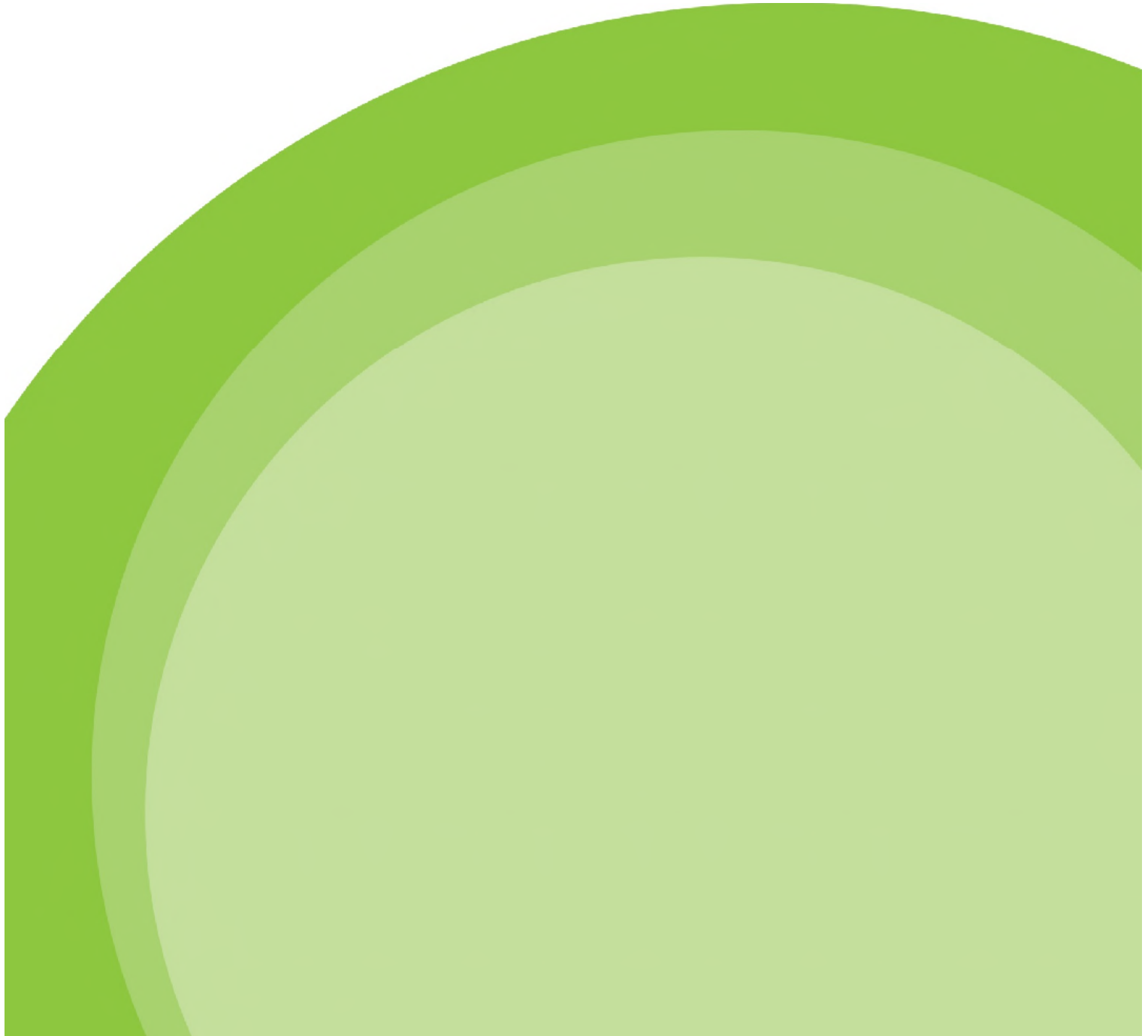


Development gain and economic benefit from East West Rail

July 2017



Central Bedfordshire Council : Development Gain Study

1. Introduction

- 1.1 Central Bedfordshire Council commissioned GL Hearn, Capita Transport and LDA Design to consider the housing growth, property value uplift and wider economic benefits arising from potential transport investment in the areas of Sandy and Wixams/Stewartby.
- 1.2 This study is based on a theoretical scenario where the proposed East West Rail Link (EWR) central section runs through Central Bedfordshire with new stations to the north of Sandy and to the north or south of Wixams.
- 1.3 The proposed East West Rail Link (EWR) will significantly improve east/west public transport connectivity between Oxford to Cambridge also termed the Oxford to Cambridge arc. It also provides the potential to deliver a number of highly connected locations within Central Bedfordshire which will benefit from rail accessibility north / south (to London), as well as east / west. It is within this context that the study was commissioned.
- 1.4 The route of the EWR Central Section has yet to be finalised but one of the options is to bring the route via a new station at Wixams across the area to the north of Sandy in Central Bedfordshire. This is Central Bedfordshire Council's preferred option which opens up the potential for significant economic growth and could also deliver some of the areas housing requirements. It would also connect potential growth locations in Central Bedfordshire to key larger employment centres within the region and significantly improve public transport journey times. These are estimated as being some 21 minutes between Sandy and Cambridge; 8 minutes to Bedford / Bedford Parkway / Wixams station; 25 minutes to Bletchley (Milton Keynes); 45 minutes to Bicester and 60 minutes to Oxford.
- 1.5 As the preferred route and station locations for EWR Central Section remain under consideration, this Study looks in particular at the additional development and economic benefits which could arise from these potential station locations in Central Bedfordshire.

2. Executive Summary and Key Findings

- 2.1 As the specific infrastructure proposals do not represent committed investments at this point, there are a number of uncertainties and therefore a number of assumptions have been included within the Study. These have been formulated drawing on market analysis, a literature review and discussion with local property industry stakeholders.
- 2.2 Two rail station property influence zones are identified: a "premium zone" of approximately 800 meters distance from a station and a second wider zone, covering the area within a distance of approximately 3 km from a station.
- 2.3 Estimates of residential value uplift are inevitably sensitive to a number of other factors relating to the quality of development in the round including quality of place / environment, local employment opportunities / access to employment, Social and community infrastructure and amenities (including schools) and Green infrastructure.
- 2.4 For the purposes of this study these are assumed as 'constant' and would be delivered to a good quality in any new settlement that assumes a standard at least as good as existing settlements. Timely delivery of infrastructure and upfront place-making investment is a pre-requisite in all cases.

Sandy

- 2.5 Scenarios have been explored based on a EWR interchange station (replacing the existing station) to the north of Sandy. The house price uplift estimated to be generated by the EWR station is up to 20% (over and above baseline / business as usual growth). The analysis suggests the potential for stronger relative growth in Sandy compared to other locations.
- 2.6 Given the location of Sandy on the A1(M), potential EWR and Expressway, and taking into account the level of residential growth considered, there is anticipated to be demand for employment land proportionate to the scale of residential development across commercial, industrial and distribution sectors. This is anticipated to range from 35-100ha, dependent on the residential growth scenario considered. Significant economic benefits are associated with the delivery of new infrastructure and housing under growth scenarios at Sandy.

Wixams/ Stewartby

- 2.7 Significant growth is already planned at Wixams (up to 5,500 units) partly predicated around the introduction of a new north south Wixams rail station on the existing rail line (i.e. Thameslink).
- 2.8 Scenarios have been explored based on an EWR interchange either: at the currently planned station location or at a new location further south, directly south east of Stewartby, both maintaining a buffer around Houghton Conquest.
- 2.9 As a result of the EWR but even more significantly as an effect of the north south station at Wixams, there is for value uplift of 6-10%. This is largely driven by the premium zone proximity effect of residential to a new station, taking into account the current strength of prices relatively to local areas.
- 2.10 In terms of the overall benefits, little land is available for further development around Wixams station (beyond that allocated or permitted previously). At Stewartby there is considered to greater potential in terms of additional quantum however the total economic benefits associated with a station at this location are lower than that of Wixams.

3. Conclusion and Summary of implications

- 3.1 The report demonstrates that there is strong evidence that growth at these station locations would bring the added benefit of development gain from an uplift in property values. As Central Bedfordshire is located in the Oxford to Cambridge arc, the draft Local Plan reflects the potential opportunities that E/W rail would bring in terms of economic growth and housing delivery and identifies these locations albeit they are dependant on the provision of this key infrastructure. This approach aligns with the ambitions in the National Infrastructure Commissions Report. Going forward this evidence will be considered alongside other technical studies and tested through the Examination process.

Appendix A

Central Bedfordshire Development Gain Study

Final Report

May 2017



GL Hearn

Part of Capita Real Estate

Development gain and economic benefit from East West Rail in Central Bedfordshire

Central Bedfordshire

May 2017

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Quality Standards Control

The signatories below verify that this document has been prepared in accordance with our quality control requirements. These procedures do not affect the content and views expressed by the originator.

This document must only be treated as a draft unless it has been signed by the Originators and approved by a Business or Associate Director.

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Limitations

This document has been prepared for the stated objective and should not be used for any other purpose without the prior written authority of GL Hearn; we accept no responsibility or liability for the consequences of this document being used for a purpose other than for which it was commissioned.

1 EXECUTIVE SUMMARY

Introduction

- 1.1 Central Bedfordshire Council commissioned GL Hearn, Capita Transport and LDA Design to consider the housing growth, property value uplift and wider economic benefits arising from potential transport investment in the areas of Sandy and Wixams.
- 1.2 In particular this Study examines the potential benefits of new rail stations at a new settlement north of Sandy and at the wider area of Wixams as part of the Central Corridor of the East West Rail Link.

Context

- 1.3 The study is intended to inform the Central Bedfordshire Local Plan evidence base. The updated SHMA (2016) identifies an OAN for Central Bedfordshire of 32,000 dwellings. However, this is considered to be a baseline figure for Central Bedfordshire which may change following the proposals identified within the Housing White Paper (February 2017) to consult on a standardised methodology for calculating housing needs later this year.
- 1.4 The proposed East West Rail Link (EWR) Central Section will significantly improve east/west public transport connectivity within the District. It also provides the potential to deliver a number of highly connected locations within the District which will benefit from rail accessibility north / south (to London), as well as east / west.
- 1.5 The EWR Central Section will complete the Oxford to Cambridge link and therefore connect potential growth locations in Central Bedfordshire to key larger employment centres within the region. It will significantly improve public transport journey times, which are estimated¹ as being some 21 minutes between Sandy area and Cambridge; 8 minutes to Bedford / Bedford Parkway / Wixams station; 25 minutes to Bletchley (Milton Keynes); 45 minutes to Bicester and 60 minutes to Oxford.
- 1.6 A preferred route and station locations for EWR Central Section remain under consideration. This Study considers in particular issues related to the additional development and economic benefits which could arise from certain potential station locations in Central Bedfordshire

Key Findings

- 1.7 The specific focus of this Study is considering the potential associated with strategic infrastructure investment on development in Central Bedfordshire. The Study considers:
- the potential for additional housing growth;

¹ Based on alignment C (figs 3.1 & Table 3.2, Table 3.7 of Atkins 5 October 2015 report)

- the potential for an uplift in residential values;
- the scale of potential price uplift in proximity to stations;
- the potential for increased investment in non residential uses; and
- wider economic benefits related to transport investment.

- 1.8 Inevitably as the specific infrastructure proposals do not represent committed investments at this point, there are a number of uncertainties and a number of assumptions are necessarily included within the Study. These have been formulated drawing on market analysis, a literature review and discussion with local property industry stakeholders.
- 1.9 Two rail station property influence zones are identified: a “premium zone” of approximately 800 meters distance from a station (equivalent to around a ten minute walk); and a second wider zone, covering the area within a distance of c.3 km from a station. GL Hearn’s research indicates that an approximate 10% value uplift can be expected to arise from the enhanced accessibility for residential properties within the 800m walking zone (relative to values for similar properties elsewhere in the settlement).
- 1.10 More widely, the Study identifies the potential for value uplift (over and above the baseline) of 20% for the period up to 2036 – achieved for the years immediately prior to and up to 2-5 years after the operation of the EWR station at a new settlement location north of Sandy (a methodology note is provided later in this Executive Summary). Land to the north of Sandy is considered to have significant housing growth potential, exceeding 7,000 homes, taking into account its location and land promoted to date, as well as strong economic benefits. The potential for value uplift at Wixams or Stewartby is considered to be 6-10% under the same circumstances, where prices are already at a relatively premium within the local market. However the Study identifies that there is limited non-consented land in proximity to a potential station location at Wixams; whilst wider economic benefits associated with a station at Stewartby are the lower of the two options considered.
- 1.11 Estimates of residential value uplift are inevitably sensitive to a number of other factors relating to the quality of development in the round. These include:
- Quality of house building / stock;
 - Quality of place / environment including history / conservation / public realm;
 - Local employment opportunities / access to employment;
 - Road and rail accessibility;
 - Social and community infrastructure and amenities (including schools); and
 - Green infrastructure.
- 1.12 For the purposes of this study these are assumed as ‘constant’ and would be delivered to a good quality in any new settlement that assumes a standard at least as good as existing settlements. Timely delivery of infrastructure and upfront place-making investment is a pre-

requisite in all cases. Variations in the above – including enhanced rail access times beyond the study assumptions – could result in positive or negative variations on estimates.

- 1.13 It is reasonable to expect that enhanced rail connectivity will also help to sell homes and contribute to housing delivery rates. The Study has examined these issues. Baseline delivery rates are assessed as 150, 200 and 250 dwellings per annum (dpa) for low, moderate and high demand levels respectively in a Central Bedfordshire context. The Study identifies that achieving higher rates of delivery at a new settlement north of Sandy (over 350 dpa) would require a wider range of housing products to be delivered catering for a number of different market segments. This would require a broader range of organisations to be building homes. This might involve for instance:
- Direct commissioning of housing by Government/ HCA from construction firms;
 - Accelerated delivery of housing through use of offsite manufacturing and other modern methods of construction;
 - Support for small and medium-sized housebuilders, as well as the larger firms;
 - Self- and custom-build development through provision of serviced plots;
 - The Council itself potentially taking a more proactive role in delivering new homes, such as through a Local Housing Company or other form of Special Purpose Vehicle.
- 1.14 This would be critical to drive the sorts of delivery rates which might be necessary to support major strategic development around Wixams/Stewartby and at a new settlement north of Sandy as contemplated. The key issue which arises in achieving this is perhaps one of land ownership; and the potential for public control of the land or at the very least very close joint working with an experienced master developer.
- 1.15 To maximise delivery rates, and support the deliverability of major strategic growth, it will be important that these issues are carefully considered. Given the lack of examples of sites achieving this (beyond historically at new towns through a development corporation model), we can only present indicative scenarios which might – in theory – be achievable.
- 1.16 At Wixams and Stewartby, the Study concludes that delivery rates of up to 250 dpa (over and above that on sites already consented) could be achievable, supported by a new rail station.
- 1.17 Additional retail, leisure development and local service provision is considered likely to be in line with current provision in reasonably sized town centres in Central Bedfordshire. The literature review and discussions with property agents suggests that there is relatively little potential value uplift associated with retail and services at local stations that are outside of major cities.
- 1.18 A new settlement at land north of Sandy is anticipated to have potential for employment growth, reflecting the size of potential settlement and connectivity by both road and road. Wixams / Stewartby already have planned employment growth in the locality.

- 1.19 The assessment of economic benefits in the report is based on the guidance contained within DfT's WEBTAG. The approach in determining the level of benefits has been reviewed with Network Rail.

Land north of Sandy

- 1.20 Scenarios have been explored based on a EWR interchange station (replacing the existing station) to the north of Sandy, facilitating housing growth of potentially 7,000, 15,000 or 20,000 homes in a new settlement maintaining a gap with Sandy existing.
- 1.21 The house price uplift estimated to be generated by the EWR station is up to 20% (over and above baseline / business as usual growth). Our analysis suggests the potential for stronger *relative* growth in the new settlement at land north of Sandy compared to other locations. Within this, we identify the potential for a 10% house price premium within 800 metres of the station (this premium is not additional to the 20% uplift but embedded as a driver within this figure).
- 1.22 Given the location of the new settlement on the A1(M), potential EWR and Expressway, and taking into account the level of residential growth considered, there is anticipated to be demand for employment land proportionate to the scale of residential development across commercial, industrial and distribution sectors. This is anticipated to range from 35-100ha, dependent on the residential growth scenario considered and taking into account a proportionate take up rate over the long term anticipated completion dates for the settlements as a whole (beyond 2040 as a minimum).
- 1.23 Significant economic benefits ranging from £154m to £224m are associated with the delivery of new infrastructure and housing under growth scenarios for a new settlement at land north of Sandy.

Wixams/ Stewartby

- 1.24 Significant growth is already planned at Wixams (up to 5,500 units) partly predicated around the introduction of a new north south Wixams rail station on the existing rail line (i.e. Thameslink).
- 1.25 Scenarios have been explored based on an EWR interchange either: at the currently planned station location, potentially achieving an additional 2,800 homes; or at a new location further south, directly south east of Stewartby, achieving an additional 8,300 homes, both maintaining a buffer around Houghton Conquest.
- 1.26 As a result of the EWR but even more significantly as an effect of the north south station at Wixams, there is for value uplift of 6-10%. This is largely driven by the premium zone proximity effect of residential to a new station, taking into account the current strength of prices relatively to local areas.

- 1.27 In terms of the overall benefits, little land is available for further development around Wixams station (beyond that allocated or permitted previously). At Stewartby there is considered to greater potential in terms of additional quantum however the total economic benefits associated with a station at this location are lower than that of Wixams, being £90m and £108m respectively.
- 1.28 Delivery rates under either scenario need to take account of the significant planned growth at Wixams and in the wider Marston Vale area. On this basis provision of 250 dwellings per annum over and above existing consented schemes is assumed.

Value Uplift Estimation

The approach is summarised as follows:

Step 1. Assessment of the current market activity

Step 2. Estimation of baseline growth: this is based on a 10 year historic trend. This period is considered to reflect the most realistic impact of a complete property and economic circle. In particular, the period between 2007 and 2016 - covering recession and recovery of the market - has been used.

- The potential settlement north of Sandy is projected to have a baseline annual growth rate similar to the Central Bedfordshire's annual rate. The borough level rate is chosen for two reasons: a) Sandy's house prices currently are similar to the borough average; and b) long term data is available at the borough level.
- Wixams / Stewartby baseline growth is estimated based on Bedford Borough's annual growth rate. Although part of Central Bedfordshire, Wixams' housing market correlates more closely to Bedford's.

Step 3. Estimation of EWR driven growth: The approach considers a growth projection using EWR drivers based on the baseline growth of settlements with similar accessibility context.

- The potential settlement north of Sandy is projected to have an EWR driven growth rate increased to a level towards key benchmarks derived principally from the Cambridge connectivity (e.g. Royston, prices 25% above Sandy) and acknowledging Sandy's incorporation into the London – Cambridge corridor, alongside triangulation against a number of other station settlements of similar proximity to London. There is also anticipated to be an effect of the new Oxford – Cambridge corridor, although this remains less readily quantifiable at this time. Through this overall approach a 20% uplift on top of the baseline is expected, nearing but not reaching the benchmark, achieved between the years approaching the station opening and between 2-5 years after the completion of EWR (up to 2036).
- Wixams / Stewartby growth is initially driven by the completion of a north south (Thameslink) station which has been proposed but not implemented to date, thus capping current prices. Once the station is delivered there is an anticipated 3-5% uplift in the wider station catchment zone, principally driven by the premium effect of the station accessibility. On top of this uplift a further 3-5% is anticipated once EWR is operational, providing four-direction accessibility in the heart of the Oxford – Cambridge corridor.

Step 4. Sensitivity statement: The estimated development value uplift is based on the infrastructure as proposed, the best judgement and the most up-to-date evidence at the time of writing. House prices are affected by a variety of parameters and factors as noted in this report. As a result these estimations should be used cautiously. Change in one parameter (i.e. change in journey times, new infrastructure improvements, variation in quality of place) could lead to improvements or underperformance against the forecasts.

- 1.29 It should be highlighted that this report contains illustrative and notional plans. None of the boundaries presented on this study imply decisions on location preferences or individual proposals but relate only to the purpose of a theoretical exercise.

2 INTRODUCTION

- 2.1 Central Bedfordshire Council commissioned GL Hearn, Capita Transport and LDA Design to consider the growth, property value uplift and wider economic benefits of potential transport investment at land north of Sandy and the wider area of Wixams.
- 2.2 In particular this relates to the potential benefits of new rail stations at a new standalone settlement north of Sandy and in the wider area of Wixams as part of the Central Corridor of East West Rail Link.
- 2.3 This study supports the preparation of the Central Bedfordshire's Local Plan that covers the period between 2015 and 2035.
- 2.4 The key factors considered are:
- potential for additional housing growth;
 - potential for value uplift;
 - rail accessibility influence on price uplift by proximity zones;
 - potential for increased investment in non residential uses and;
 - wider economic benefits related to transport investment.
- 2.5 The report is structured in the following way:
- Chapter 3: Context: Housing and Infrastructure in Central Bedfordshire
 - Chapter 4: Literature Review: Property Values and Infrastructure
 - Chapter 5: Approach
 - Chapter 6: New settlement north of Sandy
 - Chapter 7: Wixams
 - Chapter 8: Conclusions

3 CONTEXT: HOUSING AND INFRASTRUCTURE IN CENTRAL BEDFORDSHIRE

- 3.1 This section sets out the context in terms of local housing need and potential infrastructure investment in Central Bedfordshire.

Policy Drivers

- 3.2 Central Bedfordshire Council was formed as a unitary authority in 2009. The Council is currently preparing the new Local Plan covering the period between 2015 and 2035. Certain planning policies of the Mid Bedfordshire and South Bedfordshire Local Plans were saved in 2008 and continue to be part the Council's Development Framework. In time these will be superseded by the new Local Plan.

SHMA and SHLAA

- 3.3 The updated SHMA (2016) identifies an OAN for Central Bedfordshire of 32,000 dwellings. However, this is considered to be a baseline figure for Central Bedfordshire which may change following the proposals identified within the Housing White Paper (February 2017) to consult on a standardised methodology for calculating housing needs later this year.
- 3.4 The Council's Strategic Housing Land Availability Assessment (SHLAA) identifies the theoretical capacity of the District for residential development. It does not however consider cumulative impacts, nor make decisions regarding which sites are suitable for allocation. The 2014 SHLAA showed a potential capacity for 31,377 dwellings over the period 2011-31. The SHLAA suggested that around 40% (12,700 homes) are deliverable within the first five years of the plan period and a further 48% (15,000) were considered developable and could in theory be delivered between years 6 and 10.
- 3.5 Based on the 2014 SHLAA, around 2,200 homes were considered deliverable and developable around Sandy and Biggleswade for the whole planning period (2011-31). The SHLAA included all the allocated sites at Wixams (HT116-8²). These sites collectively could deliver a total of 3,750 homes.

Call for Sites

- 3.6 The Council completed a second round of Call for Sites exercise in Spring 2016. This study has considered submitted sites around the areas of Sandy, Biggleswade and Wixams.
- 3.7 Aggregated submissions for the three study areas incorporate:
- 470ha housing-led development proposals north of Sandy;
 - 380ha housing-led development proposals east of Biggleswade; and

² Available at page 3 of http://www.centralbedfordshire.gov.uk/Images/appendix-2_tcm3-6880.pdf

- 420ha housing-led development proposals around Houghton Conquest south of Wixams.

3.8 This Call for Sites exercise points to additional development potential at these locations over and above that identified in the 2014 SHLAA.

North Central Bedfordshire Growth Options Study

3.9 Central Bedfordshire Council commissioned LUC to prepare the North Central Bedfordshire Growth Options Study in 2016. This considered options to meet housing need in the North of Central Bedfordshire, focusing on 30 potential sites for strategic scale housing, drawing on locations identified through the call for sites and SHLAA process and then grouped together. Each location was assessed taking into account deliverability, viability, environmental constraints and accessibility. Sandy, Biggleswade and Wixams are all identified as potential growth locations within the Growth Options Study.

Transport and Development

3.10 Central Bedfordshire Council is currently well connected with major north-south routes both road with the M1 and A1, and rail with the West Coast Main Line, Midland Main Line and East Coast Main Line. Nevertheless there is no effective means of travelling east to west by rail and there are parts of the road network requiring improvement. These include the East West Rail (EWR), proposed by Network Rail, and provision of the Oxford to Cambridge Expressway, proposed by Highways England, which would provide Expressway standards of the A421 / A428 across Central Bedfordshire from M1 Junction 13 to Cambridge. In addition there are plans to improve the A1 through Central Bedfordshire.

3.11 The National Infrastructure Commission undertook a study of the Cambridge – Milton Keynes - Oxford corridor and in particular the role of infrastructure in the housing and jobs market. It identified a lack of suitable housing and poor east west connections as potentially holding back the area and thereby the need to have a joined up plan for housing, jobs and infrastructure. To address these issues it identified infrastructure improvements including improved east to west transport links including both road and rail.

Rail Infrastructure Baseline

3.1 Table 1 shows the current rail services from key locations in the Study Area. It also shows the level of daily trips to work from Sandy and Cambridge across the east – west corridor, drawing on data from the national travel survey (2011 census).

