

Instructions

This report is submitted to Cambridge City Council and South Cambridgeshire District Council as a summary and comparison of the financial models of Options A, B, C, and D of the proposed development at Cambridge East, in order to establish the deliverability of options for the development of the land and to establish the extent to which they could contribute towards the provision of strategic transport infrastructure to serve the eastern side of the city.

The report is prepared by Bidwells and Savills on behalf of Marshall Group

Confidentiality

We understand that this report will be submitted to Cambridge City Council and South Cambridgeshire District Council. The report must not be recited or referred to in any document (save any consultants instructed by the Council to review the report) without our express prior written consent.

Project Team

The project team consists of the following consultants:-

• Masterplanning: Allies & Morrison

· Planning and Socioeconomics: Quod

· Cost: Aecom

• Programme: No. 6 Developments

• Developer Strategy: GummerLeathes

· Commercial: Bidwells

· Commercial, Financial modelling: Savills

· Stakeholder and community engagement: Elly Tabberer

• Environmental strategy: Logika

· Landscape: Kim Wilkie

• Transport, Infrastructure: Stantec

· Transport: Steer

• Sustainability: HOK

• Ecology: BSG Ecology

· Water resources: Arup

Proposal

To deliver its ambitious growth plans and continue to serve its evolving customer needs, Marshall must relocate. Detailed work has identified a short list of feasible relocation options within the East of England. It is intended that the relocation would be funded by a government loan.

Relocation could be achieved by the late 2020s, releasing the full opportunity at Cambridge East and enabling development to start on the core, safeguarded land. Options to accelerate that timing may be practical but are not assumed here.

It is anticipated that a rapid transit link could be delivered by the public sector through a Transport and Works Act Order (TWAO), which would be promoted in parallel with an outline planning application for the Cambridge East development. The TWAO would either form part of a wider public transport system being planned by the Combined Authority and promoted through the Local Transport Plan (the new transport system is known as the CAM) or could form a stand alone link between Cambridge City station and the east of the city, potentially as a first phase of the CAM.

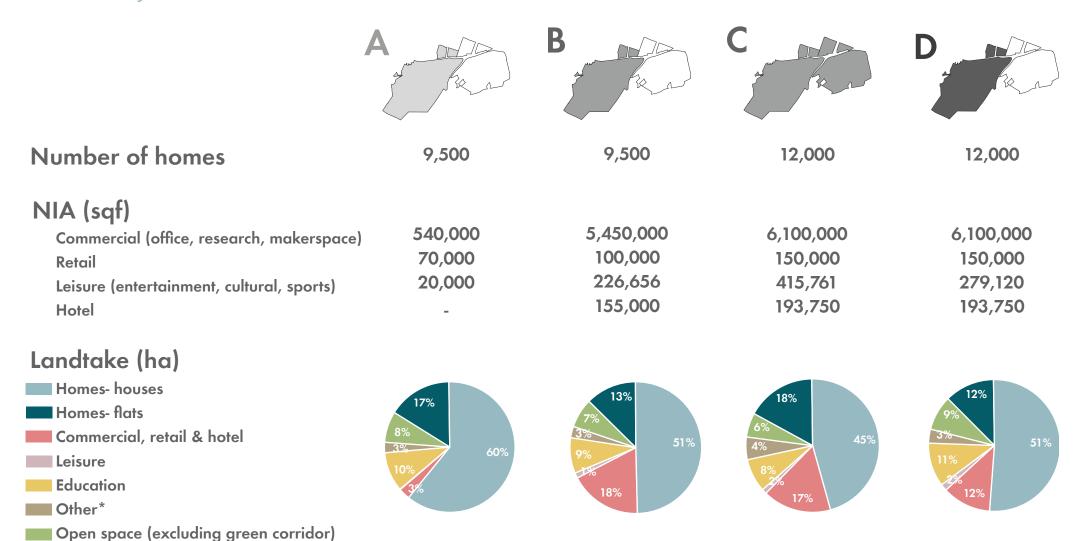
Cambridge East is an exciting opportunity for Marshall, with the prospect of a new home to deliver an ambitious future, and for Cambridge, with the possibility of using the airport site to address its needs and dramatically reshape the city. The relocation creates a truly special opportunity that enables Marshall to continue to invest in Cambridge for generations to come. Discussions so far suggest that this may be one of the most significant and exciting development opportunities in the UK and Europe.

