cambridge 1	-	-	-	-	-	66%	-
New Settlement A: south east of Cambridge	-	-	-	59%	-	-	-

* Note: This version of Cambourne was not included in the Strategic Spatial Options but was included in the Preferred Option 2021 and is included here for comparison.

18.3.10 Table 84 indicates that all the sites on the edge of Cambridge have lower car mode shares than all the comparator sites and the New Settlement Options in the Strategic Spatial Options. The car mode share for sites on the Edge of Cambridge are roughly half those seen at the more remote new settlement locations. The best performing new settlement locations are New Settlement A South East of Cambridge and New Settlement G: South of Cambourne which have car mode share figures in keeping with the comparator sites. In contrast, broad locations B-F are situated in more rural areas away from proposed High Quality public transport routes and existing established settlements, this means that they are generally too far for journeys to be made by active travel modes. This together with the lack of existing public transport means that the private car is likely to be the predominant mode for journeys that need to be made.

Travel Distance

18.3.11 Table 85 below shows the average distances travelled from each of the sites included in this analysis.

Table 85: Distance Travelled

Site Location	Average Distance travelled
New Settlements comparator location: Northstowe New Town Phase 3	14-18km
New Settlements comparator location: Waterbeach New Town	14-18km
New Settlements comparator location: Bourn Airfield New Village	13-18km
New Settlements comparator location: Extension to Cambourne North of A428*	20-21km
Cambridge Urban Area: North-East Cambridge	14-18km
Edge of Cambridge Non-Green Belt: Cambridge East	14-18km
Edge of Cambridge: Green Belt (SO3)	15-19km
New Settlement G: South of Cambourne	13-18km
New Settlement F: South West of Cambridge 2	18-25km
New Settlement E: South West of Cambridge 1	17-21km
New Settlement D: South of Cambridge 3	15-21km
New Settlement C: South of Cambridge 2	15-19km
New Settlement B: South of Cambridge 1	14-16km
New Settlement A: south east of Cambridge	16-18km

* Note: The modelling for this version of Cambourne included East West Rail in the mitigation package.

18.3.12 When the distance travelled from the various sites on the edge of Cambridge and the potential broad locations for New Settlements are considered, it can be seen that the majority of locations have average trip lengths of 13 to 19 kilometres. This indicates that although the potential new settlement locations generate more car trips, the trips lengths are broadly of the same as trips from Waterbeach and Northstowe (14-18km). The length of the trips indicates that trips being made are not long-distance strategic trips but rather trips into Cambridge and the surrounding local area. The sites with the shortest distances are those located on the edge of Cambridge as well as those located on High Quality Public Transport routes into Cambridge or other key destinations such as new settlement G: South of Cambourne and Bourn Airfield. It is interesting to note that in the tests with EWR included, the trip lengths travelled from the extension to Cambourne North of the A428 are significantly longer than in the tests without EWR, which indicates that the addition of the improved public transport connectivity afforded by EWR increases the distances travelled by residents and workers at Extended Cambourne. This is because EWR opens up new destinations within reasonable travel times of Cambourne Station.

Internalisation

Table 86: Trip Internalisation (%)

Site Location	SO1	SO2	SO3	SO4	SO6	SO7	SO8
New Settlements comparator location: Northstowe Phase 3	40%	40%	40%	40%	40%	40%	40%
New Settlements comparator location: Waterbeach	-	-	-	-	17%	-	-
New Settlements comparator location: Bourn Airfield New Village	35%	35%	35%	34%	-	35%	34%
Cambridge Urban Area: North-East Cambridge	20%	21%	-	-	21%	16%	16%
Edge of Cambridge Non-Green Belt: Cambridge East	9%	11%	-	-	-	11%	11%
Edge of Cambridge: Green Belt (SO3)	-	-	7%-21%	-	-	-	-
New Settlement G: South of Cambourne	-	-	-	13%	-	-	15%
New Settlement F: South West of Cambridge 2	-	-	-	30%	-	-	-
New Settlement E: South West of Cambridge 1	-	26%	-	-	-	-	-
New Settlement D: South of Cambridge 3	-	-	-	28%	-	-	-
New Settlement C: South of Cambridge 2	-	22%	-	-	29%	-	-
New Settlement B: South of Cambridge 1	-	-	-	-	-	29%	-
New Settlement A: south east of Cambridge	-	-	-	26%	-	-	-

18.3.13 The level of internalisation of trips within each site assesses the number of potential trips that stay within the proposed development site. From Table 86 above it is possible to see that the sites on the edge of Cambridge have lower levels of internalisation, this is because residents can more easily access existing facilities within the city via non car modes of transport. When considering the potential new settlements (excluding Cambourne), these show internalisation levels of 22-30%. Whilst the new settlement at Cambourne as tested in the spatial option tests has 13-15% internalisation, however when the area is extended to include the existing settlement of Cambourne, the level of internalisation increases to 20% which indicates that the new settlement would complement the existing settlement of Cambourne. In contrast the level of internalisation seen at the Extension to Cambourne North of the A428 is significantly higher than seen for any of the other sites tested (53%) this figure is so high due to the congestion

seen at the site access junction meaning that the model indicates that residents would not be able to enter or exit the site in the peak periods and as a result would have to make more trips within the new settlement for all trip purposes.

18.3.14 This indicates that sites located close to or on the fringes of existing urban areas are able to make use of the existing facilities present in the adjacent urban areas. This means that more trips leave the sites on the edge of Cambridge than are seen to leave the potential new settlement locations. Whereas new settlements in more remote areas tend to make use of facilities within the development itself meaning that the scale and mix of development proposed within a site is vital in reducing both the number of trips generated and the distances travelled.

18.4 Summary

18.4.1 From the information set out in this chapter it is possible to see that development on the Edge of Cambridge performs better in transport terms across most of the metrics tested when compared to the potential locations for new settlements as tested in the strategic spatial options, with the exception of internalisation. Development placed in the potential broad locations for new settlements would lead to higher levels of car trips and higher car mode shares. The trip distance metrics suggest that at new settlement locations more trips are made within the proposed sites (this is backed up by the levels of internalisation suggested) which helps keep the trip distances similar to sites on the edge of Cambridge.

18.4.2 It is also clear to see that the various new settlements all performed differently, as set out below:

- New Settlements A and G are very similar in their overall performance, New Settlement G results in slightly shorter trips than New Settlement A because it is located close to the existing settlement of Cambourne which provides for many of services needed for residents at an extended Cambourne. However, on most other metrics it is difficult to differentiate between the two broad locations.

- New Settlements B and C perform very similarly although the average trip distance from new Settlement C is longer than that for New Settlement B due to New Settlement C being located outside the A11.