Table 1: Existing Rail Services and Trip Levels

	Travel into London		Daily rail trips to/from Sandy		
	Frequency (AM Peak period 07-10:00) per hour	Journey time to London	Journey time by train to Sandy	Actual number of rail trips	Daily trips to / from Cambridge ³
Milton Keynes / Bletchley	6	35-60 mins	120 mins	0	161
Bedford	10	40-60 mins	120 mins	7	143
Flitwick (South of Wixams)	4	45-60 mins	110 mins	0	
Cambridge	4 (3 to Hitchin)	50-85 (38-45 mins to Hitchin)	70 mins	2	
Sandy	3	48-60			

- 3.2 There are a combination of frequent slow and fast connections into London from Milton Keynes, Bletchley, Bedford and Cambridge with journey times of between 35 and 60 minutes. Sandy is served by the local service between Peterborough and London. A new station south of Bedford, in the vicinity of Wixams, is likely to be served by the same Thameslink services as at Flitwick to the south. Connections between these towns by rail need to be made via London (except Cambridge to Sandy via Hitchin) and hence journey times are long.
- 3.3 There are almost no rail trips from Sandy to Milton Keynes, Bedford and Cambridge. However, there are a small number of trips from Cambridge to Bedford / Milton Keynes.
- 3.4 Analysis of rail trip data shows that the majority of rail trips (70%) from the Sandy area are to London. From Houghton Conquest near to Wixams, south of Bedford, this rises to some 83%. Most of the remaining rail trips from these locations are making trips within their respective north - south corridor.
- 3.5 According to the national travel census for Central Bedfordshire 9% of journey to work trips are made by train and 8% by walk or cycle with virtually all of the remainder by private modes – car and motorcycle. Private modes can be expected to provide for virtually all trips on the east west axis, along the A421 / A428, between Cambridge, Sandy, Bedford and Milton Keynes / Bletchley. Current distances and estimated journey times from Sandy to these towns are shown in Table 2.

Table 2: Journey characteristics from Sandy by Road

	Distance (Kms)	Journey time (mins) ⁴
Cambridge	38	36
Bedford	18	17
Bletchley	44	33

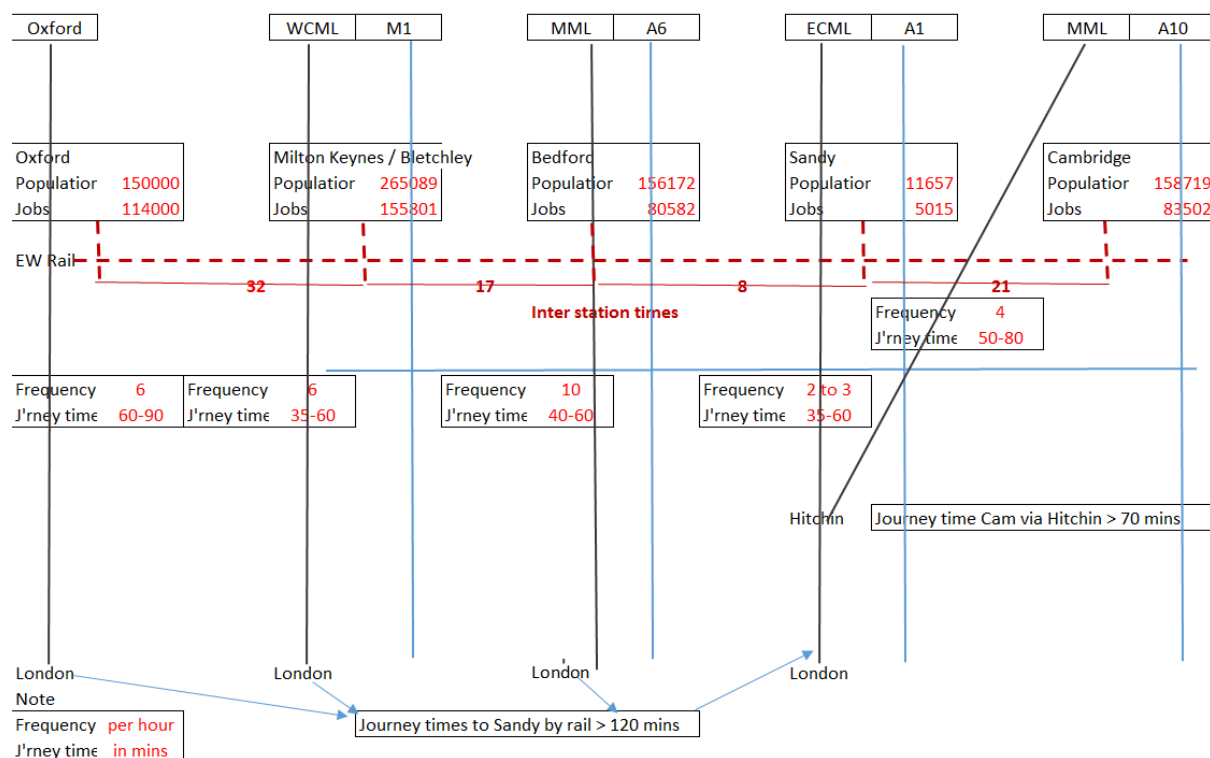
³ Atkins East West Rail Central Section Phase 2B report, Table 4-1

⁴ In relatively free flow conditions

- 3.6 The above table shows that the nearby towns to Sandy are relatively accessible in terms of both journey distances and travel times, although congestion and time associated with parking etc has not been included. The area around Wixams is also adjacent to the A421 corridor and would be similarly accessible by road to the major towns on this east to west axis.
- 3.7 Rail travel in the UK needs to be seen in the context of recent and future growth in travel demand. Travel by rail has been growing at 3.5% per annum on services into Kings Cross since 2000 (source GTR 2018 Timetable Consultation) and is expected to continue to grow into the near future. This will result in pressure on existing levels of service and increase the need to invest in new track, services and rolling stock. This is reflected in Thameslink proposals to provide additional services from Peterborough into London stopping at Sandy and Biggleswade from 2018.

East West Rail

- 3.8 The development of the EWR is predicated upon good connections with other major railways including the West Coast Main Line, Midland Main Line and East Coast Main Line. It will provide a strategic route connecting Oxford to Cambridge and beyond with stations including at Sandy in proposed location to the north of the existing settlement. This will significantly enhance connectivity and improve journey times for users within the corridor. The travel times (station to station times only) would be some 21 minutes between Sandy (new station) and Cambridge, 8 minutes to Bedford or a Bedford Parkway station, such as in the vicinity of Wixams, 25 minutes to Bletchley and 56 minutes to Oxford. These are significant improvements over the 70 minutes from Sandy to Cambridge and 120 minutes to the other places currently experienced via London. Journey times from a Bedford Parkway station will also significantly improve with a station to station time to Bletchley of 17 minutes, 29 minutes to Cambridge and 48 minutes to Oxford. These are illustrated in Figure 1.

Figure 1: Journey time improvements - EWR

3.9 There is currently no preferred route for this East West Rail proposal and therefore no defined station locations. However, a number of broad corridors were assessed and evaluated in reports by Atkins 'East West Rail Central Section Phase 2A' report ("Atkins Phase 2A") and ("Atkins Phase 2B" reports) and illustrated in Jacobs 'East West Rail Central Section Engineering Summary Report' February 2016 ("the Jacobs report"). These reports relate only to the Central section as the Western section is more advanced and subject to separate analysis

3.10 In the Atkins Phase 2A report a number of alternative corridors were assessed. Option C had the highest ratio between benefits and costs (BCR) and was assessed in Atkins Phase 2B report against Option M which had the next highest BCR. The results are shown below in Table 3. Option C and D would serve Sandy.

Table 3: Results of Cost Benefit studies undertaken by Atkins for Network Rail

Option	Station Stops – route	Phase 2A	Notes	Phase 2B
		BCR		BCR
C	Bedford – Sandy - Cambridge	1.82		1.24-1.70
D	Bedford – Sandy -Hitchin – Cambridge	1.30	It was noted that options via Hitchin, whilst picking up additional benefits eg Luton to Stevenage, tended to compromise the key benefits between Oxford – Bedford- Cambridge	
M	Bedford – Hitchin - Cambridge	1.58		0.92-1.19
N	Ridgmont – Harlington – Hitchin – Cambridge	1.32		
H	Stewartby - Luton – Stevenage – Hitchin - Cambridge	0.92		

- 3.11 From this assessment Option C was preferred as a direct option via Sandy (new location) as it clearly provides the greatest benefits for all rail users in the East – West corridor. Four further alternative options were assessed as shown below as part of the development of Option C.

Table 4: Results of Cost Benefit studies for Option C alternatives undertaken by Atkins for Network Rail

Option	Station Stops – route	PVB	PVC	BCR
		£ billions		
C1-1	Bletchley – Bedford St Johns – Sandy – Cambridge	4.4	2.8	1.58
C1-8	Bletchley – Bedford Midland – Sandy – Cambridge	4.5	3.2	1.4
C1-9	Bletchley – Bedford Midland – Sandy (North of Tempsford)- Cambridge	4.4	3.6	1.24
C2-2	Bletchley – Bedford South Parkway – Sandy – Cambridge	4.8	2.8	1.7

- 3.12 There is not a great deal of difference in the benefits of each option, but those via Bedford Midland are more expensive and therefore have much lower BCR's. The best performing option is C2-2 via a Bedford South parkway station.
- 3.13 Three different Bedford station options were assessed including Bedford St Johns, Bedford Midland and Bedford South Parkway. The working assumption of the latter was that it would be located where the East West Rail corridor crosses the Midland Main Line, either near the A421 or in the vicinity of the planned development at Wixams. There was no evaluation in the reports assessing the differences in benefits between the Bedford South Parkway station options.
- 3.14 A Bedford Parkway station would lead to three impacts. Firstly existing rail users may find it more attractive than using Bedford Midland or Bedford St Johns stations avoiding travel into the town centre. Secondly it would be attractive to park and riders on the A421. Thirdly the developments in the area would provide a third source of patronage. A Parkway station nearer to the A421 is likely to be more effective in attracting the first two types of users than a location associated with developments further south which would not have the same level of road accessibility. It is likely that parking in association with a new Parkway station would be extensive.
- 3.15 The Sandy station (Options C1-1, 1-8 and 2.2) is noted in the Phase 2B Atkins report, P33 as being “*either at the existing location or at the northern boundary of the existing Sandy built up area*”. For Option C1-9 it is located further north between St Neots and Sandy. For Options C2-2 this is reported differently within the Jacobs report, P11 and the figure in appendix C, where option C2-2 is shown to be south of Sandy. From discussions with Network Rail we understand that option C2-2 was intended to be south of Sandy.
- 3.16 There is no evaluation in the report as to which is the best Sandy station. Network Rail has confirmed that the analysis is not fine enough to differentiate between the Sandy locations. Also the level of traffic to Sandy would be modest compared with travel to and from larger

towns eg Cambridge and Bedford. Hence the level of differences in calculated benefits between the different Sandy locations may not have been measurable and or significant within the modelling exercise undertaken.

- 3.17 It is noted thought that in the Phase 2b Atkins report, P 33 *“Sandy is identified as one of the key growth towns, expanding to the north and east of its existing footprint. Should such development materialize, a northern Sandy station location could be at the geographical centre of this enlarged Sandy.”*
- 3.18 The analysis undertaken by Atkins calculated the wider economic benefits (WEB) of the East West Rail Link Central section using the standard DfT WEBTAG approach. The above benefits of £4.8 bn (C2-2) includes for the wider economic benefits relating to the fact that improvements in journey times makes businesses more productive (“agglomeration benefits”), improves economic output and decreases costs to workers. The total wider economic benefits account for about 20% of the total benefits and for Central Bedfordshire are estimated at some £75m; and £54m for Bedford. These are total benefits discounted over a 60 year period. The Central Bedfordshire wider economic benefits are assumed to principally relate to the station at Sandy as there is no other part of the district which would benefit to the same extent from the central section of EWR. The wider economic benefits in Bedford will relate to the new station on the Midland Main line wherever it is located including a Bedford South Parkway option in the vicinity of Wixams.
- 3.19 Central Bedfordshire will also benefit from the development of the Western section of the EWRL. The Western section uses the Marston Vale line, which currently has local services running between Bedford and Bletchley, and the EWRL service pattern would include a stop at Ridgmont. This would improve accessibility and connectivity to Ridgmont providing benefits to existing residents and businesses and providing opportunities for further economic development in this part of Central Bedfordshire.

A1 Improvements

- 3.20 The DfT’s Road Investment Strategy: 2015/16 – 2019/20 Road Period, sets itself a number of key goals including developing infrastructure which drives local economic activity including new housing and business development. Such investment could play a key role in unlocking access to new housing development. The A1 East of England Strategic Study Stage 3 report assesses a number of options including an off line improvement to motorway standard (Package A) which could deliver the potential for major new settlements or urban extensions. The costs of the improvements of the route from M25 to Peterborough range from £1.69bn (motorway standard route) to £0.63bn (local improvements).
- 3.21 For local benefits, the key is accessibility to the improved infrastructure; and in contrast a motorway standard A1 could reduce the number of junctions compared with the existing A1. In effect, delivering a high quality strategic road through the area will not necessarily deliver

local road network improvements to support new development beyond the reduced existing congestion on the A1. Accordingly there would be benefits to Sandy from a motorway standard route on a new alignment from both reduced traffic levels on the existing A1 which would improve access for existing users and also for use of a high quality road assuming a connection to this infrastructure. Any negative environmental effects are not considered here.

Oxford to Cambridge Expressway

- 3.22 The Governments Road Investment Strategy for the Strategic Road Network ("SRN") for the period 2015 to 2020 identifies the existing weak connection between Oxford, Milton Keynes and Cambridge and the need for an Expressway that connects the three settlements to help promote knowledge-based economic growth.
- 3.23 It is anticipated that existing roads will form much of the Expressway; however gaps along the network need to be addressed, particularly the section between the M1 near Milton Keynes and the M40 which is subject of a strategic study This would complement other national infrastructure projects including East West Rail (EWR).
- 3.24 Within the Study Area, the Expressway passes through the northwest part of Central Bedfordshire. In particular it passes from the M1 (J13) near Brogborough along A421 to Lower Shelton, towards Bedford, and the A1(M). The Road Investment Strategy includes improvements from the Black Cat roundabout (A421 / A1) to Caxton Gibbet on A425 where it would connect to the existing dual carriageway road into Cambridge. These improvements are currently being consulted on by Highways England and include grade separation works at the Black Cat roundabout and a new alignment eastwards for 18 kms to the dual carriageway section into Cambridge. Highways England in their consultation document estimate that current journeys along this stretch of road between the Black Cat roundabout and Caxton Gibbet on A425 takes an extra 16 minutes longer in the morning and 12 minutes longer in the evening than the standard journey. With a higher standard route, than the existing A425, then journeys between Sandy and Cambridge would save some 20 minutes compared with their existing journey.
- 3.25 The provision of an expressway route to fill the gap between Milton Keynes and Oxford is likely to result in at least similar journey time savings for traffic between Sandy and Oxford.

Summary

- Based on the published Strategic Housing Market Assessment for Central Bedfordshire (2016) the Full Objectively Assessed Need for Housing in Central Bedfordshire was 32,000 dwellings which may change as a result of future methodology standardisations contemplated in the Housing White Paper (2017).
- Sandy is presently connected to London with a c50 minute journey time by rail. There is no station to serve the Wixams or surrounding area currently.

- The proposed East/West Rail Central Section could potentially deliver new stations at Sandy (or in area north of the existing settlement) and to the south of Bedford (Bedford Parkway), potentially in proximity to Wixams or Stewartby, albeit that there are other route options under consideration. It is envisaged that stations would provide an interchange between the new East/West Rail Line and the East Coast and Midland Main Lines, providing both north/south and east/west connectivity.
- East/West Rail would significantly improve journey times to major existing employment centres in the region, such as Cambridge and Milton Keynes. Journey times would potentially be 21 minutes between Sandy and Cambridge, 8 minutes from Sandy to Bedford or a Bedford Parkway station, and 25 minutes to Bletchley. A preferred route and station locations for EWR remain under consideration.
- There are road network improvements under consideration including for the A1(M) and the East West Expressway, which could generate useful journey time savings. However these are unlikely to have significant effects locally upon the scale or pace of development which can be achieved within Central Bedfordshire.

4 LITERATURE REVIEW: PROPERTY VALUES AND INFRASTRUCTURE

- 4.1 GL Hearn has undertaken a literature review as part of this Study to consider property market impacts associated with major infrastructure investment. We review studies which have considered such issues previously, including key case studies related to the impacts and relationships between property values and rail infrastructure improvements.
- 4.2 The evidence reviewed considers both forecast property market impacts, and in some cases a post-delivery impact analysis. Where available a comparison between these is presented.
- 4.3 There is no single accepted approach or methodology for estimating the value changes related to transport improvements. This reflects the complexity of property markets and the variety of factors that actually influence them. This includes local economic performance, macro-economic dynamics, planning policy and land supply in addition to transport infrastructure improvements, making it difficult to isolate the impact of transport investment. The evidence presented in this section should be considered with this in mind.
- 4.4 This section aims to provide an overview of existing studies which have considered how transport investments affect the property market. It reviews in particular the delivery of High Speed 1 domestic services; Crossrail 1, and the Borders Rail Line in Scotland, as key recent new rail schemes in the UK.

High Speed 1

- 4.5 High Speed 1 (HS1) is one of the most helpful case studies as it provides opportunity to assess both the forecast and post-completion impact assessments and compare their findings.
- 4.6 Colin Buchanan completed a Study in January 2009 on the Economic Impact of High Speed 1, considering the economic impact of domestic services on the High Speed 1 line to Kent (Southeastern High Speed services).⁵ These services began running in June 2009. The Colin Buchanan Study identified that regeneration impacts could be expected in the vicinity of stations. In particular, the value of the housing stock around stations was expected to increase by between 0.1 and 14.4 per cent, with the largest impacts seen around Ebbsfleet Station (5.7 – 14.4% price growth expected). Ebbsfleet in particular was expected to see transformational change in accessibility, in that previously there were no domestic services towards London; and it was expected to see a very fast rail service. Beyond this, the greatest impacts were expected in Ashford, as the town was expected to see some of the greatest journey time improvements to London (from c. 80 to 37 mins), with the Study anticipating

⁵ Colin Buchanan and Volterra (2009) *Economic Impact of High Speed 1 Final Report*. London: London & Continental Railways

price growth of 0.4 – 7.5%. It did however identify that significant effects were expected all along the route.

- 4.7 Atkins first interim post evaluation report in 2013⁶ revealed that there had been only average growth in residential values in areas served by HS1 domestic highspeed services, with house price growth in line with that seen nationally. It did not point to specific evidence of house price increases resulting from the enhanced accessibility.
- 4.8 The study used a triangulated approach to estimate the regeneration impacts which combined primary and secondary research of key stakeholders and businesses alongside analysis of business rates, commercial take-up and house prices data (at local authority level) for three comparable corridors. These included Corridor M11 towards Cambridge; Corridor M1 towards Milton Keynes and Corridor A12 towards Chelmsford and Colchester.
- 4.9 The catchment area used to assess the house price uplifts was a 2km buffer zone around five stations - King's Cross & St. Pancras; Stratford; Ebbsfleet; Ashford; and Ramsgate.
- 4.10 The average house price within the catchment of Ebbsfleet Station had remained stable between 2010 and 2013. In contrast there had been a 50% increase at St. Pancras and 21% in Stratford International. For the same period, there was 7% increase in Ashford and 9% in Ramsgate. These compared with price growth nationally of 17% over this period (2010-13).
- 4.11 The stock of housing increased by 2.4% in the HS1 Corridor between 2009 and 2012. This is higher than the stock growth seen in the A12 Corridor (1.6%) but lower than that in the M11 Corridor (2.9%) and M1 Corridor (2.7%), according to DCLG statistics.
- 4.12 The Study found that house prices had only increased in line with the national average in the HS1 Corridor between 2010-13, with the rate of price growth below the rate of growth in two of the three Control Corridors, although stakeholders and businesses perceived there to have been a positive impact arising from the enhanced rail accessibility.
- 4.13 Stakeholder interviews undertaken as part of the Atkins Study identified positive impacts in the housing market in Kent. However this was not shown by the secondary data analysis. The Study suggested that impacts may have occurred across a larger spatial area, particularly for stations that attract commuters from an area beyond 2 km.
- 4.14 It should also be noted that the secondary data analysis related to the 2009-13 period, when external factors such as the economic downturn influenced market activity and price growth. In GL Hearn's view, the time period considered in this Study was relatively short and coincided with a period of weak housing market conditions. We consider that in 2013 it was

⁶ Atkins (2013) *First Interim Evaluation of the Impacts of High Speed 1 Final Report Volume 1 – Main Report*. London: DfT

in effect too early to have seen a noticeable price impact arising from the improved connectivity; and that market trends between 2010 and 2013 would have been substantively impacted by wider housing market conditions. The implication of this is that it would be reasonable to assess market impacts arising from improved accessibility over a longer period, such as 10 years. Further monitoring is required to provide more robust evidence.

- 4.15 The implementation of HS1 has however been shown to have contributed positively towards objectives for economic development and regeneration; while the infrastructure has played a key role in bringing forward land for development as well as tackling the lag between strategic planning and investment decisions which had previously delayed regeneration.

Crossrail 1

- 4.16 GVA investigated the property impacts of Crossrail 1 (now known as the Elizabeth Line) in 2012. Full services are due to be running through Central London in 2019.
- 4.17 The GVA Study found that the delivery of the Crossrail line can be expected to support the development of more than 57,000 new homes and 3.25 million square meters office floorspace within 1 kilometre of stations across the route, which stretches from Abbey Wood in South East London and Shenfield in Essex through London to Heathrow and Maidenhead in Berkshire.
- 4.18 The Study found that office values around the Central London Stations were expected to increase up to 10% over the coming decade. The residential values around the stations were expected to increase between 20% and 25% above the baseline projections for both central and suburban areas. This in effect describes the value uplift expected over and above what might have been anticipated without the delivery of Crossrail 1. In addition the Study indicated that Crossrail had support investment interest: investors suggested that the infrastructure had changed their investment decisions and it had already been used in marketing material.
- 4.19 The impacts estimated for each area differed based on the wider context. For instance in central London, Crossrail was expected to reinforce the demand for office space around the stations. However in sections outside of Central London, it was expected to primarily impact on the residential market.
- 4.20 In 2014 GVA undertook a Crossrail Development Pipeline Study⁷ to investigate the potential quantum of investment around the Crossrail stations. The findings suggested there has been an increase of 48% in planning applications (residential, commercial and mixed use) between 2009 and 2013 citing Crossrail as a key factor influencing the investment. Clearly

⁷ GVA (2014) Crossrail Development Pipeline Study

this highlights the impact which enhanced rail connectivity can have in supporting development and investment activity.

- 4.21 The GVA Development Pipeline Study found that the areas with the highest impacts on the property market were those that had already a planning framework in place for development/regeneration such as Stratford, Canary Wharf and Custom House. The central areas with well-established office markets like Liverpool Street and Canary Wharf had seen the highest increase in office development activity. Areas like Woolwich and Southall had seen substantial increases in their residential floorspace pipeline. These are influenced in part by land availability.
- 4.22 Finally it should be noted that some areas where a higher pace of development was initially predicted have not as yet performed as expected. In particular the GVA Study in 2012 suggested that Crossrail was expected to provide a significant spur to property market activity in a number of areas which were identified as 'Places to Watch'. Abbey Wood, Slough, Ealing Broadway and Whitechapel were identified among other locations as such; with significant levels of development expected up to 2021. However the findings of the GVA 2014 Development Pipeline Study indicate that these have not performed (as yet) as expected.

Scottish Borders Railway

- 4.23 The Borders Railway opened in September 2015 with the new rail line running from Tweedbank to Shawfair, providing new services through this area to Edinburgh Waverley. The railway crosses through Scottish Borders and Midlothian Councils and connects communities through to the Scottish Capital.
- 4.24 In late 2015, Registers of Scotland⁸ published the only currently available data on changes in residential values relating to the Borders Railway. The catchment area used in this analysis was a 5 miles radius of the new rail stations.
- 4.25 In terms of residential transaction volumes there has been an increase of 50% in the Midlothian catchment and 26% in the Scottish Borders catchment zone since 2012. This is less than the respective local authority averages of 60% and 30% for the same period. The equivalent for Scotland as a whole for the same period is 28%.
- 4.26 Since 2006 when the delivery of the new rail line was announced, the house prices in Midlothian catchment area have been increased by 6% while the local authority's equivalent for the same period is 13.4%. House prices have been increased by 4.5% in the Scottish Borders' catchment area while the local authority's equivalent for the same period is 9.5%.

⁸ Registers of Scotland (2015) *Borders Railway Housing Market Impact still awaited*, Registers of Scotland is the non-ministerial government department responsible for compiling and maintaining 17 public registers including the Land Register of Scotland where this information has been based on.

4.27 The findings suggest that the house prices have been generally unaffected; while the quantum of transactions has increased around the stations but not beyond and above the wider local authority and national benchmarks.

4.28 Fundamentally is however probably too early to draw firm conclusions on how the infrastructure has impacted the housing market, considering that the Railway opened a year ago. There is need to revisit the statistics on property market impacts in the longer-term.

Summary Points

4.29 There are relatively limited recent examples of assessment of the property market impacts of major new infrastructure investment. **Table 5** summarises the findings of the literature review.

Table 5: Property value Impacts

Case	Authorship	Key findings
HS1 Forecasted impacts	Colin Buchanan (2009)	Residential house price increase 0.1-14% with largest forecasted Impacts around Ebbsfleet and Ashford stations
HS1-Post assessment	Atkins (2013)	Average house price uplift in line with national levels. More significant in London (Stratford) rather than rural areas.
Crossrail1 Forecasted Impacts	GVA (2012)	2012-2017 – During Construction: 2-3% residential uplift and 0.5-1.5% office uplift 2018+ (after completion): 3.5-4% residential uplift and 0.5-3% office uplift In the outer sections, inner zones of influence tend to lag behind the larger outer and extended zones. This reflects the adverse amenities perceptions commonly associated with proximity in rail stations of suburban/rural areas such as noise, parking approaches and surplus rail land.
Scottish Borders Railway – Post Assessment	Registers of Scotland (2015)	Average house prices remained largely unaffected. The volumes of sales were increased between 2012 and 2015 around the stations but not beyond the local authorities and Scotland's equivalents.

