HARDISTY JONES ASSOCIATES
Economic Development Advisers

Town and Country Planning Act 1990

Appeal by Hinton Group (Grovefield Way) Ltd

Land at Grovefield Way, The Reddings, Cheltenham

Planning Inspectorate Refs:

APP/B1605/W/18/3200395

APP/B1605/W/18/3214761

LPA Refs:

Appeal: 18/00011/PP1, Application: 16/02208/FUL

Appeal: 18/00020/PP1, Application: 18/01004/FUL

Proof of Evidence of Stuart Hardisty BSc Econ (Hons) MIED

Economic Impact

7th December 2018

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1 Introduction

1.1 Qualifications and Experience

1.1.1 I am Stuart Hardisty, a Director of Hardisty Jones Associates. I have been awarded a BSc Econ (Hons) in Business Economics. I am a Member of the Institute of Economic Development and have been a Director of the Institute following election in November 2015.

1.1.2 I have worked full-time as an economic development consultant for more than 18 years. I was employed for 11 years by DTZ (now Cushman & Wakefield), latterly leading its economic development consulting team in Wales, the South West and West Midlands. In 2011 I established Hardisty Jones Associates. A specialist economic development advisory business.

1.1.3 My clients throughout my career have comprised a range of private and public sector organisations, including local, regional and national government organisations.

1.1.4 My work covers many aspects of economic development, with particular regard to employment land and the planning system. I carry out socio-economic research; prepare economic plans and strategies for client organisations; prepare economic impact assessments of proposed or existing activity; and evaluate economic development activity.

1.1.5 I have appeared as an economic development expert witness for both public and private sector clients. This includes representing clients during the Examination Hearings of the Gloucester, Cheltenham and Tewkesbury Joint Core Strategy.

1.1.6 I have provided economic impact analysis for a variety of commercial and mixed-use development proposals including those at the North West Cheltenham Strategic Allocation on behalf of the developer consortium. I have recently acted for Tewkesbury Borough Council, providing economic analysis to inform the Tewkesbury Area Draft Concept Masterplan.

1.2 Statement of Truth

1.2.1 The evidence which I have prepared and provided for this appeal is true and has been prepared and is given in accordance with the guidance of my professional institution, and I confirm that the opinions expressed are my true and professional opinions.

1.3 My Instructions

1.3.1 Hardisty Jones Associates Limited (HJA) was instructed in September 2016 by Hinton Properties (Grovefield Way) Limited to assess the economic impact of proposed development at Grovefield Way, Cheltenham. The output of this instruction was the *Proposed Development at Grovefield Way, Cheltenham Economic Impact Assessment Final Report* (October 2016) which accompanied Planning Application 16/02208/FUL. This is attached as Appendix 1 to this proof.

1.3.2 HJA was instructed in February 2018 by Hinton Properties (Grovefield Way) Limited to provide an update to its 2016 analysis, ensuring that it used up-to-date assumptions. The output of this instruction was the *Proposed Development at Grovefield Way, Cheltenham: Economic Impact Assessment Final Report* (May 2018) which accompanied Planning Application 18/01004/FUL. This is attached as Appendix 2 to this proof.

1.3.3 HJA was instructed in March 2018 by Hinton Properties (Grovefield Way) Limited to provide expert witness support to the appeal against the refusal of permission for Application 16/02208/FUL. This now extends to cover the conjoined appeal with Planning Application 18/01004/FUL.

1.3.4 HJA was instructed in September 2018 by Hinton Properties (Grovefield Way) Limited to provide a further update to the economic impact analysis as a result of revisions to the proposed development. The output of this instruction was the *Proposed Development at Grovefield Way, Cheltenham: Economic Impact Assessment Final Report* (September 2018) which accompanied Planning Application 18/01004/FUL. This is attached as Appendix 3 to this proof.

2 The Appeal Site and Proposed Development

2.1 The Application Site

2.1.1 These conjoined appeals relate to the following Planning Applications submitted to Cheltenham Borough Council:

- 16/02208/FUL
- 18/01004/FUL

2.1.2 Both applications (and appeals) relate to the same site. The site lies between Grovefield Way and the A40 on the western edge of Cheltenham. The application site is currently undeveloped land.

2.1.3 The application site is immediately adjacent to a BMW, Mini and Motorrad car dealership (Application reference: 14/00656/FUL) which is now operational.

2.2 Planning Policy

2.2.1 The evidence of Mr Griffin deals with matters of planning policy.

2.3 Extant Consent

2.3.1 Outline consent was granted in December 2014 for 16,800sqm of B1(a) office employment uses on the appeal site (Application reference: 14/01323/OUT).

2.4 Proposed Development

2.4.1 Application 16/02208/FUL comprises:

Full Application

- 1,742sqm (GIA) A1 Use – Aldi Foodstore
- 204sqm (GIA) A1/A3/A5 food – Costa Drive Thru and Cafe
- 502sqm (GIA) D1 Use – Happy Days Nursery Childcare Facility
- 5,034sqm (GIA) B1a Use – Two Office Buildings

Outline Application

- 8,034sqm (GIA) B1a Use – Two Office Buildings

2.4.2 This is referred to as Appeal A.

2.4.3 Application 18/01004/FUL comprises:

Full Application

- 1,742sqm (GIA) A1 Use – Aldi Foodstore
- 502sqm (GIA) D1 Use – Happy Days Nursery Childcare Facility
- 5,903sqm (GIA) B1a Use – Three Office Buildings

Outline Application

- 7,730sqm (GIA) B1a Use – Two Office Buildings

2.4.4 This is referred to as Appeal B.

2.4.5 The main differences between the two applications subject to these conjoined appeals are the removal of 204sqm (GIA) A1/A3/A5 use (identified as a Costa Drive Thru and Café, and the inclusion of 565sqm of additional B1a office.

3 Reasons for Refusal and Issues to be Considered

3.1 Reasons for Refusal

Appeal A

3.1.1 The Decision Notice for Application 16/02208/FUL cites three reasons for refusal. Reasons two and three are not relevant to my evidence. Reason one states:

The site has extant consent for B1 office development and is allocated for employment use (specifically B class employment or Sui Generis uses that exhibit the characteristics of traditional B class uses) within the emerging Cheltenham Plan (Pre-submission version, December 2017).

The application is for a mixed use development with a considerable and prominent part of the site being given over to non-B1 uses including a supermarket, "drive thru" coffee shop and day nursery.

The proposed non B1 uses will result in a reduction in the amount of the site available for B1 office development along with the high quality jobs this would provide. The amount of the site given over to non B1 uses in combination with the prominent position they would occupy on the site would result in a dilution of the character and function of the site as a business and represent in [sic] inappropriate balance between B1 and non B1 uses.

For these reasons the proposal is considered to be contrary to policy SD1 of the Joint Core Strategy, policy EM2 of the adopted Local Plan and emerging policy EM3 of the Cheltenham Plan (Pre-submission version, December 2017).

Appeal B

3.1.2 The Decision Notice for Application 18/01004/FUL cites one reason for refusal. Reason one states:

The site has extant planning permission for B1 office development and is allocated for employment use (specifically B class employment or Sui Generis uses that exhibit the characteristics of traditional B class uses) within policy EM3 of the emerging Cheltenham Plan (Regulation 19 version, February 2018). The application is for a mixed use development with considerable and prominent parts of the site being given over to an A1 food retail store with a D1 day nursery.

These proposed non B1 uses will result in a reduction in the amount of the site available for B1 office development, for which this has been allocated, along with the high quality jobs this would provide. The amount of the site given over to non B1 uses in combination with the prominent position they would occupy on the site would result in a dilution of the character and function of the site as an employment site and represent in [sic] inappropriate balance between B1 and non B1 uses.

For these reasons the proposal is considered to be contrary to policy SD1 of the Gloucester, Cheltenham and Tewkesbury Joint Core Strategy, policy EM2 of the adopted Cheltenham Borough Local Plan and policy EM3 of the emerging Cheltenham Plan (Regulation 19 version, February 2018).

3.2 Issues to be Considered

3.2.1 My evidence relates to the economic impact of the proposed developments and the jobs that can be accommodated on the site. This will demonstrate that the economic impact of the proposed development under either application is greater than that generated by the reasonable alternatives on the site. This will therefore challenge the statement contained in the reasons for refusal that:

These proposed non B1 uses will result in a reduction in the amount of the site available for B1 development along with the high quality jobs this would provide.

4 Alternatives

4.1 Overview

4.1.1 When assessing the economic impact of a proposal it is important to consider potential alternatives. Three alternative options for development at the application site have been considered.

4.2 Alternative 1: Extant Consent

4.2.1 Outline consent was granted in December 2014 for 16,800sqm of B1(a) office employment uses on the appeal site (Application reference: 14/01323/OUT).

4.2.2 It will be demonstrated by Mr Pratt and Mr Fong that this alternative is neither viable nor attractive in the commercial market. On this basis Alternative 1 is not a realistic and deliverable alternative. It is therefore provided as a hypothetical alternative only.

4.3 Alternative 2: Permitted Development

4.3.1 As noted within the Officer's Report for Application 18/01004/FUL paragraph 6.2.7, the extant consent allows for Permitted Development Class I – Industrial and General Business Conversions within the Town and Country Planning (General Permitted Development) (England) Order 2015, Article 3, Schedule 2, Part 3. This states that:

Permitted Development

I. Development consisting of a change of use of a building-

a. From any use falling within Class B2 (general industrial) or B8 (storage or distribution) of the Use Classes Order to a use for any purpose falling within Class B1 (business) of that Schedule;

b. From any use falling within Class B1 (business) or B2 (general industrial) of the Schedule to the Use Classes Order, to a use for any purpose falling within Class B8 (storage and distribution) of that Schedule,

Development not permitted

I.1 Development is not permitted by Class I, where the change is to or from a use falling within Class B8 of that Schedule, if the change of use relates to more than 500 square metres of floor space in the building.

4.3.2 The illustrative masterplan submitted as part of Outline Application 14/01323/OUT shows 10 (ten) office buildings. On this basis, up to 5,000sqm of B1(a) office floorspace (10 x 500sqm) could be subject to change of use to Class B8 under the terms of Permitted Development Class I. This would provide a development mix of 11,800sqm of B1(a) Use Class office floorspace and 5,000sqm B8 Use Class ancillary storage floorspace.

4.3.3 It was proposed by Cheltenham Borough Council that Permitted Development Class I be removed by condition for Application 18/01004/FUL (Appeal B).

4.3.4 As per Alternative 1, this option is likely to be unviable with a lower value mix of uses. It is therefore provided as a hypothetical alternative only.

4.4 Alternative 3: Other B Class Uses

4.4.1 Without prejudice to Mr Griffin's evidence, in respect of the relevance of particular planning policies to these Appeals, the policies cited in the reasons for refusal (Policy SD1 of the Joint Core Strategy, Policy EM2 of the adopted Local Plan and emerging policy EM3 of the Cheltenham Plan) relate to the B Use Classes in general and do not limit to B1 use alone. On this basis, alternative B Use Class development proposals would be deemed in accordance with the policy. There are many permutations for prospective development mixes on this basis.

4.4.2 For the purpose of demonstrating what might be a reasonable minimum in terms of economic impact a scenario with B8 development is tested. It is assumed that a site coverage of 40% is achieved on the entirety of the 4.15ha application site. This would extend to 16,600sqm of B8 Use Class development.

4.4.3 As per Alternatives 1 and 2, this option is likely to be unviable with a lower value mix of uses. It is therefore provided as a hypothetical alternative only.

5 Approach to Assessing Economic Impact

5.1.1 The method employed to assess the economic impacts arising from proposed development is in accordance with best practice guidance, as discussed below and draws on my 18-years of experience as an economic development consultant.

5.1.2 Wherever possible, primary data has informed the assessment. This includes employment data provided by prospective occupiers, and construction cost information supplied by the developer. Where assumptions and modelling adjustments have been made these are referenced in full and accord with best practice guidance.

5.1.3 Specific guidance that has informed the detailed modelling includes:

- Homes & Communities Agency (2015) Employment Density Guide, 3rd Edition
- Homes & Communities Agency (2014) Additionality Guide, 4th Edition

5.1.4 These documents are attached as Appendices 4 and 5 to this proof of evidence.

5.1.5 The analysis considers the construction and operational phases separately. This acknowledges the temporary nature of construction activity, particularly for a scheme of this size, whereas the operational phase impacts will continue year-on-year.

5.1.6 Given the hybrid nature of the applications, the full and outline elements are considered separately.

5.1.7 For both the construction and operational phases, impacts are set out in terms of gross direct effects and net additional local effects. The former captures the direct impacts through employment and expenditure. The latter makes adjustment for a range of 'additionality' factors (leakage, deadweight, displacement and multipliers). This provides a more nuanced and sophisticated measure of the actual impact on the local economy.