- New Settlements D and E perform very similarly although New Settlement E generates some of the longest trip distances due to the location of the development site being further away from key destinations such as Cambridge, indicating that the scale and form of

the development would need to be reviewed (and potentially increased) if this settlement location were to be considered for allocation to reduce the impact in transport performance terms.

- In all metrics New Settlement F performs worst of any of the potential broad locations.

18.4.3 When the broad locations for new developments are compared against the comparator sites, it is clear that new settlements A and G compare perform similarly against the metrics assessed but none of these locations is as good as development located on the edge of Cambridge.

18.4.4 Noting that the number of new settlement locations tested was not exhaustive, the analysis above demonstrates that the best performing new settlement locations are those located close to an existing urban area and/or on (or close to) high quality public transport routes into Cambridge or other key destinations. It also highlights that the scale and mix of development proposed within a site is important in reducing both the number of trips generated and the distances travelled.

18.4.5 The transport modelling indicates that development within and on the edge of the urban area performs best in transport terms because of the proximity to the existing established active travel and public transport networks. It is important to note that all the sites would require additional site-specific mitigation which would help improve performance of the sites, including the sites on the Edge of Cambridge. The testing has shown that if the right package of mitigation is introduced then any site can be made acceptable in transport terms, although consideration should also be given to the impact this could have on the viability of the sites in question.

18.4.6 The key factor is that any site chosen for allocation should be accompanied by the appropriate mitigation to allow for trips to be made without reliance on the private car.

19. Analysis of the Emerging Preferred Development Strategy for Draft Plan Full Build Out

19.1 Introduction

19.1.1 This chapter sets out the results of modelling undertaken to inform the refinement of an emerging preferred development strategy for draft plan stage. The revised tests include additional development at Extended Cambourne to the north of the A428 as well as development at Grange Farm to the east of the A11 and north of the A1307. These tests were run to inform the level of development to include at Extended Cambourne, as well as to test the performance with mitigation of a potential preferred option new settlement at the Grange Farm location.

19.1.2 Two tests were run through F-Series CSRM, both these runs build on the previously modelled 2041 Preferred Option Full Build Out including Mitigation CSRM run as reported in Part 3 Chapters 13 and 14.

19.1.3 The run specifications were as follows:

- Run 1 (DS1) located all the development associated with the extension to Cambourne north of the A428 in a single zone as in the Preferred Option 2021 tests.
- Run 2 (DS2) split the dwellings and jobs into 4 equal zones. This run was commissioned as a result of high levels of internalisation caused by the site arrangements tested in DS1, which was considered unrepresentative of the real world.

19.2 Growth Assumptions

19.2.1 The level of development assumed at Extended Cambourne and Grange Farm is as follows;

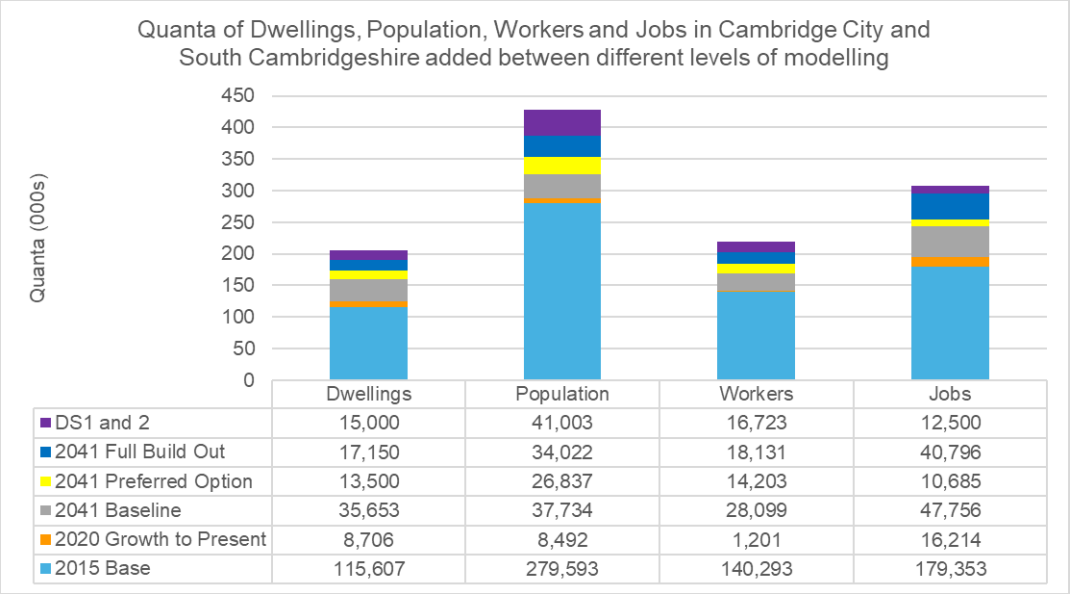
Table 87: Development levels assumed (Over 2041 Baseline)

Sector	Dwellings	Jobs
Extended Cambourne	20,000	20,000
Grange Farm	5,000	2,500

19.2.2 This equals an increase of 15,000 dwellings and 12,500 jobs over and above those included in the 2041 Preferred Option Full Build Out including Mitigation run used as a comparison in the rest of this chapter.

19.2.3 The 2041 Baseline set out in Section 9.3 above provides the starting point for the analysis of the Emerging Preferred Development Strategy for Draft Plan. Figure 92 below shows Emerging Preferred Development Strategy for Draft Plan Dwellings, Population, Workers and Jobs added to the previous model runs.

Figure 92: Dwellings, Population, Workers and Jobs in the 2015 Base Year, in the 2041 Baseline, in the Preferred Option to 2041, the Preferred Option fully built out and the Emerging Preferred Development Strategy for Draft Plan DS1 and DS2

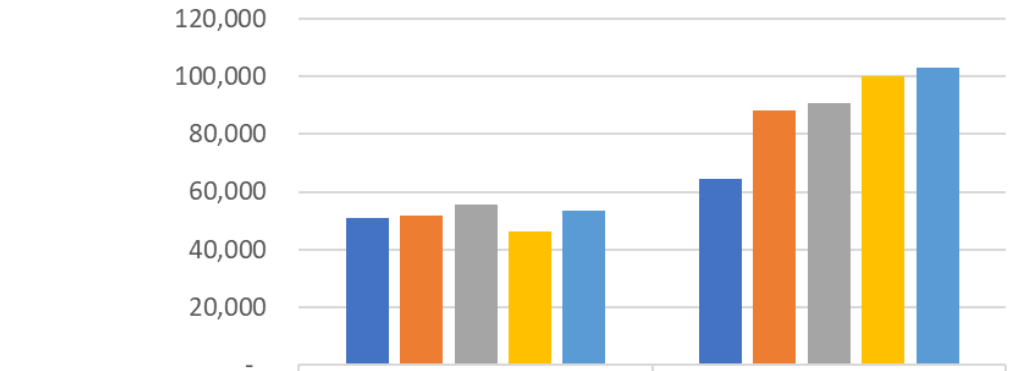


	Dwellings	Population	Workers	Jobs
DS1 and 2	15,000	41,003	16,723	12,500
2041 Full Build Out	17,150	34,022	18,131	40,796
2041 Preferred Option	13,500	26,837	14,203	10,685
2041 Baseline	35,653	37,734	28,099	47,756
2020 Growth to Present	8,706	8,492	1,201	16,214
2015 Base	115,607	279,593	140,293	179,353