4.30 GL Hearn considers that caution should be applied in seeking to apply assumptions from property market impacts of transport investment within London to Central Bedfordshire, where there is both significantly higher public transport capacity, usage and higher service frequencies than can be expected in other areas. Outside of London, there are limited wider examples – our analysis has however focused on these.

- 4.31 One of the particular limitations of a number of the existing studies, in our view, is that they have sought to measure local level property market impacts over the immediate few years after the opening of a new rail line. Over this time period it is very difficult to disaggregate a discernible property market impact on the investment, set against wider property market dynamics, recessionary influences on the market etc. We consider that it would be more reasonable to seek to measure impacts over a period of 10 years or more (post completion).
- 4.32 Whilst the evidence of value uplifts arising from transport investment is mixed, existing studies (including in regard to both the domestic HS1 services and Crossrail) do point to the new infrastructure investment spurring development and investment activity.
- 4.33 One of the factors which is apparent from the review of existing studies is that the market impacts of new development are expected to be particularly on the residential sector. Outside of London, the studies considered do not point to a particular effect on commercial property (B-class, retail/ leisure etc.).
- 4.34 The catchment zones or zones of influence considered in previous studies, in terms of uplifts in residential or commercial values around stations, differ based on each location's context and characteristics. The Crossrail 1 Study used a 500m immediate (or inner) zone, a 1,000 meter outer zone and an extended 1,000m+ zone around the stations to estimate the property impacts. The HS1 2013 Atkins Study used a buffer of 2km around the stations to consider the economic impacts, but for the housing market analysis they used the local authority level based on data availability. This likely affected the robustness of its conclusions. The Borders Railway Study, which considered a more rural scheme, used a wider zone of influence of 5 miles (8,000+meters).

5 CONSIDERING VALUE UPLIFT AND ECONOMIC IMPACT

5.1 This section sets out the approach and method used to consider and quantify the development value uplift, property zone effects, increased catchments for non residential uses and wider economic benefits associated with key locations for strategic growth in Central Bedfordshire.

5.2 The Study considers the potential for strategic growth associated with the following:

- A new settlement at land north of Sandy: housing growth facilitated by the introduction of an East/West Rail Link station north of Sandy, replacing the existing Sandy rail station, and providing an interchange between East/West Rail and the East Coast Main Line.
- Wixams/ Stewartby: housing growth facilitated by the introduction of an East West Rail Link interchange station either (i) at the site currently proposed for a north-south station at Wixams, or (ii) south-east of Wixams at Stewartby, replacing the location of the station as currently planned.

5.3 The key factors considered in terms of property market impact and wider economic benefits are:

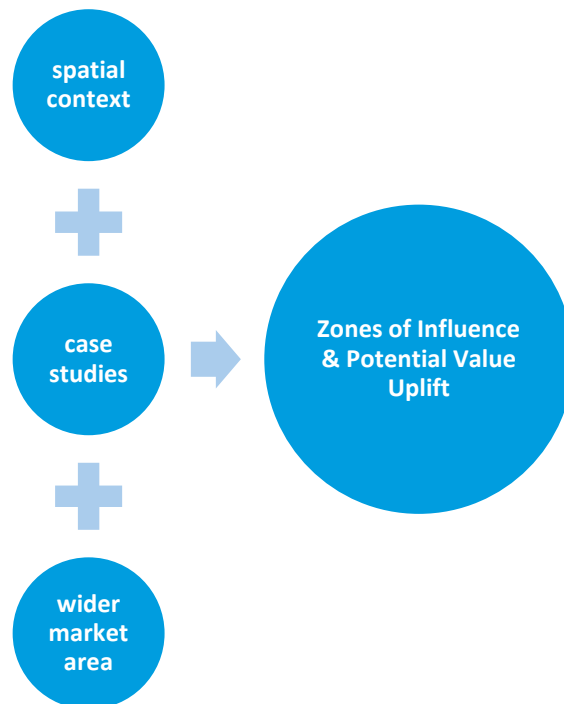
- Potential value uplift;
- Zones of influence;
- Potential delivery rates;
- Effects on non residential land uses;
- Concept of development assumptions; and
- Wider economic benefits.

Potential Value Uplift

5.4 Different methodologies have been developed to assess the impacts on property and land values from railway investment and new rail stations. In the previous section, Section 4, we reviewed a range of studies which have considered different new rail infrastructure. Whilst these are useful, their emphasis has been on major urban area transport investment, with a more limited element of reporting on rural and suburban effects. They have also considered impacts over what we would consider to be relatively short-term timeframes; whereas we would expect greater impacts to be seen looking over a 10+ year period.

5.5 It is essential that the Bedfordshire spatial context and property market is considered. Understanding the value of station connectivity in existing parts of the local housing market area and along artery rail routes is important in considering potential value uplifts which could be achieved at both the wider areas of Sandy and Wixams / Stewartby. Figure 2 summarises key influences on determining zones of influence and potential value uplift.

Figure 2: Estimating the Zones of Influence and Potential Value Uplift: Conceptual Framework



- 5.6 The Zones of Influence can vary between urbanised and more outlying locations and are likely to be influenced by connectivity (journey times and service frequency). The literature review highlights differences between urban locations (within London/ other cities) and more suburban/ rural locations, particularly for residential property. This is partly a reflection of the degree of travel by rail/ sustainable modes. For instance, the property market impacts of HS1 have been assessed using 500m and 2km buffer zones around stations, while Crossrail's studies have assessed the impacts within a distance of 500m, 1km and 1+km from the stations. The Borders Railway assessment considered the impacts within 5miles (8+km).
- 5.7 Alongside the literature analysis, GL Hearn has engaged directly with a selection of estate agents in Bedfordshire, Cambridgeshire and other towns in the Home Counties which have a similar rail commuting journey time to London to understand house price premiums around rail stations in these areas. This is discussed further below.
- 5.8 Drawing this analysis together, we have defined two property value zones for each location. The first zone is called "premium zone" and covers the area of around 800 meters distance from the stations. This equates to around a ten minutes walking distance on an average walking speed. Whilst this may be viewed as cautious, it allows for recognition that most journeys are not 'as the crow flies' and will often be further than 800m to reach the station. The second zone, the wider zone of influence, covers the area within a distance of around 3 km from the stations.

- 5.9 To assess the effects of the transport investment on housing values for each study area, a series of secondary and primary data have been collected and analysed. We have run two sets of analysis - one at the strategic level, based on the area's wider housing market performance - and a second, micro scale analysis, to identify the premium that should be applied.
- 5.10 The following list includes the data that have been used :
- HM Land Registry House price transactions 2013-2016
 - DCLG and Land Registry House Price Trends 2002-2016
 - Zoopla and Rightmove web portals
 - Direct discussions with local estate agents.
- 5.11 Inevitably other factors apart from the transport accessibility affect residential values. These include:
- Quality of house building / stock;
 - Quality of place / environment including history / conservation / public realm;
 - Local employment opportunities / access to employment;
 - Social and community infrastructure and amenities (including schools); and
 - Green infrastructure.
- 5.12 For the purposes of this study these are assumed as 'constant' and would be delivered to a good quality in any new settlement that assumes a standard at least as good as existing settlements.
- 5.13 In addition there are macro-economic factors that affect house price trends. Economic performance at a macro-level influences housing market confidence. Interest rates directly impact on households' ability to service mortgage finance. Government policies can also influence the market, with the last few years seeing for instance an impact on market activity from the Bank of England's Funding for Lending Scheme; the Government's Help-to-Buy Programme; and changes to Stamp Duty and taxation affecting residential investments and the buy-to-let sector.
- 5.14 The complexity of factors affecting the residential market therefore make it quite difficult to precisely measure or quantify the impact of transport investment and improved accessibility, which is the focus of this Study. On this basis it is sensible to consider impacts over at least a 10 year period. The 2007-16 period includes for instance periods of both stronger and weaker housing market conditions.

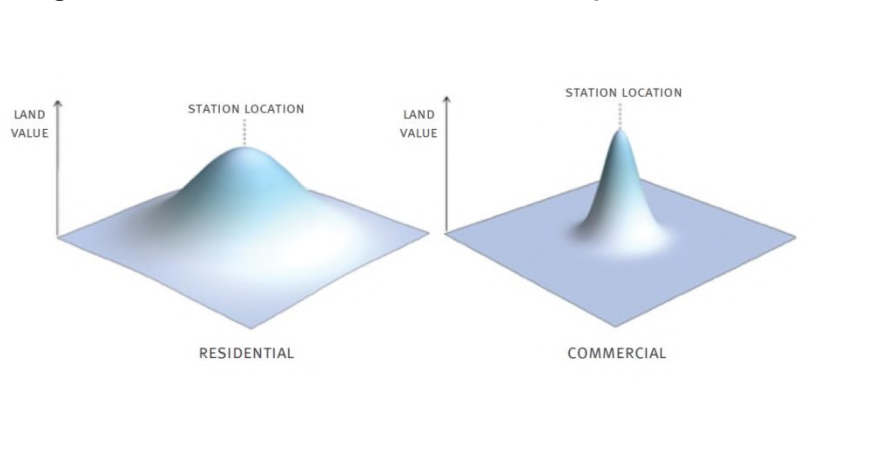
Premium around Rail Stations

- 5.15 In theory, proximity to a rail station should support higher land values because transport users compete with each other (and with non-transport users) to acquire land in proximity to transport links to access transport-user benefits. This pushes up the value of land in proximity to stations. In general, how far land values increase depends on how much users

value the transport benefits, and on the supply response in terms of new development/investment.

- 5.16 In order to understand the potential premium that should be applied in this Study, we have triangulated the findings of research on property portals (i.e Zoopla and Rightmove); the literature review; and undertaken qualitative analysis through discussion with estate agents.
- 5.17 Proximity to a rail station provides the potential for increased land values of both residential and commercial premises. However the literature suggests that there is different response to the proximity based on land use. Studies that have examined impacts in a small geographic area around stations tend to display relatively large impacts among commercial properties, whilst studies that consider a wider geographic area typically find a relatively large impact for residential property (Banister, 2007⁹). This is relevant to both rent and sales.
- 5.18 The following graph shows the anticipated rent/land value spatial patterns based on the land uses.

Figure 3: Land Value Patterns and Proximity to the Station



Source: Steer Davies Gleave, 2011¹⁰

- 5.19 Commercial property values tend to benefit when the property is very close to stations, within walking distance, and this impact can be very large. It tends however to be focused, in GL Hearn's experience, in very highly accessible locations such as city centres or around major transport interchanges. In contrast, residential prices will tend to benefit across a much wider area, perhaps up to three miles from stations, and around a broader range of rail stations, but by a smaller amount (Debrezion et.al 2004¹¹ and 2007¹²).

⁹ Banister, D. (2007). *Quantification of the non-transport benefits resulting from rail investment*. Oxford Centre for the Environment.

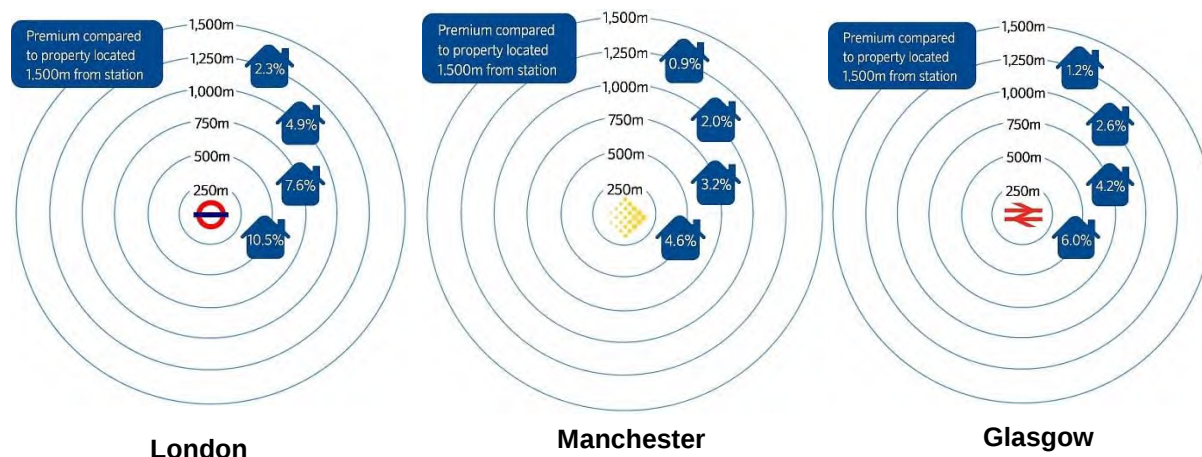
¹⁰ Steer Davies Glee (2011) *The Value of Station Investment*. Research on the Regenerative Impacts on behalf of Network Rail

¹¹ Debrezion, D., Pels, E., & Rietveld, P. (2007). The impact of railway stations on residential and commercial property value: A metaanalysis. *Journal of Real Estate Finance and Economics*, 35, 161-180.

¹² Debrezion, G., Pels, E., & Rietveld, P. (2004). The impact of railway stations on residential and commercial property value. Tinbergen: Tinbergen Institute Discussion Paper.

- 5.20 Nationwide (2014) concluded that the premium compared to residential values in London, Manchester and Glasgow varied from between 4.6% and 10.5% and decrease respectively as we move further away from the station.

Figure 4: Premium Uplift



Source: Nationwide (2014)¹³

- 5.21 GVA's 2012 Crossrail Impact Study¹⁴ applied a consistent rate of value increase to residential property prices within 1,000 metres distance from the station. It suggested that "for every 250m distance from the Station entrance there will be a decrease in prices or impact of 1.9% of the additional property value increase". For an Extended Zone of Influence (1,000+ meters), the decay in the Crossrail value uplift assumed was reduced, for forecast house prices, by 1.9% at 250m intervals until prices return to the London-wide trend.
- 5.22 According to Savills' research for Transport for London¹⁵, two common techniques are used to isolate the impacts of transport on property values. These are the "hedonic pricing" and the 'difference in difference' method. These are as follows:

"Hedonic price methods consider the variation in property prices over time or space, and they use regressions to test how much of this is explained by variations in transport factors (such as accessibility and connectivity) and place factors (such as the quality of local schools or high street)."

and

'Difference in difference' methods examine variations in property prices (usually over time) between 'treatment groups' and 'control groups'. Treatment groups are properties that are in proximity to a transport project, and so lie within its zone of influence. Many studies use a 1-

¹³ http://www.nationwide.co.uk/~media/MainSite/documents/about/house-price-index/London_Transport_Special_2014.pdf, http://www.nationwide.co.uk/~media/MainSite/documents/about/house-price-index/Manchester_Transport_Special_2014.pdf, http://www.nationwide.co.uk/~media/MainSite/documents/about/house-price-index/Glasgow_Transport_Special_2014.pdf

¹⁴ Crossrail Impact Study, GVA 2012, on behalf of Crossrail

¹⁵ Land value capture, Savills February 2017, on behalf of TfL

1.5km radius around the transport access point (such as a station) as a measure of reasonable proximity (based on a reasonable walking distance). Control groups are sets of properties that are not in reasonable proximity to the transport link, but otherwise are of similar locational attractiveness to the treatment group.

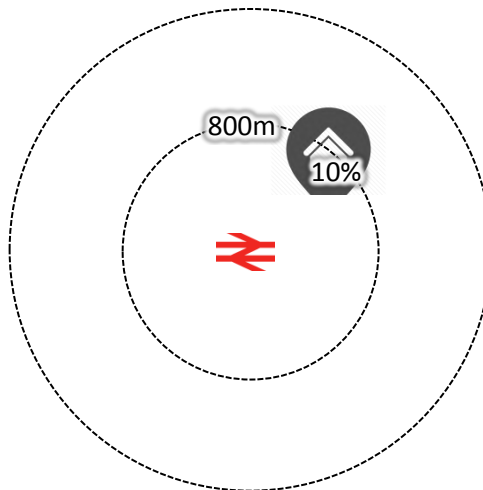
- 5.23 As noted, GL Hearn has estimated the residential value premium using a 'difference in difference' approach, within an 800 metres distance (or 10 minutes walking distance) from each station. Our analysis draws on estate agents interviews undertaken by GL Hearn staff across seven towns, listed below, which were considered as the most appropriate benchmarks to understand the potential residential value premium rate which could be applied. It considered locations with similar transport context to Sandy and Wixams/Stewartby in terms of proximity to London, and (for some locations) in terms of accessibility to Cambridge; which we considered was also a potential value driver.
- 5.24 The distance of 800m is used indicatively and inevitably will vary from place to place dependent on the quality of links to the station and housing stock types, recognising that 1-1.2km is acceptable in some instances. Of note, based on agent discussions, Biggleswade was a more distorted picture where housing outside of this premium zone is new build and carrying a different demand to properties near to the station. Furthermore, in smaller towns that might extend a short distance beyond this (i.e. 1,000m / 15mins or so to station) the effects may be less pronounced.
- 5.25 **Table 6** presents the findings of the discussions with the local estate agents.

Table 6: Premium in different towns – Estate Agents View

Settlement/Agent	Comment	Value Uplift
Royston		
Marshalls	Near to the station there are more sought after properties, so premium goes up naturally. A property sold at £350,000 in estate out of town while similar property near to the station is sold at £385,000	10%
William H Brown	Uplift would be applied if the property was located within 5 minutes walking distance. Reasonable to assume a 5% uplift.	5%
Flitwick		
Country Properties	Properties on Kings Rd (adjacent to the Station) are slightly older and would fetch around £300,000 whereas Birds Estate (10-12 minute walk) would be £280,000 for a 3 bedroom semi-detached.	10%
Biggleswade		
Wilson Peacock	There wouldn't be a premium applied in Biggleswade as 15-20 minutes walking distance encompasses most properties.	0%
Country Properties	There is demand for locating near the Station which will inevitably increase value however this is difficult to quantify in Biggleswade as a result of the new development located on the edge of the town.	n/a
Satchells	A 30 minute walking distance covers the whole of Biggleswade. The agent considers that 30 minutes walking distance is reasonable and prospective buyers are willing to walk.	0%
Leighton Buzzard		
Quarters Estate Agents	A premium is applied in proximity to the station. We should expect 10% uplift in properties within 10 minutes walking distance.	10%
Wilkinson Partnerships	Properties near the station can be more expensive while people can be in London Euston in less than 35minutes. However the agent cannot quantify the premium uplift isolating only the proximity to the station.	n/a
Braintree		
William H Brown	Expect to pay £350,000 for 3-bed semi-detached within 10 minute walking distance v £325,000 beyond 15 minutes. Similarly £180,000 in centre v £165,000 beyond for smaller properties.	10%
Boydens	Certainly expect to see a premium as you move closer to the station - around 15 minutes walking distance. Currently a property in the centre is advertised at £260,000 and would expect a similar property to be around £240,000 further afield. Not unreasonable to assume 10%.	10%
Bairstow Eves	A 3-bed property within 15 minutes walking distance from the Station would be £285,000 - £300,000 v Tortoiseshell Way (in settlement's periphery) at £260,000-£270,000.	10%
Tunbridge Wells		
Hamptons International	If a figure had to be placed on premium for being near station, would say 5-10% uplift.	5-10%
Savills	A property was recently sold at £420,000 within a walking distance of 5-10 minutes from the station. A similar property was sold at £350,000 located at a distance of more than 15 minutes from the station.	12%
Bracketts	As a general rule a 10% premium should be applied in properties within 5-10 minutes walking distance from the station. This encompasses the central area of Tunbridge Wells and considers the most desirable location to reside.	10%
Newbury		
Hamptons International	There is certainly a premium applied. Property sold at 10 Longacre, 3 bed detached for £450,000 whereas sold 3 bed detached on edge of the settlement for £415,000 towards the start of the year.	10%
Jones Robinson	A premium is applied. Difficult to think of comparables as not many family homes in the centre v not many flats on the edge. We can achieve £400,000 for a 3-bed property in centre v £350,000 in the periphery of the town.	10%

- 5.26 GL Hearn has also reviewed residential values in proximity to stations for properties currently on the market (Spring 2017) in proximity to stations in these locations. However this analysis was somewhat inconclusive, the principal issue being that it is difficult to isolate the premium associated with accessibility to the rail station from the range of other factors such as the size, age and condition of a property, school catchment areas, and neighbourhood quality/ characteristics. However the analysis did suggest that values within an 800m catchment tend broadly to be 10-20% above those typical within the settlement for comparable properties.
- 5.27 The direct engagement with estate agents together with the literature review point to a residential price premium of around 10% for locations within the 800m walking catchment of rail stations outside of London with a reasonable service frequency for similar residential properties (such as by size, age and tenure).

Figure 5: Residential Value Premium around Rail Station



- 5.28 With regards to the commercial uses, no premium is considered to be applicable to locations which are not within City Centres or at major transport interchanges in larger towns, where there is higher demand for office or retail uses.
- 5.29 GL Hearn concludes that there is unlikely to be an uplift in commercial property values which could be captured through any roof tax-type mechanism. The combination of the scale of development envisaged and enhanced rail accessibility may however have some impact in attracting additional commercial development. We consider that impacts are more likely to be in terms of the quantum of commercial development which could be attracted; as opposed to on commercial values.
- 5.30 It should be highlighted that the premium uplift of 10% is embedded in the total estimated values uplift for each area and it is not on top of this.

The Pace of Development

- 5.31 It is reasonable to expect rail accessibility, including both to London, Cambridge and larger employment centres such as Milton Keynes, to provide a positive benefit in respect of the pace at which development takes place – in particular, the pace of housebuilding. This is as it enhances the attractiveness of a location to commuters, and increases the pool of potential buyers.
- 5.32 Heightened residential demand generated by significantly increased location accessibility is therefore considered to have a potentially positive influence on delivery rates. There has been limited research into this area to date.
- 5.33 The North Central Bedfordshire Growth Options Study draws on the ‘Housing Trajectory for Central Bedfordshire (Completions as at 30th June 2016)’ document to establish a baseline position for the local authority delivery rates. For locations expected to deliver over 2,000 units, scenarios for the pace of development are identified as 150, 200 and 250 dwellings per annum for low, moderate and high demand levels respectively.
- 5.34 GL Hearn has sought to consider delivery rates for a number of wider strategic development locations in the Greater South East Region. We have considered research undertaken by the HCA’s Advisory Team for Large Applications (ATLAS) in 2013 regarding build out rates from strategic sites¹⁶. This considers 16 major sites, and indicates that average rates of 300-350 dwellings per annum are achievable; and that in some instances, there has been delivery of over 500 dwellings in a year, albeit that this is rarely sustained.¹⁷ The ATLAS data includes Wixams which achieved some 500 units per annum in 2011/12. Cambourne has for instance delivered an average of c. 240 dpa, with a peak of 620 homes in 2003/4. Hampton township at Peterborough has achieved 345 dpa between 2001-12. Cambourne relates relatively well to Cambridge but is not connected by rail (including to London). Feasibly growth of a new settlement north of Sandy could ‘do better.’
- 5.35 **It is important that at a strategic growth location, delivery is achieved at pace.** This will be critical to supporting upfront investment in infrastructure; to creating a new community with a range of services; and to the viability of the overall development.
- 5.36 A typical delivery model, whereby a strategic developer might put in infrastructure and sell parcels of land to a range of national housebuilders is, in our experience, likely to achieve at best 250 - 350 homes per annum on average taking into account peaks and troughs in delivery. This in itself would be challenging and would require a number of different housebuilders to be involved, with different start points (given typical 50-80 units per annum

¹⁶ HCA 2013, Notes on Build out rates from Strategic Sites

¹⁷ For instance at Chafford Hundred, Thurrock; Hamptons, Peterborough; Cambourne, South Cambridgeshire; and Church Langley, Harlow

developer currently. There is little incentive for housebuilders to build quicker, as it could impact on residential values and thus profit margins.

- 5.37 There is however currently a national impetus to achieve higher rates of delivery and a range of programmes that are specifically aimed at supporting this. To achieve higher rates of delivery (over 350 dpa) would require in our view, a wider range of housing products to be delivered catering for a number of different market segments. This would require a broader range of organisations to be building homes.
- 5.38 This might involve for instance:
- Direct commissioning of housing by Government/ HCA from construction firms;
 - Accelerated delivery of housing through use of offsite manufacturing and other modern methods of construction;
 - Support for small and medium-sized housebuilders, as well as the larger firms;
 - Self- and custom-build development through provision of serviced plots;
 - The Council itself potentially taking a more proactive role in delivering new homes, such as through a Local Housing Company or other form of Special Purpose Vehicle.
- 5.39 The Government's Housing White Paper recognises that to drive delivery, a wider range of bodies need to be building housing, and provides some support for this. This in our view is really what is critical to driving the sorts of delivery rates which might be necessary to support major strategic development around Wixams/Stewartby and north of Sandy as envisaged.
- 5.40 The key issue which arises in achieving this is perhaps one of land ownership; and the potential for public control of the land or at the very least very close joint working with an experienced master developer. We note that Government's Housing White Paper moots the potential for establishing locally accountable New Town Development Corporations. This may be something which the Council wishes to explore, albeit that it seems likely that primary legislation will be required to support these.
- 5.41 To maximise delivery rates, and support the deliverability of major strategic growth, it will be important that these issues are carefully considered. Given the lack of examples of sites achieving this (beyond historically at new towns through a development corporation model), we can only present indicative scenarios for which might – in theory – be achievable.
- 5.42 GL Hearn considers that delivery of 450 – 500 dpa might be achievable over a sustained period of time but would require a range of organisations building homes. Indicatively the make-up of this might look as follows:

Table 7: Indicative Model for delivery of 450 – 500 dpa

	Dwellings per Annum	Assumptions
Large Housebuilder-led	338	1 sale per week per developer, 5 developers, 30% affordable
SME Housebuilder-led	60	1.5 sales per week , 30% affordable
Additional Public Sector	40	
Build-to-Rent	30	
Custom-Build	17	1 plot sale every 3 weeks
Total Housing	485	

- 5.43 To achieve delivery substantively higher than this would require both the public and private sectors to deliver significant additional homes. What this might look like is shown in Table 8 below. It would require higher delivery of market housing, a significant component of public-sector housebuilding, and other market segments to contribute to delivery.