Scarcely ever can a site of 300ha which is largely already excluded from the Green Belt come forward for development within a city such as Cambridge. The site will be of interest to global investors and occupiers and developing it in the right way offers the unique potential to extend the character and traditions of Cambridge and to reinvigorate and complete the eastern side of the city.

Marshall's vision for the development involves making the very best of a world class opportunity and they look forward to engaging with local stakeholders to bring this to fruition.

The following diagram (overleaf) summarises the uses within the 4 Options (A, B, C, and D), and we provide a more detailed area schedule at Appendix 1. The quantum and mix of uses in each Option has been informed by planning policy, site layout and phasing, and market demand. The Project Team have fed in to the scheme design Options with these factors in mind.

Chart 1 – Summary of Land Uses



^{*}other uses included within the development: mobility hubs, logistics, stadium, logistics, health, police

Option A reflects the scheme as set out in the Cambridge East Area Action Plan (February 2008) and comprises a low proportion of commercial and other non-residential uses. There is a 40,000sqft Research hub – a small innovation centre (not sufficient to house a research organisation that could form an anchor for this location). There is also a small entertainment facility but no cultural or sports facilities.

Options B & C comprise a larger commercial proportion, which creates a mixed-use community and provides employment uses in the right location in order to meet the growth set out in the CPEIR report, detail of which is set out in Quod's Strategic Case.

Option B covers less land area than **Option C**. It has a large mix of uses, more in keeping with good urban design principles with room for a sizeable research anchor to form a core from which the other uses can grow, including sports and cultural facilities, space for a new College for Cambridge University, and a wide range of housing to support the development and meet future demand for affordable and market housing across all age groups.

Option C covers more land area than Option B and therefore allows for other uses/ facilities including:

- Enlarged Research Hub with space for 2 or more research organisations.
- An enhanced Cultural facility; such as a major theatre and concert venue alongside a signature art gallery, with inspiration taken from the Guggenheim in Bilbao and the V&A in Dundee.
- A wider range of housing types.
- A major transport hub / interchange with park and ride facilities.
- A larger College or faculty for Cambridge University.
- A major multi-use sports stadium that can house Cambridge United as well as hosting many other sports clubs.
- Enhanced open space and connection with the natural environment.

Option D has been tested as an experiment in density. It is similar in land area to **Option B** but with the floorspace component of **Option C**. The outcome, however, is a dense development which is less compatible with the Cambridge market and its demand, particularly in regards to the residential where there is a particularly high proportion of apartments.

Financial Modelling Assumptions

The financial modelling includes all normal value and cost inputs, such as residential and commercial revenue, construction costs, CIL/S106, professional fees, marketing and disposal fees, finance, and profit for a master developer and profit for a housebuilder / commercial developer.

Figures below are illustrative only based on the assumed development mix for each Option, and pending more detailed development of each Option in discussion with the Planning Authority and other key stakeholders.

Due to sheer size of the scheme and associated timescales, the appraisal is broken down into a master developer phase where all infrastructure is installed and serviced land parcels are then sold on to residential housebuilders or commercial developers.

The options have been tested with full policy compliant planning obligations including 40% affordable housing over the life of the scheme as summarised in the table of estimated S106 contributions below.

Table 1 - Estimated S106 Contributions

	Option A	Option B	Option C	Option D
CIL	Zero	Zero	Zero	Zero
Affordable housing headline %	40%	40%	40%	40%
Affordable tenure split (social/ affordable rent: shared ownership)*	50:50	50:50	50:50	50:50
Education	1x2FE primary	2x2FE primary	1x2FE primary	1x2FE primary
	2x5FE secondary	2x4FE secondary	2x5FE secondary	2x5FE secondary
	Assumed contribution: £98m	Assumed contribution: £53m	Assumed contribution: £98m	Assumed contribution: £98m
Other (e.g. health, community development, art etc)	£14m	£60m	£115m	£67m
Transport funding**	£66m	£69m	£184m	£102m
Total S106 package	£178m	£182m	£397m	£267m

^{*}the precise housing strategy and mix of tenures/typologies will be a very significant piece of work to be developed in collaboration with the Councils.

The overall indicative S106 package has been compared and benchmarked to other strategic schemes in Cambridgeshire and is comparable to the most ambitious schemes consented to date.