19.3 In and Out-Commuting

19.3.1 Changes in the numbers of dwellings, jobs and population set out above affects the levels of in and out commuting seen in the model. This is important because if there is a significant imbalance in homes and jobs it can result in more longer distance trips to employment sites. Figure 93 below sets out the rates of in and out commuting in DS1 and DS2 compared to the previous runs reported in earlier section of this report.

Figure 93: In and out-commuting in the 2015 Base Year, 2041 Baseline, Preferred Option to 2041 and Preferred Option Fully Built Out and the Emerging Preferred Development Strategy for Draft Plan



	Out-commuters	In-commuters
2015 Base Year	50,817	64,566
2041 Baseline	51,708	88,022
2041 Preferred Option	55,567	90,516
2041 Full Build Out	46,413	100,038
2041 DS1 and DS2	53,554	102,956

19.3.2 From the information in Figure 93 we can see that the levels of in and out commuting have increased in each of the model runs undertaken, but also that the numbers of in-commuters have increased more than the level of out-commuting. This indicates that there was an imbalance in the number of homes and jobs. However, there is a change when the results of the latest runs DS1 and DS2 are analysed, with the largest increase coming from out-commuters with only a very small increase in in-commuting compared to the 2041 fully built out scenario. This indicates that in the latest tests, more jobs are taken by Cambridgeshire residents than was the case in the previous runs. This is due to the higher number of dwellings included in these tests, resulting in a better balance of homes and jobs in DS1 and DS2 when compared with the 2041 Full Build Out.

19.4 Transport Schemes

Baseline Schemes

19.4.1 The DS1 and DS2 scenario model runs include all the transport schemes that were coded into the CSRM2 F-Series Baseline. These schemes, which are not part of any GCSP Local Plan mitigation package are as follows;

- GCP Schemes;
  - Cambourne to Cambridge;
  - Cambridge South East Transport Study;
  - Cambridge South West Travel Hub;

    - Waterbeach to North East Cambridge public transport corridor enhancement;
    - Cambridge Eastern Access, Phase A only;
    - Foxton Rural Travel Hub;
    - Various GCP Cycle Schemes; and
    - City Access.
- A428 Black Cat to Caxton Gibbet upgrade;
- The A10 (Ely to Cambridge) highway improvements.
- Capacity improvements to the M11; and
- Cambridge South Station.

Preferred Option mitigation schemes

19.4.2 In addition to the Baseline schemes, the model runs reported in this section include the same transport schemes as in the 2041 Preferred Option Full Build Out including Mitigation run reported in 2021 (Chapters 13 and 14). These schemes are:

- Cambridge Eastern Access Phase B including;
    - The relocation of the Newmarket Road P&R site;
    - High Quality Public Transport (HQPT) connection to Cambridge City Centre via the Cambridge East site;
    - HQPT connection to Cambridge Railway Station via the Cambridge East site;
    - HQPT connection to Addenbrooke's via the Cambridge East site;
    - HQPT connection to Addenbrooke's via Cherry Hinton.
- A modal filter at the bridge over the railway on Coldhams Lane;
- A shuttle bus service between Cambridge North Station and Cambridge Regional College via North East Cambridge (NEC);
- Improved active mode connections around NEC; and
- East-West Rail (including a station at Cambourne in the Land North of Cambourne zone).

19.5 Development assumptions

19.5.1 Both DS1 and 2 assumed that all the mitigation listed above for both the Baseline and 2041 Preferred Option Full Build Out including Mitigation were in place. The mitigation listed below is therefore additional mitigation.

19.5.2 The mitigation assumed in DS1 and DS2 differs as set out below.

Do Something 1

19.5.3 DS1 included all the development at Extended Cambourne in a single model zone to the north of the A428 with a single point of access at the

existing A428 Cambourne Junction. The Grange Farm development was included as a single zone to the north of the A1307 and east of the A11.

Cambourne

19.5.4 It was assumed that there would be an extension of the Cambourne to Cambridge Busway linking to the proposed EWR Station to the north of the A428 alongside active travel links to the existing Cambourne settlement and surrounding settlements.

Grange Farm

19.5.5 It was assumed that the Cambridge South East Transport Study Phase 2 (CSETS) would be in place and that CESTS would be extended from the proposed A11 travel hub over the A11 directly into Grange Farm before continuing along the A1307 to Haverhill. This grade separated connection would enable access to Grange Farm without interaction with the A11/A1307 junction which is a major congestion point on the local highway network. There would also be active travel links to Granta Park.

Do Something 2

19.5.6 In DS2 the development at extended Cambourne was split into 4 zones with 5,000 dwellings and 5,000 jobs in each zone, each with their own vehicular access onto the local road network.

19.5.7 The mitigation assumed everything included in DS1 plus the following;

Cambourne

19.5.8 Extension of the Cambourne to Cambridge Busway throughout the development area and onwards to Papworth Everard alongside internal active travel links throughout the site as well as links to Papworth Everard and surrounding settlements.

19.5.9 In order to facilitate access to the wider highway networks it was assumed that the roads around the site would be improved to A-Road standard to facilitate direct access to the A1198 and the A14 as well as the A428.

Grange Farm

19.5.10 Further extension of the Cambridge South East Transport Study (CSETS) Extension from Grange Farm to the Wellcome Genome Campus and on to Great Chesterford Railway Station.

19.6 Core Model Outputs

19.6.1 The model runs referred to here are as follows:

- 2041 Baseline
- 2041 Full Build Out
- 2041 Full Build Out Plus Mitigation
- 2041 Do Something 1 (DS1)
- 2041 Do Something 2 (DS2)

19.6.2 The following modes are reported:

- Active travel
- Park and Active
- Public Transport
- Park and Ride
- Private Car

19.7 Core Analysis: Trip Volumes and Mode Share

19.7.1 Table 88 and Table 89 show the change in person trips and change in mode shares due to the growth contained in DS1 and DS2 when fully built out. Figure 94 shows the changes in mode share that are the result.