5.1.8 Impacts are expressed in terms of employment and wages.

5.1.9 All analysis previously set out in HJA reports accompanying the applications has been updated based on the latest available data.

6 Construction Phase Impacts

6.1 Impact Model

6.1.1 Construction phase impacts are assessed on the basis of total construction expenditure. Total construction cost estimates were provided to HJA by Hinton Group Ltd and are consistent with the viability analysis. All construction costs are at Q1/Q2 2018.

6.1.2 Construction costs for Alternatives 1-3 have been prepared on the basis of the same assumptions as Appeals A and B. For B8 uses, cost estimates are based on Linesight (2018) UK Handbook 2018, Opening up a world of data for the UK construction industry (page 15, Linesight average UK construction costs 2018).

6.1.3 Employment impacts are expressed in terms of person-years of employment. This measure is used to represent one full time equivalent post for a single year. This approach captures the contract nature of much construction work, encompassing a range of trades on varying contract lengths.

6.1.4 An estimate of person years is generated on the basis of average turnover per worker in the construction sector (SIC Section F) taken from the ONS Annual Business Survey (data for 2017, released November 2018). This indicates turnover per worker of £176,620 in the UK.

6.1.5 Wage impacts for the construction sector (SIC Section F) taken are estimated using the ONS Annual Survey of Hours and Earnings (Revised data for 2017, taken from Table 16.7a, released October 2018).

6.1.6 The A1, A3 and D1 elements of the proposed development are expected to be constructed within 10 (ten) months of award of planning permission. The office buildings within the full application are anticipated to be constructed over a 16-month period from award of planning permission. The timetable for constructing the remaining office element, which is subject to outline application, is not yet confirmed and will depend on market interest.

6.2 Additionality Assumptions

6.2.1 The underpinning rationale for additionality assumptions is set out below. These are applied consistently to all the considered options (Appeals A and B, Alternatives 1-3).

Leakage

6.2.2 Leakage measures those impacts which 'leak' outside the impact area. For this analysis the primary impact area is identified as Cheltenham Borough, with analysis also presented for the Joint Core Strategy (JCS) area. Commuting data is used to assess the leakage of employment benefits out of the local area.

6.2.3 Data from both the 2001 Census of Population [UK travel flows (local authority)] and 2011 Census of Population [Table WU01UK] has been analysed. This shows that the majority of employment impacts are retained within Cheltenham Borough. Where benefits do leak to those that in-commute to the area, the majority are retained within the wider JCS area.

6.2.4 2001 Census data suggests slightly lower than average leakage for the construction sector in Cheltenham. This records 33% of construction sector employees in-commuting to Cheltenham from outside the Borough. Construction sector in-commuting is recorded at 18% from outside the JCS area, slightly higher than the whole economy average. For comparison, for the whole economy these figures are 37% and 15% respectively.

6.2.5 The 2011 Census does not allow for sectoral analysis of commuting data. Data for the whole economy, calculated on the same basis as the 2001 Census reporting, shows in-commuting at 38% from outside the Borough and 17% from outside the JCS area. It is uncertain whether the effect of increased in-commuting has been felt equally across sectors.

6.2.6 For the purposes of this analysis the 2011 Census figure are adjusted (in line with the 2001 Census data) by 4% points at the Cheltenham level and 3% points at the JCS area. This results in leakage assumptions of 34% for Cheltenham and 20% for the JCS area.

6.2.7 It should be noted that the 2011 Census whole economy commuting figures are slightly different to those listed for the operational phase. The reason for this is a change in the way those working at or from home, and those with no fixed place of work are treated. Within the construction sector there will be a high proportion of itinerant workers that may be recorded as either working at or from home, or with no fixed place of work. These workers need to be incorporated in the analysis. In the operational phase analysis, the focus is on workers with a fixed workplace outside the home (i.e. at the application site). Those who work at or from home, or with no fixed place of work are not therefore included in the operational phase analysis. As a result, the leakage analysis differs.

Deadweight

6.2.8 Deadweight is a measure of impacts that would be expected to accrue without the proposed development. It is often referred to as a reference case or do-nothing option.

6.2.9 The three alternative scenarios are used as potential reference cases.

Displacement and Substitution

6.2.10 Displacement is a measure of the impacts that are offset by reduced activities elsewhere in the target area. Substitution is a form of internal (within firm) displacement. For example, this could occur when a construction contractor secures work on the proposed development and declines work elsewhere in the area. Typically, displacement and substitution effects are considered together.

6.2.11 Gross direct impacts are shown to peak at approximately 3.4% of current Cheltenham construction employment and not at a scale that is likely to have substantial displacement impacts. Displacement and substitution effects are deemed to be very low in this instance, a figure of 10% at the Cheltenham level and 15% at the JCS level is assumed. These assumptions are informed by HCA (2014) Additionality Guide (page 30, Table 4.8) attached as Appendix 5.

Multipliers

6.2.12 Multipliers capture the effects of further rounds of indirect and induced economic activity. This includes the expenditure through the supply chain and the effects as employees spend their wages in the local economy.

6.2.13 The construction sector has particularly high multipliers, with high levels of locally retained expenditure. This reflects the local sourcing of labour and the expenditure of earned incomes in the local area, as well as the often localised purchase of building materials, particularly non specialised materials. Multipliers of 1.3 at the Cheltenham level and 1.5 at the JCS area are applied. These assumptions are informed by HCA (2014) Additionality Guide (page 36, Table 4.14) attached as Appendix 5.

6.3 Appeal A: Application 16/02208/FUL Construction Phase Impact

Gross Direct Impacts

6.3.1 Total construction costs are estimated at £30.9 million. This includes £14.6 million of costs related to the full application and £16.3 million relating to the outline application.

6.3.2 Table 6.1 sets out the gross direct employment and wage impacts. It does not capture knock-on indirect and induced effects. This shows that in aggregate the application will support 175 person-years of employment, generating wages of £5.5 million. This is split broadly in two halves between the full and outline elements of the application.

Table 6.1 Appeal A Gross Direct Construction Phase Impacts (16/02208/FUL)

	Construction Spend (£m)	Employment (Person-Years)	Wages (£m)
Full Application	£14.6m	83	£2.6m
Outline Application	£16.3m	92	£2.9m
Total	**£30.9m**	**175**	**£5.5m**

Source: Hinton Group Ltd and HJA Analysis. Figures may not sum due to rounding.

6.3.3 Assuming a linear split of requirements across the relevant construction periods the peak workforce will be within the first 10 (ten) months after award of planning permission, with an annualised impact of 74 person years. The ONS Business Register and Employment Survey (BRES) employment data (2017) indicates 2,250 persons employed in the construction sector in Cheltenham Borough. At its peak across the first ten months the proposed development would therefore support the equivalent of 3.3% of Cheltenham construction sector employment.

Net Additional Impacts

6.3.4 The net additional impacts at the Cheltenham Borough and Joint Core Strategy (JCS) area levels take account of leakage, displacement and multiplier effects. In adjusting to net additional impacts the impacts are reported on a resident basis, rather than on a workplace basis. That is, the scale of employment and wage impacts on residents of Cheltenham Borough and the JCS area.

6.3.5 Table 6.2 sets out the results of the analysis. It is estimated that 135 person-years of employment will be secured by Cheltenham Borough residents, supporting wages of £4.2 million across the construction period. When considering the wider JCS area the local benefits increase to 178 person-years of employment and £5.6 million in wages.

Table 6.2 Appeal A Net Additional Construction Phase Impacts (16/02208/FUL)

	Cheltenham Borough		JCS Area	
	Employment (Person Years)	Wages (£m)	Employment (Person Years)	Wages (£m)
Full Application	64	£2.0m	85	£2.6m
Outline Application	71	£2.2m	94	£2.9m
Total	**135**	**£4.2m**	**178**	**£5.6m**

Source: Hinton Group Ltd and HJA Analysis. Figures may not sum due to rounding.

6.4 Appeal B: Application 18/01004/FUL Construction Phase Impact

Gross Direct Impacts

6.4.1 Total construction costs are estimated at £31.5 million. This includes £15.9 million of costs related to the full application and £15.6 million relating to the outline application.

6.4.2 Table 6.3 sets out the gross direct employment and wage impacts. It does not capture knock-on indirect and induced effects. This shows that in aggregate the application will support 178 person-years of employment generating wages of £5.6 million. This is split broadly in two halves between the full and outline elements of the application.

Table 6.3 Appeal B Gross Direct Construction Phase Impacts (18/01004/FUL)

	Construction Spend (£m)	Employment (Person Years)	Wages (£m)
Full Application	£15.9m	90	£2.8m
Outline Application	£15.6m	89	£2.7m
Total	**£31.5m**	**178**	**£5.6m**

Source: Hinton Group Ltd and HJA Analysis. Figures may not sum due to rounding.

Net Additional Impacts

6.4.3 Table 6.4 sets out the results of the analysis. It is estimated that 138 person-years of employment will be secured by Cheltenham Borough residents, supporting wages of £4.3 million across the construction period. When considering the wider JCS area the local benefits increase to 182 person-years of employment and £5.7 million in wages.

Table 6.4 Appeal B Net Additional Construction Phase Impacts (18/01004/FUL)

	Cheltenham Borough		JCS Area	
	Employment (Person Years)	Wages (£m)	Employment (Person Years)	Wages (£m)
Full Application	69	£2.2m	92	£2.9m
Outline Application	68	£2.1m	90	£2.8m
Total	**138**	**£4.3m**	**182**	**£5.7m**

Source: Hinton Group Ltd and HJA Analysis. Figures may not sum due to rounding

6.5 Alternatives

6.5.1 Tables 6.5 and 6.6 summarise the results of equivalent analysis for the three alternatives as described. The Appeal schemes are also included for comparison. These demonstrate that:

- Notionally, the extant consent (Alternative 1) delivers construction phase benefits 13%-15% greater than the Appeal schemes. However, the extant scheme is neither viable nor attractive in the commercial market and these benefits are therefore purely hypothetical and will not be realised.
- Alternative 2 delivers construction phase benefits 6%-8% lower than those anticipated under the Appeal schemes. The Appeal schemes therefore deliver greater benefits than this hypothetical alternative that is permitted within the terms of the extant consent.
- Alternative 3 delivers construction phase benefits 55%-56% lower than those anticipated with the Appeal schemes. The Appeal schemes therefore deliver much greater benefits than this hypothetical alternative comprising B Class uses across the entire site.

Table 6.5 Gross Direct Construction Phase Impacts (Alternatives and Appeals)

	Construction Spend (£m)	Employment (Person Years)	Wages (£m)
Alternative 1 (Extant)	£35.5m	201	£6.3m
Alternative 2 (Permitted Development)	£29.1m	165	£5.1m
Alternative 3 (B8 Uses)	£14.0m	79	£2.5m
Appeal A (16/02208/FUL)	£30.9m	175	£5.5m
Appeal B (18/01004/FUL)	£31.5m	178	£5.6m

Source: Hinton Group Ltd and HJA Analysis. Figures may not sum due to rounding.

Table 6.6 Net Additional Construction Phase Impacts (Alternatives and Appeals)

	Cheltenham Borough		JCS Area	
	Employment (Person Years)	Wages (£m)	Employment (Person Years)	Wages (£m)
Alternative 1 (Extant)	155	£4.8m	205	£6.4m
Alternative 2 (Permitted Development)	127	£4.0m	168	£5.2m
Alternative 3 (B8 Uses)	61	£1.9m	81	£2.5m
Appeal A (16/02208/FUL)	135	£4.2m	178	£5.6m
Appeal B (18/01004/FUL)	138	£4.3m	182	£5.7m

Source: Hinton Group Ltd and HJA Analysis. Figures may not sum due to rounding

7 Operational Phase Impacts

7.1 Impact Model

7.1.1 The proposed development includes a range of employment accommodating uses. The analysis assesses the likely employment and wage impacts at full occupancy.

7.1.2 For A1, A3 and D1 uses the assessment is based on primary employment data provided by the identified occupiers.

7.1.3 For the A1 foodstore, the potential end user has been identified as Aldi. The economic impact assessment has been undertaken on the basis of employment data provided by Aldi's representatives. The business model of Aldi and other discount food retailers includes lower employment densities than is typical of A1 food stores generally. On this basis, the estimate of 26 full time equivalent (FTE) jobs is much lower than the 74-98 FTE jobs which would be generated using best practice employment density assumptions for A1 Foodstore use (HCA (2015) Employment Density Guide, page 29, attached as Appendix 4). On this basis the assessment set out in my evidence is prudent. Within the terms of any permission, a higher level of employment could be secured on site.