The financial modelling of the 4 Options also includes:

- The repayment costs of the loan for relocating Marshall Aerospace; and
- Other transport infrastructure funded by the development

The following diagram (overleaf) shows the timeframes / programmes anticipated for each Option.

^{**}in all scenarios, it is assumed that the required transport infrastructure will have wider benefit to Cambridge, and would be promoted by a suitable public sector promoter (e.g. CPCA, GCP or CCoC). The contribution each option can make has been calculated as an output from the financial appraisals.

Chart 2 – Project Timeframes

Option A



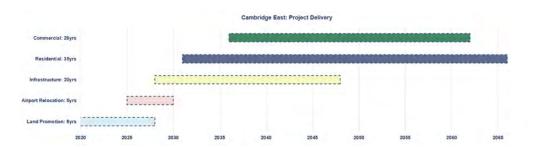


Option C

Cambridge East: Project Delivery Commercial: 21yrs Residential: 23yrs Infrastructure: 25yrs Airport Relocation: 5yrs Land Premotion: 8yrs 2020 2025 2030 2035 2040 2045 2050 2055 2060 2065

Option D

Option B



We are currently in the land promotion period that runs through the planning application process to a planning consent.

The airport relocation commences during the land promotion period when there is sufficient confidence in the outcome of the planning application. We have currently assumed a 5-year timeframe for the airport relocation, but note that it could take less time than this.

Once planning permission is granted the scheme wide infrastructure will commence, followed by the residential land sales and (progressively) the commercial land sales. Market absorption rates are referenced further in "The Strategic Case" report prepared by Quod.

The Aecom report Housing Delivery Study states the following at paragraph 3.23:

"At this interim stage, we would advocate that build-out rate assumptions of no more than an average of 300 dpa per strategic site should be used for calculating housing trajectories and identifying spatial options. This is supported by an interim analysis of comparator sites drawn from the OxCam Arc, Combined Authority area and other strategic sites in strong housing market areas".

We believe this working assumption is incorrect for the following reasons (and this list is not exhaustive):

- 1. Cambridge is totally unique to any other of the listed "comparable" trajectories given it is a world leading academic and science centre. It is therefore not appropriate to simply make these comparisons, but look to garner the potential of Cambridge. This is an extension to Cambridge and not a new settlement, with a genuinely mixed community, with significant employment provision, the vision for Cambridge East is without precedent. It is certainly not appropriate or relevant to compare it to other Cambridge fringe developments or new settlements such as Cambourne and Northstowe, with the ingredients to ensure Cambridge East is a hugely successful place with commercial, cultural and quality of place to make it comparable with leading examples nationally.
- 2. Given the prominence of the Cambridge market and sub market, it is necessary to look further afield to understand what might be possible in relation build out rates. Studies show sites in Didcot, Milton Keynes and Eastern Quarry at Ebbsfleet, as well as large sites in London, such as sites at Wembley and Barking. A range of delivery rates are reported for these sites, with the sites referred to showing average delivery ranging between 275 572 dwellings per annum. Perhaps the most relevant are the following reported rates of delivery:
 - Western Expansion Area (Milton, Keynes) 6,500 units @ 400 dpa on average but peaking at well over 600 dpa

Eastern Quarry (Ebbsfleet) – 6,250 units @ 359 dpa on average but peaking at over 700 dpa

This shows that given the right conditions, it is entirely possible to achieve a much more significant sales

rate than anticipated by Aecom.

- 3. From the start of the design process rates of sale have been a key consideration. We are constantly testing the design to ensure we have ultimate flexibility when it comes to phasing. This should enable the project to bring forward and open up different and multiple sales fronts, with different character, which is vital to ensure all segments of the market are covered and provide the best chance of rapid and continuous sales rates.
- 4. We also need to consider the overall strategy of the provision and delivery of housing. Affordability in Cambridge has and continues to be one of the most significant barriers to the delivery of housing. Outside of London, Cambridge is one of the least affordable housing markets in the country with a median house price to median income ratio of 13, compared with the national average of 7.8. By setting a unsustainable "bar" in terms of what should be delivered, and the amount of housing land, this is only amplifying the problem further. Allocating more housing land would clearly help to address the significant affordability issues that Cambridge City and South Cambs are experiencing.