Table 88: Trips in DS1 and DS2 vs Preferred Option, fully built out, with mitigation

Scenario	Active Modes	Park & Active	Public Transport	Park & Ride	Car	Total
2041 Baseline	508,083	19,929	90,031	31,889	1,199,292	1,849,223
1. Preferred Option to 2041	539,575	20,687	95,005	32,239	1,234,619	1,922,125
2. Preferred Option, fully built out	595,391	22,161	100,032	36,365	1,274,118	2,028,067
3. Preferred Option, fully built out plus Mitigation	592,557	21,328	104,894	45,443	1,263,344	2,027,567
DS1	632,504	22,868	112,705	45,096	1,297,793	2,110,966
DS2	620,686	22,513	111,156	47,478	1,309,157	2,110,989

Table 89: Mode share of trips in DS1 and DS2 vs the Preferred Option to 2041, fully built out, with mitigation,

Scenario	Active Modes	Park & Active	Public Transport	Park & Ride	Total non-car	Car
2041 Baseline	27.5%	1.1%	4.9%	1.7%	**35.1%**	64.9%
1. Preferred Option to 2041	28.1%	1.1%	4.9%	1.7%	**35.8%**	64.2%
2. Preferred Option, fully built out	29.4%	1.1%	4.9%	1.8%	**37.2%**	62.8%
3. Preferred Option, fully built out plus Mitigation	29.2%	1.1%	5.2%	2.2%	**37.7%**	62.3%
DS1	30.0%	1.1%	5.3%	2.1%	**38.5%**	61.5%
DS2	29.4%	1.1%	5.3%	2.2%	**38.0%**	62.0%

19.7.2 From this we can see that the car mode share decreases as more development is added. Analysis shows that as congestion on the road network increases and therefore travel by car becomes more unreliable, we see mode shift away from the car with the largest increase in active travel modes which is due to the trips associated with the various local plan development options being shorter due to the accessibility of jobs and services within the new development sites.

19.7.3 The level of trip making by car in DS2 is slightly higher than that in DS1 which shows that the additional mitigation around the extended Cambourne site allows more external trips to be made but does not remove all congestion, and therefore does not represent an unrealistic representation of the site's performance.

19.8 Core Analysis: Highway Impact

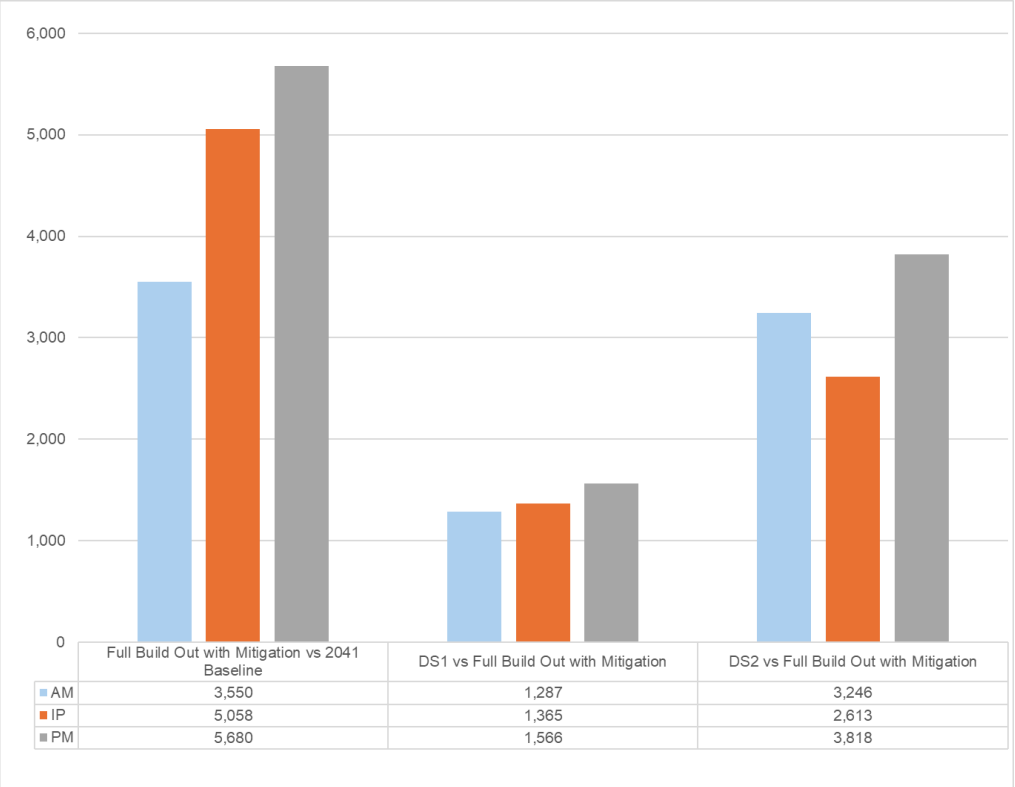
19.8.1 This section looks at the performance of the highway network in the tests undertaken, the metrics tested are

- Matrix totals – the total volume of highway trips (in Passenger Car Units) assigned to the network.
- Travel distance – the total distance (in PCU kilometres) travelled by all trips assigned to the network.
- Travel time - the total time (in PCU hours) taken for all trips assigned to the network.

- Delay – the total delay (total time – free-flow time) (in PCU hours) experienced by all trips assigned to the network.

Matrix totals

Figure 94: Change in matrix totals (pcus/hr); 2041 Full Build Out Plus Mitigation versus 2041 Baseline and DS1 and 2 versus 2041 Full Build Out Plus Mitigation