7.1.4 For B1(a) elements employment has been assumed using best practice employment density assumptions set out within HCA (2015) Employment Densities Guide, attached as Appendix 4. The following density assumptions are set out within the guide (page 29).

Table 7.1 B1(a) Employment Density Assumptions

B1(a) Offices		Sqm per FTE (NIA)
General Offices	Corporate	13
	Professional Services	12
	Public Sector	12
	TMT	11
	Finance & Insurance	10
Call Centres		8

Source: HCA (2015) Employment Densities Guide, 3rd Edition (page 29)

7.1.5 All densities for B1(a) office use are cited as Net Internal Area (NIA). An uplift of 15% is used to convert NIA to GIA (Gross Internal Area) as recommended within HCA (2015) Employment Densities Guide(pages 3-5, paragraphs 2.7 – 2.13), attached as Appendix 4.

7.1.6 For the purposes of this assessment a figure of 12sqm (NIA) was adopted. This was adjusted to 13.8sqm (12 x 1.15) to align to floorspace figures cited as GIA. This is used consistently to assess all B1(a) office uses.

7.1.7 For B8 uses employment has been assumed using best practice employment density assumptions set out within HCA (2015) Employment Densities Guide, attached as Appendix 4. The following density assumptions are set out within the guide (page 29).

Table 7.2 B8 Employment Density Assumptions

B8		Sqm per FTE (GEA)
Storage & Distribution	National Distribution Centre	95
	Regional Distribution Centre	77
	'Final Mile' Distribution Centre	70

Source: HCA (2015) Employment Densities Guide, 3rd Edition (page 29)

7.1.8 All densities for B8 use are cited as Gross External Area (GEA). A reduction of 5% is used to convert GEA to GIA as recommended within HCA (2015) Employment Densities Guide (page 5, paragraph 2.12), attached as Appendix 4.

7.1.9 For the purposes of this assessment a figure of 70sqm (GEA) was adopted. The site is unlikely to be suitable for national or regional distribution activities. This was adjusted to 66.5sqm (70 x 0.95) to align to floorspace figures cited as GIA. This is used consistently to assess all B8 uses.

7.1.10 Wage effects are assessed based on the ONS Annual Survey of Hours and Earnings (Table 16.7a, data for 2017, for full time median earnings). The following sector assumptions were used for the relevant Use Classes:

- A1 - SIC 4711: Retail sale in non-specialised stores with food, beverages or tobacco predominating,
- A3 – SIC 56: Food and beverage service activities,
- D1 – SIC 8891: Child day-care activities,
- B1a – SICs: 58, 61, 62, 63, 64, 65, 66, 68, 69, 70, 71, 72, 73, 74, 77, 78, 79, 82[1],

[1] Publishing activities; telecommunications; computer programming, consultancy and related activities; information service activities; financial service activities, except insurance and pension funding; insurance, reinsurance and pension funding, except compulsory social security; activities auxiliary to financial service and insurance activities; real estate activities; legal and accounting activities; activities of head offices, management consultancy activities; architectural and engineering activities, technical testing and analysis; scientific research and development; advertising and market research; other professional, scientific and technical activities; rental and leasing activities; employment activities; travel agency, tour operator and other reservation service and related activities; office administrative, office support and other business support activities.

- B8 – SIC 52: Warehousing and support activities for transportation.

7.1.11 All employment and wage data is based on full time equivalents (FTE).

7.2 Additionality Assumptions

Leakage

7.2.1 2011 Census of Population data indicates that for jobs within a fixed workplace in Cheltenham, 55% are filled by Cheltenham residents (i.e. 45% of job-benefits leak from the area). Of the remainder 25% are filled by in-commuters from the JCS area (i.e. 80% of jobs go to JCS area residents including Cheltenham residents), and the remaining 20% are filled by those residing outside the JCS area.

7.2.2 2001 Census of Population data on commuting patterns indicates differing levels of in-commuting to Cheltenham by sector. Sector level commuting data is not available from the 2011 Census of Population.

- Data for the wholesale and retail trade sector shows in-commuting rates as 4% points lower for Cheltenham and 3% points higher for the JCS area;
- Data for the hotels and restaurants sector (including cafés such as Costa) in-commuting is 15% points lower for Cheltenham and 6% points lower for the JCS area;
- Data for the health and social work sector (including day care facilities) shows in-commuting levels 1% point lower in both Cheltenham and the JCS area.
- A proxy for office-based work, using financial intermediation, real estate and public administration sectors shows a level of in-commuting is slightly higher than the whole economy average (7% points highervfor Cheltenham and 3% higher for the JCS area).
- Data for the transport, storage and communications sector (a proxy for B8 uses) indicates in-commuting 4% points lower in Cheltenham and 3% points lower for the JCS area.

Table 7.3 2001 Commuting Data by Sector

Sector	Live and Work in Cheltenham	Live in JCS Area and Work in Cheltenham
Whole Economy	63%	85%
Wholesale & Retail Trade	67%	88%
Hotels & Restaurants	78%	91%
Health & Social Work	64%	86%
Office Based (Proxy)	56%	82%
Transport, Storage & Communications	67%	88%

Source: 2001 Census of Population (UK Travel Flows Local Authority)

7.2.3 To reflect the available evidence the 2011 Census level of in-commuting is adjusted by the sectoral factors from the 2001 Census.

- Leakage for retail is therefore assumed to be 41% for Cheltenham and 17% for the JCS area.
- Leakage for café use is assumed to be 30% for Cheltenham and 14% for the JCS area.
- Leakage for the nursery use is assumed to be 44% for Cheltenham and 19% for the JCS area.
- Leakage for office-based employment is set at 52% for Cheltenham and 23% for the JCS area.
- Leakage for B8 based employment is set at 41% for Cheltenham and 17% for the JCS area.

Table 7.4 Leakage Assumptions by Sector

Sector	Leakage from Cheltenham	Leakage from JCS Area
Whole Economy (2011 Census)	45%	20%
Wholesale & Retail Trade	41%	17%
Hotels & Restaurants	30%	14%
Health & Social Work	44%	19%
Office Based (Proxy)	52%	23%
Transport, Storage & Communications	41%	17%

Source: HJA based on 2001 and 2011 Census of Population (ONS)

Deadweight

7.2.4 Deadweight at the site level is anticipated to be zero under the do nothing scenario. There are no substantive employment generating activities on the site at present. There is therefore no material loss of existing employment at the site which needs to be offset.

7.2.5 The three alternative scenarios are used as potential reference cases for comparison purposes.

Displacement

7.2.6 In reality this is anticipated to be very low. This is supported by employment growth forecasts set out within the GFirst LEP Strategic Economic Plan (page 42, Table 6). This shows forecast employment growth across the JCS area in the retail sector (2,600 jobs, 9% increase 2012-25); accommodation and food services (4,500 jobs, 27% increase); office sectors[2] (13,700 jobs, 20% increase); and transport and storage (800 jobs, 8% increase). Growth in these activities will require new premises.

7.2.7 Notwithstanding, there is the potential that some activity will be displaced. For example, take up will be from existing occupiers within the borough with existing office premises lost to other activities. This would be true of any new office development. On this basis a 'low' displacement figure of 25% is assumed at the Cheltenham level, in line with HCA (2014) Additionality Guide (Table 4.7, page 30), attached as Appendix 5. This is increased to 33% at the JCS area. This is applied to A3, B1(a), B8 and D1 uses.

7.2.8 Appendix 1, Table 10.5 (page 51) of the retail study submitted alongside the application: DPP (2018) Retail and Planning Statement allows for detailed consideration of potential trade diversion from a 2018 baseline position. On the basis of detailed consideration of Table 10.5 a displacement factor of 66.5% has been applied to employment within the A1 foodstore. This is applied at both the Cheltenham and JCS area level. It should be noted that the retail study assumes no increase in market share to the relevant zone as a result of the proposed Aldi store at Grovefield Way. This assumption also assumes every £1 of trade diversion leads to a commensurate reduction in employment elsewhere in the impact zone. These assumptions should be considered a maximum level of displacement.

Multipliers

7.2.9 Multiplier effects are assessed as medium. For A1, A3 and D1 uses these are set as 1.2 at the Cheltenham level and 1.3 for the JCS area. For office uses these are set as 1.29 at the Cheltenham level and 1.35 at the JCS area. All assumptions based on the HCA (2014) Additionality Guide (Tables 4.12 and 4.14, pages 35-36), attached as Appendix 5.

[2] Information and communication, financial and insurance, property, professional, scientific and technical, business administration and support services

7.3 Appeal A: Application 16/02208/FUL Operational Phase Impact

Gross Direct Impacts

7.3.1 Table 7.5 sets out the estimated gross direct employment and wage impacts by element. The full scheme has the capacity to accommodate 1,018 FTE jobs when fully occupied, generating annual wages of £34.59 million per annum. The elements of the scheme subject to the full application have the capacity to support employment of 436 FTEs supporting wages of £14.11m per annum.

Table 7.5 Appeal A: Gross Direct Operational Phase Impacts

	Employment (FTEs)	Wages (£m Annual)
A1 – Aldi Foodstore	26	£0.51m
A3 – Costa	19	£0.36m
D1 – Happy Days Nursery	26	£0.41m
B1a – Full	365	£12.83m
Full Application	***436***	***£14.11m***
B1a – Outline	582	£20.48m
Outline Application	***582***	***£20.48m***
Total	**1,018**	**£34.59m**

Source: HJA Analysis

Net Additional Impacts

7.3.2 Table 7.6 sets out the results of the analysis. The total scheme has the capacity to deliver 476 net additional FTE jobs supporting £16.11 million in wages per annum at the Cheltenham Borough level. This increases to 701 FTEs and £23.94 million in wages at the JCS area level.

Table 7.6 Appeal A: Net Additional Operational Phase Impacts

	Cheltenham Borough		JCS Area	
	Employment (FTEs)	Wages (£m Annual)	Employment (FTEs)	Wages (£m Annual)
A1 – Aldi Foodstore	6	£0.12m	9	£0.18m
A3 – Costa	16	£0.26m	14	£0.27m
D1 – Happy Days Nursery	13	£0.26m	18	£0.29m
B1a – Full	169	£5.96m	254	£8.94m
Full Application	***205***	***£6.60m***	***295***	***£9.68m***
B1a – Outline	270	£9.51m	405	£14.26m
Outline Application	***270***	***£9.51m***	***405***	***£14.26m***
Total	**476**	**£16.11m**	**701**	**£23.94m**

Source: HJA Analysis

7.4 Appeal B: Application 18/01004/FUL Operational Phase Impact

Gross Direct Impacts

7.4.1 Table 7.7 sets out the estimated gross direct employment and wage impacts by element. The full scheme has the capacity to accommodate almost 1,040 FTE jobs when fully occupied, generating annual wages of £35.66 million per annum. The elements of the scheme subject to the full application have the capacity to support employment of 480 FTEs generating wages of £15.96m per annum.

Table 7.7 Appeal B Gross Direct Operational Phase Impacts

	Employment (FTEs)	Wages (£m Annual)
A1 – Aldi Foodstore	26	£0.51m
D1 – Happy Days Nursery	26	£0.41m
B1a – Full	428	£15.04m
Full Application	***480***	***£15.96m***
B1a – Outline	560	£19.70m
Outline Application	***560***	***£19.70m***
Total	**1,040**	**£35.66m**

Source: HJA Analysis

Net Additional Impacts

7.4.2 Table 7.8 sets out the results of the analysis. The total scheme has the capacity to deliver 478 FTE net additional jobs supporting £16.52 million in wages per annum at the Cheltenham Borough level. This increases to 715 FTEs and £24.67 million in wages at the JCS area level.

Table 7.8 Appeal B Net Additional Operational Phase Impacts

	Cheltenham Borough		JCS Area	
	Employment (FTEs)	Wages (£m Annual)	Employment (FTEs)	Wages (£m Annual)
A1 – Aldi Foodstore	6	£0.12m	9	£0.18m
D1 – Happy Days Nursery	13	£0.26m	18	£0.29m
B1a – Full	199	£6.99m	298	£10.48m
Full Application	***218***	***£7.37m***	***325***	***£10.95m***
B1a – Outline	260	£9.15m	390	£13.72m
Outline Application	***260***	***£9.15m***	***390***	***£13.72m***
Total	**478**	**£16.52m**	**715**	**£24.67m**

Source: HJA Analysis

7.5 Alternatives

7.5.1 Tables 7.9 and 7.10 summarise the results of equivalent analysis for the three alternatives as described. The Appeal schemes are also included for comparison. These demonstrate that:

- Notionally, the extant consent (Alternative 1) delivers operational phase benefits 17%-25% greater than the Appeal schemes. However, the extant scheme is neither viable nor attractive in the commercial market and these benefits are therefore hypothetical and will not be achieved.
- Alternative 2 delivers hypothetical operational phase benefits 5%-11% lower than those anticipated under the Appeal schemes. The Appeal schemes therefore deliver greater benefits than this alternative that is permitted within the terms of the extant consent.
- Alternative 3 delivers hypothetical operational phase benefits 70%-79% lower than those anticipated with the Appeal schemes. The Appeal schemes therefore deliver much greater benefits than this hypothetical alternative comprising B Class uses across the entire site.