The following schedule sets out the absorption rates adopted for each Option:

Table 2 – Absorption Rates

Item	Option A	Option B	Option C	Option D
ABSORPTION RATES				
Sales Rate per Annum Per Outlet	80	100	100	80
Average Number of Outlets	3	4	4	3
Total Sales Rate Per Annum	240	400	400	240
Office Take Up - Sq Ft p/a	50,000	300,000	300,000	250,000

Marshall recognises the need for a bespoke housing strategy for the scheme to ensure the scheme delivers the fullest range of housing typologies and tenures, addresses affordability challenges and with appropriate diversity of product and tenure to increase rates of delivery.

Results

We provide a diagram to illustrate the break-even dates and funding sources of the 4 Options. This output is considered to provide the most accessible picture of the relative performance of each option without compromising the confidential nature of the detailed options appraisals:

We provide a diagram overleaf (Chart 3) to illustrate the break-even dates and funding sources of the 4 Options:

Any comprehensive scheme of this nature and scale will have high early infrastructure costs. When this is coupled with large up-front airport relocation costs there is a significant level of debt and equity required at the early stages that need repaying within a reasonable timeframe.

Chart 3 shows the deficit period in the project when the cashflow moves from negative to positive, i.e. the expenditure on the scheme in the form of equity and loans gets paid back out of land receipts.

Chart 4 - Break-even Dates

	Option A	Option B	Option C	Option D
Break Even Date	2060+	2043	2041	2048

Chart 4 shows the break-even date for each Option, being the point at which the project generates a positive cashflow.

A break-even point at 17/18 years requires a landowner with a significantly long-term view and the financial capacity to commit to it.

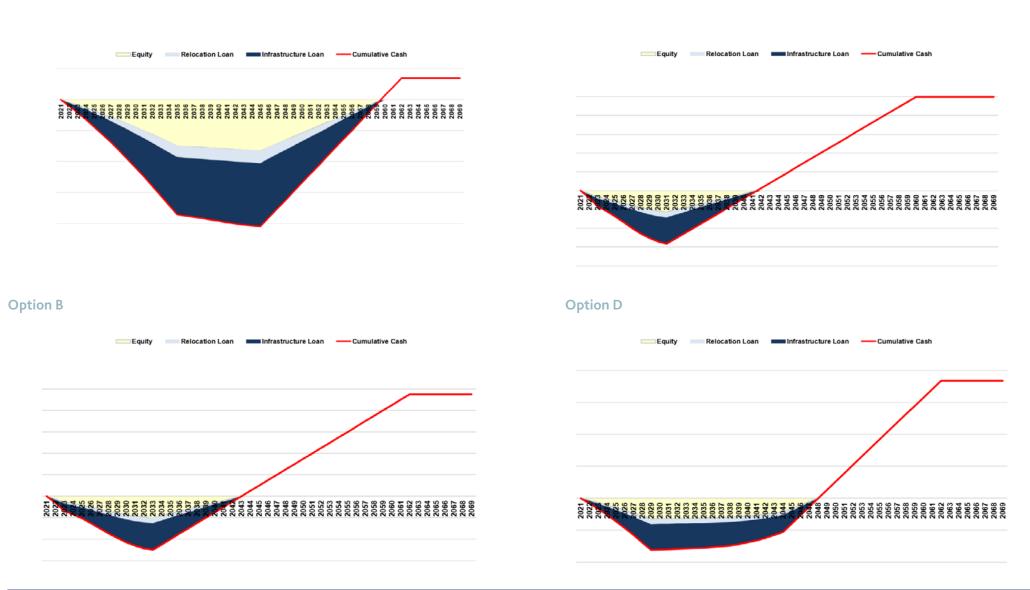
Options A and D extend those breakeven points by a further 5 - 22 years and are therefore not investable propositions.

Option A is handicapped by its very substantial reliance on income only from residential sales. There is a limit to the number of residential units that can be absorbed by the market over time, even for the very best schemes. Land sales from other uses — specifically commercial — are critical to the cashflow and, on an infrastructure-heavy scheme like Cambridge East, need to take place in tandem with the residential land sales so that cash is secured at a sufficient rate to sustain and recoup the infrastructure investment. There are insufficient non-residential uses in Option A to achieve this.

Option D is also not preferred given it's reliance on a higher proportion of apartments (72% of the residential uses) than is compatible with the market. As an example Marleigh provides half this at 30%.