Table 8: Indicative Model for delivery of 700 dpa

	Dwellings per Annum	Assumptions
Large Housebuilder-led	507	1.5 sale per week per developer, 5 developers, 30% affordable
SME Housebuilder-led	68	1.7 sales per week , 30% affordable
Additional Public Sector	70	
Build-to-Rent	40	
Custom-Build	17	
Total Housing	702	

- 5.44 With the appropriate delivery model in place, coupled with major infrastructure investment to support the attractiveness and marketability of a new settlement north of Sandy as a growth locations, GL Hearn consider that for a period of time a higher delivery rate of up to 700 homes pa could be achievable for a period of time (once a critical mass and profile was established). But to evidence this would require a detailed delivery strategy developed alongside a master developer or (probably) public sector ownership/ control of land.
- 5.45 Timely delivery of infrastructure and upfront place-making investment is a pre-requisite in both cases. Both take account of the accessibility of the site to London, Cambridge and other major employment centres.
- 5.46 In respect of Wixams/ Stewartby, the Atlas data points to deliver of an average of 265 pa average historically with a peak of almost 400 in 2011/12. We consider that the potential pace of growth at this location would be slightly lower than at Sandy given its greater distance from Cambridge.

Non-residential Land Uses

- 5.47 The Study has considered the potential for housing growth driven by investment in rail infrastructure and accessibility improvements to generate improved prospects for investment in non-residential uses, notably retail, services, leisure, industrial / warehousing and commercial.

5.48 **Retail, leisure and services:** the starting point for considering additional gain in retail, leisure and services is to identify the typical need associated with housing and population growth.

5.49 Analysis of the retail and leisure current provision in reasonably sized town centres in Central Bedfordshire is presented in Table 9 below. The findings are based on the Central Bedfordshire's Retail Study published in January 2013. Of note, settlements are required to achieve a certain critical mass to lever this level of provision, i.e. upwards of 5,000 homes. Below this, core services will be utilised from other centres. Additionally, this provision is unlikely to occur at the same rate in urban extensions which again will tend to use the core centre functions. Notionally, areas unable to achieve such a critical mass are expected to yield 50-70% of this provision.

Table 9: Retail / Leisure Provision (sqm) per person

	Comparison Goods	Convenience Goods	Services	Restaurants	Miscellaneous +vacant
Biggleswade	0.29	0.30	0.14	0.07	0.07
Dunstable	0.36	0.26	0.14	0.10	0.14
Leighton Buzzard	0.26	0.14	0.09	0.05	0.03
Town Centre Provision - Overall	0.30	0.22	0.12	0.07	0.08

Source: CBC Retail Study 2013

5.50 The inclusion of a rail station or interchange provides a driver for locating town centre uses in reasonable proximity. However the literature review and discussions with property agents suggests that there is relatively little value uplift associated with retail and services at stations that are not of a strategic/city scale and major interchanges. Accordingly, demand for retail and local services is considered to be driven by population growth. The per capita floorspace assumptions above can be applied.

5.51 **Industrial and warehousing:** rail investment is not typically a facilitator for industrial or warehouse development unless there is a freight opportunity, which is not considered to be the case here. Warehouse development is driven by logistics demand as well as access to the strategic road network and land availability. However, significant residential growth will require an element of employment land in order to provide local employment and services. This will typically increase in response to the settlement size as greater levels of critical mass are achieved. Therefore under the higher growth scenarios considered in this study there is likely to be a requirement for employment land, particularly given their accessibility to the Strategic Road Network of the A421, M1 and A1(M) and in light of proposed investments to

the A1(M) and expressway. The A421 improvements which have been delivered to date have supported commercial attractiveness, as can be seen through recent warehouse development along the A421 to the south of Bedford. The wider Sandy area, located on the A421 and A1(M) is considered to have the strongest potential for employment land development.

5.52 Given the timescales and uncertainty in future employment markets it is considered unrealistic to assess the potential levels of investment interest for the study area and rather we provide a pro-rata employment land estimate that captures the potential of the new settlements (i.e north of Sandy and Wixams/Stewartby).

5.53 In order to estimate the adequate employment land provision, we have assessed the ratios of employment land per dwelling in Sandy, Biggleswade and the respectively the new settlement of Cambourne in Cambridgeshire.

Table 10: Employment Land Ratios

Settlement	Population (Census 2011)	Dwellings	Employment Area (ha)	Ratio: sq per dwelling
Sandy	11,700	4,875	29	59
Biggleswade	16,551	6,896	45	65
Cambourne	8,186 (2011), 10,000 (planning permission)	3,300+	32 (currently), 50 (planned)	150

5.54 The average provision of 50-60 sqm per dwelling considered more reflective for the new settlements in Central Bedfordshire. Although Cambourne is newly planned it has different economic context influenced by its proximity to Cambridge and future residential is planned with limited increases to the employment area.

5.55 **Commercial office:** Central Bedfordshire is generally not a strong office market and Bedford achieves even lower rental values, as set out in Table 8. At these rents, new speculative or rental office build is unlikely to be viable. Cambridge rents perform significantly higher. Discussions with agents indicate that the EWR is unlikely to trigger a demand for offices outside of typical incidental town centre uses. In the longer term at a new settlement north of Sandy, there may be potential for some office development as has occurred at Cambourne, taking advantage of the fast rail connection to Cambridge and higher scale of development. This has been captured as a percentage (20%) of the employment land take referred to above.

Table 11: Commercial and industrial rents: January 2016 - Present

Area	Offices (sq. m)	Grade A	Grade B	B2 Industrial (sq. m)	B8 Storage/ Distribution (sq. m)	New	Early 90s
Central Beds/ Dunstable	136	n/a	n/a	94	94	89	65
Biggleswade/ Sandy	n/a	n/a	n/a	41	55	n/a	n/a
Bedford	114	n/a	n/a	62	51	73	51
Cambridge	226	365	172	74	74	n/a	n/a

Source: EGI & Colliers International Rental

Establishing the Development Concepts

5.56 In estimating the scale of development, development concepts have been established that incorporate a number of key factors in order to identify land take for various land uses and densities. The concepts (represented as diagrams under the growth scenarios) assume a number of factors:

- No engineering or other constraints have been considered in the station location scenario planning, particularly regarding rail or road route alignments;
- An average of 2.4 persons per dwellings is achieved, assuming a variety of housing types;
- Local planning authority requirements for public open space / indoor sports (see appendix A)
- Town centre uses as pro rata against population, based on assumptions as described above;
- Employment uses (as applicable) pro rata against population, based on assumptions as described above;
- Incorporation of primary and secondary schools (see appendix A)
- Density in the premium zone (800m) as 60 dwellings per ha, within the 800m walking catchment of the station.
- Density in the wider zone (800+m) as 35-40 dwellings per ha, based on delivering principally family housing together with associated services/ infrastructure.
- Environmental constraints are reflected as appropriate (i.e. flooding)
- Settlement growth limitations are established either by the target unit number by the scenario (Sandy) or other natural / urban boundary characteristics (Wixams). Commentary on growth limitations is considered in more detail.

5.57 The development concepts are presented diagrammatically for each scenario.

Economic Benefits Rail

5.58 The assessment of economic benefits for rail is based on the guidance contained within DfT's WEBTAG. It is also in line with the work undertaken by Atkins for Network Rail and we have discussed our approach with the latter as summarised below. To assess the transport and wider benefits resulting from new infrastructure, we would normally base this on the origin and destination of trips and generalized costs of travel (with and without the new infrastructure) which is necessary to fully assess and quantify transport benefits over a wide area. This was not available and we have therefore revised our methodology to suit what data is available focussing our attention on understanding the current transport provision, demand and opportunities within Central Bedfordshire and how this may change and what transport benefits will be provided with particular emphasis on the location of the potential new development areas. This has involved investigation of:

- 2011 census origin – destination data on home to work trips;
- Current and future travel times by rail
- Trip generation modelling to estimate the likely change in travel demand between the new development and the main areas of attraction brought about by the improved travel opportunities associated with the new east – west rail link.

5.59 To estimate the future demand from travel by rail from a new settlement north of Sandy – with the new development in place and the East-West link in operation, we have used a gravity model. This model was developed and calibrated by Atkins and used in the "East West Rail Central Section Phase 2a Final report to Network Rail - 5th October 2015". This model is of the form:

$$\text{Rail Demand} = GJT e_1 \text{Pop}_O e_2 \text{Emp}_O e_3 \text{Emp}_D e_4 F e_5$$

Where:

- GJT – generalised journey time (in-vehicle time, frequency weight penalty, interchange penalty etc. in line with PDFH methodology)
- Pop_O – population at origin within 1km catchment
- Emp_O – employment at origin within 1km catchment
- Emp_D – employment at destination with 0.2km catchment
- F – fare per mile
- e1 to e5 – model parameters from calibration to observed data

5.60 This has enabled us to estimate the future demand for the development by rail and we propose to estimate the travel benefits following the same methodology as used by Atkins for the Network Rail East-West Rail Study. This would adopt:

- 60-year appraisal period
- Consistent demand growth assumptions
- "Rule of a half" - Benefits are calculated using the 'rule of a half' where appropriate, reflecting the varying levels of consumer surplus for new users on various parts of the demand curve (existing users derive full consumer surplus).

- Demand growth cap – Demand is assumed to stop growing from 2036. The growth assumptions within Atkins model assumes a 40% growth between 2010 and 2036. This is lower in comparison with recent growth on the rail network as discussed in Chapter 3.
- Monetisation – Journey time saving benefits are calculated using WebTAG values of time
- Common price base – all monetary benefits and costs are presented in 2010 prices
- Discounting – all benefits and costs are discounted to 2010 for the calculation of present values

5.61 The modelling takes into account the whole EWR route from Oxford to Cambridge and beyond these destinations. The assessment by Atkins assumed a service pattern of only 2 to 3 trains per hour which were defined by the Department for Transport. This can be considered to be a conservative approach and we understand that potential service patterns are under review. It is likely that significant enhancements in the level of service would increase the overall benefits of the EWR improving connectivity across Central Bedfordshire with the potential for enhanced developments.

5.62 There are three main elements to the wider impacts and benefits associated with transport improvements:

- W11 – Agglomeration impacts
- W12 – Output change in Imperfectly Competitive Markets
- W13 – Tax revenues arising from labour market impacts

5.63 To estimate the effects of wider benefits generally relies on an assessment of the area of impact of the transport proposals in terms of trip patterns (origin - destination of trips) and travel costs between od pairs for the do-minimum and do-something scenarios. As we stated above, we are limited with regard to the amount of data which we have available to estimate the wider benefits and we cannot therefore calculate these directly. However, the Network Rail East-West Rail Study did estimate the scale of these benefits of each of the options tested and from this it appears that the wider benefits were around 20% of the present value of the transport benefits for the project. Without any more rigorous data available to us we propose to assume that the wider benefits accrued to the developments would be similar and we would factor the journey time benefits accordingly.

5.64 Using the existing travel data and levels of population and employment in the catchment area of the new stations we have been able to isolate the levels of benefit resulting from new stations north of Sandy and the Wixams wider area. In the situation where there are increases in population and employment due to new developments at these stations we have been able to identify the incremental change in the level of benefits attributed to the increased level of development.

Development Gain

5.65 To estimate the economic benefits for development sites associated with the improvements in the rail infrastructure and services, the WEBTAG Unit A2.3 guidance has been used.

Appendix D of A2.3 details how the benefits of land use development can be estimated based on 'planning gain' or uplift in development land values arising from the new infrastructure. This states that:

$$S[L/T] = PG - TE - OE$$

Where:

S[L/T] - benefit of the land use development assuming that the transport scheme already exists.

TE – Transport externalities (i.e. additional costs imposed on users of the transport system as a results of the construction of the land use development)

OE – other externalities

- 5.66 Given that there is no formal model available it is difficult to estimate the increase in costs on the transport system due to the increased demand associated with the new development. It is therefore proposed that the benefits associated with the new development be estimated as equivalent to the estimate of planning gain although recognising that this is an upper estimate which does not take account of the disbenefits to other transport users.
- 5.67 To estimate the PG (Planning Gain) / estimate of development benefits, the guidance refers to the use of the Valuation Office Agency (VOA) land values. These are detailed at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/488041/Land_values_2015.pdf .However, we have determined the uplift in land values through our own research as set out earlier in this report.
- 5.68 The above approach in determining the level of benefits has been discussed with Network Rail.

Summary

- We have identified two property influence zones: a “premium zone” of 800 meters distance from a station (ten minutes walking average); and a second wider zone, covering the area within a distance of around 3 km from a station.
- Based on the research undertaken, including comparator analysis and literature review, we estimate that a 10% value uplift is achieved for uplift for properties within 800 meters of the station, relative to those for similar properties in the surrounding area.
- In terms of delivery rates, the Central Bedfordshire baseline is considered as 150, 200 and 250 dwellings per annum for low, moderate and high demand levels respectively. However it will be important that delivery rates at driven more strongly than this at these strategic development locations. The HCA’s Advisory Team for Large Applications (ATLAS) in 2013 indicates that average rates of 250-350 dwellings per annum could be achievable based on recent examples elsewhere. A different delivery model, based on wider variety of products and market segments, will be necessary to support higher delivery rates than this and we

have set out what this might look like. A strong public sector lead role will be necessary to realise strategic growth with completion rates of over 500 homes per annum centred on new EWR interchange locations.

- Additional gain in retail, leisure and services is considered in line with current provision in reasonably sized town centres in Central Bedfordshire. The literature review and discussions with property agents suggests that there is relatively little value uplift associated with retail and services at stations that are not of a strategic-city scale.
- Rail investment is not typically a facilitator for industrial or warehouse development unless there is a freight opportunity, however Sandy area is well placed on the A1 and other key strategic road network connections therefore employment land requirements are anticipated with upper settlement growth. Central Bedfordshire is generally not a strong office market and discussions with agents indicate that the EWR is unlikely to trigger a demand for offices outside of typical incidental town centre uses. However there may be potential for offices within the employment land development in the longer term given the journey time distance to the buoyant office and employment market of Cambridge.
- The assessment of economic benefits is based on the guidance contained within DfT's WEBTAG. The approach in determining the level of benefits has been discussed with Network Rail.

6 NEW SETTLEMENT NORTH OF SANDY

- 6.1 Sandy is a small market town. Sandy Ward, which also covers the village of Blunham, has a housing stock of 5,366 dwellings (Census 2011). The population of Sandy is 11,657 people (Census 2011) and Blunham 946 people.
- 6.2 The town is well-connected in transport terms as it benefits from a station with a direct rail link to the London / Peterborough railway. The rail journey time to London is c 54 minutes. The town is also adjacent to A1 served by the A1/A603 junction.
- 6.3 As identified, Sandy is one of the key locations being considered by Network Rail for an EWR station, which would be the first stop from Cambridge. It offers both connections between ECML and EWR and optimises the benefits for future rail passengers in the East – West Corridor from Oxford – Bedford – Cambridge. Options for the precise location of the station remain under discussion.
- 6.4 No planned strategic growth was allocated in Sandy in the previously prepared Local Plan 2011-31. However the most recent North Central Bedfordshire Growth Options Study considers two growth options of standalone settlements north of Sandy, of 5,000 and 7,000 homes.

Scenarios considered

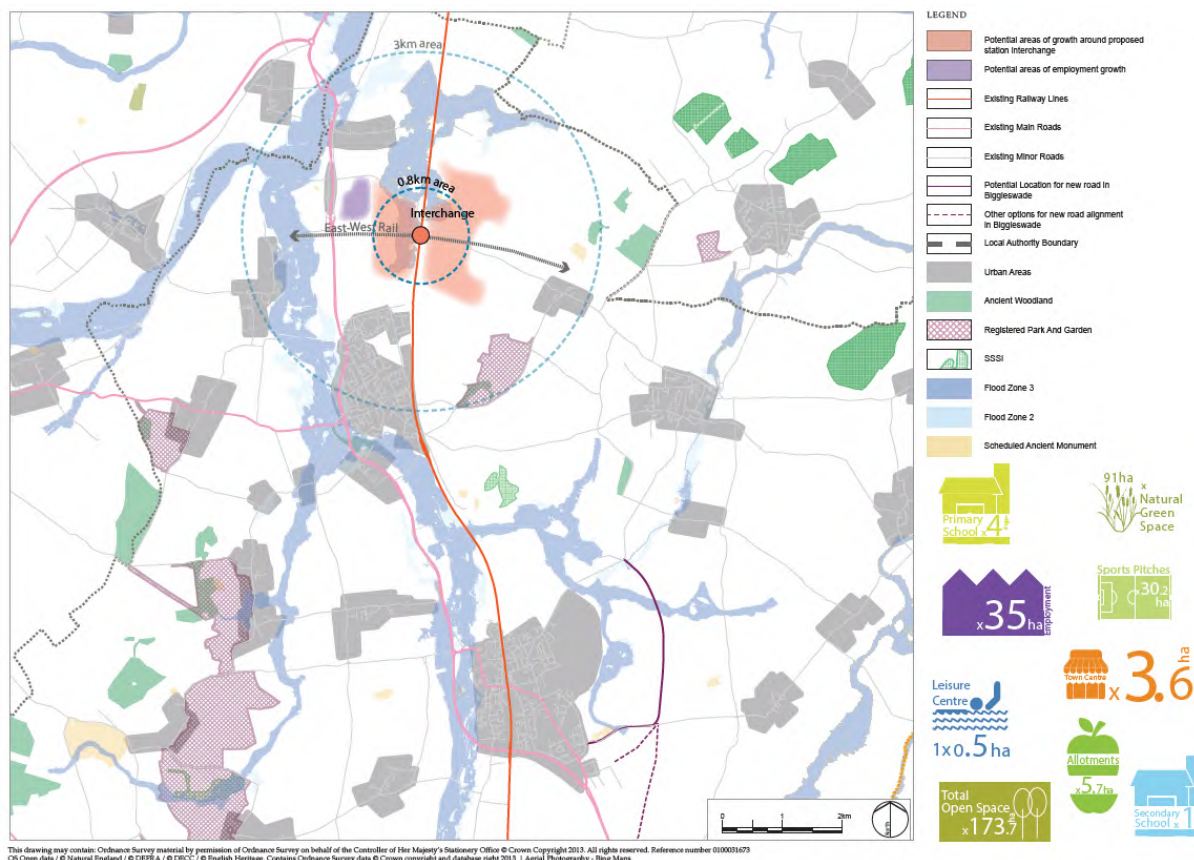
- 6.5 This study has considered a number of scenarios with regards to a new stand-alone settlement to land north of Sandy in order to test potential station benefits. These are:
- Baseline: No planned housing or non-residential growth around the town.
 - Scenario 1: An EWR interchange station (replacing existing station) which facilitates housing growth of 7,000 homes
 - Scenario 2: An EWR interchange station (replacing existing station) which facilitates housing growth of 10,000-15,000 homes (upper figure used)
 - Scenario 3: An EWR interchange station (replacing existing station) which facilitates housing growth of 20,000 homes
- 6.6 Table 12 sets out the land requirements to facilitate 7,000 units. A total of 334 ha of land would be developed (excluding employment land), of which 138 ha would be for residential uses.

Table 12: North of Sandy: Development Concept - Scenario 1

	Premium Zone	Wider Zone	Total
Land take up (ha)	100	234	334
Residential land (ha)	84	55	138
Density (dph)	60	35	51.5
Residential units	5,100	1,900	7,000
Population Growth	16,800		

- 6.7 The modelling estimates the land constraints and land requirements for other uses (i.e open space, town centre, education) based on current planning policies. More detailed tables are provided in Appendix A.

Figure 6: North of Sandy: Scenario 1



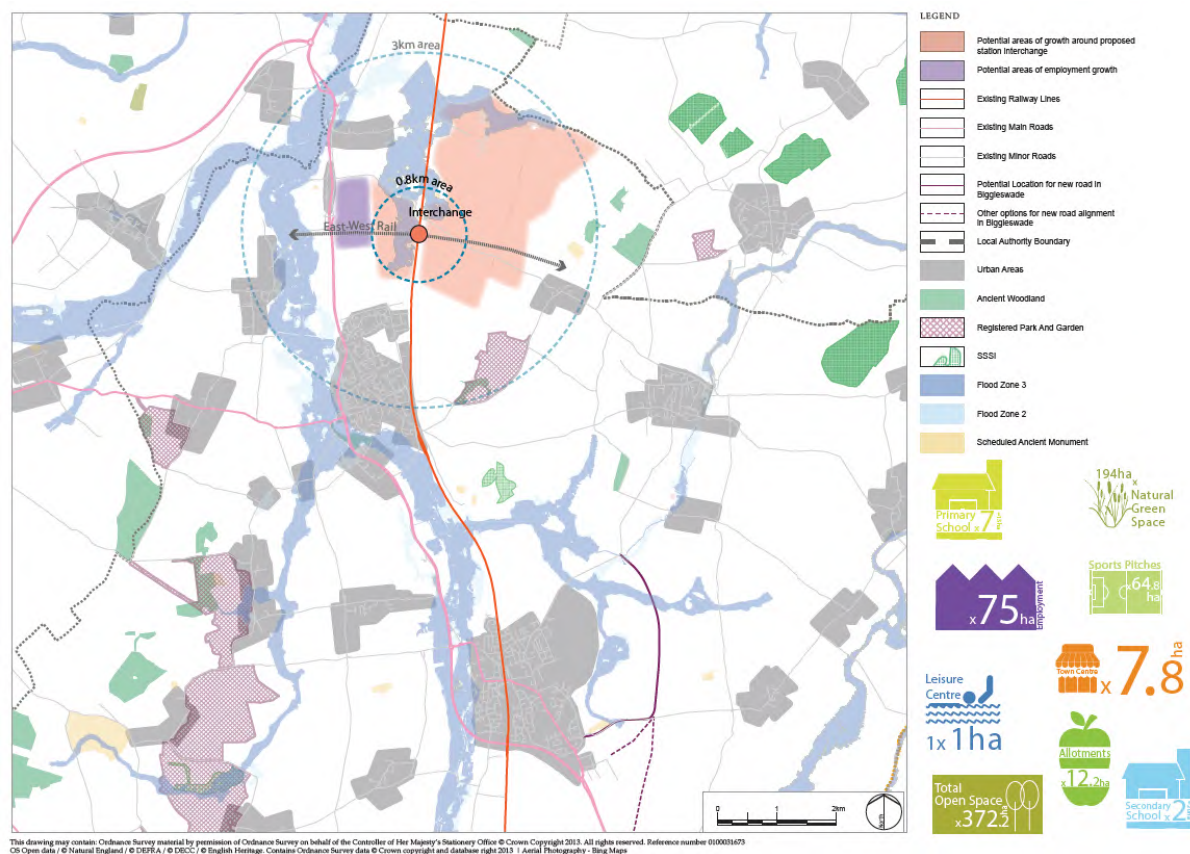
Source: LDA Design

- 6.8 Scenario 2 investigates the land requirements to facilitate 15,000 units. Table 12 summarises the findings. A total land of 766 ha of land (excluding employment) would be developed of which 350 ha relate to residential uses.

Table 13: North of Sandy: Development Concept - Scenario 2

	Premium Zone	Wider Zone	Total
Land take up (ha)	170	596	766
Residential land (ha)	140	190	350
Density (dph)	60	35	42.7
Residential units	8,300	6,700	15,000
Population Growth		36,000	

Figure 7: North of Sandy: Scenario 2



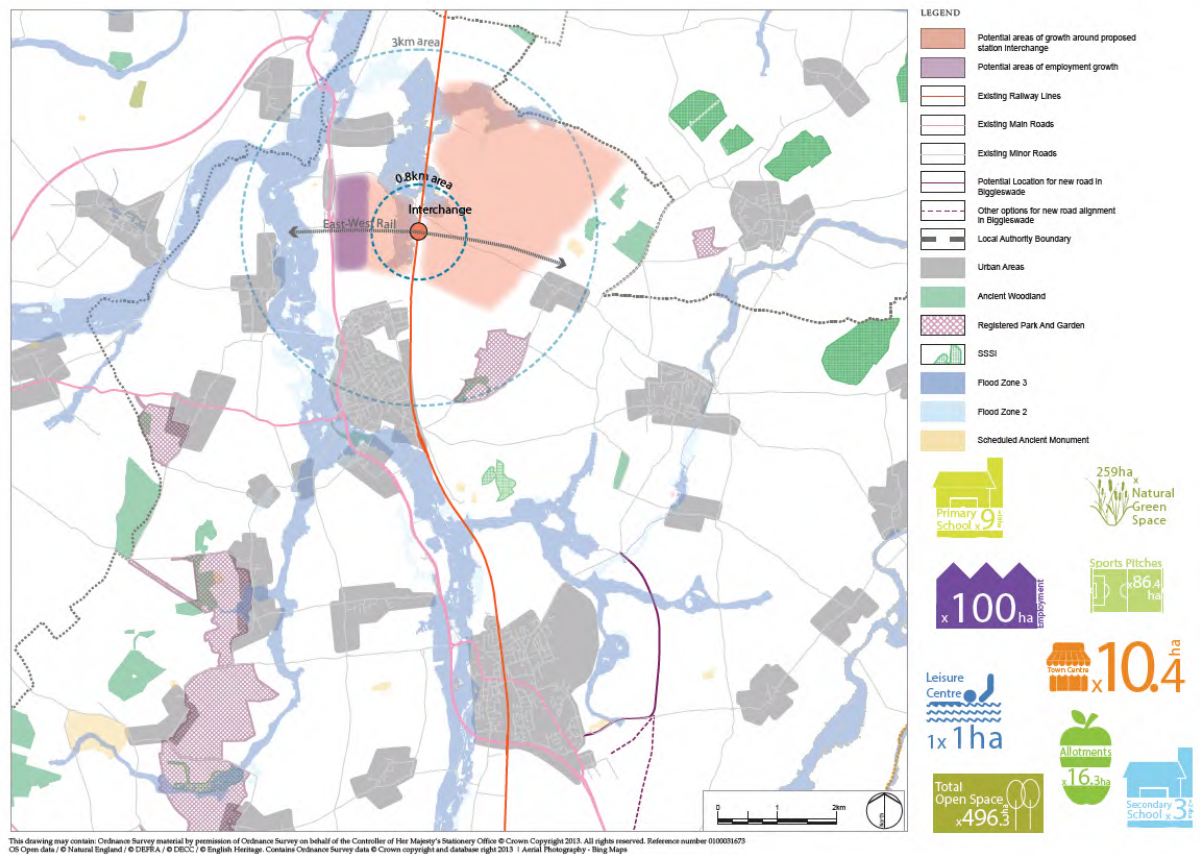
Source: LDA Design

6.9 Scenario 3 investigates the land requirements to facilitate 20,000 units. Table 13 summarises the findings. A total land of 955 ha (excluding employment land) would be developed in this option, of which 404 ha relate to residential uses.