Table 7.9 Gross Direct Operational Phase Impacts (Alternatives and Appeals)

	Employment (FTE)	Wages (£m Annual)
Alternative 1 (Extant)	1,217	£42.8m
Alternative 2 (Permitted Development)	930	£32.3m
Alternative 3 (B8 Uses)	250	£7.45m
Appeal A (16/02208/FUL)	1,018	£34.6m
Appeal B (18/01004/FUL)	1,040	£35.7m

Source: Hinton Group Ltd and HJA Analysis. Figures may not sum due to rounding.

Table 7.10 Net Additional Operational Phase Impacts (Alternatives and Appeals)

	Cheltenham Borough		JCS Area	
	Employment (FTE)	Wages (£m Annual)	Employment (FTE)	Wages (£m Annual)
Alternative 1 (Extant)	565	£19.9m	848	£29.8m
Alternative 2 (Permitted Development)	440	£15.2m	652	£22.6m
Alternative 3 (B8 Uses)	142	£4.2m	187	£5.6m
Appeal A (16/02208/FUL)	476	£16.1m	701	£23.9m
Appeal B (18/01004/FUL)	478	£16.5m	715	£24.7m

Source: Hinton Group Ltd and HJA Analysis. Figures may not sum due to rounding

8 Conclusions

8.1 Issues Considered in this Proof of Evidence

8.1.1 This proof of evidence has considered the economic impacts arising from the conjoined appeal schemes on land at Grovefield Way, Cheltenahm. It has also considered whether the appeal schemes deliver a greater economic impact than that generated by the realistic and deliverable alternatives on the site.

8.2 Economic Impacts of the Appeal Schemes

Construction Phase

8.2.1 Appeal A will support 175 gross direct person years of employment. This will support gross direct wages of £5.5million.

8.2.2 Appeal B will support 178 gross direct person years of employment. This will support gross direct wages of £5.6million.

Operational Phase

8.2.3 Appeal A delivers capacity to accommodate 1,018 gross direct FTE jobs. This will support gross direct wages of £34.6million per annum.

8.2.4 Appeal B delivers capacity to accommodate 1,040 gross direct FTE jobs. This will support gross direct wages of £35.7million per annum.

8.3 Comparison to the Alternatives

8.3.1 Three alternatives have been considered:

- Alternative 1: The extant consent (14/01323/OUT) for 16,800sqm of B1(a) office employment uses.
- Alternative 2: The extant consent (14/01323/OUT) adjusted for Permitted Development Class I providing a development mix of 11,800sqm of B1(a) office employment uses and 5,000sqm B8 ancillary storage and distribution uses.
- Alternative 3: A hypothetical B8 Use Classes only scheme for 16,600sqm B8 storage and distribution uses.

8.3.2 Reason for refusal one for both applications stated that:

These proposed non B1 uses will result in a reduction in the amount of the site available for B1 development along with the high quality jobs this would provide.

8.3.3 The reason for refusal assumes the extant consent will come forward in its headline form.

8.3.4 Whilst in theory Alternative 1 (the extant consent) would provide construction phase impacts 13%-15% greater; and operational phase impacts 17%-25% greater than the appeal schemes this is irrelevant on the grounds that the extant consent is unviable. As a result, none of these benefits will come forward.

8.3.5 The realistic do nothing alternative to the appeals is in fact no development and the loss of the assessed economic impacts in their entirety.

8.3.6 Whilst Alternatives 2 and 3 are also likely to fail the viability test, they help to illustrate important points.

8.3.7 Alternative 2 is entirely consistent with the extant consent and (subject to viability) could be delivered subject to approval of reserved matters and relevant conditions by the Local Planning Authority. This proof of evidence has demonstrated that Alternative 2 would deliver construction phase benefits 6%-8% lower; and operational phase benefits 5%-11% lower than the Appeal schemes.

8.3.8 On this basis it should not be concluded that the appeal schemes will result in a reduction in the amount of the site available for B1 development along with the high quality jobs this would provide, regardless of the viability argument. This conclusion is in accordance with paragraphs 6.2.7 – 6.2.9 of the officer report accompanying application 18/01004/FUL.

8.3.9 Alternative 3 considers a hypothetical entirely B8 Use Class scheme which accords with the open B Use Class provisions of the policies cited in Reason for Refusal 1 of both applications. This proof of evidence has demonstrated that Alternative 3 would deliver construction phase benefits 55%-56% lower; and operational phase benefits 70%-79% lower than the Appeal schemes.

8.3.10 This demonstrates that within the parameters of the cited policies there is the potential for development proposals supporting much lower levels of economic benefit to Cheltenham and the wider JCS area.

Appendix 1:

Proposed Development at Grovefield Way, Cheltenham Economic Impact Assessment Final Report (October 2016)

HARDISTY JONES ASSOCIATES
Economic Development Advisers

Proposed Development at Grovefield Way, Cheltenham
Economic Impact Assessment

Final Report

Prepared on behalf of Hunter Page Planning Ltd

October 2016

Contents

Job Number:	16 09 02
Version Number:	Final v1.0
Approved by:	Stuart Hardisty
Date:	19th October 2016

Executive Summary

HJA was instructed by Hunter Page Planning Ltd to assess the likely economic impacts arising from proposed mixed-use employment generating development at Grovefield Way, Cheltenham. The hybrid application comprises an Aldi Foodstore, Costa Drive Thru, Happy Days Nursery childcare facility and 5,034 sq m of B1a office floorspace in full plus a further 8,034 sq m of B1a office floorspace in outline.

The site is located within west Cheltenham, to the south of the A40 Gloucester Road. The application site lies immediately adjacent to a new BMW showroom (under construction) and in close proximity to a mixed use employment area including retail, health and technology employers. Employment in the vicinity of the site declined 2010-11 and has not yet recovered to its 2010 level, whereas the employment falls in Cheltenham and the wider JCS area have more than been recovered. The proposed development will contribute to boosting employment in this part of west Cheltenham. It will also provide opportunities for those currently unemployed in the area.

The **construction phase** for the full application scheme is anticipated to extend to 15 months, with the peak effort falling within the first six months following the granting of planning permission. The timing for the outline elements of the scheme is as yet unspecified and will be reliant upon market interest.

The gross direct construction phase impacts of the £23.2 million investment are estimated at 143 person years of employment, supporting £4.2 million in wages.

The net additional effects at the Cheltenham level are estimated at 104 person years of employment and £3.1 million in wages. At the JCS area level these increase to 152 person years and £4.5 million in wages.

The **operational phase** analysis shows the scheme will deliver employment capacity for 1,018 FTE gross direct posts generating incomes in excess of £32 million per annum.

The net additional effects at the Cheltenham level are estimated at 498 FTEs supporting wages of almost £16 million per annum, increasing to 605 FTEs and almost £19 million in wages at the JCS area level.

Total locally retained business rates are estimated at up to £660,000 per annum, which will provide funding to safeguard and extend further local employment and services.

1 Introduction

1.1 Purpose

Hardisty Jones Associates Ltd (HJA) has been appointed by Hunter Page Planning Ltd to assess the likely economic impacts of mixed-use employment generating development proposals at Grovefield Way, Cheltenham. This report sets out the method and results of the assessment and is intended to accompany a planning application.

1.2 The Proposed Development

The application site lies between Grovefield Way and the A40 on the western edge of Cheltenham. The A40 provides direct access to the city of Gloucester and the M5 via Junction 11.

The hybrid application comprises the following:

Full Application

- 1,740 sq m (GIA) A1 Aldi Foodstore
- 204 sq m (GIA) A1/A3/A5 Costa Drive Thru and Café
- 502 sq m (GIA) D1 Happy Days Nursery Childcare Facility
- 5,034 sq m (GIA) B1a Offices in two buildings

Outline Application

- 8,034 sq m (GIA) B1a Offices in two buildings

The application site is currently vacant agricultural land. Previous outline consent was granted for 16,800 sq m of B1 employment uses (14/01323/OUT) but has not been implemented. A plot immediately adjacent the application site has secured full consent for a flagship BMW/Mini car showroom which is presently under construction (13/01101/FUL). The area surrounding the application site comprises a mix of uses including residential, retail, health and employment.

1.3 Approach

The method employed for this assessment aligns with the principles set out in HM Treasury Green Book and draws on other best practice guidance, most notably the Homes & Communities Agency *Additionality Guide (Fourth Edition 2014)*.

The analysis considers the construction and operational phases separately. This acknowledges the temporary nature of construction activity, particularly for a scheme of this size, whereas the operational phase impacts will continue year on year.

Given the hybrid nature of the application, the full and outline elements are also considered separately.

For both the construction and operational phases impacts are set out in terms of gross direct effects and net additional effects. The former captures the first round impacts through employment and

expenditure. The latter make adjustment for a range of 'additionality' factors (leakage, deadweight, displacement and multipliers).

Wherever possible primary data has informed the assessment. This includes employment data provided by prospective occupiers and construction cost information supplied by the developer. Where assumptions and modelling adjustments have been made these are referenced in full and accord with best practice guidance.

Headline fiscal impact is based on an assessment of likely business rates income using local comparators.

1.4 Report Structure

Chapter 2 of this report sets out a brief analysis of the baseline situation.

Chapter 3 sets out the assessment of construction phase impacts.

Chapter 4 sets out the assessment of operational phase impacts.

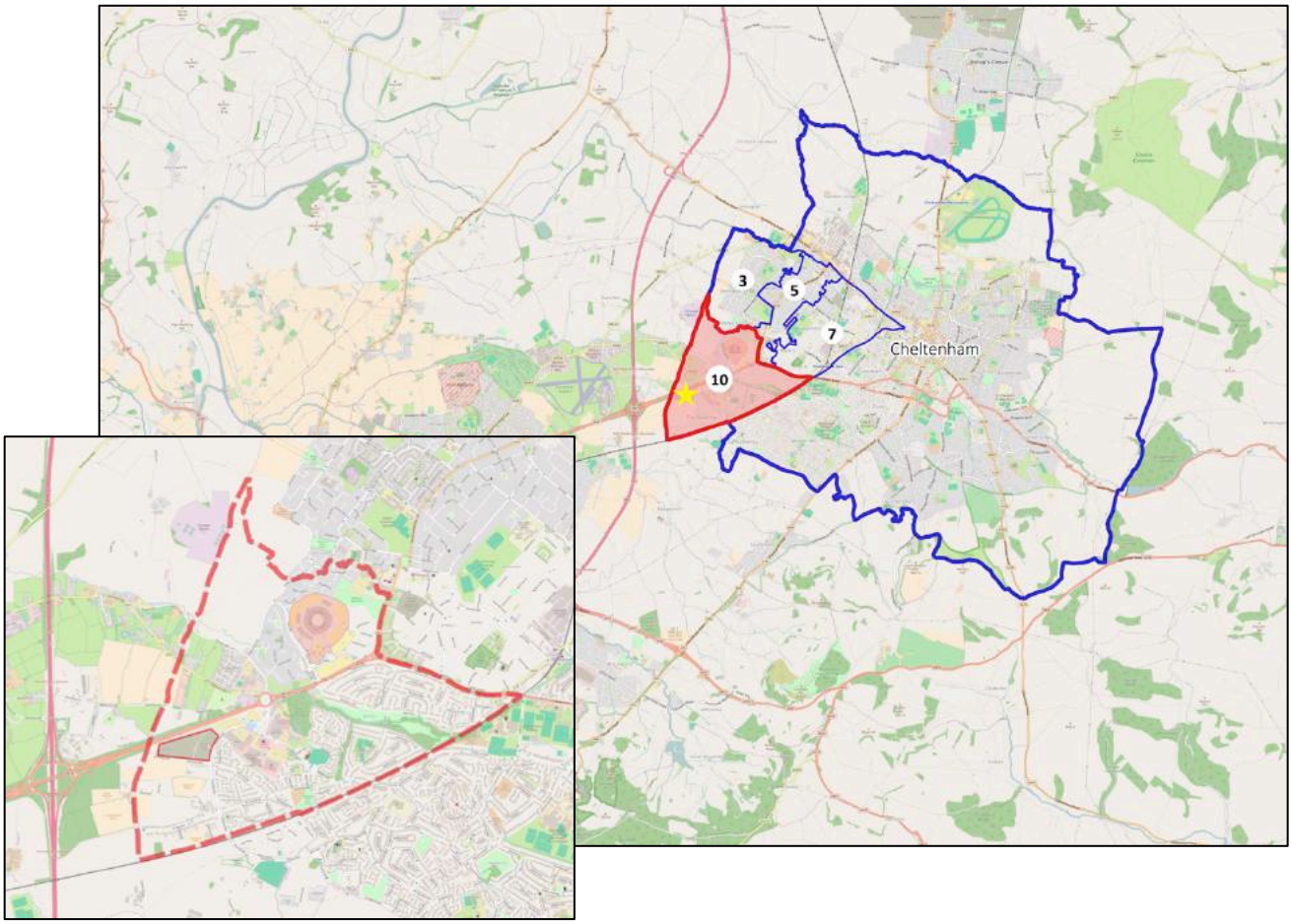
2 Context and Baseline

This chapter provides brief contextual analysis to the economic impact assessment that follows. It considers the economic situation at the present time, and how it has changed in recent years.