Chart 3 – Cash Flow and Funding



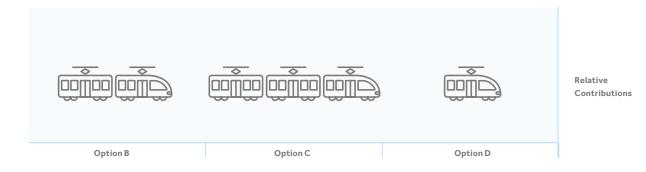


Additional Transport Funding

We have assessed the returns for Options B, C and D to identify the additional funding contributions that could be made towards a Rapid Transport Scheme.

We have already built in a significant level of contribution to off-site transport benchmarked against other schemes.

This exercise was to assess whether any of Options B, C and D produced stronger returns which could allow for additional "ex-gratia" contributions alongside expected Government Infrastructure investment.



As illustrated in the above chart, Option C produces a significantly higher level of return than Options B & D which will therefore allow for a greater level of transport contribution in the future. This is unsurprising as Option C spreads the infrastructure costs over more development and its enhanced research hub, cultural space and green infrastructure create a value premium over other options, as well as an enhanced rate of take up.

Conclusion

There are insufficient non-residential uses in Option A to achieve a cashflow with an acceptable breakeven date. This Option is therefore not an investable scheme.

Options B and C are more attractive investment opportunities, however Option C is commercially stronger and allows for a greater level and of s.106 and transport contribution which at £400m is a very considerable investment for Cambridge.

The residential density of Option D is too high to achieve a sales rate or sales values that create an acceptable break-even date. This Option is therefore not deliverable.

Appendix 1 – Area Schedule

Development Secnario	S					Scenario	Α			
		Use Unit (Sqf NIA)	A - Mix	A - Sqf NIA	A - GIA:NIA	A - Sqf GIA	A - GEA:GIA	A - SqfGEA	A - Units	
Quantum	Private Flats	660	23%	1,442,100	72.5%	1,989,103	90%	2,210,115	2,185	
•	Private Houses	1,537	23%	3,358,345	100.0%	3,358,345	90%	3,731,494	2,185	
excludes additional	Affordable Flats	630	19%	1,137,150	72.5%	1,568,483	90%	1,742,759	1,805	
and alllocation)	Affordable Houses	1,537	19%	2,774,285	100.0%	2,774,285	90%	3,082,539	1,805	
,	PRS	606	2%	115,140	72.5%	158,814	90%	176,460	190	
	Later living	590	9%	504,450	72.5%	695,793	90%	773,103	855	
	Student flats	150	5%	71,250	72.5%	98,276	90%	109,195	475	
	Hotel	-		-	77.5%	-	90%	-	-	
	Office	-		400,000	77.5%	516,129	90%	573,477	-	
	Light commercial / Maker space	-		100,000	77.5%	129,032	90%	143,369	-	
	Research Hub	-		40,000	77.5%	51,613	90%	57,348	-	
	Retail - Convenience Food	-		23,333	80.0%	29,167	90%	32,407	-	
	Retail - Comparison Non-food	-		23,333	80.0%	29,167	90%	32,407	-	
	Retail - Other GF uses Bars and restaurants	-		23,333	80.0%	29,167	90%	32,407	-	
	Entertainment	-		20,000	80.0%	25,000	90%	27,778	-	
	Cultural	-		-	80.0%	-	90%	-	-	
	Sports	-		-	80.0%	-	90%	-	-	
	Health	-		8,918	80.0%	11,147	90%	12,386	-	
	Police	-		10,764	80.0%	13,455	90%	14,950	-	
	TOTAL			10,052,402		11,476,975		12,752,195	9,500	
Additional land	Logistics									1.0
allocation	Transport hub									
mocation	Stadium									_
	College									
	Energy Centres									0.3
	Schools									13.
	Parking									2.0
	Open space land within development (1)									10.
	Green Corridor (2)									41.0
	Additional land for open space + BNG (3)									61.0
	TOTAL	_								130.2
Note:										200
	development includes									
-, open space minim	Allotments									6.
	Parks, boulevards and squares									4.
2) Green corridor incli	udes the following (with the rest of the area alloc	ated to informal open space)							-71
_, =:==:::::::::::::::::::::::::::::::::	Allotments	atou to imprindi open space	,							1.0
	Outdoors sports									12.7
	rsity Net Gain (BNG) land to be allocated off site									14.