Table 14: North of Sandy: Development Concept - Scenario 3

	Premium Zone	Wider Zone	Total
Land take up (ha)	170	785	955
Residential land (ha)	158	246	404
Density (dph)	60	35	49.4
Residential units	9,500	9,800	19,400
Population Growth		48,000	

Figure 8: North of Sandy: Scenario 3



Source: LDA Design

Estimated Value Uplift

- 6.10 In order to assess the potential residential value uplift which could be captured in the new settlement north of Sandy, some key assumptions have been established in addition to those considered in previous sections. These are summarised below.

Figure 9: Key Modelling Assumptions for Sandy new settlement Scenarios

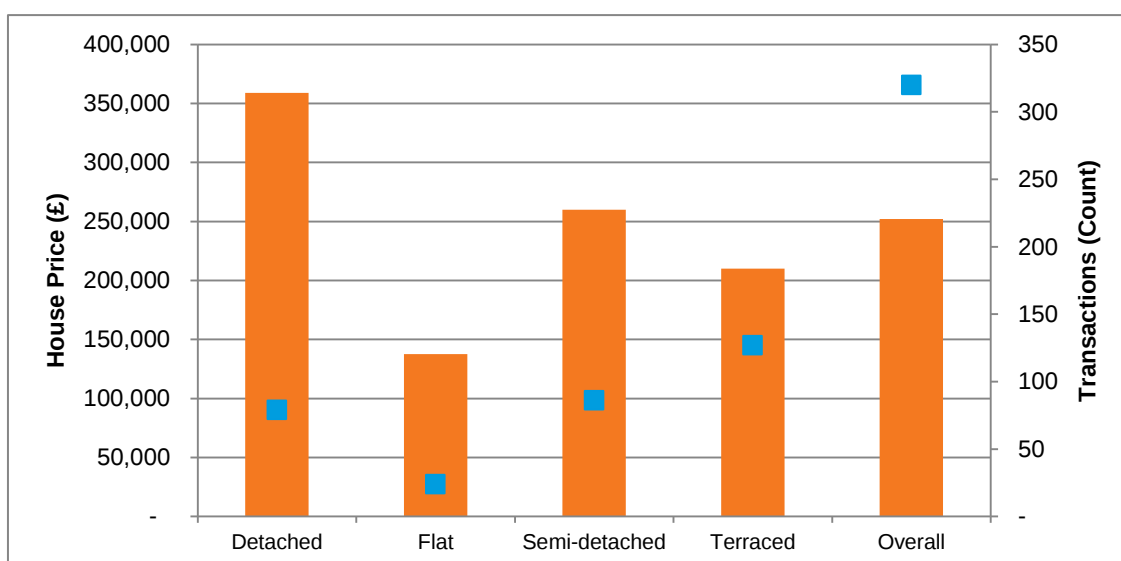
 1. Baseline Position Key assumptions: 1. Current context Indicators: 1. House Price 2016 2. Transactions 2016	 2. Baseline Growth Key assumptions: 1. The station stays at its current location and links Sandy to London (54min) and Peterborough (32min) 2. No EWRL station in Sandy 3. Impacts on existing properties are not factored in the model 4. No additional quantum - only value trend increase Indicators: 1. Historic growth rates 2. Analysis of comparable areas 3. Analysis of case studies	 3. EWR Growth Key assumptions: 1. A new interchange station north of Sandy to be announced in 2020 and delivered in 2030. 2. Sandy-Cambridge timed distance will be 20 minutes. 3. Impacts on existing properties are not factored in the model Indicators: 1. Benchmarked Growth 2. Analysis of comparable areas 3. Strategic level Analysis - London Growth Corridors 4. Zones of Influence
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Baseline Position

- 6.11 In 2016 the overall average house price in Central Bedfordshire was £265,000¹⁸. The national equivalent was £212,950 and the regional was £251,000.
- 6.12 A total of 320 properties were sold in 2016 in Sandy based on HM Land Registry data. The overall price in Sandy was £250,000, similar to the regional comparator and lower than the Local Authority equivalent.
- 6.13 The figure below presents the market activity in Sandy in terms of median house prices and the number of transactions by property type for 2016.

¹⁸ This is the annual figure based on all transactions and not the average of the four quarters.

Figure 10: Housing Transactions by type in Sandy (2016)

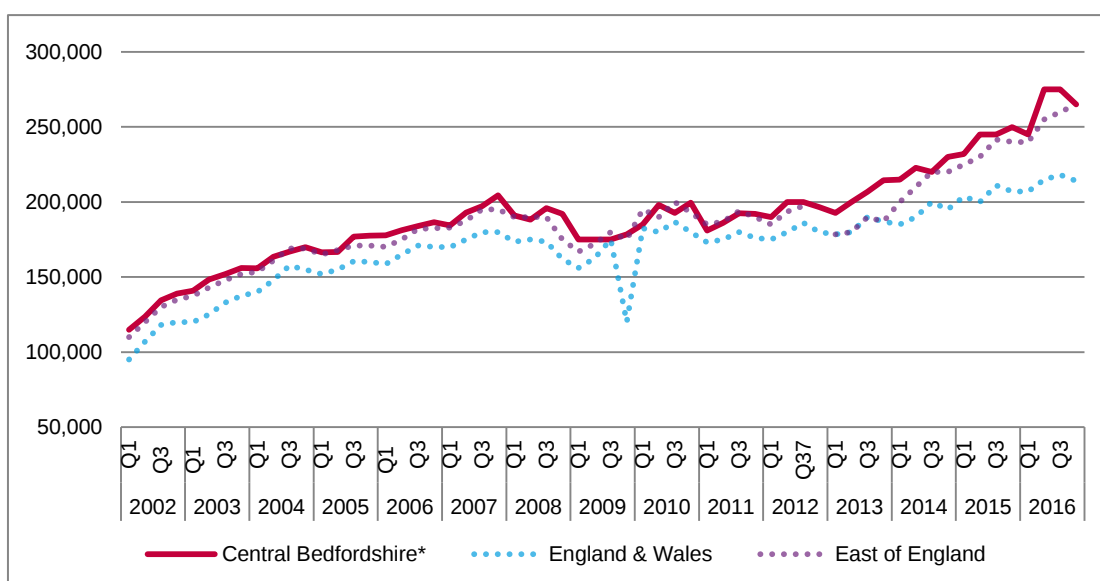


Source: Land Registry – edited by GL Hearn

- 6.14 Terraced premises related to 40% of the transactions followed by semi-detached properties (27%). However based on the dwelling stock structure, there are more semi-detached rather than terraced properties in Sandy.

Baseline Growth

- 6.15 In order to understand the impacts of East West Rail Link on the residential market north of Sandy, the anticipated growth is compared with the baseline growth which is based on the historic performance of the wider housing market area.
- 6.16 Figure 11 shows the historic trends in local authority, regional and national level. Having fully recovered from the recession (2008-12), the house prices in Central Bedfordshire have been higher than the pre-2008 levels since the third quarter of 2013. Prices have risen to £275,000 during the third quarter of 2016.

Figure 11: House Price Historic Growth 2002-2016

* 2002-2009 as an average of Mid and South Bedfordshire

Source: Land Registry/DCLG

- 6.17 Historically, house prices in Central Bedfordshire have been above the national trend and similar to the regional one. Value growth for the last five years (38%) was more than double of the national equivalent (17%) and above the regional one (32%).
- 6.18 House prices in Central Bedfordshire have increased by 39% in the last ten years (**Table 15**). This is 6% higher than the regional and 18% higher than the national comparators. Over the last fifteen years the house prices have more than doubled (104%), slightly above the regional equivalent of 100% and higher than the national figure of 85%.

Table 15: Historic Growth and Annual Rates

	5 years 2012-2016			10 years 2007-2016			15 years 2002-2016		
	Growth	%	CAGR	Growth	%	CAGR	Growth	%	CAGR
Central Bedfordshire	£75,000	38%	8.3%	£77,750	39%	3.8%	£140,500	104%	5.2%
East of England	£62,500	32%	7.1%	£65,000	33%	3.2%	£130,000	100%	5.1%
England & Wales	£32,000	17%	4.0%	£38,000	21%	2.2%	£100,000	85%	4.5%

Source: Land Registry/ DCLG

- 6.19 Data at a local level is available only for the last four years. **Table 16** below presents the values growth in Sandy between 2013 and 2016. Both the four years' growth and the annual growth rate for Sandy and Central Bedfordshire are the same.

Table 16: Growth in Sandy and wider comparators, 2013-2016

	Growth 2013-16	%	CAGR 2013-16
Sandy	63,275	33%	9.9%
Central Bedfordshire	68,250	33%	10.0%
East of England	70,000	37%	11.0%
England & Wales	28,000	15%	4.7%

Source: Land Registry – edited by GL Hearn

- 6.20 GL Hearn considers that it is reasonable to assume long-term house price inflation in line with the 10 year trend (2007-2016). This period represents “a complete housing cycle” including both the recession and recovery of the market. It avoids the picture being skewed by exceptional house price growth and enlargement of the EU in the early 2000s.

Table 17: House Price Projected Baseline Growth 2017-2026

	House Price 2026	Growth 2017-26	Value increase %
Sandy area	£371,055	£104,907	39.4%
Central Bedfordshire	£396,143	£110,920	38.9%

- 6.21 Based on the baseline growth scenario the house price in Sandy's local market (including any new settlement) is anticipated to increase by **39.4% in the next ten years to 2026**. In absolute terms, the overall house price in Sandy area has been estimated to grow to £371,055 in 2026.

EWR Growth Scenario

- 6.22 EWR will connect a new stand-alone settlement north of Sandy¹⁹ to Cambridge within a 20 minute time distance. In a spatial context, a relatively affordable area will be connected to a significant employment centre like Cambridge with a strong housing market and employment offer.
- 6.23 The Cambridge emerging Local Plan covers the period between 2014 and 2031 and predicts a population increase of more than 20%. The identified housing need to be accommodated within the city's administrative area is 14,000 new homes. This will be mainly accommodated through committed urban extensions (7,000 dwellings), committed large allocations (1,500+ dwellings), other allocation sites (1,900+ dwellings) and windfall provision (1,800+ dwellings).
- 6.24 Cambridge's economic context includes a world leading academic institute and a thriving hi-tech and biotech industry which has developed since the 1960s²⁰ and it is known as the Cambridge Phenomenon²¹. Forecast economic growth includes 22,100 jobs to 2031 and 12

¹⁹ This is the option assessed in this report. Jacobs 'East West Rail Central Section Engineering Summary Report' assessed a variety of potential station options around Sandy.

²⁰ Emerging Local Plan 2014

²¹ The Cambridge Phenomenon (1985), The Cambridge Phenomenon Revisited (2000), The Cambridge Phenomenon Changing Perspectives (2008) all produced and published by SQW

ha of employment land. The city remains a key economic driver at the sub regional, regional and national level.

6.25 Currently there are three settlements within 15 to 20 minutes distance via train from Cambridge which also have train links to London. The analysis of the residential values in these settlements helps to identify the effects that currently occur in areas with similar accessibility levels to Cambridge as well as additional connectivity to London.

6.26 The table below presents the findings for these comparable settlements.

Table 18: Comparable Settlements

	Time distance to/from ²² Cambridge with train (min)	Time distance to/from ²³ London with train (min)	Semi-detached price paid in 2016 (Median)	Difference with Sandy %
New settlement north of Sandy	20	47	£260,000	n/a
Royston	20	35	£325,000	25%
Newmarket	20	79	£256,250	-1%
Ely	15	69	£220,000	-15%

Source: Land Registry, National Rail

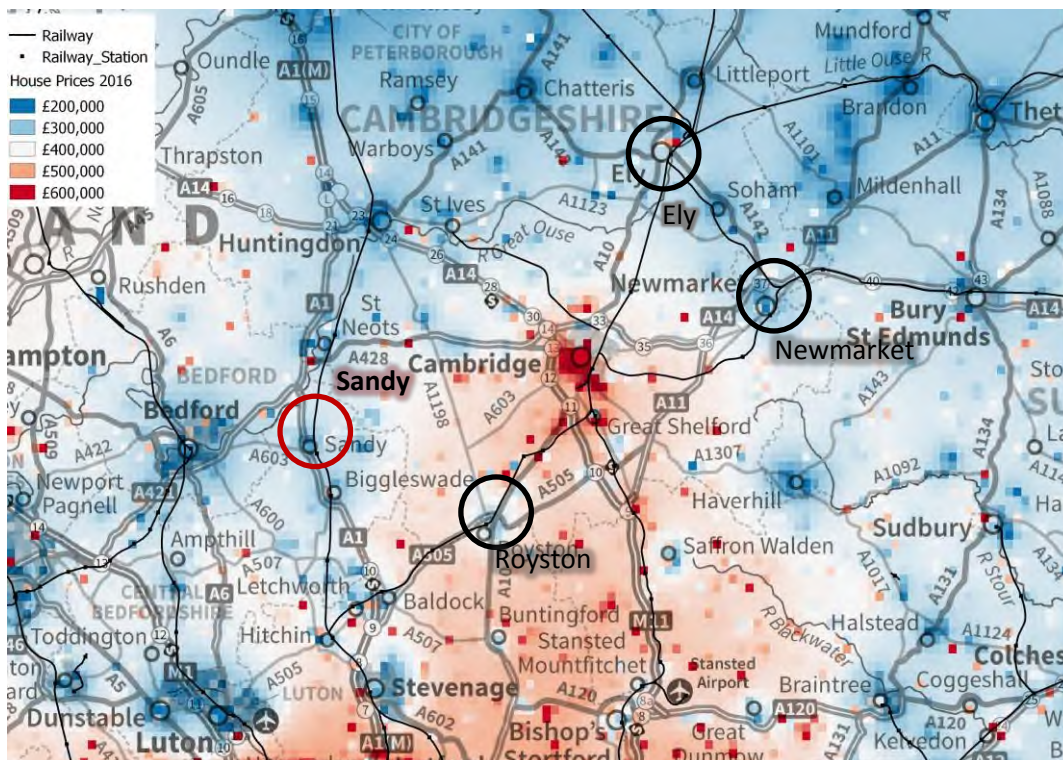
6.27 Ely is a small town of 20,300 people in East Cambridgeshire. Although it is within 15 minutes via train to Cambridge; its travel time to London is more than 69 minutes and can requires one change. Therefore this settlement does not represent similar connectivity dynamics to the future accessibility of the potential new settlement north of Sandy and is excluded from further analysis.

6.28 Newmarket is a market town of 20,400 people in Forest Heath, Suffolk. The town is currently within 20 minutes train distance to Cambridge and within 79 minutes (or more) distance to London via Cambridge. Similarly to Ely, Newmarket has a significant travel time to London with no direct link and therefore is also excluded from further analysis.

²² The time distances have been recorded through the national rail web portal and relate to time-distances at 5.30pm (peak hour) from Cambridge.

²³ The time distances have been recorded through the national rail web portal and relate to time-distances at 5.30pm (peak hour) from London.

Figure 12: Comparable Settlements and House Price Heat map



Source: Land Registry – edited by GL Hearn

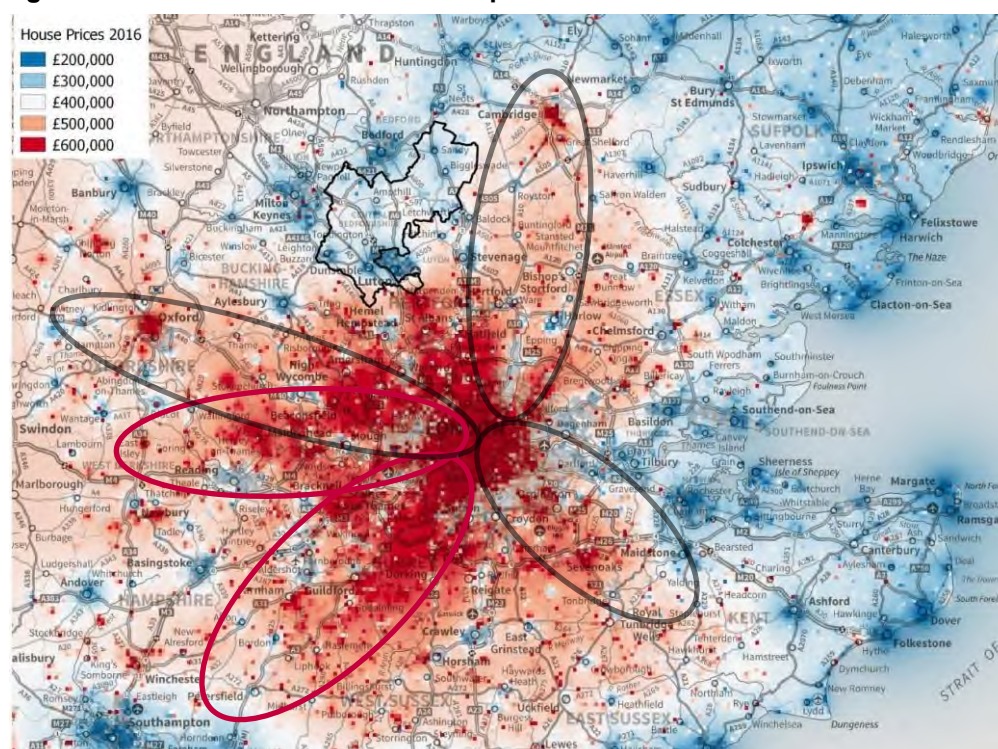
- 6.29 Royston is a town of 16,000 people. The town is within 20 minutes journey time to Cambridge and 35 minutes to London via train. While Sandy's travel time to London is 12 minutes longer; Royston's property market is considered to be affected from London's catchment zone more than Sandy.
- 6.30 The house prices in Royston are 25% higher than Sandy. It benefits from strong quality of place. After the completion of EWR the new settlement north of Sandy will have similar accessibility context to Royston; however it will be at least 12 minutes further from London. Therefore, uplift to 25% is considered too optimistic, particularly given that no change in the travel time to London is anticipated. However an uplift of 20% in the house prices of a new settlement north of Sandy over and above baseline growth (based on improved accessibility) can be justified based on the analysis. This does assume a strong approach to placemaking in the final development scheme.
- 6.31 In addition to the Cambridge's influence, it is important to consider London's catchment (in terms of zones and corridors) to understand Sandy's current and future context in relation to London's zones of influence.
- 6.32 Accessibility to London is a key driver of residential values across the South East and East of England. Figure 13 illustrates the house price geography across London's wider catchment

zone of influence. The graph illustrates some key property corridors that have been evolved historically.

6.33 The graph illustrates five higher value property corridors linked to the capital via train. These are the following:

- Guildford
- Reading
- Oxford
- Cambridge
- Maidstone

Figure 13: House Price 2016 - Heat Map with Corridors



Source: Land Registry, Ordnance Survey – edited by GL Hearn

6.34 These corridors typically see strong accessibility to London, and in a number of instances are relatively strong economic growth corridors in their own right. As Figure 14 shows, house prices are particularly strong along the corridors to Guildford and Reading (relative to distance to London); with notes of higher house prices towards the economic nodes of Oxford and Cambridge.

6.35 The house prices of settlements in Surrey with similar travel time to/from London (i.e Tadworth and Leatherhead) are 160% higher than those in Sandy (Figure 15). The housing values for settlements in Berkshire (i.e Newbury and Thatcham) are 105% higher than Sandy's equivalent.

Figure 14: House Price (2016) and Distance to/from London



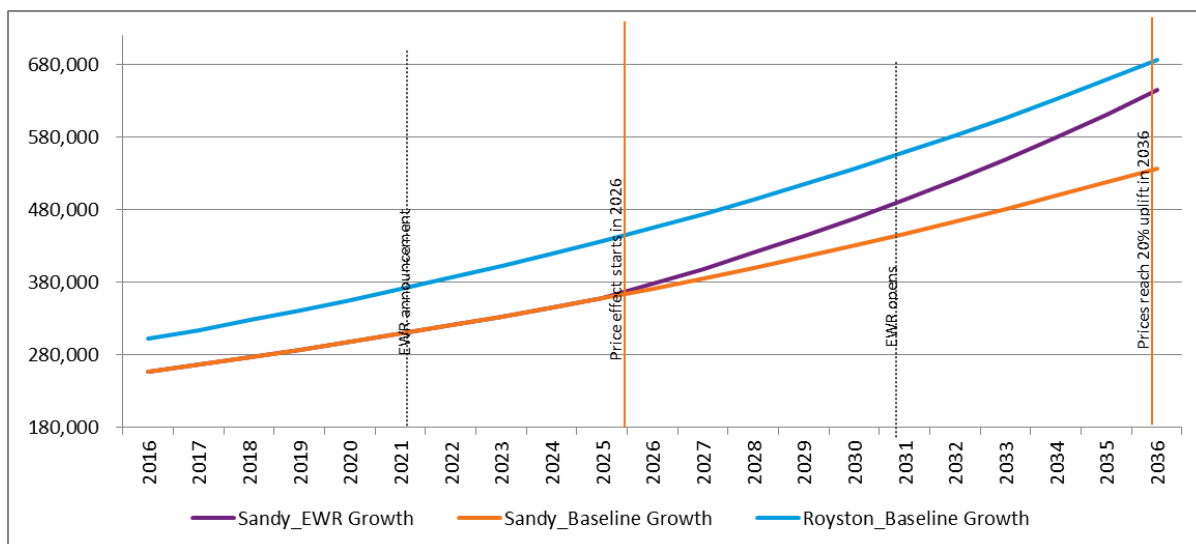
Source: Land Registry, National Rail - edited by GL Hearn

- 6.36 Kent is served by both Southern and Southeastern Rail service. The housing values in settlements within 42-52 minutes travel time to/from London (i.e. Tonbridge, Tunbridge Wells and West Malling) are on average 60% higher than the house prices in Sandy.
- 6.37 Finally, the house prices in settlements within 43-47 minutes travel time to/from London along the corridors running north and north-west from London are typically 36% higher than those in Sandy.
- 6.38 **The analysis highlights clear potential for value growth north of Sandy.** Sandy is currently an affordable area in Bedfordshire served by Great Northern rail services that link London to Peterborough. In the short term, once EWR operates (or even before its completion) there is potential for value growth – based both on its relative affordability compared to locations at a similar distance from London; and as a result of accessibility to Cambridge, with the potential for the lateral expansion of the corridor of higher prices along between London-Stansted-Cambridge to spread west.
- 6.39 GL Hearn considers that based on the benchmarking analysis undertaken, it would be reasonable to assume the potential for comparative growth in values of 20% in house prices arising from the enhanced accessibility delivered by East/West Rail. This is based on the triangulation of prices in surrounding towns with similar access to Cambridge and London (particularly the price differential of 25% to Royston) coupled with the comparative analysis of prices in towns at a similar distance by rail from London, which points to strong potential for value growth in a new settlement north of Sandy. This growth is over-and-above the

baseline growth which might be expected – it would see value differentials to other locations narrow.

- 6.40 Figure 15 indicates the housing price projections. This combines baseline growth and the assumed 20% comparative value uplift. It is estimated that the house price in a new stand-alone settlement north of Sandy will grow above the baseline forecast between 2026 and 2036 assuming that EWR will start operating in 2031.

Figure 15: EWR House Values Growth



Source: GL Hearn

- 6.41 Table 19 presents the projected housing value estimations. Based on the approach the house price in a new settlement north of Sandy will grow beyond the baseline between 2026 and 2036. In year 5 of the operation of the station (2036) the peak of 20% uplift is expected to apply.

Table 19: Projected House Prices 2016-2036 for Sandy

	2016	2021	2026	2031	2036
Baseline Growth	256,500	308,505	371,055	446,286	536,771
EWR Growth	256,500	308,505	377,273	493,080	644,436

Source: GL Hearn

- 6.42 It is beyond the capability of the approach to estimate any price projection post the decade when the price driving force of EWR is occurred,
- 6.43 **Sensitivity statement:** The estimated house prices are based on the best judgement and the most up-to-date evidence as at the time of writing. As mentioned in the methodology assumptions section the house prices are affected by a variety of parameters and factors. Alterations of key assumptions including journey times to Cambridge to could have positive or negative effects.

Delivery Rates

- 6.44 As set out in the approach section, delivery rates are considered at best to reach 350 dwellings per annum in a 'business as usual' situation. Delivery above this would require careful consideration of the delivery model.
- 6.45 Taking into account the scale of the growth scenarios considered and the benefits associated with an EWR interchange leading to significant forecast property value uplift, there may be justification to work towards a series of interventions that facilitate an exceptional rate of housing delivery (as outlined in the approach section of this report). This would support infrastructure delivery and strengthen the case for a viable and deliverable development. Table 20 demonstrates the timescales associated with higher than average delivery rates. The assumptions are derived from indicative delivery trajectories for each scenario set out in Appendix C.