2.1 Geographic Focus

This analysis considers the immediate vicinity of the site within the Cheltenham 010 MSOA, the Cheltenham Borough as a whole and provides benchmarking against the Joint Core Strategy (JCS) area and Great Britain. Figure 2.1 illustrates these geographic designations.

Figure 2.1 – Geographic Analysis Areas



Prepared by HJA using QGIS. Contains OS data © Crown Copyright.

2.2 Employment

There are approximately 7,900 persons employed within the immediate vicinity of the site (ONS BRES 2014). This represents around 11% of total employment in Cheltenham as measured by BRES.

The primary employment locations include GCHQ, more than 70% of employment within the immediate vicinity of the site is within the public administration and defence; compulsory social security sector, and the retail/employment park south of the A40 to the east of the application site

which includes the Nuffield Cheltenham Hospital, 600 jobs are recorded within the wholesale and retail trade and 300 jobs within the health sector.

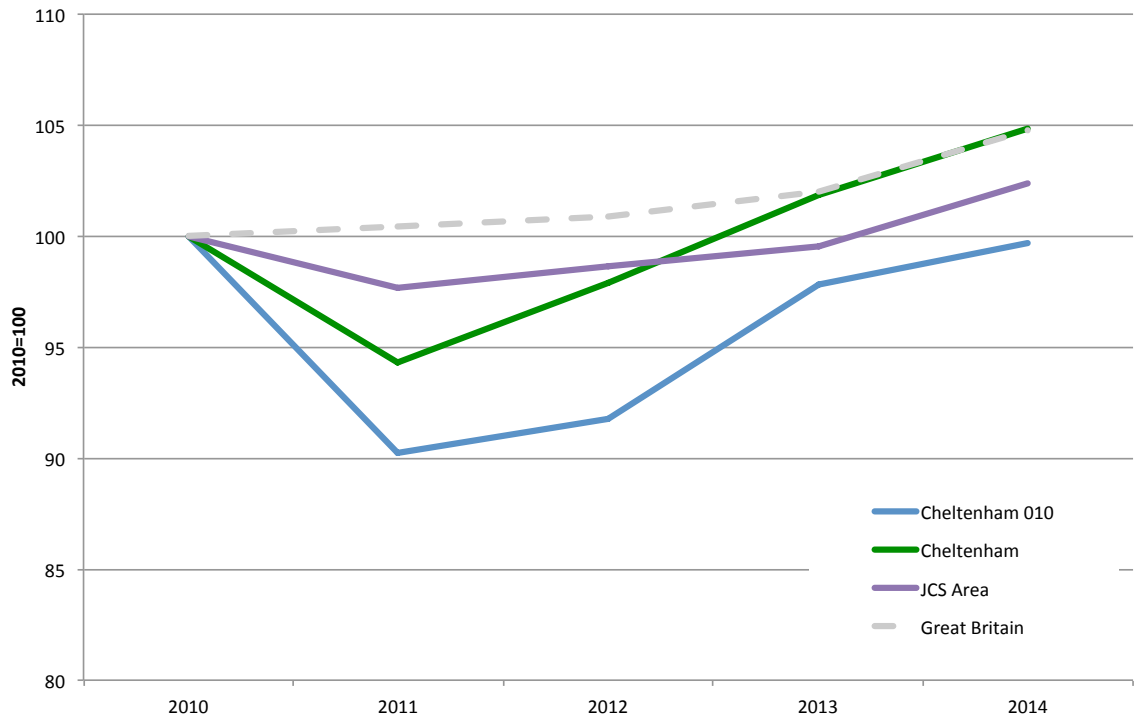
Employment within the immediate vicinity of the site declined between 2010 and 2011. There has been year on year recovery, but at 2014 employment had not returned to its 2010 level. A drop in employment was also experienced at the Cheltenham and JCS area levels between 2010 and 2011 but both have recovered and experienced growth beyond the 2010 level. These figures are set out in Table 2.1 and Figure 2.2 below.

Table 2.1 – Total employment in study area (2010-2014)

	2010	2011	2012	2013	2014
Cheltenham 10	8,000	7,200	7,300	7,800	7,900
Cheltenham	65,500	61,800	64,100	66,700	68,700
JCS Area	169,500	165,500	167,200	168,700	173,500
Great Britain	27,671,600	27,796,500	27,905,500	28,217,500	28,989,400

Source: Business Register and Employment Survey (ONS)

Figure 2.2 – Index of growth in total employment in study area (2010-2014)



2.3 Unemployment

The claimant count measure of unemployment which is available for localised areas shows low unemployment within the immediate vicinity of the site. At July 2016 just 35 claimants were recorded within Cheltenham 010. This increased to 830 across the entire Cheltenham Borough.

Claimant count can be an underestimate of total unemployment given the eligibility criteria for claiming job seekers allowance.

Table 2.2 – Total claimant count (July 2016)

	Age 16+	Aged 16-24
Cheltenham 10	35	10
Cheltenham	830	180
JCS Area	2,705	595
Great Britain	720,635	156,560

Source: Claimant Count (ONS)

Claimant unemployment is higher in other parts of Cheltenham including neighbouring MSOAs. Cheltenham 003 (65 persons) Cheltenham 005 (135 persons) and Cheltenham 007 (80 persons) lie immediately to the north east of Cheltenham 010 and straddle Princess Elizabeth Way including the Springbank, Hester's Way, Arle, Rowanfield, St Marks and Alstone areas. Almost 40% of Cheltenham claimant unemployment falls within these four MSOAs.

3 Construction Phase Impacts

This chapter assesses the likely economic impacts arising during the construction phase. This is separated from the operational phase given the temporary nature of construction impacts over a finite construction period.

For this assessment the full and outline elements of the accompanying planning application are considered separately, with an aggregate impact presented for completeness. Data on the construction period and estimated construction costs has been provided to HJA by the Hinton Group Ltd.

3.1 Gross Direct Impacts

The A1, A3 and D1 elements of the proposed development are expected to be constructed within 6 months of receipt of planning. The two office blocks within the full application are anticipated to be constructed over a 15 month period from receipt of planning. The timetable for constructing the remaining office element which is subject to outline application is not yet confirmed and will depend on market interest.

Total construction costs are estimated at £23.2 million. This includes £11.2 million of costs related to the full application and £12.1 million relating to the outline application.

Employment impacts are expressed as 'person years' of employment. This measure is used to represent one full time equivalent post for a single year. This approach captures the contract nature of much construction work, encompassing a range of trades on varying contract lengths. An estimate of person years is generated on the basis of average turnover per worker in the construction sector taken from the ONS Annual Business Survey (released June 2016). This indicates turnover per worker of £161,766 in the UK. Wage impacts are estimated using the ONS Annual Survey of Hours and Earnings (released November 2015).

Table 3.1 sets out the gross direct employment and wage impacts. It does not capture knock on indirect and induced effects. This shows that in aggregate the application will support 144 person years of employment generating wages of £4.2 million. This is split broadly in two halves between the full and outline elements of the application.

Table 3.1 Gross Direct Construction Phase Impacts

	Construction Spend (£m)	Employment (Person Years)	Wages (£m)
Full Application	£11.2m	69	£2.0m
Outline Application	£12.1m	75	£2.2m
Total	**£23.2m**	**144**	**£4.2m**

Source: Hinton Group Ltd and HJA Analysis. Figures may not sum due to rounding.

For illustration, assuming a linear split of requirements across the relevant construction periods the peak workforce will be within the first six months after granting of planning permission with approximately 40 person years of employment across the six month period.

The ONS BRES employment data indicates 2,400 persons employed in the construction sector in Cheltenham Borough. At its peak across the first six months the proposed development would therefore support the equivalent of 3.3% of Cheltenham construction sector employment.

3.2 Net Additional Impacts

The above analysis presents a measure of the direct effects at the application site. The following considers the net additional impacts at the Cheltenham Borough and Joint Core Strategy (JCS) area levels. This stakes account of leakage, deadweight, displacement and multiplier effects. Full discussion of the approach taken is set out in Appendix 1 to this report.

In adjusting to net additional impacts, rather than reporting on a workplace basis, the impacts are reported on a resident basis. That is, the scale of employment and wage impacts on residents of Cheltenham Borough and the JCS area.

Table 3.2 sets out the results of the analysis. It is estimated that 104 person years of employment will be secured by Cheltenham Borough residents, supporting wages of £3.1 million across the construction period. When considering the wider JCS area the local benefits increase to 152 person years of employment and £4.5 million in wages.

Table 3.2 Net Additional Construction Phase Impacts

	Cheltenham Borough		JCS Area	
	Employment (FTEs)	**Wages (£m)**	**Employment (FTEs)**	**Wages (£m)**
Full Application	50	£1.5m	73	£2.2m
Outline Application	54	£1.6m	79	£2.3m
Total	**104**	**£3.1m**	**152**	**£4.5m**

Source: HJA Analysis

4 Operational Phase Impacts

This chapter assesses the likely economic impacts arising during the operational phase of the proposed development. Impacts are shown in terms of gross direct and net additional.

4.1 Gross Direct Impacts

The proposed development includes a range of employment accommodating uses. The following analysis assesses the likely employment and wage impacts at full occupancy. For the A1, A3 and D1 uses this is based on primary employment data provided by the anticipated occupiers. For B1a elements employment has been assumed using best practice employment density assumptions[1]. Wage effects are assessed based on the latest ONS Annual Survey of Hours and Earnings (data for 2015, released November 2015) for full time median earnings for the appropriate sectors[2]. All employment and wage data is based on full time equivalents (FTE).

Table 4.1 sets out the estimated gross direct employment and wage impacts by element. The full scheme has the capacity to accommodate almost 1,020 FTE jobs generating annual wages in excess of £32 million year on year. The elements of the scheme subject to the full application have the capacity to support employment of 436 FTEs supporting wages in excess of £13m per annum.

Table 4.1 Gross Direct Operational Phase Impacts

	Employment (FTEs)	Wages (£m Annual)
A1 – Aldi Foodstore	26	£0.47m
A3 – Costa	20	£0.35m
D1 – Happy Days Nursery	25	£0.37m
B1a – Full	365	£11.97m
Full Application	***436***	***£13.15m***
B1a – Outline	582	£19.10m
Outline Application	***582***	***£19.10m***
Total	**1,018**	**£32.25m**

Source: HJA Analysis

4.2 Net Additional Impacts

The above analysis presents a measure of the direct effects at the application site. The following considers the net additional impacts at the Cheltenham Borough and Joint Core Strategy (JCS) area levels. This stakes account of leakage, deadweight, displacement and multiplier effects. Full discussion of the approach taken is set out in Appendix 1 to this report.

In adjusting to net additional impacts, rather than reporting on a workplace basis, the impacts are reported on a resident basis. That is, the scale of employment and wage impacts on residents of Cheltenham Borough and the JCS area.

[1] Homes & Communities Agency, *Employment Densities Guide, 2015*
[2] A1 - SIC 4711, A3 – SIC 56, D1 – SIC 8891, B1a – Hybrid based on relevant SICs.

Table 4.2 sets out the results of the analysis. The total scheme has the capacity to deliver almost 500 FTE net additional jobs supporting almost £16 million in wages per annum at the Cheltenham Borough level. This increases to 605 FTEs and almost £19 million in wages at the JCS area level.