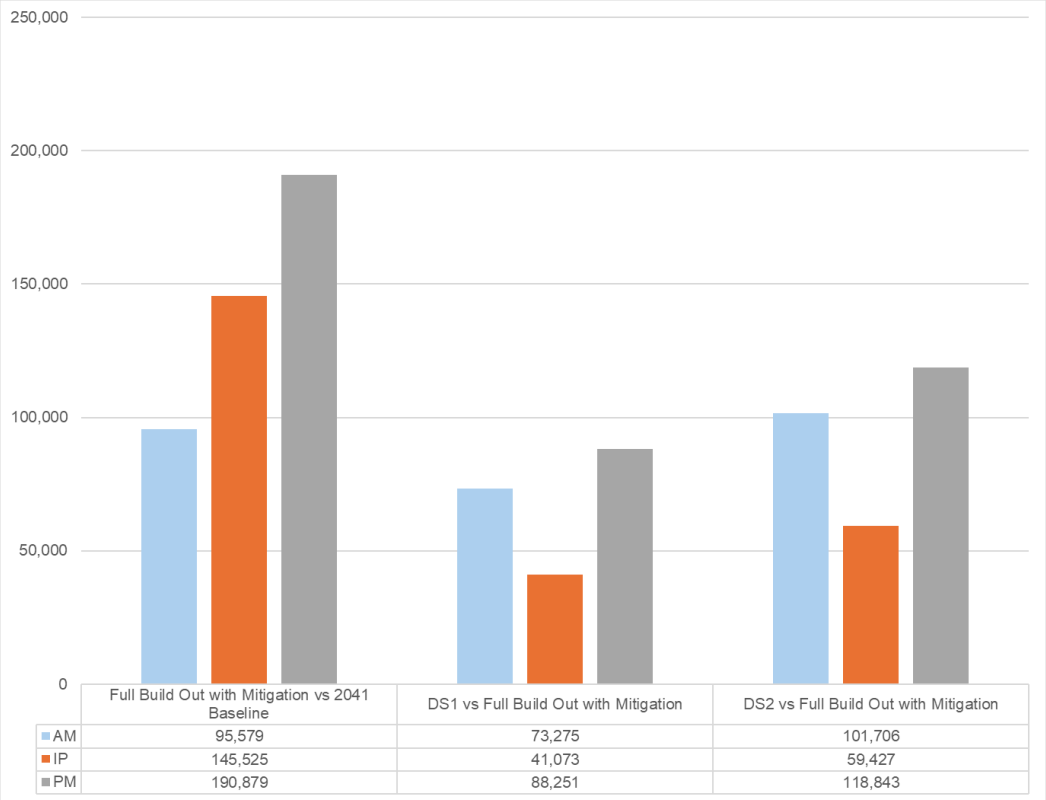


	Full Build Out with Mitigation vs 2041 Baseline	DS1 vs Full Build Out with Mitigation	DS2 vs Full Build Out with Mitigation
AM	3,550	1,287	3,246
IP	5,058	1,365	2,613
PM	5,680	1,566	3,818

19.8.2 From this we can see that there are more trips on the highway network in both DS1 and DS2 compared to the 2041 Full Build Out Plus Mitigation run. However, there are almost double the additional trips on the highway network as a result of DS2 than in DS1 despite the level of development being the same, this indicates that the additional mitigation introduced in DS2 results in a more realistic level of highway trips.

Travel Distance

Figure 95: Change in travel distance (Total pcu-kms); 2041 Full Build Out Plus Mitigation versus 2041 Baseline and DS1 and DS2 versus 2041 Full Build Out Plus Mitigation



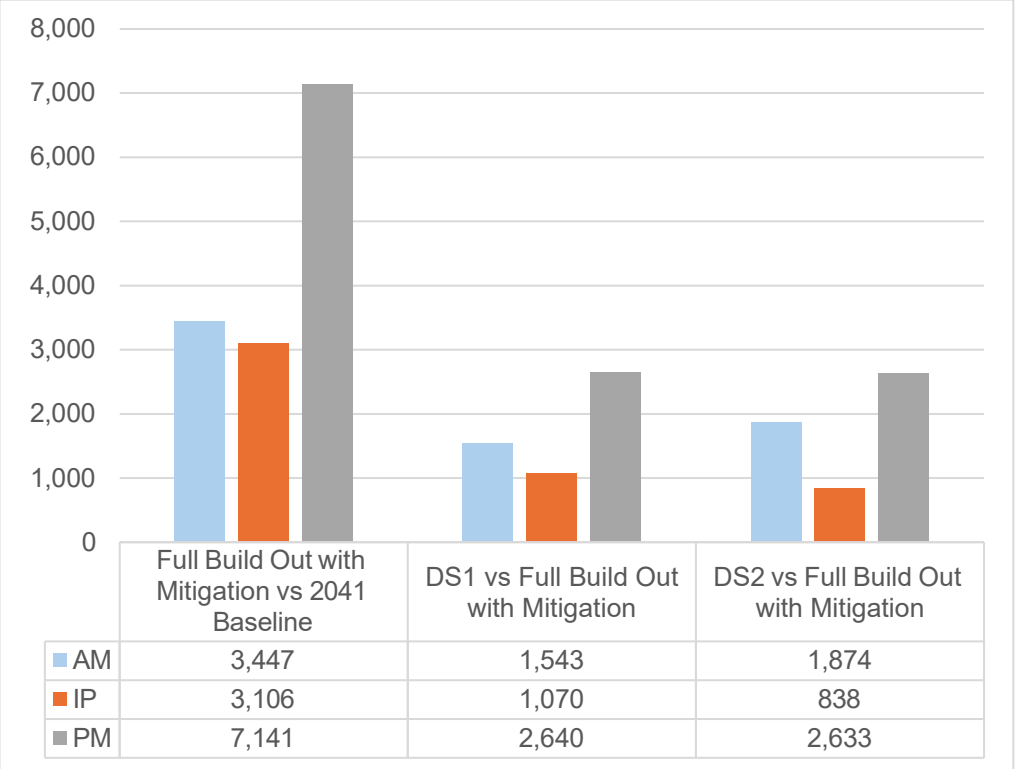
	Full Build Out with Mitigation vs 2041 Baseline	DS1 vs Full Build Out with Mitigation	DS2 vs Full Build Out with Mitigation
AM	95,579	73,275	101,706
IP	145,525	41,073	59,427
PM	190,879	88,251	118,843

19.8.3 The distance travelled increases in both DS1 and DS2 however it is clear that the additional increase in DS2 is only about 25% higher than in DS1 in the AM and PM Peaks.

19.8.4 The difference in the scale of increase is due to the increased level of highway trips and people driving more for their journeys, although the data shows that origins and destinations do not change significantly between DS1 and DS2.

Travel time

Figure 96: Change in total travel time (Total - pcu.hrs); 2041 Full Build Out Plus Mitigation versus 2041 Baseline and DS1 and DS2 versus 2041 Full Build Out Plus Mitigation