Table 20: Delivery rates and timescale

	Delivery Period	Years	Total Provision	Provision within Local Plan Period	Average Delivery Rate (dpa)	Upper Threshold of Delivery Rates (dpa)
Scenario 1	2021-2043	22	7,000	4,700	305	500
Scenario 2	2021-2058	37	15,000	5,950	400	700
Scenario 3	2021-2070	49	19,400	5,950	388	700

Economic Benefits Rail

- 6.46 On the basis of the approach outlined in Chapter 3, we have estimated the level of benefits due to the East West Rail Link and a station at a new settlement north of Sandy. This has been estimated for the situation without any new development (ie the existing baseline) in line with the modelling work undertaken by Atkins; and with new development as described above for a number of development scenarios.
- 6.47 Benefits are presented in terms of user benefits (ie to those people who use the rail services), the wider economic benefits and benefits associated with development planning gain. The latter is though directly related to the value uplift considered above. Table 20 below shows the benefits to all users (eg existing plus development trips) and in brackets those associated with the development.

Table 21: Economic benefits of station / new settlement north of Sandy – Total Users and Development

	Scenario 1 7,000 homes	Scenario 2 15,000 homes	Scenario 3 20,000 homes
	Table shows trips and benefits to total users and in brackets to development trips only		
Additional annual rail trips	142,000 (72,000)	197,000 (127,000)	229,000 (159,000)
User Benefits	£127m (£48m)	£164m (£85m)	£185m (£106m)
Wider Economic Benefits	£27m (£10m)	£34m (£18m)	£39m (£22m)
Total Benefits	£154m (£58m)	£199m (£103m)	£224m (£128m)
Development Planning gain	£174m	£382m	£462m

6.48 Table 21 shows the incremental benefits (ie above the baseline) resulting from the developments of homes and of the resulting employment from town centre and other uses including schools and leisure. **The total benefits range from £154 (£58m to development trips) the 7,000 homes scenario to £224m (£128m) for the 20,000 homes scenario.** We have also calculated the development planning gain in accordance with WEBTAG guidance. This is based on the property value uplift illustrated in Figure 15 and is effectively a benefit related to the new rail service.

6.49 This enhances the location of a new settlement north of Sandy as a station on ECML. Not only does it offer both connections between ECML and EWRL, optimises the benefits for future rail passengers in the East – West Corridor from Oxford - Bedford - Cambridge (on the basis of Option C developed by Network Rail) but also provides significant development benefits improving the economic case and a significant amount of development planning gain. With the addition of more homes and a station with connections to both the EWR and the East Coast route there would be a stronger case for stopping the main ECML providing longer distance services to Peterborough and the North as well as faster services to London. Furthermore the high growth of passengers travelling into London, as reported in Chapter 3, and the provision of Thameslink services from 2018 will enhance the overall connectivity of Sandy.

Non-residential Land Uses

Retail, leisure and services

6.50 Based on the typical provision of town centre type uses in other towns in Central Bedfordshire, the table below illustrates the indicative quantum of demand relating to the

scenarios considered. As an indication of provision, scenario 2 would deliver infrastructure including:

- Seven primary schools and two secondary schools
- A significant amount of greenspace, sports pitches and allotments
- A new leisure centre
- A town centre with provision for at least one large supermarket, shops, restaurants and services

Table 22: Provision (sqm) per person – new settlement north of Sandy

	Standard provision sqm/person	Scenario 1	Scenario 2	Scenario 3
Units		7,000	15,000	20,000
Population	N/A	15,400	33,000	44,000
Comparison	0.3	4,620	9,900	13,200
Convenience	0.22	3,388	7,260	9,680
Services	0.12	1,848	3,960	5,280
Restaurants	0.07	1,078	2,310	3,080
Miscellaneous + vacant	0.08	1,232	2,640	3,520
Total	0.79	12,166	26,070	34,760

Source: GL Hearn

- 6.51 As previously noted, the introduction of the rail station is not considered to have a specific effect on retail and other town centre values. These areas have been included in the land take model and represented on the diagrams.

Employment and commercial

- 6.52 The rail interchange is not considered to be a driver for industrial or warehouse development. However the north of Sandy location is likely to be experience future demand for warehousing / distribution based on its location on the A1 / A421 / A428 particularly with any future road improvements as referred to. Furthermore at the scale of growth considered here is inevitably a requirement for employment land to meet locally arising need. As set out in the method section, an indicative pro rata has been applied to generate demand set out in the table below.
- 6.53 This includes a reasonable performance of the office market as a 20% percentage of development partly responding to the settlement size and partly as a proximity to the Cambridge employment and office market.
- 6.54 Overall employment would need to be phased broadly with housing and be occupied fully towards the end of the settlement completion (2040-2070 for the minimum and maximum scenario). The jobs benefits associated with the scale of land considered are set out in the table below.

Table 23: Employment demand

		Scenario 1	Scenario 2	Scenario 3
Employment Uses	Ha	35	75	100
	Sq m	350,000	750,000	1,000,000
Gross to net floor area at 0.3	Sq.m	105,000	225,000	300,000
B1 jobs	20% of total	1,344	2,880	3,840
B2 jobs	40% of total	1078	2,310	3,080
B8 jobs	40% of total	662	1,419	1,892
Total No of jobs		3,084	6,610	8,813

Source: GL Hearn / Capita, NB: FAR and B class land distribution indicative

- 6.55 There is little evidence that the rail service would result in additional office floorpace demand. It would provide a connection to the strong office market in Cambridge. Nonetheless office is included in higher growth scenarios reflecting a critical mass achieved.

Summary

- Scenarios have been explored based on an EWR interchange station (replacing existing station) to the north of Sandy, facilitating housing growth of 7,000, 15,000 or 20,000 homes.
- House prices in the local housing market of Sandy are around £250,000 (2016) and forecast to grow by some 39% by 2026 under baseline (business as usual) conditions.
- The house price uplift estimated to be generated by the EWR station is up to a 20% over and above baseline growth. This incorporates the price affect within 800 metres of the station where a 10% premium on prices in the wider settlement for a similar product could be expected.
- Delivery rates, with intervention, are assumed as averaging 400 dwellings per annum and could reach up to 700 per annum if supported by the appropriate delivery model. This would achieve 5,000-6,000 dwellings within the Local Plan period (2035) and a major new settlement realised between 2060 and 2070.
- Although there is unlikely to be demand for non-residential uses beyond that typically associated with population growth, the scale of growth considered will lead to requirements for new retail / leisure (i.e. town / local centres) as well as employment land ranging from 35-100 ha dependent on the housing scenario considered, equivalent to up to 9,000 jobs (excluding town centre jobs). This is supported by investments both in rail and particularly road infrastructure which will aid the distribution sector amongst others.
- There is very limited potential to capture value from non-residential market sectors.
- Significant economic benefits ranging from £154 to £224m are associated with the delivery of new infrastructure and housing under growth scenarios at the new station and settlement north of Sandy.

7 WIXAMS/ STEWARTBY

7.1 Wixams is a new settlement located on the boundary of Bedford and Central Bedfordshire. It has been under construction since early 2007, with the first residents settled into the area in 2009 and over 1,000 completions to date.

7.2 Wixams is planned to consist of four "villages", each with its own centre, built around a town centre. It is expected to have 5,500 homes, originally 4,500 but extended by a 1,000 under allocation in the Central Bedfordshire Local Plan 2011. The development concept is partly based around the introduction of a new north/south Wixams rail station on the Midland Main Line. This figure excludes a further 500 units considered as a draft allocation under the emerging Central Bedfordshire Local Plan.

Scenarios

7.3 A baseline and two scenarios of growth have been tested to understand the additional capacities that can be unlocked in the wider area of Wixams. It should be noted that the analysis focuses only in the administrative area of Central Bedfordshire. Potential growth in Bedford Borough is not tested in this report.

7.4 This study considers the following scenarios in Wixams:

- Baseline: A new rail station that connects Wixams north / south built as has been originally planned. The location of the station is the same as presented in the Wixams masterplan²⁴. Any commenced, permitted or allocated land is considered as included under this scenario.
- Growth Scenario 1 (Wixams): A new interchange station that connects Wixams both east/west (EWR) as well as north/south at the location as planned to date. The additional growth anticipated is 2,800 new homes, constrained by a 500m buffer around Houghton Conquest.
- Growth Scenario 2 (Stewartby): A new interchange station to the south of the location planned to date on the south east edge of Stewartby. The additional growth anticipated is 8,300 new homes. Again this is constrained by a 500m buffer around Houghton Conquest.

7.5 Scenario 1 investigates the additional growth that can be unlocked through the construction of an interchange station in Wixams. Table 21 summarises the findings. There is no premium zone in Scenario 1 as this is already occupied by allocated development.

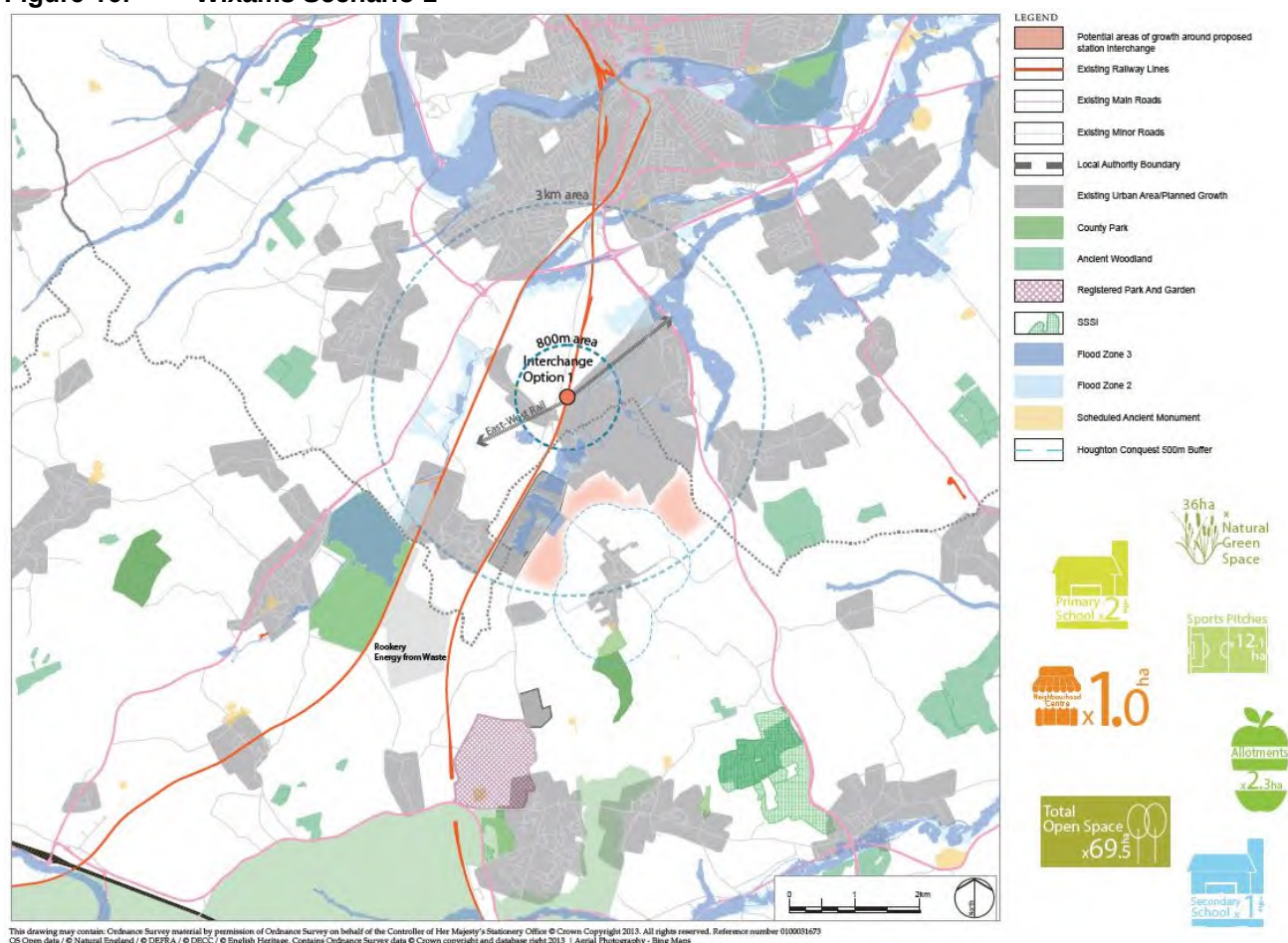
Table 24: Wixams Development Concept - Scenario 1

	Premium Zone	Wider Area	Total
Land take up (ha)	Nil	163	163
Residential land (ha)	Nil	79	79
Density (dph)	n/a	35	38
Residential units	Nil	2,759	2,759
Population		6,720	

²⁴ http://www.centralbedfordshire.gov.uk/Images/wixam-master-plan_tcm3-6809.pdf

7.6 The model estimates the land constraints and land requirements for other uses such as open space, town centre and education (Appendix A).

Figure 16: Wixams Scenario 1



Source: LDA Design

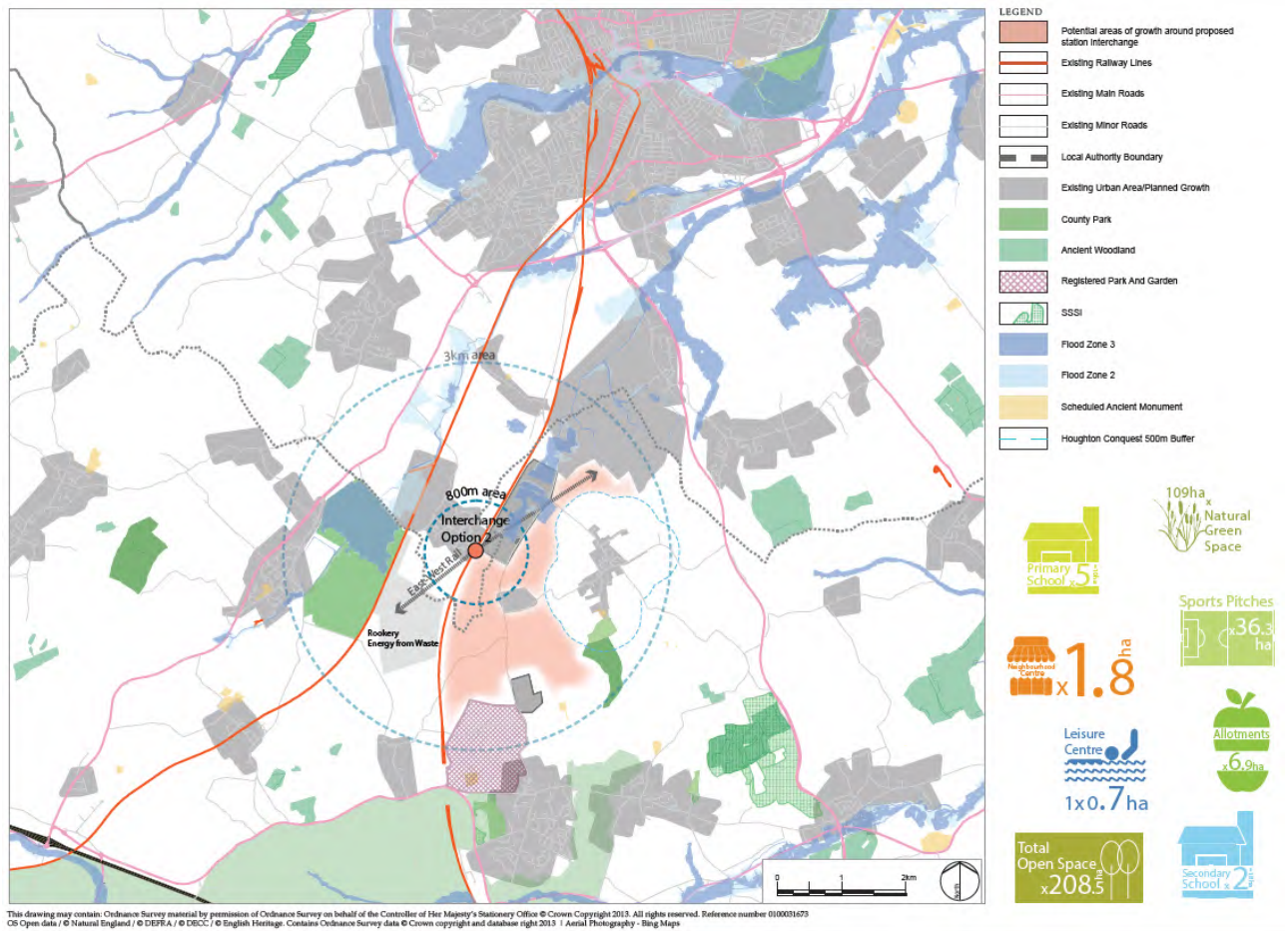
7.7 Scenario 2 investigates the additional growth that can be unlocked through the construction of an interchange station in Stewartby, further to the south. The table below summarises the findings.

Table 25: Stewartby Development Concept - Scenario 2

	Premium Zone	Wider Area	Total
Land take up (ha)	59	381	440
Residential land (ha)	53	145	199
Density (dph)	60	35	42
Residential units	3,250	5,050	8,300
Population		20,022	

7.8 The model estimates the land constraints and land requirements for other uses such as open space, town centre and education (Appendix A).

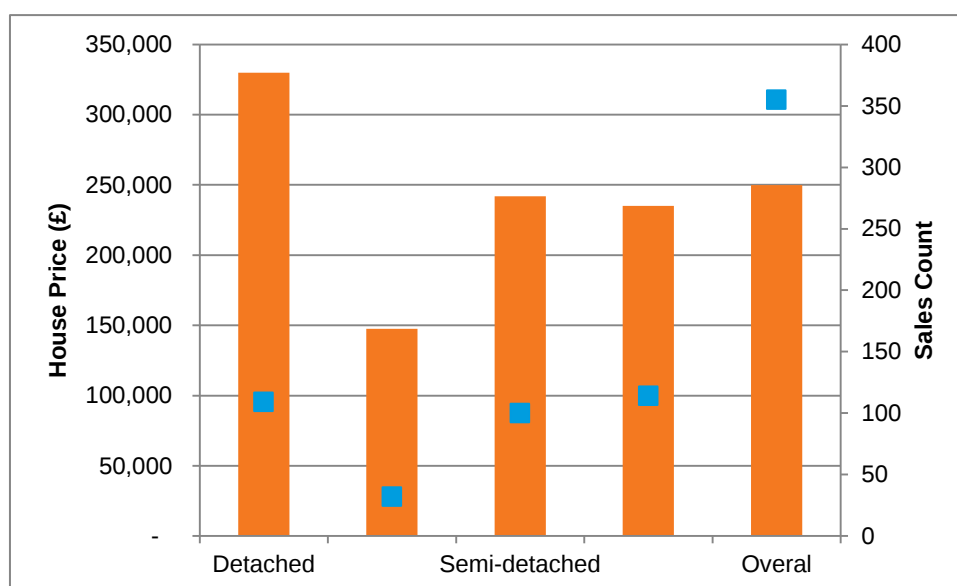
Figure 17: Wixams Scenario 2 – Stewartby



Value Uplift

- 7.9 Only 49 properties were sold in Wixams 2016 (based on HM Land Registry data). This sample does not consider representative and therefore the analysis was extended for the period between 2013 and 2016 (data at this level is available only for this period). A total of 355 properties were sold in Wixams between 2013 and 2016. The overall price for the same period was £249,950.
- 7.10 Figure 18 below summarises the number of transactions and the relative values by property type over this period.

Figure 18: Housing Transactions by type in Wixams 2013-2016

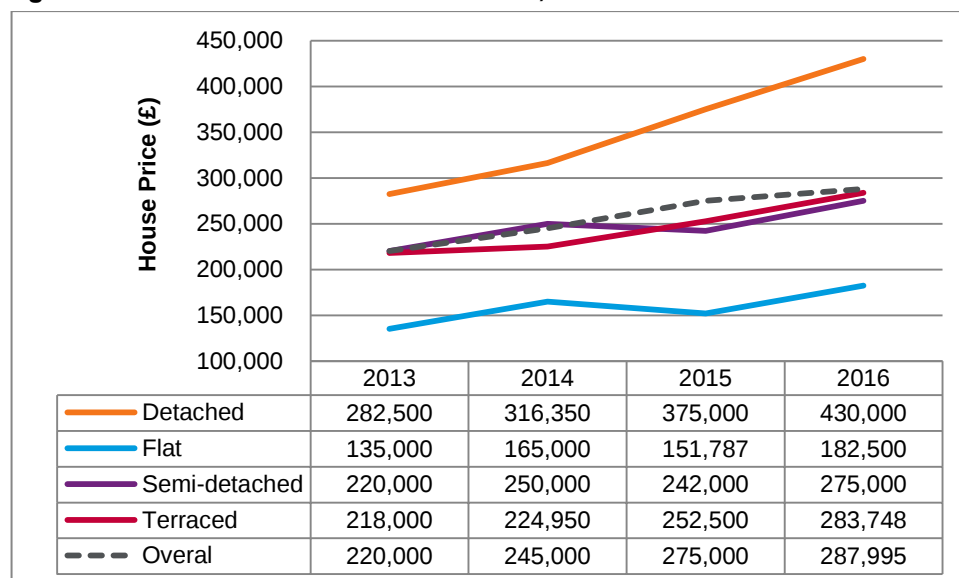


Source: Land Registry – edited by GL Hearn

7.11 Terraced premises accounted for 32% of the total transactions, followed by detached properties (31%) and semi-detached (28%). Only 9% of the total transactions in the last four years relate to flats.

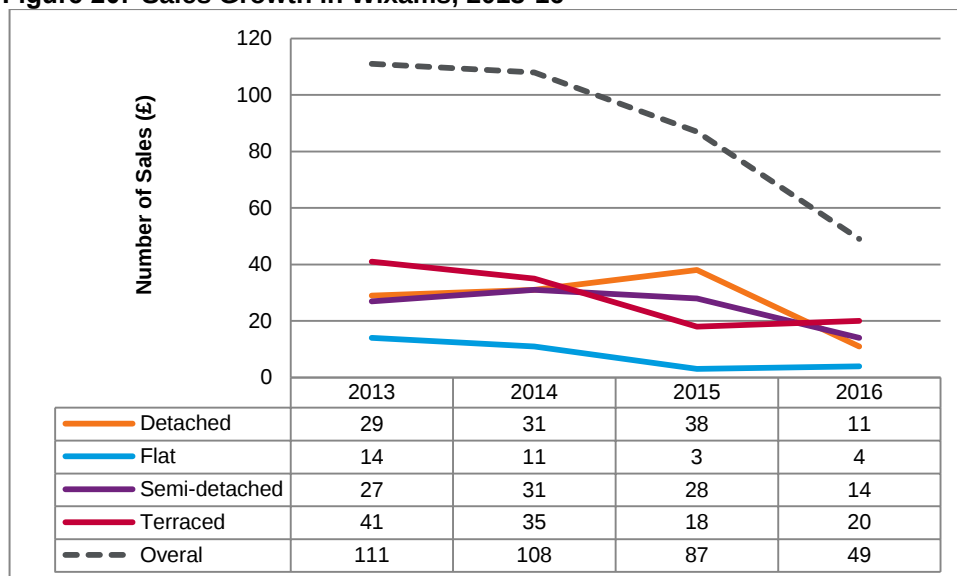
7.12 Figure 19 shows that the overall median price has been increased by 31% since 2013. However sales volumes have been decreased by 56% (Figure 21).

Figure 19: House Price Growth in Wixams, 2013-16



Source: Land Registry – edited by GL Hearn

Figure 20: Sales Growth in Wixams, 2013-16

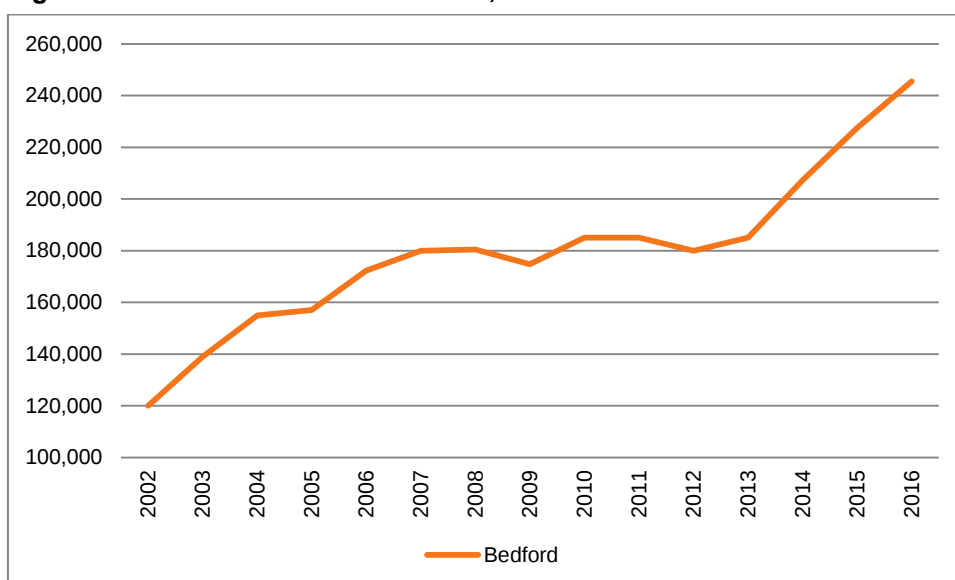


Source: Land Registry – edited by GL Hearn

Baseline Growth

- 7.13 The baseline house price growth at Wixams has been estimated based on the annual rate of price growth the last ten years in Bedford. Bedford house prices are considered to reflect Wixams context better than the one of Central Bedfordshire, given Bedford's close proximity.
- 7.14 Figure 21 shows the historic trend in residential values in Bedford for the last fifteen years. Since 2013 there has been a significant increase of the residential values reaching a peak of £245,500 in 2016 (Q3).