Development Secnario	os					Scenario B				
	<u>a</u>	Unit (Sqf NIA)	- Aix	- Sqf NIA	- GIA:NIA	- Sqf GIA	- GEA:GIA	- SqfGEA	. Units	Š
	Use		₾	ė.	œ .	ė.	<u>m</u>	œ	œ	٥
Quantum	Private Flats	660	19%	1,159,950	72.5%	1,599,931	90%	1,777,701	1,758	
_	Private Houses	1,537	19%	2,701,278	100.0%	2,701,278	90%	3,001,419	1,758	
(excludes additional	Affordable Flats	630	16%	957,600	72.5%	1,320,828	90%	1,467,586	1,520	
and alllocation)	Affordable Houses	1,537	16%	2,336,240	100.0%	2,336,240	90%	2,595,822	1,520	
	PRS	606	2%	115,140	72.5%	158,814	90%	176,460	190	
	Later living	590	9%	504,450	72.5%	695,793	90%	773,103	855	
	Student flats	150	20%	285,000	72.5%	393,103	90%	436,782	1,900	
	Hotel	-		155,000	77.5%	200,000	90%	222,222	-	
	Office	-		5,000,000	77.5%	6,451,613	90%	7,168,459	-	
	Light commercial / Maker space	-		100,000	77.5%	129,032	90%	143,369	-	
	Research Hub	-		350,000	77.5%	451,613	90%	501,792	-	
	Retail - Convenience Food	-		33,333	80.0%	41,667	90%	46,296	-	
	Retail - Comparison Non-food	-		33,333	80.0%	41,667	90%	46,296	-	
	Retail - Other GF uses Bars and restaurants	-		33,333	80.0%	41,667	90%	46,296	-	
	Entertainment	-		50,000	80.0%	62,500	90%	69,444	-	
	Cultural	-		76,656	80.0%	95,820	90%	106,467	-	
	Sports			100,000	80.0%	125,000	90%	138,889	-	
	Health			8,060	80.0%	10,075	90%	11,194	_	
	Police			10,764	80.0%	13,455	90%	14,950		
	TOTAL			14,010,137	00.070	16,870,094	3070	18,744,549	9,500	
	101/12			14,010,107		10,070,034		10,744,043	3,300	
Additional land	Logistics									1.0
allocation	Transport hub									-
	Stadium									-
	College									1.2
	Energy Centres									0.7
	Schools									11.0
	Parking									2.0
	Open space land within development (1)									10.13
	Green Corridor (2)									41.00
	Additional land for open space + BNG (3)									61.00
	TOTAL									128.1
Note:	101/12									12011
	development includes									
(-, Spen space within (Allotments									6.13
										4.00
	Parks houldwards and squares									4.00
(2) Green corridor incl	Parks, boulevards and squares	formal open chace								
(2) Green corridor inclu	udes the following (with the rest of the area allocated to in	formal open space								4 52
(2) Green corridor inclu	· · · · · · · · · · · · · · · · · · ·	formal open space								1.53 11.49