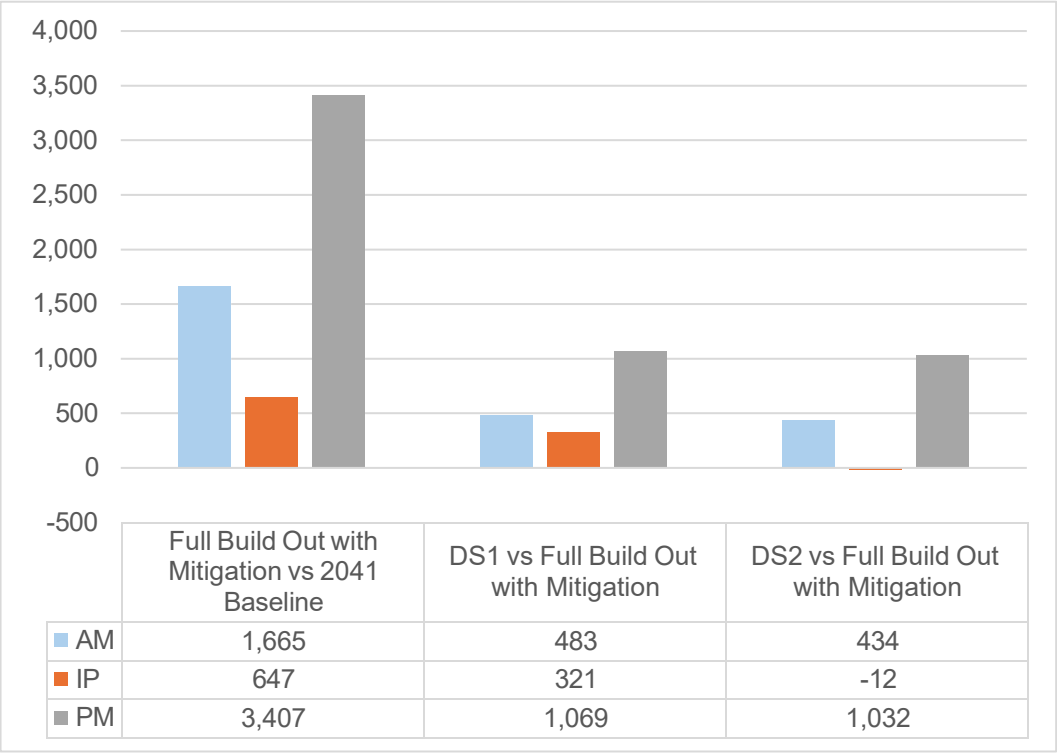


	Full Build Out with Mitigation vs 2041 Baseline	DS1 vs Full Build Out with Mitigation	DS2 vs Full Build Out with Mitigation
AM	3,447	1,543	1,874
IP	3,106	1,070	838
PM	7,141	2,640	2,633

19.8.5 The travel time seen in DS1 and DS2 adds a further 1,500-1,800 pcu hours on top of the 2041 Full Build Out Plus Mitigation. However, the AM peak increase in DS2 is slightly higher than that seen in DS1 while the additional travel time in the PM is very similar in both DS1 and DS2 which indicates that the additional mitigation included in DS2 enables journeys to be made quicker despite the additional highway trips generated.

Delay

Figure 97: Change in total delay (Total - pcu.hrs); 2041 Full Build Out Plus Mitigation versus 2041 Baseline and DS1 and 2 vs 2041 Full Build Out Plus Mitigation



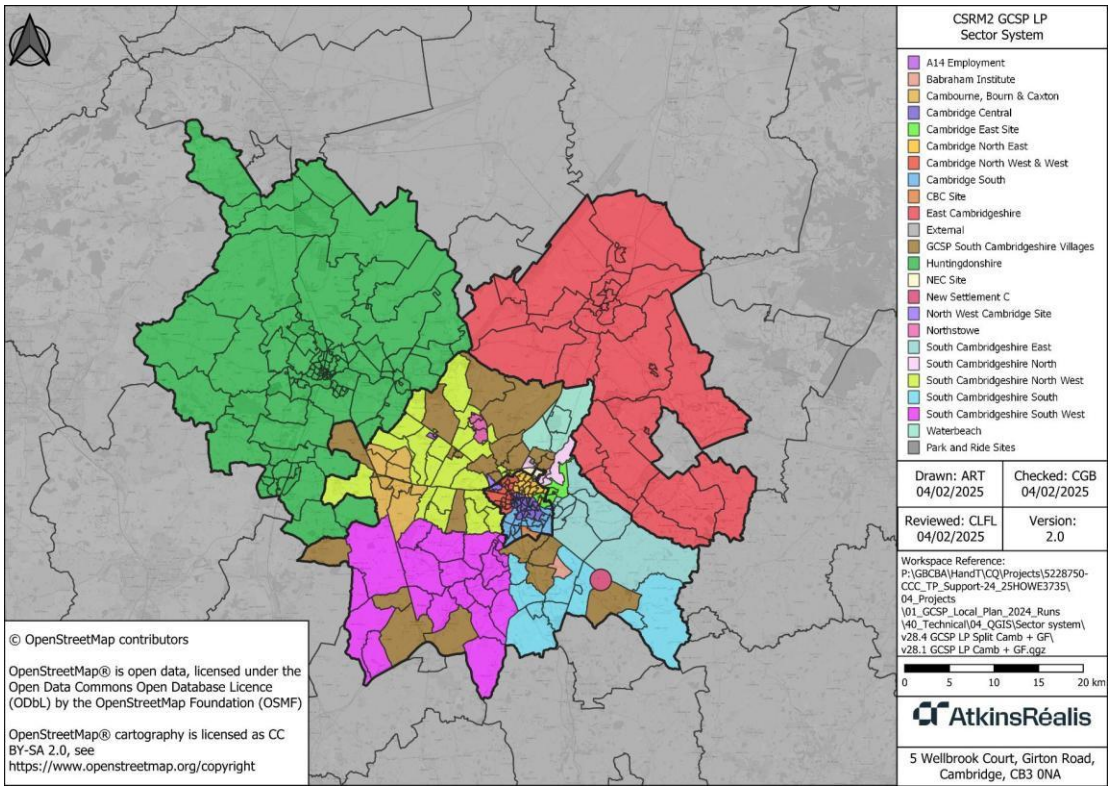
	Full Build Out with Mitigation vs 2041 Baseline	DS1 vs Full Build Out with Mitigation	DS2 vs Full Build Out with Mitigation
AM	1,665	483	434
IP	647	321	-12
PM	3,407	1,069	1,032

19.8.6 The addition of the development associated with DS1 and DS2 results in significant delays in addition to those seen in the 2041 Full Build Out Plus Mitigation but the levels of delay in DS1 and DS2 are very similar in the AM and PM peak periods despite there being more highway trips in DS2. This indicates that the additional mitigation proposed in DS2 has a meaningful impact on the levels of delay experienced.

19.9 Sector Analysis

19.9.1 This section considers the impact of the development included in the Emerging Preferred Development Strategy for Draft Plan. The results are presented based on the sectors within the CSRM2 as shown in Figure 98 below.

Figure 98: Sectors within the Cambridge Sub-Region Model 2 (CSRM2)



19.9.2 The following analysis is focussed on the performance of the transport networks in DS2 because the access arrangements assumed for the extension of Cambourne to the North of the A428 in DS1 resulted in unrealistic levels of internalisation and mode shares due to the congestion at the site access junction meaning that very few trips by all modes could exit the site in the peak periods. Therefore, DS2 is considered to be more representative in the real world and provides more realistic results. Notwithstanding, this also indicates that more mitigation for the Cambourne site would be required should it be allocated.