Figure 21: Historic Growth in Bedford, 2002-2016



Source: Land Registry – edited by GL Hearn

- 7.15 Table 26 presents the growth rates of the last 5, 10 and 15 years. The annual rate of the last ten years (3.5%) is applied on the baseline projections as the most appropriate. Similarly to Sandy's baseline value growth, the ten years period constitutes a complete housing market circle including both the recession and values recovery, and is not skewed by abnormally strong price growth in the early 2000s in a historical context.

Table 26: Growth Rates in Bedford 2002-2016

	5 years		10 years		15 years	
	Growth	Annual	Growth	Annual	Growth	Annual
Bedford	36%	8.1%	36.4%	3.5%	105%	5%

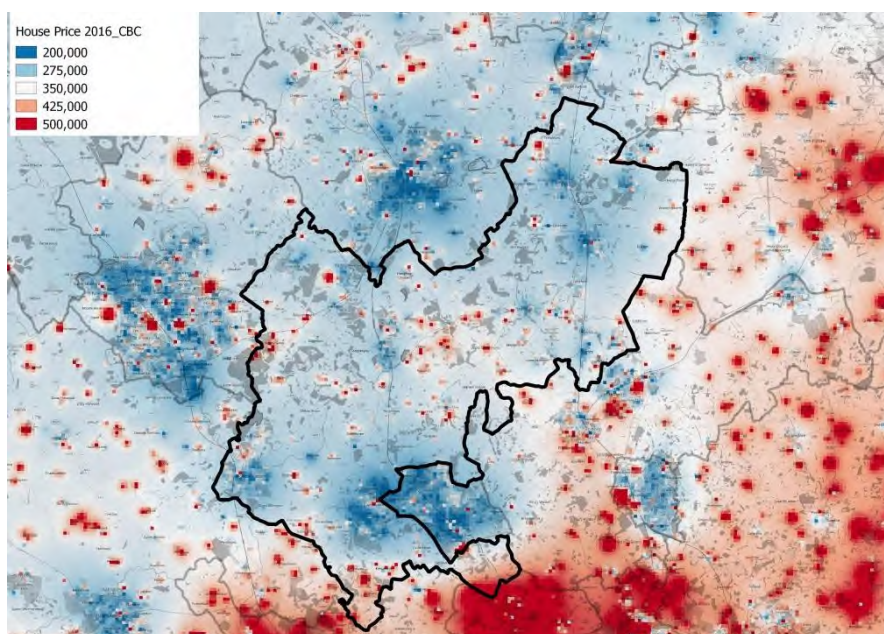
Source: Land Registry – edited by GL Hearn

- 7.16 On this basis we project growth of residential values in Wixams of around 36% over the next decade. The values are projected to reach £406,600 in 2026.

EWR Growth

- 7.17 Residential values in Wixams currently carry a premium over comparator areas such as Flitwick. This is considered to reflect the new build house premium and a level of anticipation around a new rail link. However there is likely to be capping on the price potential due to the ongoing delays on delivery of the Wixams station (permitted initially in 2008) and it is estimated that additional uplift will be applied once the station is under construction and operational.
- 7.18 It is also important to recognise that delivery of a new EWR interchange station at Wixams / Stewartby would make the location one of the better connected areas within the region (as equally would be the case at a new settlement north of Sandy). It would:
- Benefit from north/ south accessibility by rail, providing connections to London with an assumed c. 55 minute journey time. The specific impact of this given the distance from London and similarity to current prices at other locations such as Flitwick and Sandy means that this on its own does not deliver an uplift in values. Nonetheless the following analysis shows greater potential for price growth than other areas at a similar journey time to London.
 - Benefit from east/west accessibility providing connections to larger employment centres such as Cambridge and Milton Keynes. It would however be further from Cambridge than Sandy suggesting less potential to capture demand from those priced out of these areas. There is little value differential to centres such as Bedford and Milton Keynes.
 - Nonetheless the combination of east/ west and north/ south connectivity would make it one of the more accessible locations within the sub-region by public transport.
- 7.19 Figure 22 presents a house price heat map covering Central Bedfordshire and the wider area. In a regional scale, Wixams is located in an area of relatively low values.

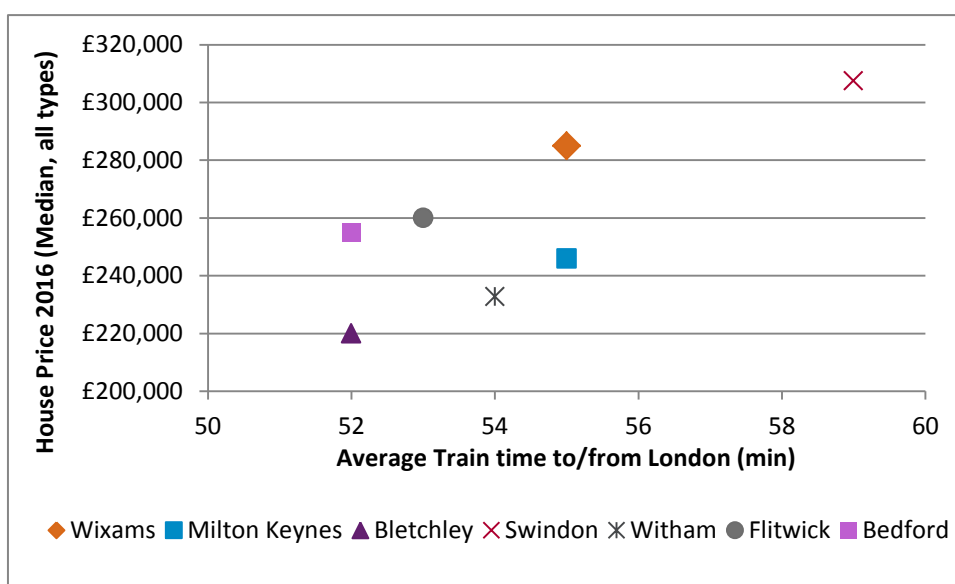
Figure 22: House Price Heat map 2016 - Central Bedfordshire



Source: ONS and Land Registry – edited by GL Hearn

- 7.20 Figure 13 (page 53) presented housing price corridors around London. Wixams is part of the London/Bedford Corridor. Bedford is an affordable town in close proximity to Wixams. The employment offer is relatively limited compared to Cambridge or Milton Keynes. The town is still evolving and there may be potential for further economic growth taking into account any future benefit of EWR connectivity.
- 7.21 The completion of the north south station is anticipated to be the catalyst for additional house price growth in the area, with delays in station implementation capping prices and delivery rates.
- 7.22 The house prices of settlements around Wixams such as Flitwick and Bedford are 10% lower than those in Wixams (Figure 23). As noted this is attributed to the new-build premium that is currently applied to Wixams properties and a level of anticipation related to the north south station. The housing values for settlements in the wider area with similar travel time to/from London (i.e Bletchley and Milton Keynes – as a whole) are on average 18% lower than those of Wixams.
- 7.23 We have identified a number of settlements with a similar time distance to Wixams / London as set out below. At the sub regional and regional level, Wixams prices tend to out-perform other areas. For illustration areas beyond are included although it is noted that there is little control for other environmental and price influencing factors, the data is illustrative.

Figure 23: House Price and train journey time – Wixams' comparables (2016)



Source: Land Registry

- 7.24 It is considered reasonable to expect that a 10% premium associated with properties within the premium zone (approximately 800 m walking catchment) compared to similar properties across the wider settlement will be triggered when the north south station is operational. **This alone will trigger an approximate 3-5% uplift across the settlement as whole, dependent on final densities.** This in part reflects the location of the station (in other scenario), which is not central to the settlement and is constrained by water bodies, therefore affects less properties, but as a result the premium zone may be extended to reflect the desirability of walking due to other means (i.e. car) are more likely to be congested.
- 7.25 **The introduction of an interchange at Wixams and the four-direction accessibility that will be provided towards four key employment areas** (i.e London in 55 minutes, Bedford in 2minutes, Cambridge in 30-35 minutes and Milton Keynes in 25-30 minutes) **is anticipated to push the prices further up by 3-5% thus achieving an overall value uplift of 6-10%.** There are few examples of a similar four way an interchange and little empirical data on the effects of a future Cambridge to Oxford corridor, which Wixams will be relatively central to. This uplift is therefore applied using professional judgement.
- 7.26 As Wixams prices are already outperforming a number of comparable locations it is considered that a price effect beyond 10% if unlikely within the context of the relatively low value housing sub market.
- 7.27 As noted the above uplift would apply to both scenarios considered here and is sensitivity to the ability to deliver residential units and increased densities around the station locations.

There are environmental constraints which would need to be considered in more detail under both scenarios.

- 7.28 For Option 1, whereby the growth arises around the existing proposed station site, the delivery of the Station would impact principally on values for sites which already benefit from planning consent – limiting the potential value uplift which could be accommodated through any roof tax-type mechanism.
- 7.29 For Option 2, where growth is focused more around Stewartby, there is better potential to capture value uplift – as potential development sites are not as well progressed. However, altering the station location to this option, could well be expected to reduce the pace of development occurring north at Wixams; and thus feasibly the scale of growth which could be achieved in this area over the plan period to 2035 (given the lead-in time associated with bringing forward additional sites through development associated with Option 2). This is considered in further detail below under delivery rates.
- 7.30 **Sensitivity statement:** The estimated house prices are based on the best judgement and the most up-to-date evidence as at the time of writing. As mentioned in the methodology assumptions section the house prices are affected by a variety of parameters and factors. Alterations of key assumptions including journey times to Cambridge could have positive or negative effects.

Delivery Rates

Baseline

- 7.31 Evidence indicates that completions reached some 500 dwellings per annum in 2011/12 at Wixams however this is understood to have slowed considerably subsequently. Under the baseline condition delivery rates are assumed to average around 250 dwellings per annum. As noted, this is predicated on confirmation of the delivery of the station on the Midland Main Line.

Scenario 1: Wixams

- 7.32 The commitment and introduction of a north-south / east-west interchange at Wixams is considered to act as a driver for enhanced residential demand. However few of the additional units considered under this scenario (over and above those granted planning consent already) will be within the premium zone. Most additional growth through which some of the uplift in value could be captured would be to the south of the existing planned Wixams development.
- 7.33 It is anticipated that delivery rates will follow a similar pattern to the baseline scenario averaging 250 dwellings per annum. There would be a market interrelationship with the development occurring under the land already allocated for development at Wixams; and

therefore the build-out (which would principally form further phases of development) is not considered to commence until 2025. Peak delivery would be in the 2030s. Settlement completion would be 2045.

Scenario 2: Stewartby

- 7.34 The commitment and introduction of a north south / east west interchange at a new location south east of Stewartby would be a driver for enhanced demand in a new location, and could support additional development from 2021 onwards.
- 7.35 However an interrelationship with the housing market as the existing Wixams planned development will remain, alongside the wider housing growth planned across Marston Vale. This will influence planned delivery rates at this location, and the potential for exceptionally high delivery rates to be achieved. We have assumed growth at this location and at the existing consented development at Wixams would progress alongside one another. On this basis a delivery rate of 250 dpa is assumed, with settlement completion taking 30 years to 2051.

Table 27: Delivery rates and timescale

	Delivery Period	Years	Total Provision	Provision within Local Plan Period	Average Delivery Rate (dpa)	Upper Threshold of Delivery Rates (dpa)
Scenario 1	2025-2046	21	4,800	2,250	225	350
Scenario 2	2021-2063	42	10,500	3,500	250	350

- 7.36 In Chapter 3 we referred to the opportunities that may result from a Bedford Parkway South station including attracting existing rail users from Bedford and new park and ride users from the strategic road network. Such opportunities would be less likely to arise with a Stewartby location than at Wixams as the former is less accessible to the road network

Economic Benefits Rail

- 7.37 On the basis of the approach outlined in Chapter 5, we have estimated the level of benefits due to the East West Rail Link and a station in the vicinity of Wixams. In this case the options relate to both the location of the station - either a northern location near to Wixams or a southern location near to Stewartby - and to different levels of development.
- 7.38 The different station locations have three additional impacts. Firstly, the southern location is further away from Bedford which is a key destination for trips on EWR and therefore these journeys have a greater penalty than would occur with a northern location. Secondly developments south of Bedford generate significant number of trips to Bedford using the new station and Thameslink services. Thirdly a southern location station is less attractive to people within the new development at Wixams. Hence, in undertaking this assessment we have separately identified the benefits that accrue to the developments at Wixams from those that arise in association with new development sites in Central Bedfordshire.

- 7.39 Benefits are presented in terms of user benefits (ie to those people who use the rail services) and wider economic benefits. As discussed above the EWR is not modelled at this stage to generate any uplift in property values so benefits associated with planning gain are not calculated.

Table 28: Economic benefits from developments at Wixams

Scenario 1 (Wixams)					Scenario 2 (Stewartby)			
	Existing trips inc growth	Wixams	Central Beds 2,800 homes	Total	Existing trips inc growth	Wixams	Central Beds 8,300 homes	Total
Annual Trips 'ooo's	126	179	142	448	60	35	171	266
User Benefits	£34.3m	£25.7m	£27.4m	£87.4m	£25.7m	£7.3m	£41.9m	£74.9m
Wider Economic Benefits	£7.2m	£5.4m	£5.7m	£18.3m	£5.4m	£1.5m	£8.8m	£15.7m.
Total Benefits	£41.6m	£31.1m	£33.1m	£105.7m	£31.1m	£8.8m	£50.7m	£90.7m

- 7.40 **Table 28** shows that a station at the southern location significantly penalises trips which are generated from Wixams. In addition because of its more southerly location, trips from the new settlements in Central Bedfordshire do not derive the same level of benefits. This is particularly for trips from the development into Bedford which would use the new station.

Commercial Land Uses

Retail, leisure and services

- 7.41 Based on the typical provision of town centre type uses in other towns in Central Bedfordshire, the table below illustrates the indicative quantum of demand relating to the scenarios considered. The analysis shows a demand for c. 0.4 ha of land for these uses under scenario 1 (adjusted downwards reflecting its extension to the existing proposed area with a centre) and 2 ha under scenario 2. Indicatively, Scenario 2 would deliver infrastructure including:

- 5 primary schools and two secondary schools
- A significant amount of greenspace, sports pitches and allotments
- A new leisure centre
- A town centre with provision for a large supermarket, shops, restaurants and services

Table 29: Provision (sqm) per person, Wixams

	Standard provision p/person	Baseline	Scenario 1 (Wixams Growth)	Scenario 2 (Stewartby Growth)
Units		5,500	2,800	8,300
Population	N/A	13,200	6,720	19,920
Comparison	0.3	3,960	2,016	5,976
Convenience	0.22	2,904	1,478	4,382
Services	0.12	1,584	806	2,390
Restaurants	0.07	924	470	1,394
Miscellaneous + vacant	0.08	1,056	537	1,593
Total sqm	0.79	10,428	5,308	15,736
Adjusted (70% for S1)	0.79	10,428	3,716	15,736

- 7.42 The introduction of the rail station is not considered to have a recognisable effect on retail and other town centre values or demand.

Industrial and Warehousing:

- 7.43 There is no evidence to suggest that the introduction of new rail infrastructure will unlock demand for industrial development at Wixams. There are a number of planned developments in the area including plans for providing employment land south of Stewartby (Rookery Pit – Energy Facilities granted permission), near Kemston Hardick (Coronation Business Park under construction) and allocations as part of the current Wixams plans.
- 7.44 Wixams is in proximity to Marston Vale²⁵. Since the late 1990s the main landowner/developer has been working with stakeholders and the existing communities to progress development plans and a significant of residential and employment development has been already completed. There are plans for providing more than 40 hectares of employment land near Ridgmont Rail Station. Overall the area benefits from strong A421/M1 access as well its proximity to Bedford which supports broader employment and distribution activities. New rail infrastructure will support this, but in our view is unlikely to support higher levels of employment development than that already planned.

²⁵ <http://www.marstonvale.co.uk/working>

Commercial office:

- 7.45 There is little evidence to support demand for office development at Wixams/ Stewartby irrespective of the EWR interchange. In general Bedford has low office rents and the influence of Cambridge's office catchment area is not considered to affect Wixams, even after the completion of EWR. There is a relatively modest office market; and limited potential for value uplift. Some office accommodation might be delivered, but quantum can be expected to be modest.

Summary

- Significant growth is already planned at Wixams (up to 5,500 units) partly predicated around the introduction of a new north/south Wixams rail station on the existing rail line.
- Scenarios have been explored based on an EWR interchange either: at the currently planned station location, achieving an additional 2,800 homes; or at a new location further south, directly south east of Stewartby, achieving an additional 8,300 homes.
- Value uplift is anticipated as a result of the combined north / south and EWR at Wixams. The delivery of a north south station link is expected to drive prices by 3-5% with a similar effect expected by EWR, achieving a 6-10% total uplift from the baseline. Given the existing permission in place, no value uplift is anticipated as a result of the EWR at Wixams which can be captured through a roof tax type model, reflecting limited additional development potential in close proximity to the rail station beyond that permitted. Greater potential exists should a more southern growth location be considered.
- Delivery rates under either scenario need to take account of the significant planned growth at Wixams and in the wider Marston Vale area. On this basis it is assumed that up to 250 dwellings per annum could be delivered on additional land which doesn't currently have planning consent or an allocation.
- There is little evidence of demand for non-residential uses beyond that typically associated with population growth (i.e. town / local centres) being driven by any new station or rail link. GL Hearn identifies little potential to capture value from these activities.
- Significant economic benefits are associated with the delivery of new infrastructure and housing are envisaged. For the Wixams option, total benefits are quantified at £108 million. The impact of the Stewartby option are lower, at £90 million.

8 CONCLUSIONS

- 8.1 This report has considered the development gain and economic benefits associated with the introduction of EWR in Central Bedfordshire with stations facilitating new settlement growth at locations near to Sandy and Wixams / Stewartby.
- 8.2 In terms of **a new standalone settlement north of Sandy**, growth options are considered for 7,000, 15,000 and 20,000 dwellings. This would result in an overall 20% value uplift above the baseline following the introduction and operation of EWR. The new settlement would bring a range of new social and economic infrastructure including potentially significant employment, reflecting the strong highway network location and the short journey time distance to Cambridge, being the first stop on the route. There is a case for an accelerated housing delivery model to ensure that housing and infrastructure are delivered in a timely manner to achieve a strong early place making model. Economic benefits associated with the new settlement and station north of Sandy options range from £154m to £224m. Overall a new settlement north of Sandy appears to present an opportunity for economic benefits and growth whilst enabling value uplift capture.
- 8.3 At **Wixams**, two station locations have been considered, one at the originally planned location near Wixams and one to the south, east of Stewartby. Under both options a 6-10% value uplift is associated with the introduction of a rail interchange which runs both north – south and east – west, the value benefits derived roughly evenly between the two. Wixams already achieves relatively high values compared to the wider which suggest that within this market a higher premium may be difficult to achieve. The northern station location is likely to assist some 2,800 additional homes being delivered beyond the baseline which will act as a southern extension to that already planned (5,500 units), a considerable portion of which have planning permission in place, restricting the ability to capture any value uplift. The southern location is considered to achieve some 8,300 homes with more potential for value uplift capture; however the economic benefits are lower than the alternative. Economic benefits associated with the Wixams options range from £33m to £51m. Furthermore the housing market is complex in this location as a new settlement is likely to interact with housing delivery rates within the planned Wixams development as well as the wider Marston Vale.

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APPENDIX A: Sandy Growth Options

Growth Option 1: 6,629 units, 14,951 people

Summary points:

- Total area 334Ha
- Densities of development assumed are 60dph for the premium core area, and 35dph for the remaining areas
- Existing area of Flood Zone 2 partially included in the development area to maximise development close to the station area
- Development area of 100Ha focused on premium core area rationalised in scale: 84.4Ha is developed at 60dph, the remainder at 35dph
- Development abuts the A1 on the western edge but may require noise and air quality buffer

Table 1: Public Open Space – Option 1

Type	Standard [ha per 1000]	Area [ha]
Informal Open Space	1.8	30.24
Allotments	0.34	5.712
Green Amenity	0.6	10.08
Play Space	0.4	6.72
Natural	5.4	90.72
Sport	1.8	30.24
Total	10.34	173.712

Table 2: Indoor Sports requirement – Option 1

Type	Standard sqm per 1000]	Floorspace [sqm]
Swimming	19.68	330.62
Sports Hall	74.37	1249.42
Fitness	5.23	87.86
Sub-total		0.17
Likely size of Sports Centre (ha)	Floor area x3	0.50

Table 3: Estimate Land budget – Option 1

Land use	Area[ha]
Total Site Area	334.00
POS	173.71
Primary Schools	8.00
Seconadry Schools	12.00
Town Centre	3.65
Sports hall	0.50
Total land take of above uses	197.86
Remaining resi land	136.14

Remaining Resi land@35dph	4764.84
Average Density for 4.5k units	51.42

Table 4: Premium Zone Uses – Option 1

Type	area [ha]
800m premium area	100
Land to be allowed for flooding alleviation¹	12
Town Centre land take	3.6
Remaining land within premium area for residential use	84.4
Potential Number of dwellings (@60dph)	5,064

Table 5: Wider Zone Residential Land – Option 1

Type	Area [ha]
Land for residential use	55
Potential number of dwellings (@35dph)	1,925

Growth Option 2: 14,951 units, 36,000 people

Summary points: 372Ha

- Densities of development assumed are 60dph for the premium core area, and 35dph for the remaining areas
- Existing area of Flood Zone 2 partially included in the development area
- Development abuts the A1 on the western edge but may require noise and air quality buffer

Table 6: Public Open Space – Option 2

Type	Standard [ha per 1000]	Area [ha]
Informal Open Space	1.8	64.8
Allotments	0.34	12.24
Green Amenity	0.6	21.6
Play Space	0.4	14.4
Natural	5.4	194.4
Sport	1.8	64.8
Total	10.34	372.24

¹ includes all premium land for development, some allowance for flood land.

Table 7: Indoor Sports requirement – Option 2

Type	Standard sqm per 1000]	Floorspace [sqm]
Swimming	19.68	708.48
Sports Hall	74.37	2,677.32
Fitness	5.23	188.28
Sub-total		0.36
Likely size of Sports Centre (ha)	Floor area x3	1.07

Table 8: Estimate Land budget – Option 2

Land use	Area[ha]
Total Site Area	766.00
POS	372.24
Primary Schools	14.00
Seconadry Schools	20.00
Town Centre	7.82
Sports hall	1.10
Total land take of above uses	415.16
Remaining resi land	350.84
<i>Remaining Resi land@35dph</i>	<i>12279.37</i>
<i>Average Density for 4.5k units</i>	<i>42.75</i>

Table 9: Premium Zone Uses – Option 2

Type	area [ha]
800m premium area	169.2
Land to be allowed for flooding alleviation ²	22.7
Town Centre land take	7.8
Remaining land within premium area for residential use	138.7
Potential Number of dwellings (@60dph)	8,322

Table 10: Wider Zone Residential Land – Option 2

Type	Area [ha]
Land for residential use	189.4
Potential number of dwellings (@35dph)	6,629

² includes all premium land for development, some allowance for flood land.

Growth Option 3: 19,372 units, 48,000 people

Summary points:

- Total area 496Ha
- Densities of development assumed are 60dph for the premium core area, and 40dph for the remaining areas
- Existing area of Flood Zone 2 included in the development area
- Development abuts the A1 on the western edge but may require noise and air quality buffer
- Within the town centre set and the premium area it is assumed there is 300-400 additional dwellings accommodated to achieve 20,000 units overall

Table 11: Public Open Space – Option 3

Type	Standard [ha per 1000]	Area [ha]
Informal Open Space	1.8	86.4
Allotments	0.34	16.32
Green Amenity	0.6	28.8
Play Space	0.4	19.2
Natural	5.4	259.2
Sport	1.8	86.4
Total	10.34	496.32

Table 12: Indoor Sports requirement – Option 3

Type	Standard sqm per 1000]	Floorspace [sqm]
Swimming	19.68	944.64
Sports Hall	74.37	3,569.76
Fitness	5.23	251.04
Sub-total		0.46
Likely size of Sports Centre (ha)	Floor area x3	1.37

Table 13: Estimate Land budget – Option 3

Land use	Area[ha]
Total Site Area	955.00
POS	496.32
Primary Schools	18.00
Seconadry Schools	24.00
Town Centre	10.43
Sports hall	1.40
Total land take of above uses	550.15
Remaining resi land	404.85
<i>Remaining Resi land@35dph</i>	<i>14,169.82</i>
<i>Average Density for 4.5k units</i>	<i>49.40</i>

Table 14: Premium Zone Uses – Option 3

Type	area [ha]
800m premium area	169.2
Land to be allowed for flooding alleviation³	0
Town Centre land take	10.4
Remaining land within premium area for residential use	158.8
Potential Number of dwellings (@60dph)	9,528

Table 15: Wider Zone Residential Land – Option 3

Type	Area [ha]
Land for residential use	246.1
Potential number of dwellings (@35dph)	9,844

³ includes all premium land for development, no allowance for flood land and increased density for remaining residential land from 35dph to 40dph to achieve close to 20,000 units.