Development Secnario	os					Scenario (
		Use Unit (Sqf NIA)	Mix	Sqf NIA	GIA:NIA	Sqf GIA	GEA:GIA	SqfGEA	Units	Ç.
		Unit	- J	ن ن	5	ວ່ _.	- -	ن د	- -	, 1
Quantum	Private Flats	660	19%	1,465,200	72.5%	2,020,966	90%	2,245,517	2,220	
	Private Houses	1,537	19%	3,358,345	100%	3,358,345	90%	3,731,494	2,220	
(excludes additional	Affordable Flats	630	16%	1,137,150	72.5%	1,568,483	90%	1,742,759	1,920	
land alllocation)	Affordable Houses	1,537	16%	2,774,285	100%	2,774,285	90%	3,082,539	1,920	
	PRS	606	2%	115,140	72.5%	158,814	90%	176,460	240	
	Later living	590	9%	504,450	72.5%	695,793	90%	773,103	1,080	
	Student flats	150	20%	71,250	72.5%	98,276	90%	109,195	2,400	
	Hotel	-		193,750	77.5%	250,000	90%	277,778	-	
	Office	-		5,500,000	77.5%	7,096,774	90%	7,885,305	-	
	Light commercial / Maker space	-		100,000	77.5%	129,032	90%	143,369	-	
	Research Hub	-		500,000	77.5%	645,161	90%	716,846	-	
	Retail - Convenience Food	-		50,000	80%	62,500	90%	69,444	-	
	Retail - Comparison Non-food	-		50,000	80%	62,500	90%	69,444	-	
	Retail - Other GF uses Bars and restaurants	-		50,000	80%	62,500	90%	69,444	-	
	Entertainment	-		106,640	80%	133,300	90%	148,111	-	
	Cultural	-		109,120	80%	136,400	90%	151,556	-	
	Sports	-		200,000	80%	250,000	90%	277,778	-	
	Health	-		10,181	80%	12,726	90%	14,140	-	
	Police	-		10,764	80%	13,455	90%	14,950	-	
	TOTAL			16,306,276		19,529,311		21,699,234	12,000	
Additional land	Logistics									1.0
allocation	Transport hub									4.5
	Stadium									3.0
	College									2.0
	Energy Centres									1.0
	Schools									13.5
	Parking									2.5
	Open space land within development (1)									11.7
	Green Corridor (2)									105.0
	Additional land for open space + BNG (3)									15.0
	TOTAL									159.2
Note:										
(1) Open space within	development includes									
	Allotments									7.74
	Parks, boulevards and squares									4.00
	raiks, boulevalus allu squales									
(2) Green corridor incl	udes the following (with the rest of the area allo	ocated to informal open space	:							
(2) Green corridor incl	•	ocated to informal open space	:							1.93

Development Secnarios	S					Scenario	D			
		Use Unit (Sqf NIA)	·Mix	. Sqf NIA	GIA:NIA	Sqf GIA	GEA:GIA	SqfGEA	Units	e T
			٥-	۵	۵	۵	۵	۵	<u> </u>	<u> </u>
Quantum	Private Flats	660	22%	1,758,240	72.5%	2,425,159	90%	2,694,621	2,664	
	Private Houses	1,537	15%	2,729,712	100%	2,729,712	90%	3,033,013	1,776	
(excludes additional	Affordable Flats	630	19%	1,451,520	72.5%	2,002,097	90%	2,224,552	2,304	
land alllocation)	Affordable Houses	1,537	13%	2,360,832	100%	2,360,832	90%	2,623,147	1,536	
ŕ	PRS	606	2%	145,440	72.5%	200,607	90%	222,897	240	
	Later living	590	9%	637,200	72.5%	878,897	90%	976,552	1,080	
	Student flats	150	20%	360,000	72.5%	496,552	90%	551,724	2,400	
	Hotel	-		193,750	77.5%	250,000	90%	277,778	-	
	Office	-		5,500,000	77.5%	7,096,774	90%	7,885,305	-	
	Light commercial / Maker space	-		100,000	77.5%	129,032	90%	143,369	-	
	Research Hub	-		500,000	77.5%	645,161	90%	716,846	-	
	Retail - Convenience Food	-		50,000	80%	62,500	90%	69,444	-	
	Retail - Comparison Non-food	-		50,000	80%	62,500	90%	69,444	-	
	Retail - Other GF uses Bars and restaurants	-		50,000	80%	62,500	90%	69,444	-	
	Entertainment	-		70,000	80%	87,500	90%	97,222	-	
	Cultural	-		109,120	80%	136,400	90%	151,556	-	
	Sports	-		100,000	80%	125,000	90%	138,889	-	
	Health			10,181	80%	12,726	90%	14,140		
	Police			10,764	80%	13,455	90%	14,950		
	TOTAL			16,186,759		19,777,404		21,974,893	12,000	
Additional land	Logistics									1.00
allocation	Transport hub									-
	Stadium									-
	College									1.25
	Energy Centres									1.00
	Schools									13.50
	Parking									2.53
	Open space land within development (1)									11.74
	Green Corridor (2)									44.00
	Additional land for open space + BNG (3)									58.00
	TOTAL	_								133.02
Note:										
(1) Open space within d	development includes									
	Allotments									7.74
	Parks, boulevards and squares									4.00
(0) 0	udes the following (with the rest of the area alloca	ated to informal open space								
(2) Green corridor incli										
(2) Green corridor inclu										1 93
(2) Green corridor inclu	Allotments Outdoors sports									1.93 14.51

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Allies and Morrison

























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