Sector Trip Distribution

19.9.3 This section looks at the distribution of trips from the sectors containing Extended Cambourne and Grange Farm.

Table 90: DS2 Sector Trip Distribution

Sector	Expanded Cambourne No.	Expanded Cambourne %	Grange Farm No.	Grange Farm %
Cambridge	5,567	6%	2,828	11%
Cambridge Biomedical Campus	848	1%	605	2%
North West Cambridge	369	0%	61	0%
Cambridge East	924	1%	517	2%
North East Cambridge	1,184	1%	227	1%
South Cambs	10,920	11%	8,351	32%
Waterbeach	470	0%	163	1%
Northstowe	595	1%	69	0%
Cambourne Bourn + Caxton	51,792	53%	258	1%
A14 Employment	144	0%	2	0%
Babraham Institute	33	0%	303	1%
Grange Farm	282	0%	7,597	29%
East Cambridgeshire	1,041	1%	1,104	4%
Huntingdonshire	13,091	13%	348	1%
External to the modelled Area	9,749	10%	3,663	14%
Total Trips	97,011	100%	26,096	100%

19.9.4 From the information in Table 90 above we can see distribution of trips.

Extended Cambourne

19.9.5 From the figures above we can see that of the trips generated by the site 13% go to Huntingdonshire, 11% go to other South Cambridgeshire Locations and 6% go into Cambridge with a further 1% to CBC, Cambridge East and North East Cambridge.

Grange Farm

19.9.6 The distribution of trips from Grange Farm indicates that 11% of trips go into Cambridge with a further 2% going to CBC and Cambridge East. 32% of trips go to other South Cambs locations. Of the trips within the South

Cambs locations 12% go to the South-South Cambs Sector that includes Granta Park and the Genome Campus and therefore it is reasonable to assume that the majority of these trips go to these locations.

Sector mode shares

19.9.7 The mitigation for Grange Farm in DS2 includes an extension of the CSETS Busway to Genome Campus and Great Chesterford Station, although this further extension is not included in the final mitigation package supporting the emerging preferred development strategy for Draft Plan set out in Chapter 20. This is because this connection did not demonstrate significant patronage in the modelling - as measured by comparing the public transport mode share in DS1 and DS2 between the relevant sectors. As such the modelling has not demonstrated a clear need for such a scheme to make Grange Farm perform well in transport terms. Despite DS2 including this connection which is not recommended in the final mitigation package, the DS2 run is still the best indicator of the performance of the transport networks.

19.9.8 The results for DS2 set out in the remainder of this section are compared against the 2041 Baseline and the 2041 Full Build Out of the 2021 Preferred Option Development Strategy.

19.9.9 Table 91 below compares the mode share for the origin trips from each sector:

Table 91: DS2 Sector Origin Mode Share

Sector Name	Active	P&A	PT	P&R	Car
Cambridge Biomedical Campus	32%	3%	14%	15%	35%
North West Cambridge	58%	2%	6%	0%	34%
Cambridge East	51%	1%	5%	3%	40%
North East Cambridge	54%	1%	11%	5%	29%
Waterbeach	28%	4%	6%	2%	59%
Northstowe	36%	2%	6%	2%	54%
Cambourne, Bourn & Caxton	**37%**	**1%**	**5%**	**2%**	**55%**
Grange Farm	**28%**	**4%**	**6%**	**1%**	**60%**
Rest of Cambridge Total	59%	1%	9%	3%	27%
Rest of South Cambs Total	19%	2%	3%	2%	73%

19.9.10 From this we can see that the car mode shares for both Extended Cambourne and Grange Farm sectors are comparable to those indicated for Waterbeach and Northstowe which are all significantly lower than the figure for the rest of South Cambridgeshire.

19.9.11 The active travel and PT mode shares for Extended Cambourne and Grange Farm are also comparable with those suggested for Waterbeach and Northstowe. All four of these sites have suggested active travel mode shares that are significantly higher than seen in the rest of South Cambridgeshire, which indicates that these strategic scale developments provide scope for more sustainable travel patterns than is seen in more rural areas of South Cambridgeshire.

Sector Internalisation

19.9.12 Key to the performance of any site is the level of internalisation, where trips generated by the site remain within the site boundary. This is influenced by both the scale development and the development mix. Internalisation increases as residents and employees are able to access homes and jobs as well as other uses required on a daily basis without needing to leave the area. This results in shorter trips and the possibility of more trips being undertaken by active travel modes.

Table 92: Site Internalisation Comparison of DS2 vs 2041 Baseline and Full Build Out with mitigation

Sector Name	2041 Baseline	2041 FBO-M	DS2
Cambridge Biomedical Campus Site	12%	12%	12%
North West Cambridge Site	19%	26%	26%
Cambridge East Site	12%	33%	33%
North East Cambridge Site	9%	36%	36%
Waterbeach	29%	30%	31%
Northstowe	31%	33%	33%
Cambourne Bourn + Caxton	**35%**	**48%**	**47%**
Grange Farm*	**-**	**-**	**29%**
A14 Employment	4%	5%	5%
Babraham Institute	6%	6%	6%

* Grange Farm does not appear in either the 2041 Baseline or the 2041 FBO-M and so is not included in this table.

19.9.13 From the information in table 92 above we can see that the introduction of additional development at Extended Cambourne and Grange Farm has not resulted in any significant changes to the level of internalisation seen at the

other sites within the Emerging Preferred Development Strategy for Draft Plan although there are some minor changes seen, notably at Waterbeach, but these are very minor in nature and are most likely due to the re-distribution of homes and jobs in the revised scenarios.

19.9.14 The levels of internalisation seen at Grange farm are similar to those seen in the adjacent sectors used as a proxy for the site, they are also similar to those seen at Waterbeach and Northstowe. However, when we consider the levels of internalisation within the sector that contains Extended Cambourne we can see that in both the 2041 Full Build Out with Mitigation (2041 FBO-M) and DS2 runs the levels of internalisation are more than 10% higher than seen for any other site in South Cambridgeshire, including the same sector in the 2041 Baseline. The reasons for these significantly increased levels of internalisation is the highway capacity constraint at the site access junction (2041 Baseline and Full Build Out) which results in an unrealistic level of internalisation due to the congestion at the proposed site access junction and despite these issues being fixed in DS2 it is clear that there is still significant congestion on the highway network around the site meaning that the model suggests high levels of trips will still remain within the sector.

19.9.15 However, when compared to the level of internalisation in DS1 (increased development but limited access and active travel options) which indicates 61% internalisation at Extended Cambourne it is clear that the introduction of the additional mitigation in DS2 does result in more trips being made externally by all modes.