APPENDIX B: Wixams Growth Options

Growth Option 1: 2,800 units, 6,720 people

Summary Points:

- Total area 69Ha
- All development is at 35dph
- There is no premium core area land as the station is too distant located in the Wixams site

Table 16: Public Open Space – Option 1

Type	Standard [ha per 1000]	Area [ha]
Informal Open Space	1.8	12.096
Allotments	0.34	2.2848
Green Amenity	0.6	4.032
Play Space	0.4	2.688
Natural	5.4	36.288
Sport	1.8	12.096
Total	10.34	69.4848

Table 17: Indoor Sports requirement – Option 1

Type	Standard sqm per 1000]	Floorspace [sqm]
Swimming	19.68	132.25
Sports Hall	74.37	499.77
Fitness	5.23	35.15
Sub-total		0.07
Likely size of Sports Centre	Floor area x3	0.20

Table 18: Estimate Land budget – Option 1

Land use	Area[ha]
Total Site Area	162.80
POS	69.48
Primary Schools	4.00
Seconadry Schools	8.00
Town Centre	1.00
Sports hall	0.00
Total land take of above uses	82.48
Remaining resi land	80.32
<i>Remaining Resi land@35dph</i>	<i>2811.03</i>
<i>Average Density for 4.5k units</i>	<i>34.86</i>

Table 19: Residential Land – Option 1

Type	Area [ha]
Land for residential use	80.32
Potential number of dwellings (@35dph)	2811.03

Growth Option 2: 10,755 units, 25,200 people

Summary Points:

- Total area 208Ha
- Densities of development assumed are 60dph for the premium core area, and 35dph for the remaining areas
- 58.6Ha of premium core area land is located around the proposed station location to the east: 23.8Ha is within Bedford Borough, and 34.8Ha is within Central Beds District.
- The Bedford Borough land enables the development to abut/ adjoin the station location

Table 20: Public Open Space – Option 2

Type	Standard [ha per 1000]	Area [ha]
Informal Open Space	1.8	36.288
Allotments	0.34	6.8544
Green Amenity	0.6	12.096
Play Space	0.4	8.064
Natural	5.4	108.864
Sport	1.8	36.288
Total	10.34	208.4544

Table 21: Indoor Sports requirement – Option 2

Type	Standard sqm per 1000]	Floorspace [sqm]
Swimming	19.68	396.75
Sports Hall	74.37	1499.30
Fitness	5.23	105.44
Sub-total		0.20
Likely size of Sports Centre	Floor area x3	0.60

Table 22: Estimate Land budget – Option 2

Land use	Area[ha]
Total Site Area	440.51
POS	208.45
Primary Schools	10.00
Seconadry Schools	18.00

Town Centre	4.00
Sports hall	0.70
Total land take of above uses	241.15
Remaining resi land	199.36
Remaining Resi land@35dph	6977.45
Average Density for 4.5k units	42.14

Table 23: Premium Zone Uses – Option 2

Type	area [ha]
800m premium area⁴	58.6
Town Centre land take⁵	4.00
Remaining land within premium area for residential use	54.6
Potential Number of dwellings (@60dph)	3276

Table 24: Wider Zone Residential Land – Option 2

Type	Area [ha]
Land for residential use ⁶	144.76
Potential number of dwellings (@35dph)	5066.446

⁴ Includes 23.8ha of land within Bedford Borough next to station

⁵ Assuming larger town centre area due to capacity of site and adjacency to station

⁶ Includes 13.6ha of land within Bedford Borough near to station.

Development gain and economic benefit from East West Rail in Central Bedfordshire
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APPENDIX C: Sandy Delivery rates

Scenario 1	EWRL is announced											EWRL is completed				End of LP Period								
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Total Delivery		150	200	200	200	200	200	250	250	350	350	500	500	500	500	350	350	350	350	250	250	250	250	250
Low rate		150																						
Moderate Rate			200	200	200	200	200																	
High Rate								250	250											250	250	250	250	250
Accelerated Rate										350	350					350	350	350	350					

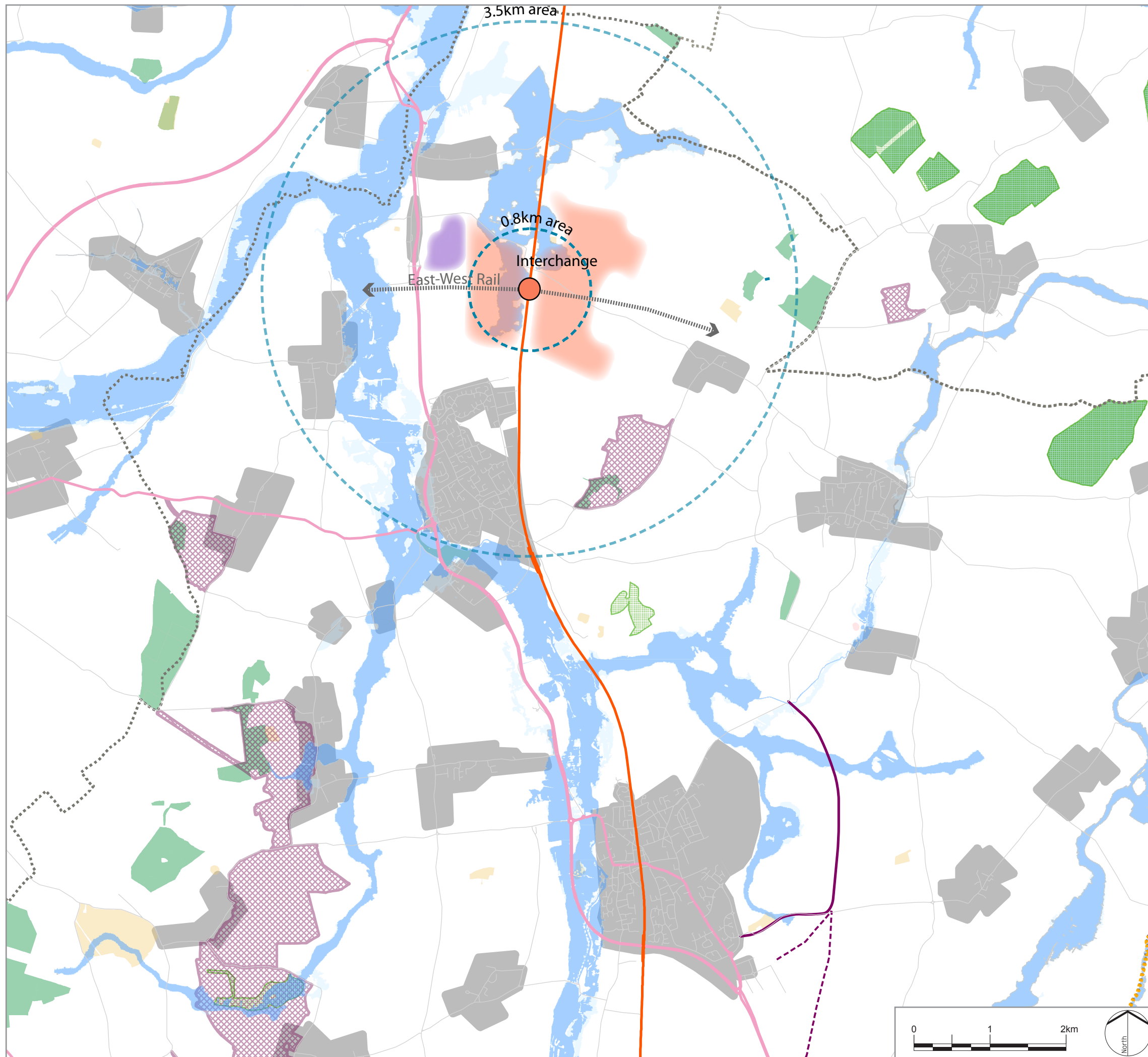
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	EWRL is announced											EWRL is completed				End of LP Period								
Scenario 2	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Total Delivery		150	200	200	200	200	200	300	300	400	500	600	700	700	700	600	600	600	600	500	500	500	350	350
Low rate		150																						
Moderate Rate			200	200	200	200	200																	
High Rate								300	300															
										400													350	350
Accelerated Rate											500	600	700	700	700	600	600	600	600	500	500	500		

Development gain and economic benefit from East West Rail in Central Bedfordshire
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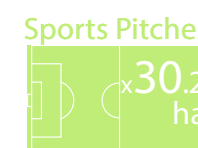
Scenario 3		EWRL is announced												EWRL is completed												End of LP Period												Scenario 3 Year of Completion											
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043		2072																							
Total Delivery		150	200	200	200	200	200	300	300	400	500	600	700	700	700	600	600	600	600	500	500	500	350	350		350																							
Low rate		150																																															
Moderate Rate			200	200	200	200	200																																										
High Rate								300	300																																								
Accelerated Rate										400	500	600	700	700	700	600	600	600	600	500	500	500		350	350	...																							

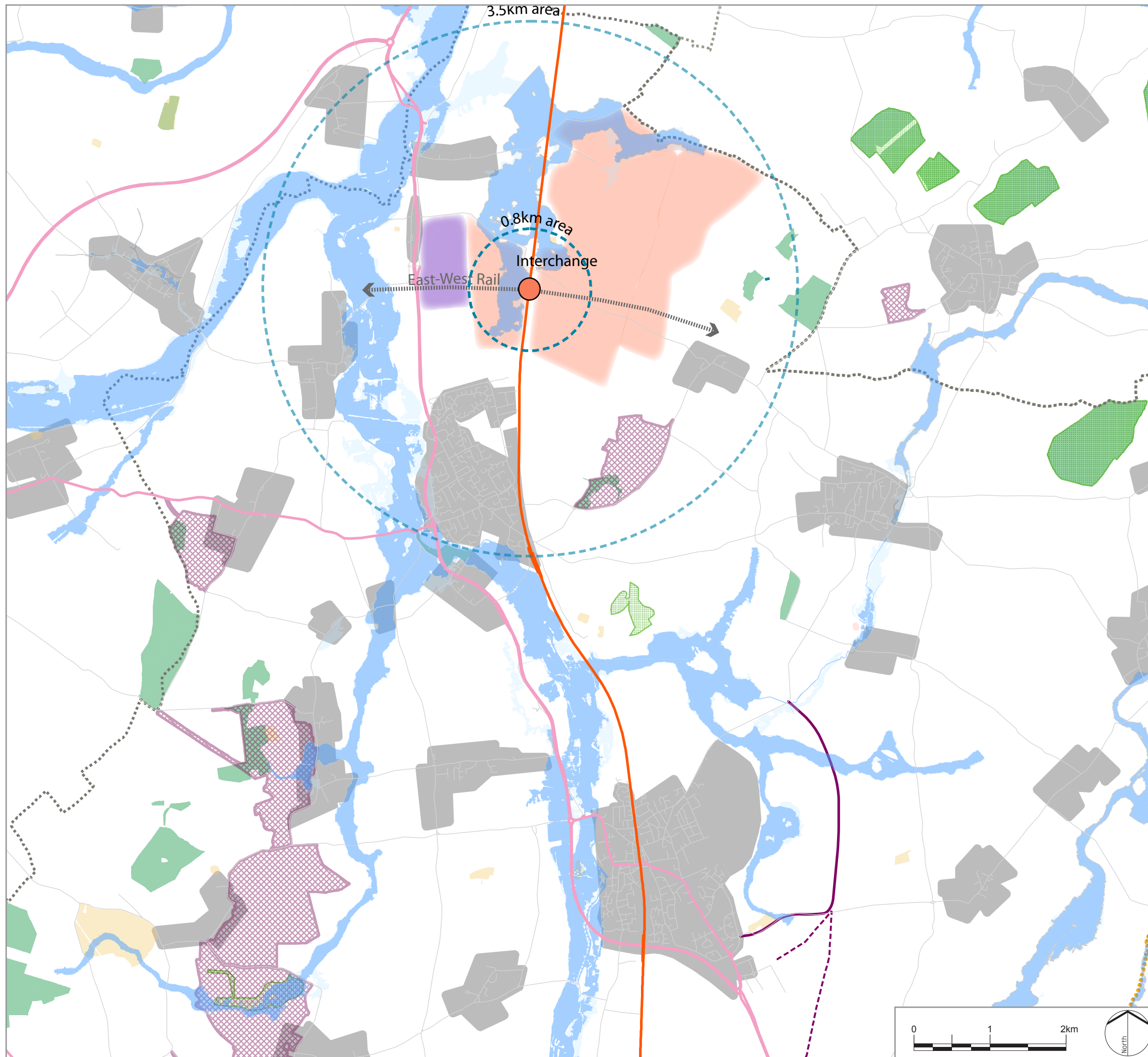
APPENDIX D: Sandy Growth Options Drawings



LEGEND

- Potential areas of growth around proposed station interchange
- Potential areas of employment growth
- Existing Railway Lines
- Existing Main Roads
- Existing Minor Roads
- Potential Location for new road in Biggleswade
- Other options for new road alignment in Biggleswade
- Local Authority Boundary
- Urban Areas
- Ancient Woodland
- Registered Park And Garden
- SSSI
- Flood Zone 3
- Flood Zone 2
- Scheduled Ancient Monument

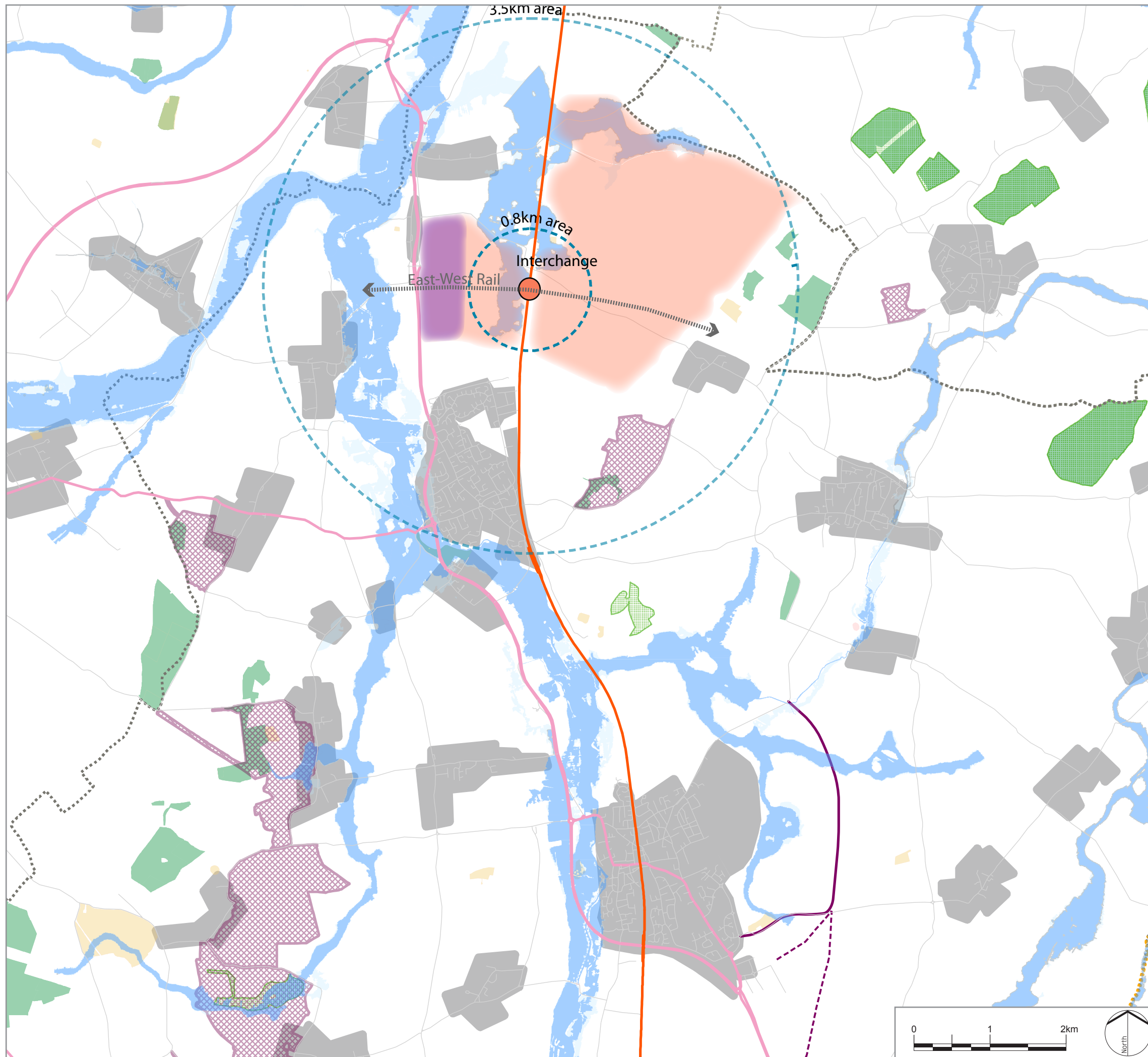




LEGEND

- Potential areas of growth around proposed station interchange
- Potential areas of employment growth
- Existing Railway Lines
- Existing Main Roads
- Existing Minor Roads
- Potential Location for new road in Biggleswade
- Other options for new road alignment in Biggleswade
- Local Authority Boundary
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- Registered Park And Garden
- SSSI
- Flood Zone 3
- Flood Zone 2
- Scheduled Ancient Monument



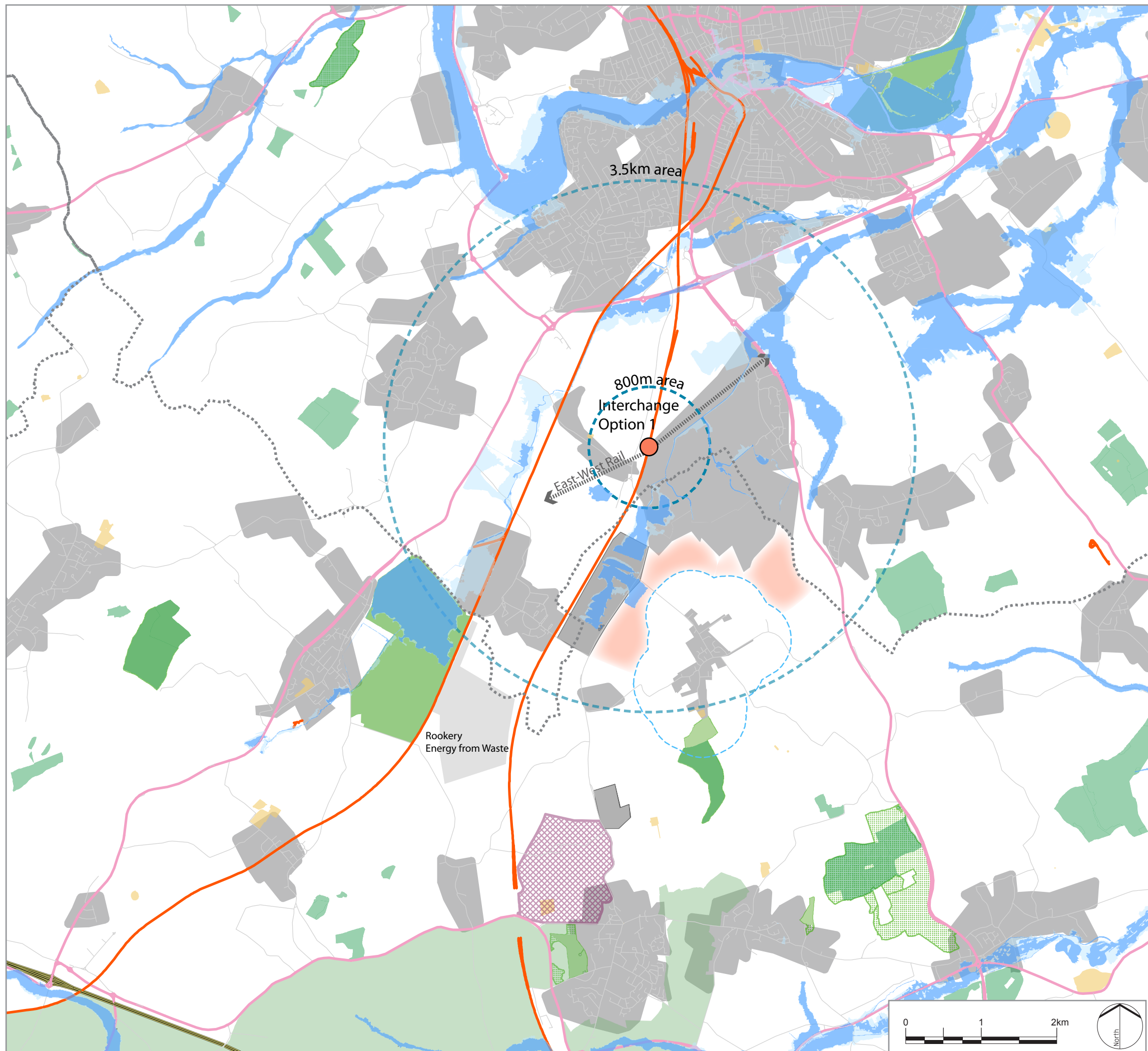


LEGEND

- Potential areas of growth around proposed station interchange
- Potential areas of employment growth
- Existing Railway Lines
- Existing Main Roads
- Existing Minor Roads
- Potential Location for new road in Biggleswade
- Other options for new road alignment in Biggleswade
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- SSSI
- Flood Zone 3
- Flood Zone 2
- Scheduled Ancient Monument

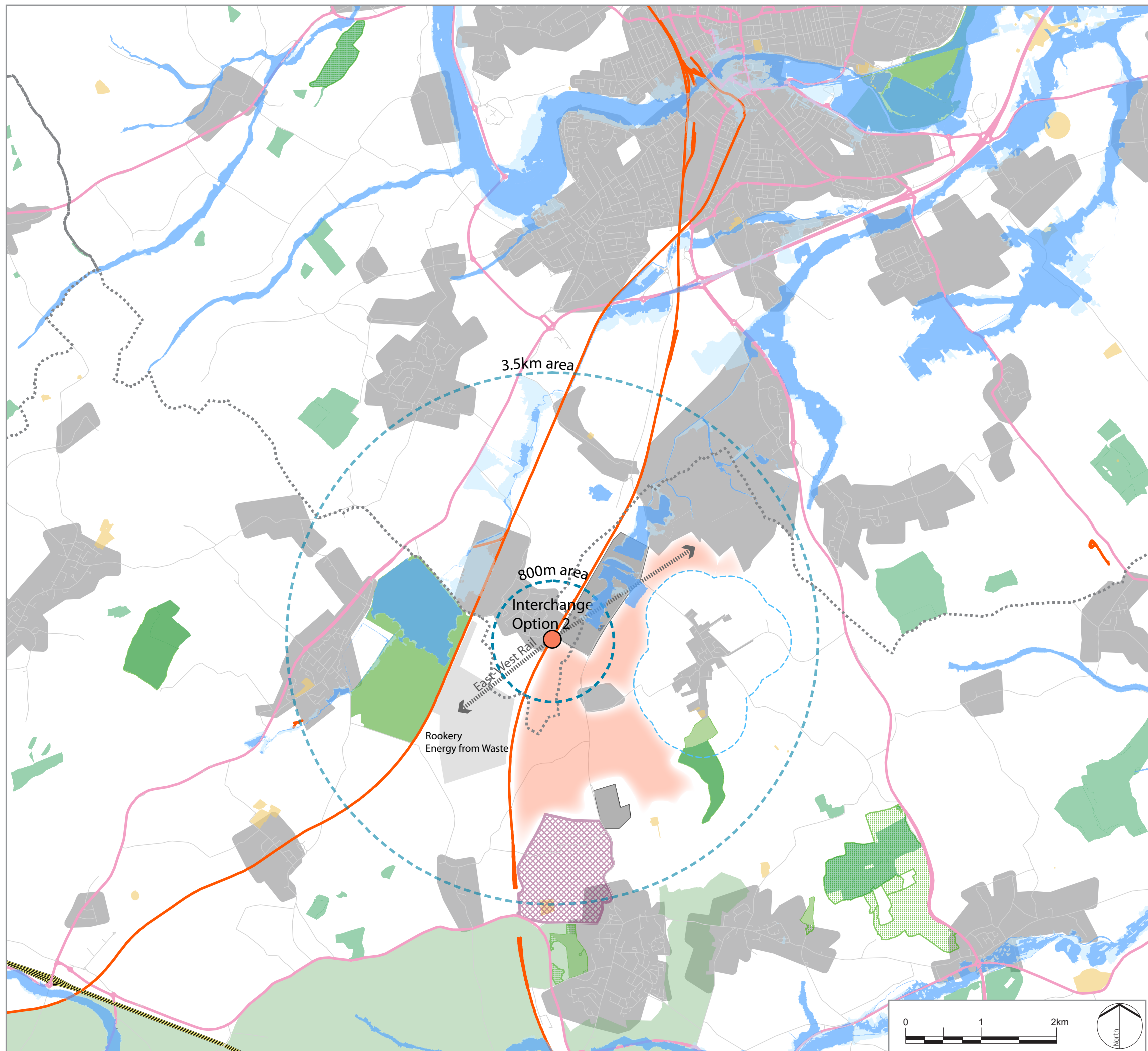


APPENDIX E: Wixams Growth Options Drawings



- LEGEND**
- Potential areas of growth around proposed station interchange
 - Existing Railway Lines
 - Existing Main Roads
 - Existing Minor Roads
 - Local Authority Boundary
 - Existing Urban Area/Planned Growth
 - County Park
 - Ancient Woodland
 - Registered Park And Garden
 - SSSI
 - Flood Zone 3
 - Flood Zone 2
 - Scheduled Ancient Monument
 - Houghton Conquest 500m Buffer





- LEGEND**
- Potential areas of growth around proposed station interchange
 - Existing Railway Lines
 - Existing Main Roads
 - Existing Minor Roads
 - Local Authority Boundary
 - Existing Urban Area/Planned Growth
 - County Park
 - Ancient Woodland
 - Registered Park And Garden
 - SSSI
 - Flood Zone 3
 - Flood Zone 2
 - Scheduled Ancient Monument
 - Houghton Conquest 500m Buffer