Table 4.2 Net Additional Operational Phase Impacts

	Cheltenham Borough		JCS Area	
	Employment (FTEs)	**Wages (£m Annual)**	**Employment (FTEs)**	**Wages (£m Annual)**
A1 – Aldi Foodstore	16	£0.30m	21	£0.37m
A3 – Costa	13	£0.22m	16	£0.28m
D1 – Happy Days Nursery	16	£0.23m	20	£0.29m
B1a – Full	175	£5.73m	211	£6.93m
Full Application	***220***	***£6.48m***	***268***	***£7.87m***
B1a – Outline	279	£9.15m	337	£11.06m
Outline Application	***279***	***£9.15m***	***337***	***£11.06m***
Total	**498**	**£15.63m**	**605**	**£18.92m**

Source: HJA Analysis

4.3 Headline Local Fiscal Impact

The proposed development has the potential to deliver substantial local fiscal benefit through business rates. This will generate increased revenues to local government and will enable the safeguarding and creation of new jobs and the protection and enhancement of services to local residents.

The following analysis is intended as indicative and the final revenue position will be based on formal assessment once constructed. It is acknowledged that there is a complex system for determining locally retained business rates and consultation has recently been completed relating to a revised system of local retention to be brought in by the end of this Parliamentary session (2020). Cheltenham Borough Council participates in the Gloucestershire Business Rates Pool, which has itself revised its arrangements since the end of March 2016. The exact value of the element retained by Cheltenham Borough Council is therefore not stated. The purpose of the analysis below is to provide an indication of the scale of business rates to be generated from the Proposed Development assuming no reliefs. However, what is clear from the direction of policy is that the move to greater reliance on business rates income to fund local government brings the incentive for growth into even sharper focus.

Based on the headline assessment of potential business rates generated by the proposed development the gross rateable value is estimated at approximately £2.7 million. Based on the 2016/17 multiplier the rates payable are estimated at more than £1.3 million. Based on a maximum rate of 50% locally retained the Proposed Development has the potential to deliver additional local revenues in excess of £660,000 once fully implemented. A detailed breakdown is provided in Table 4.3.

Table 4.3 Estimating Business Rates Revenues

	Estimated Rateable Value[3]	Total Rates Payable[4]	Maximum Local Retention[5]
A1 – Aldi Foodstore	£287,300	£142,800	
A3 – Costa	£40,800	£20,300	
D1 – Happy Days Nursery	£45,200	£22,500	
B1a – Full	£881,000	£437,800	
Full Application	**£1,254,200**	**£623,300**	***£311,700***
B1a – Outline	£1,406,100	£698,800	
Outline Application	***£1,406,000***	***£698,800***	***£349,400***
Total	**£2,660,100**	**£1,322,100**	**£661,100**

[3] Estimated based on local comparables. Based on 2017 revaluation estimates.
[4] Based on 2016/17 multiplier for large businesses of 49.7 pence in the pound.
[5] Based on current rules with maximum 50% locally retained.

Appendix 1: Assessing Net Additional Impacts

This appendix sets out details of the approach to assessing additionality. This is based on the approach outlined in the Homes & Communities Agency *Additionality Guide, Fourth Edition 2014*. Assumptions vary between the construction and operational phases which are each considered in turn.

4.4 Construction Phase

4.4.1 Leakage

Leakage captures those impacts which 'leak' outside the impact area. For this analysis the primary impact area is identified as Cheltenham Borough with analysis also presented for the Joint Core Strategy (JCS) area. Commuting data is used as the source of data to assess leakage of employment. Data from both the 2001 and 2011 Censuses of Population has been analysed. This shows that the majority of employment impacts are retained within Cheltenham Borough. Where benefits do leak to those that in-commute to the area, the majority are retained within the wider JCS area.

2001 Census data suggests slightly lower than average leakage for construction sector. This records 28% of construction sector employees in-commuting to Cheltenham from outside the Borough. This falls to 13% from outside the JCS area. For comparison, for the whole economy the figures are 30% and 13% respectively.

The 2011 Census does not allow sectoral analysis of this data. Data for the whole economy, calculated on the same basis as the 2001 Census reporting shows in commuting at 38% from outside the Borough and 17% from outside the JCS area. It is uncertain whether the effect of increased in commuting has been felt equally across sectors, but for the purposes of this analysis we adopt the 2011 Census figure.

It should be noted that these figures are slightly different to the whole economy averages listed for the operational phase. The reason for this is the way in which those working at or from home, and those with no fixed place of work are treated. Within the construction sector there will be a high proportion of itinerant workers that need to be incorporated in the analysis. In the operational phase analysis, the focus is on workers with a fixed workplace outside the home. As a result the leakage analysis differs.

4.4.2 Deadweight

Deadweight is a measure of impacts that would be expected to accrue without the proposed development. It is often referred to as a reference case or do nothing option.

Deadweight at the site level is anticipated to be very low. An extant outline planning permission for office development is in place but has not been implemented. Large parts of the current development proposals are similar in nature and therefore it would be inappropriate to consider the extant scheme as deadweight.

4.4.3 Displacement and Substitution

Displacement is a measure of impacts that are offset by reduced activities elsewhere in the target area. Substitution is a form of internal displacement. This could be where a construction contractor secures work on the proposed development and declines work elsewhere in the area. Typically displacement and substitution effects have been considered together.

Gross Direct impacts are shown to peak at approximately 3% of current Cheltenham construction employment and not at a scale that is likely to have substantial displacement impacts. Displacement and substitution effects are therefore deemed to be low in this instance, a figure of 10% at the Cheltenham level and 15% at the JCS level is assumed.

4.4.4 Multipliers

Multipliers capture the effects of further rounds of indirect and induced economic activity. This includes the expenditure through the supply chain of core occupiers and the effects as employees spend their wages in the local economy.

The construction sector has particularly high multipliers, with high levels of locally retained expenditure. This reflects the local sourcing of labour and the expenditure of earned incomes in the local area, as well as the often localised purchase of building materials, particularly non specialised materials. The analysis above has specifically separated out those major areas of expenditure that will flow outside the UK. Multipliers of 1.3 at the Cheltenham level and 1.5 at the JCS area are applied.

4.5 Operational Phase

4.5.1 Leakage

Leakage captures those impacts which 'leak' outside the impact area. For this analysis the primary impact area is identified as Cheltenham Borough with analysis also presented for the Joint Core Strategy (JCS) area. Commuting data is used as the source of data to assess leakage of employment. Data from both the 2001 and 2011 Censuses of Population has been analysed. This shows that the majority of employment impacts are retained within Cheltenham Borough. Where benefits do leak to those that in-commute to the area, the majority are retained within the wider JCS area.

2011 Census of Population data indicates that for jobs within a fixed workplace in Cheltenham 55% are filled by Cheltenham residents. Of the remainder 25% are filled by in-commuters from the JCS area and the remaining 20% from those outside the JCS area.

2001 Census of Population data on commuting patterns suggests much lower levels of in commuting to Cheltenham for service sectors including wholesale, retail and trade and hotels and restaurants which one would expect for what are typically lower wage activities. The 2011 Census does not allow such fine-grained analysis. To reflect the available evidence the level of in commuting is reduced by 10% points at the Cheltenham level and 5% at the JCS area level.

A proxy for office based work, using financial intermediation, real estate and public administration sectors shows a level of in commuting broadly in line with the whole economy average, perhaps

fractionally higher, which one would expect for higher wage activities. No adjustment is made to the headline level.

4.5.2 Deadweight

Deadweight is a measure of impacts that would be expected to accrue without the proposed development. It is often referred to as a reference case or do nothing option.

Deadweight at the site level is anticipated to be very low. There are no substantive employment generating activities on the site at present, with the land supporting negligible agricultural employment. There is therefore no loss of existing employment at the site which needs to be offset. An extant outline planning permission for office development is in place but has not been implemented. Large parts of the current development proposals are similar in nature and therefore it would be inappropriate to consider the extant scheme as deadweight.

In the absence of the development some jobs might be accommodated elsewhere within Cheltenham or the JCS area. However, the need for employment capacity is well known locally, with examples cited of businesses either failing to locate within the JCS area, or relocating outside the JCS area as a result of constrained supply. On this basis it is appropriate to set deadweight at a minmum level of 10% within Cheltenham and 20% across the JCS area.

4.5.3 Displacement

Displacement is a measure of impacts that are offset by reduced activities elsewhere in the target area. This could be where a new business within the proposed development captures market share from an existing business in Cheltenham.

This is anticipated to be very low for the A1, A3 and D1 uses (10%) and low (25%) for office elements. The Cheltenham population and economy are forecast to grow over the coming years and to facilitate this there is a need for additional employment space and appropriate service infrastructure. However, within the office element there is the potential that some take up will be from existing occupiers within the borough with existing office premises lost to other activities. This would be true of any new office development.

4.5.4 Multipliers

Multipliers capture the effects of further rounds of indirect and induced economic activity. This includes the expenditure through the supply chain of core occupiers and the effects as employees spend their wages in the local economy.

Multiplier effects are assessed as medium. For A1, A3 and D1 uses these are set as 1.2 at the Cheltenham level and 1.3 for the JCS area. For office uses these are set as 1.29 at the Cheltenham level and 1.35 at the JCS area. All assumptions based on the HCA *Additionality Guide, Fourth Edition 2014*.

Appendix 2:

Proposed Development at Grovefield Way, Cheltenham
Economic Impact Assessment Final Report (May 2018)

HARDISTY JONES ASSOCIATES
Economic Development Advisers

Proposed Development at Grovefield Way, Cheltenham: Economic Impact Assessment

Final Report

Prepared on behalf of Hunter Page Planning Ltd

May 2018

Contents

Job Number:	16 09 02
Version Number:	Final v4.0
Approved by:	Stuart Hardisty
Date:	17 May 2018

Executive Summary

HJA was instructed by Hunter Page Planning Ltd to assess the likely economic impacts arising from proposed mixed-use employment generating development at Grovefield Way, Cheltenham. The hybrid application comprises an Aldi Foodstore, Costa Drive Thru, Happy Days Nursery childcare facility and 5,034 sq m of B1a office floorspace in full plus a further 8,034 sq m of B1a office floorspace in outline.

The site is located within west Cheltenham, to the south of the A40 Gloucester Road. The application site lies immediately adjacent to a new BMW showroom and in close proximity to a mixed-use employment area including retail, health and technology employers. The proposed development will contribute to boosting employment in this part of west Cheltenham. It will also provide opportunities for those currently unemployed in the area.

The **construction phase** for the full application scheme is anticipated to extend to 15 months, with the peak effort falling within the first six months following the granting of planning permission. The timing for the outline elements of the scheme is as yet unspecified and will be reliant upon market interest.

The gross direct construction phase impacts of the £23.8 million investment are estimated at 137 person years of employment, supporting £4.2 million in wages.

The net additional effects at the Cheltenham level are estimated at 99 person years of employment and £3.1 million in wages. At the JCS area level these increase to 145 person years and £4.5 million in wages.

The **operational phase** analysis shows the scheme will deliver employment capacity for 1,018 FTE gross direct posts generating incomes of almost £34 million per annum.

The net additional effects at the Cheltenham level are estimated at 498 FTEs supporting wages in excess of £16 million per annum, increasing to 605 FTEs and almost £20 million in wages at the JCS area level.

Total locally retained business rates are estimated at around £667,000 per annum, which will provide funding to safeguard and extend further local employment and services.

1 Introduction

1.1 Purpose

Hardisty Jones Associates Ltd (HJA) has been appointed by Hunter Page Planning Ltd to assess the likely economic impacts of mixed-use employment generating development proposals at Grovefield Way, Cheltenham. This report sets out the method and results of the assessment and is intended to accompany a planning application. This March 2018 version updates initial analysis completed in October 2016 to take account of new data.

1.2 The Proposed Development

The application site lies between Grovefield Way and the A40 on the western edge of Cheltenham. The A40 provides direct access to the city of Gloucester and the M5 via Junction 11.

The hybrid application comprises the following:

Full Application

- 1,742 sq m (GIA) A1 Aldi Foodstore
- 204 sq m (GIA) A1/A3/A5 Costa Drive Thru and Café
- 502 sq m (GIA) D1 Happy Days Nursery Childcare Facility
- 5,034 sq m (GIA) B1a Offices in two buildings

Outline Application

- 8,034 sq m (GIA) B1a Offices in two buildings

The application site is currently vacant agricultural land. Previous outline consent was granted for 16,800 sq m of B1 employment uses (14/01323/OUT) but has not been implemented. A plot immediately adjacent the application site secured full consent for a flagship BMW/Mini car showroom which is now fully developed (13/01101/FUL). The area surrounding the application site comprises a mix of uses including residential, retail, health and employment.

1.3 Approach

The method employed for this assessment aligns with the principles set out in HM Treasury Green Book and draws on other best practice guidance, most notably the Homes & Communities Agency *Additionality Guide (Fourth Edition 2014)*.

The analysis considers the construction and operational phases separately. This acknowledges the temporary nature of construction activity, particularly for a scheme of this size, whereas the operational phase impacts will continue year on year.

Given the hybrid nature of the application, the full and outline elements are also considered separately.