20. Emerging Preferred Development Strategy for Draft Plan Summary and Conclusions

20.1 Overall Conclusions

20.1.1 The transport impacts of the Emerging Preferred Development Strategy for Draft Plan have been assessed using the Cambridge Sub-Regional Model 2, and the results of that assessment are set out and analysed in Chapter 19 of this report.

20.1.2 The overall conclusions from that testing are that:

- The Emerging Preferred Development Strategy for Draft Plan is capable of being accommodated on the local transport network in Greater Cambridge with appropriate mitigation.
- The Emerging Preferred Development Strategy for Draft Plan achieves a reasonable balance between new homes and jobs overall, with similar proportions of in and out-commuting across the CSRM2 model boundary in 2041, when compared to those seen in the 2015 Base Year. However, it is interesting to note that the level of in-commuting increase seen in the latest tests is smaller than seen in the Preferred Option testing. This indicates that the balance of homes and jobs in the Emerging Preferred Development Strategy for Draft Plan is better than in the Preferred Option 2021, which results in more workers coming from within the model area, reducing additional in-commuting from neighbouring authorities.

20.1.3 The following sections summarise the performance of the Emerging Preferred Development Strategy for Draft Plan overall on the metrics discussed in Chapter 19 of this report.

Travel patterns

- The scale of development at individual sites is important. In transport terms the strategic sites contained in the Emerging Preferred Development Strategy for Draft Plan, when fully built out are of a scale that gives a good opportunity for trips to be internalised to the development, due to the easy accessibility of employment opportunities and of local services and amenities.
- The mitigation package tested in DS2 leads to significant shifts from car to non-car modes of transport. The new sites in the Emerging Preferred Development Strategy for Draft Plan, with mitigation, would be able to cater for almost half of their trip making by non-car modes – by walking, cycling and public transport use.

- Climate and carbon are of fundamental importance in planning for future transport patterns. There is scope for levels of car traffic associated with the development of sites included within the Emerging Preferred Development Strategy for Draft Plan to be reduced even further than has been demonstrated by the modelling to date. Introducing vehicular trip budgets, car parking limits for employment land uses and facilitating and incentivising public transport and active travel will be essential.

Highway Impacts – Congestion and delay

- Travel distance, travel time and delay all increase above the 2041 Baseline with the addition of the Emerging Preferred Development Strategy for Draft Plan. This is particularly the case for delay. For all three metrics, the increase is higher in the PM peak than in the AM peak and Inter-Peak periods.
- Therefore, there is scope for more refinement of mitigation measures to further address congestion and delay. Policy mitigation for the strategic sites such as setting vehicular trip budgets has also been identified as required, but not yet included in the mitigation runs. This is particularly important where reduced congestion – due to some switching away from the car – results in 'backfilling' of the freed-up highway capacity by others whose trips become easier by car. Any mitigation measures that seek to address highway congestion will need to be carefully considered with regard to their potential impact on sustainable travel behaviours, noting the net zero carbon aims of the local Authorities.

Mitigation Measures

- The mitigation assessed as necessary for the Emerging Preferred Development Strategy for Draft Plan is as follows;
    - Preferred Option mitigation schemes
        - City Access Proxy
        - Cambridge Eastern Access Phase B, including:
            - Relocation of the Newmarket Road P&R site;
            - High Quality Public Transport (HQPT) connection to Cambridge City Centre via the Cambridge East site;
            - HQPT connection to Cambridge Railway Station via the Cambridge East site;
            - HQPT connection to Addenbrooke's via the Cambridge East site;
            - HQPT connection to Addenbrooke's via Cherry Hinton.
        - A modal filter at the bridge over the railway on Coldhams Lane;
        - A shuttle bus service between Cambridge North Station and Cambridge Regional College via North East Cambridge (NEC);

        - Improved active mode connections around NEC; and
        - East-West Rail (including a station at Cambourne in the Land North of Cambourne zone).
    - DS Mitigation schemes
        - Cambourne to Cambridge extended throughout the site and on to Papworth Everard,
        - Highway improvements to facilitate access in all directions from Cambourne
        - Extension of CSETS via a grade separated crossing of the A11 into Grange Farm to facilitate access to the site.

- The Emerging Preferred Development Strategy for Draft Plan includes mitigation measures to facilitate the operation of the transport networks. The mitigation measures tested to date provide additional public transport capacity and support active travel trips. This will help minimise the negative impacts of increased travel demand, particularly in the context of national and local government commitments on carbon, air quality and health and consistent with the Local Transport and Connectivity Plan's vision that "supports the transition to a net zero carbon economy and protects or enhances the environment".
- The new trips generated by the Emerging Preferred Development Strategy for Draft Plan with mitigation as tested in chapter 19, will achieve lower levels of car use as a proportion of overall trips than seen for existing trips on the transport network. This is without applying further policy mitigation, including vehicular trip budgets – which are being progressed for Waterbeach as part of its planning permission, and are identified as required for North East Cambridge, Cambridge East, Cambridge Biomedical Campus, Eddington, Cambourne and Grange Farm.
- There is further work needed to refine the mitigation package, but there is nothing in the modelling results to suggest that the development locations and quantum included in the Emerging Preferred Development Strategy for Draft Plan cannot be accommodated on the transport network providing mitigation commensurate with the city access proxy within the model runs is delivered.

20.2 Site Specific conclusions

20.2.1 The following sections summarise the performance of the additional development locations included in the Emerging Preferred Development Strategy for Draft Plan overall on the metrics discussed in Part 4 of this report.

Extension to Cambourne

- The testing of the Extension to Cambourne in Chapter **Error! Reference source not found.** shows that fully built out with mitigation it would generate levels of trip making by car similar to those seen at Northstowe and Waterbeach.
- The testing of the Emerging Preferred Development Strategy for Draft Plan demonstrated that the development of this site is reliant on the introduction of East West Rail and the extension of Cambourne to Cambridge Busway through the site and on to Papworth Everard, which would lead to a significant uptake in use of Public Transport.
- The testing also shows that there are a large number of trips are being made from the wider area to access the new East West Rail station; to avoid unacceptable highway impacts the majority of these trips will need to be accommodated by non-car modes.

Grange Farm

- The testing of the new development at Grange Farm in Chapter **Error! Reference source not found.** shows that fully built out with mitigation it would generate levels of trip making by car similar to those seen at Northstowe and Waterbeach.
- The testing of the Emerging Preferred Development Strategy for Draft Plan demonstrated that the development of this site is reliant on the introduction of an extension to Cambridge South East Transport Scheme over the A11 (grade separated) which would lead to a significant uptake in use of public transport. This mitigation also provides an alternative for trips into the Babraham Institute resulting in a reduction in the number of car trips generated in the area.