For both the construction and operational phases impacts are set out in terms of gross direct effects and net additional effects. The former captures the first round impacts through employment and

expenditure. The latter make adjustment for a range of 'additionality' factors (leakage, deadweight, displacement and multipliers).

Wherever possible primary data has informed the assessment. This includes employment data provided by prospective occupiers and construction cost information supplied by the developer[1]. Where assumptions and modelling adjustments have been made these are referenced in full and accord with best practice guidance.

Headline fiscal impact is based on an assessment of likely business rates income using local comparators.

1.4 Report Structure

Chapter 2 of this report sets out a brief analysis of the baseline situation.

Chapter 3 sets out the assessment of construction phase impacts.

Chapter 4 sets out the assessment of operational phase impacts.

[1] Initial estimates have been adjusted to take account of construction cost inflation over the period October 2016 to December 2017.

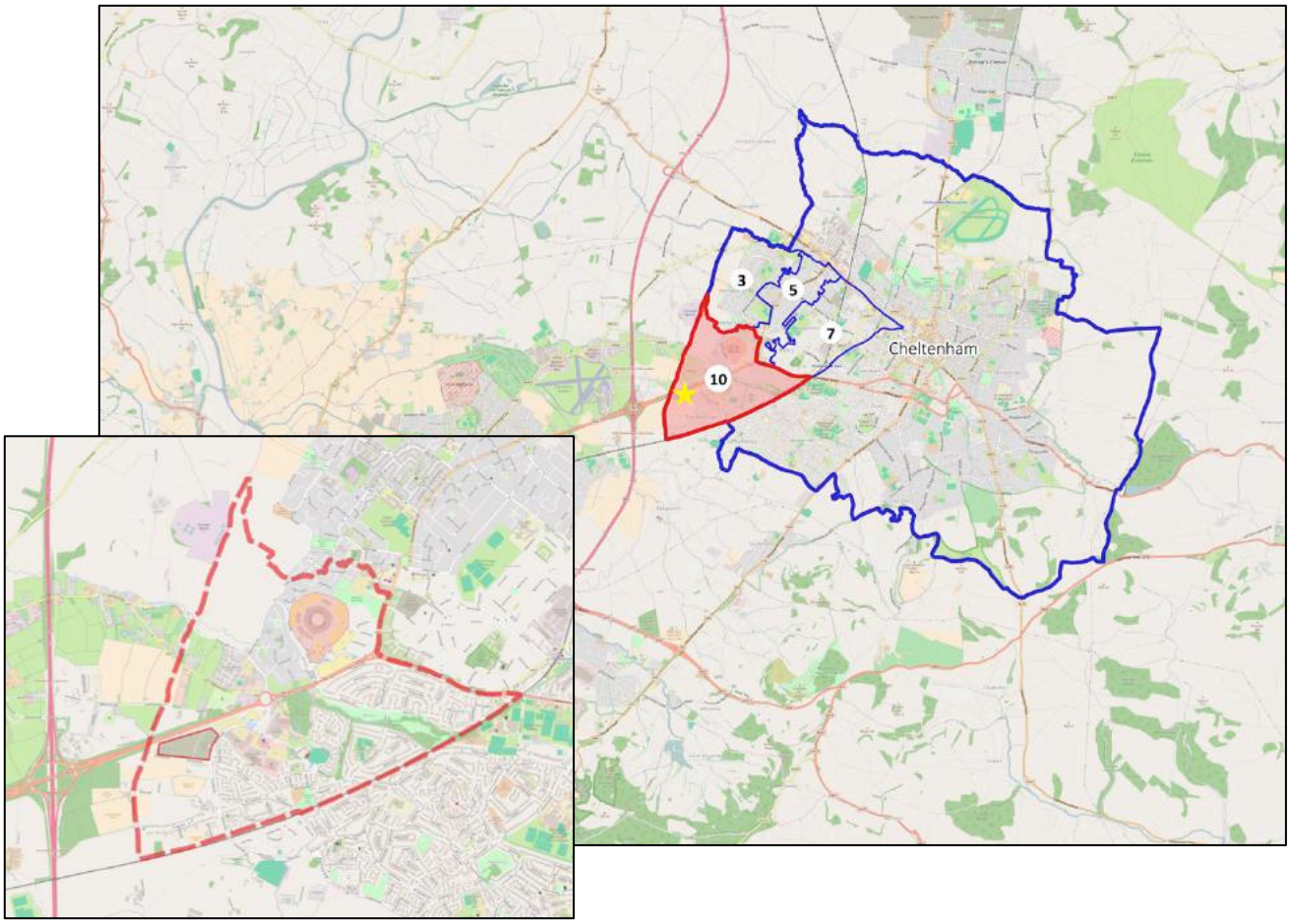
2 Context and Baseline

This chapter provides brief contextual analysis to the economic impact assessment that follows. It considers the economic situation at the present time, and how it has changed in recent years.

2.1 Geographic Focus

This analysis considers the immediate vicinity of the site within the Cheltenham 010 MSOA, the Cheltenham Borough as a whole and provides benchmarking against the Joint Core Strategy (JCS) area and Great Britain. Figure 2.1 illustrates these geographic designations.

Figure 2.1 – Geographic Analysis Areas



Prepared by HJA using QGIS. Contains OS data © Crown Copyright.

2.2 Employment

There are approximately 8,000 persons employed within the immediate vicinity of the site (ONS BRES 2016). This represents around 11% of total employment in Cheltenham as measured by BRES.

The primary employment location is GCHQ – 75% of employment within the immediate vicinity of the site is in public administration, defence and compulsory social security sector. The retail/employment park south of the A40 to the east of the application site, which includes the

Nuffield Cheltenham Hospital, is also a large employment location – 500 jobs are recorded within the wholesale and retail trade and 250 jobs within the health sector.

Employment within the immediate vicinity of the site increased between 2012 and 2016. There has been a steady level of employment, with jobs changing very little between 2013–2016[2]. Cheltenham has also seen employment growth between 2012–16, although levels have decreased since 2014. The JCS Area has seen a steady increase in employment since 2012. These figures are set out in Table 2.1 below.

Table 2.1 – Total employment in study area (2010-2014)

	2012	2013	2014	2015[3]	2016
Cheltenham 10	7,000	8,000	8,000	8,000	8,000
Cheltenham	64,000	67,000	69,000	67,000	67,000
JCS Area	167,000	169,000	174,000	177,000	179,000
Great Britain	27,905,000	28,217,000	28,970,000	29,819,000	30,305,000

Source: Business Register and Employment Survey (ONS)

2.3 Unemployment

The claimant count measure of unemployment which is available for localised areas shows low unemployment within the immediate vicinity of the site. At December 2017 just 25 claimants were recorded within Cheltenham 010. There were 660 claimants in the entire Cheltenham Borough. Claimant count can be an underestimate of total unemployment given the eligibility criteria for claiming job seekers allowance.

Table 2.2 – Total claimant count (July 2016)

	Age 16+	Aged 16-24
Cheltenham 10	25	5
Cheltenham	660	140
JCS Area	2,260	470
Great Britain	769,785	151,525

Source: Claimant Count (ONS)

Claimant unemployment is higher in other parts of Cheltenham including neighbouring MSOAs. Cheltenham 003 (50 persons), Cheltenham 005 (105 persons) and Cheltenham 007 (65 persons) lie immediately to the north east of Cheltenham 010 and straddle Princess Elizabeth Way, including the Springbank, Hester's Way, Arle, Rowanfield, St Marks and Alstone areas. Almost 40% of Cheltenham claimant unemployment falls within these four MSOAs.

[2] BRES figures are rounded to the nearest 1,000, which means some caution must be applied when interpreting data, especially at smaller spatial scales.

[3] Note: Figures for 2015 and 2016 are taken from the latest version of BRES data. There may be minor inconsistencies with earlier years.

3 Construction Phase Impacts

This chapter assesses the likely economic impacts arising during the construction phase. This is separated from the operational phase given the temporary nature of construction impacts over a finite construction period.

For this assessment the full and outline elements of the accompanying planning application are considered separately, with an aggregate impact presented for completeness. Data on the construction period and estimated construction costs has been provided to HJA by the Hinton Group Ltd[4].

3.1 Gross Direct Impacts

The A1, A3 and D1 elements of the proposed development are expected to be constructed within 6 months of receipt of planning. The two office blocks within the full application are anticipated to be constructed over a 15-month period from receipt of planning. The timetable for constructing the remaining office element which is subject to outline application is not yet confirmed and will depend on market interest.

Total construction costs are estimated at £23.8 million. This includes £11.5 million of costs related to the full application and £12.3 million relating to the outline application.

Employment impacts are expressed as 'person years' of employment. This measure is used to represent one full time equivalent post for a single year. This approach captures the contract nature of much construction work, encompassing a range of trades on varying contract lengths. An estimate of person years is generated on the basis of average turnover per worker in the construction sector taken from the ONS Annual Business Survey (released June 2017). This indicates turnover per worker of £173,974 in the UK. Wage impacts are estimated using the ONS Annual Survey of Hours and Earnings (released October 2017) at £31,048 median full time wage.

Table 3.1 sets out the gross direct employment and wage impacts. It does not capture knock on indirect and induced effects. This shows that in aggregate the application will support 137 person years of employment generating wages of £4.2 million. This is split broadly in two halves between the full and outline elements of the application.

Table 3.1 Gross Direct Construction Phase Impacts

	Construction Spend (£m)	Employment (Person Years)	Wages (£m)
Full Application	£11.5m	66	£2.0m
Outline Application	£12.3m	71	£2.2m
Total	**£23.8m**	**137**	**£4.2m**

Source: Hinton Group Ltd and HJA Analysis. Figures may not sum due to rounding.

[4] Initial estimates were provided at October 2016. These costs have been inflated using ONS Construction Output Indices for the period October 2016 to December 2017. Increase of 2.4% for private commercial new build.

3.2 Net Additional Impacts

The above analysis presents a measure of the direct effects at the application site. The following considers the net additional impacts at the Cheltenham Borough and Joint Core Strategy (JCS) area levels. This takes account of leakage, deadweight, displacement and multiplier effects. Full discussion of the approach taken is set out in Appendix 1 to this report.

In adjusting to net additional impacts, rather than reporting on a workplace basis, the impacts are reported on a resident basis. That is, the scale of employment and wage impacts on residents of Cheltenham Borough and the JCS area.

Table 3.2 sets out the results of the analysis. It is estimated that 99 person years of employment will be secured by Cheltenham Borough residents, supporting wages of £3.1 million across the construction period. When considering the wider JCS area the local benefits increase to 145 person years of employment and £4.5 million in wages.

Table 3.2 Net Additional Construction Phase Impacts

	Cheltenham Borough		JCS Area	
	Employment (FTEs)	**Wages (£m)**	**Employment (FTEs)**	**Wages (£m)**
Full Application	48	£1.5m	70	£2.2m
Outline Application	51	£1.6m	75	£2.3m
Total	**99**	**£3.1m**	**145**	**£4.5m**

Source: HJA Analysis

4 Operational Phase Impacts

This chapter assesses the likely economic impacts arising during the operational phase of the proposed development. Impacts are shown in terms of gross direct and net additional.

4.1 Gross Direct Impacts

The proposed development includes a range of employment accommodating uses. The following analysis assesses the likely employment and wage impacts at full occupancy. For the A1, A3 and D1 uses this is based on primary employment data provided by the anticipated occupiers. For B1a elements employment has been assumed using best practice employment density assumptions[5]. Wage effects are assessed based on the latest ONS Annual Survey of Hours and Earnings (data for 2017, released October 2017) for full time median earnings for the appropriate sectors[6]. All employment and wage data is based on full time equivalents (FTE).

Table 4.1 sets out the estimated gross direct employment and wage impacts by element. The full scheme has the capacity to accommodate almost 1,020 FTE jobs generating annual wages of almost £34 million year on year. The elements of the scheme subject to the full application have the capacity to support employment of 436 FTEs generating wages of almost £14m per annum.

Table 4.1 Gross Direct Operational Phase Impacts

	Employment (FTEs)	Wages (£m Annual)
A1 – Aldi Foodstore	26	£0.50m
A3 – Costa	20	£0.38m
D1 – Happy Days Nursery	25	£0.40m
B1a – Full	365	£12.58m
Full Application	***436***	**£13.86m**
B1a – Outline	582	£20.07m
Outline Application	***582***	***£20.07m***
Total	**1,018**	**£33.93m**

Source: HJA Analysis

4.2 Net Additional Impacts

The above analysis presents a measure of the direct effects at the application site. The following considers the net additional impacts at the Cheltenham Borough and Joint Core Strategy (JCS) area levels. This stakes account of leakage, deadweight, displacement and multiplier effects. Full discussion of the approach taken is set out in Appendix 1 to this report.

In adjusting to net additional impacts, rather than reporting on a workplace basis, the impacts are reported on a resident basis. That is, the scale of employment and wage impacts on residents of Cheltenham Borough and the JCS area.

[5] Homes & Communities Agency, *Employment Densities Guide, 2015*
[6] A1 - SIC 4711, A3 – SIC 56, D1 – SIC 8891, B1a – Hybrid based on relevant SICs.

Table 4.2 sets out the results of the analysis. The total scheme has the capacity to deliver almost 500 FTE net additional jobs supporting over £16 million in wages per annum at the Cheltenham Borough level. This increases to 605 FTEs and almost £20 million in wages at the JCS area level.

Table 4.2 Net Additional Operational Phase Impacts

	Cheltenham Borough		JCS Area	
	Employment (FTEs)	**Wages (£m Annual)**	**Employment (FTEs)**	**Wages (£m Annual)**
A1 – Aldi Foodstore	16	£0.32m	21	£0.40m
A3 – Costa	13	£0.24m	16	£0.30m
D1 – Happy Days Nursery	16	£0.25m	20	£0.32m
B1a – Full	175	£6.02m	211	£7.28m
Full Application	***220***	***£6.83m***	***268***	***£8.30m***
B1a – Outline	279	£9.61m	337	£11.62m
Outline Application	***279***	***£9.61m***	***337***	***£11.62m***
Total	**498**	**£16.45m**	**605**	**£19.92m**

Source: HJA Analysis

4.3 Headline Local Fiscal Impact

The proposed development has the potential to deliver substantial local fiscal benefit through business rates. This will generate increased revenues to local government and will enable the safeguarding and creation of new jobs and the protection and enhancement of services to local residents.

The following analysis is intended as indicative and the final revenue position will be based on formal assessment once constructed. It is acknowledged that there is a complex system for determining locally retained business rates and consultation has recently been completed relating to a revised system of local retention. Cheltenham Borough Council participates in the Gloucestershire Business Rates Pool and will participate as part of the Gloucestershire 100% Business Rate Retention pilot in 2018/19. The exact value of the element retained by Cheltenham Borough Council is therefore not stated. The purpose of the analysis below is to provide an indication of the scale of business rates to be generated from the Proposed Development under the current regime assuming no reliefs and before any adjustment for local top-ups and tariffs. However, what is clear from the direction of policy is that the move to greater reliance on business rates income to fund local government brings the incentive for growth into even sharper focus.

Based on the headline assessment of potential business rates generated by the proposed development the gross rateable value is estimated at approximately £2.7 million. Based on the 2016/17 multiplier the rates payable are estimated at more than £1.3 million. Based on a maximum rate of 50% locally retained the Proposed Development has the potential to deliver additional local revenues in excess of £660,000 once fully implemented. A detailed breakdown is provided in Table 4.3.

Table 4.3 Estimating Business Rates Revenues

	Estimated Rateable Value[7]	Total Rates Payable[8]	Maximum Local Retention[9]
A1 – Aldi Foodstore	£287,300	£142,800	
A3 – Costa	£61,200	£30,400	
D1 – Happy Days Nursery	£50,200	£24,900	
B1a – Full	£880,900	£437,800	
Full Application	***£1,279,600***	***£635,900***	***£317,950***
B1a – Outline	£1,406,000	£698,800	
Outline Application	***£1,406,000***	***£698,800***	***£349,400***
Total	**£2,685,600**	**£1,334,700**	**£667,350**

[7] Estimated based on local comparables. Based on 2017 revaluation estimates.
[8] Based on 2016/17 multiplier for large businesses of 49.7 pence in the pound.
[9] Based on current rules with maximum 50% locally retained.

Appendix 1: Assessing Net Additional Impacts

This appendix sets out details of the approach to assessing additionality. This is based on the approach outlined in the Homes & Communities Agency *Additionality Guide, Fourth Edition 2014*. Assumptions vary between the construction and operational phases which are each considered in turn.

Construction Phase

Leakage

Leakage captures those impacts which 'leak' outside the impact area. For this analysis the primary impact area is identified as Cheltenham Borough with analysis also presented for the Joint Core Strategy (JCS) area. Commuting data is used as the source of data to assess leakage of employment. Data from both the 2001 and 2011 Censuses of Population has been analysed. This shows that the majority of employment impacts are retained within Cheltenham Borough. Where benefits do leak to those that in-commute to the area, the majority are retained within the wider JCS area.

2001 Census data suggests slightly lower than average leakage for construction sector. This records 28% of construction sector employees in-commuting to Cheltenham from outside the Borough. This falls to 13% from outside the JCS area. For comparison, for the whole economy the figures are 30% and 13% respectively.

The 2011 Census does not allow sectoral analysis of this data. Data for the whole economy, calculated on the same basis as the 2001 Census reporting shows in commuting at 38% from outside the Borough and 17% from outside the JCS area. It is uncertain whether the effect of increased in commuting has been felt equally across sectors, but for the purposes of this analysis we adopt the 2011 Census figure.

It should be noted that these figures are slightly different to the whole economy averages listed for the operational phase. The reason for this is the way in which those working at or from home, and those with no fixed place of work are treated. Within the construction sector there will be a high proportion of itinerant workers that need to be incorporated in the analysis. In the operational phase analysis, the focus is on workers with a fixed workplace outside the home. As a result the leakage analysis differs.

Deadweight

Deadweight is a measure of impacts that would be expected to accrue without the proposed development. It is often referred to as a reference case or do nothing option.

Deadweight at the site level is anticipated to be very low. An extant outline planning permission for office development is in place but has not been implemented. Large parts of the current development proposals are similar in nature and therefore it would be inappropriate to consider the extant scheme as deadweight.

Displacement and Substitution

Displacement is a measure of impacts that are offset by reduced activities elsewhere in the target area. Substitution is a form of internal displacement. This could be where a construction contractor secures work on the proposed development and declines work elsewhere in the area. Typically displacement and substitution effects have been considered together.

Gross Direct impacts are shown to peak at approximately 3% of current Cheltenham construction employment and not at a scale that is likely to have substantial displacement impacts. Displacement and substitution effects are therefore deemed to be low in this instance, a figure of 10% at the Cheltenham level and 15% at the JCS level is assumed.

Multipliers

Multipliers capture the effects of further rounds of indirect and induced economic activity. This includes the expenditure through the supply chain of core occupiers and the effects as employees spend their wages in the local economy.

The construction sector has particularly high multipliers, with high levels of locally retained expenditure. This reflects the local sourcing of labour and the expenditure of earned incomes in the local area, as well as the often localised purchase of building materials, particularly non specialised materials. The analysis above has specifically separated out those major areas of expenditure that will flow outside the UK. Multipliers of 1.3 at the Cheltenham level and 1.5 at the JCS area are applied.

Operational Phase

Leakage

Leakage captures those impacts which 'leak' outside the impact area. For this analysis the primary impact area is identified as Cheltenham Borough with analysis also presented for the Joint Core Strategy (JCS) area. Commuting data is used as the source of data to assess leakage of employment. Data from both the 2001 and 2011 Censuses of Population has been analysed. This shows that the majority of employment impacts are retained within Cheltenham Borough. Where benefits do leak to those that in-commute to the area, the majority are retained within the wider JCS area.

2011 Census of Population data indicates that for jobs within a fixed workplace in Cheltenham 55% are filled by Cheltenham residents. Of the remainder 25% are filled by in-commuters from the JCS area and the remaining 20% from those outside the JCS area.

2001 Census of Population data on commuting patterns suggests much lower levels of in commuting to Cheltenham for service sectors including wholesale, retail and trade and hotels and restaurants which one would expect for what are typically lower wage activities. The 2011 Census does not allow such fine-grained analysis. To reflect the available evidence the level of in commuting is reduced by 10% points at the Cheltenham level and 5% at the JCS area level.

A proxy for office based work, using financial intermediation, real estate and public administration sectors shows a level of in commuting broadly in line with the whole economy average, perhaps

fractionally higher, which one would expect for higher wage activities. No adjustment is made to the headline level.

Deadweight

Deadweight is a measure of impacts that would be expected to accrue without the proposed development. It is often referred to as a reference case or do nothing option.

Deadweight at the site level is anticipated to be very low. There are no substantive employment generating activities on the site at present, with the land supporting negligible agricultural employment. There is therefore no loss of existing employment at the site which needs to be offset. An extant outline planning permission for office development is in place but has not been implemented. Large parts of the current development proposals are similar in nature and therefore it would be inappropriate to consider the extant scheme as deadweight.

In the absence of the development some jobs might be accommodated elsewhere within Cheltenham or the JCS area. However, the need for employment capacity is well known locally, with examples cited of businesses either failing to locate within the JCS area, or relocating outside the JCS area as a result of constrained supply. On this basis it is appropriate to set deadweight at a minimum level of 10% within Cheltenham and 20% across the JCS area.

Displacement

Displacement is a measure of impacts that are offset by reduced activities elsewhere in the target area. This could be where a new business within the proposed development captures market share from an existing business in Cheltenham.

This is anticipated to be very low for the A1, A3 and D1 uses (10%) and low (25%) for office elements. The Cheltenham population and economy are forecast to grow over the coming years and to facilitate this there is a need for additional employment space and appropriate service infrastructure. However, within the office element there is the potential that some take up will be from existing occupiers within the borough with existing office premises lost to other activities. This would be true of any new office development.

Multipliers

Multipliers capture the effects of further rounds of indirect and induced economic activity. This includes the expenditure through the supply chain of core occupiers and the effects as employees spend their wages in the local economy.

Multiplier effects are assessed as medium. For A1, A3 and D1 uses these are set as 1.2 at the Cheltenham level and 1.3 for the JCS area. For office uses these are set as 1.29 at the Cheltenham level and 1.35 at the JCS area. All assumptions based on the HCA *Additionality Guide, Fourth Edition 2014*.

Appendix 3:

Proposed Development at Grovefield Way, Cheltenham
Economic Impact Assessment Final Report (September 2018)

HARDISTY JONES ASSOCIATES
Economic Development Advisers

Proposed Development at Grovefield Way, Cheltenham: Economic Impact Assessment

Final Report

Prepared on behalf of Hunter Page Planning Ltd

September 2018

Contents

Job Number:	16 09 02
Version Number:	Final v5.0
Approved by:	Stuart Hardisty
Date:	19 September 2018

Executive Summary

HJA was instructed by Hunter Page Planning Ltd to assess the likely economic impacts arising from proposed mixed-use employment generating development at Grovefield Way, Cheltenham. The hybrid application comprises an Aldi Foodstore, Happy Days Nursery childcare facility and 5,903 sq m of B1a office floorspace in full plus a further 7,730 sq m of B1a office floorspace in outline.

The site is located within west Cheltenham, to the south of the A40 Gloucester Road. The application site lies immediately adjacent to a new BMW showroom and in close proximity to a mixed-use employment area including retail, health and technology employers. The proposed development will contribute to boosting employment in this part of west Cheltenham. It will also provide opportunities for those currently unemployed in the area.

The **construction phase** for the full application scheme is anticipated to extend to 15 months, with the peak effort falling within the first six months following the granting of planning permission. The timing for the outline elements of the scheme is as yet unspecified and will be reliant upon market interest.

The gross direct construction phase impacts of the £24.7 million investment are estimated at 139 person years of employment, supporting £4.3 million in wages.

The net additional effects at the Cheltenham level are estimated at 100 person years of employment and £3.1 million in wages. At the JCS area level these increase to 147 person years and £4.6 million in wages.

The **operational phase** analysis shows the scheme will deliver employment capacity for 1,039 FTE gross direct posts generating incomes of almost £35 million per annum.

The net additional effects at the Cheltenham level are estimated at 515 FTEs supporting wages in excess of £17 million per annum, increasing to 626 FTEs and almost £21 million in wages at the JCS area level.

Total locally retained business rates are estimated at around £671,300 per annum, which will provide funding to safeguard and extend further local employment and services.

1 Introduction

1.1 Purpose

Hardisty Jones Associates Ltd (HJA) has been appointed by Hunter Page Planning Ltd to assess the likely economic impacts of mixed-use employment generating development proposals at Grovefield Way, Cheltenham. This report sets out the method and results of the assessment and is intended to accompany a planning application.

This September 2018 version updates the March 2018 version to take account of changes in the proposed scheme. In particular the removal of the Costa Drive Thru with an additional B1a office building within the full application and an adjustment to the total quantum of B1a floorspace within the outline application.

1.2 The Proposed Development

The application site lies between Grovefield Way and the A40 on the western edge of Cheltenham. The A40 provides direct access to the city of Gloucester and the M5 via Junction 11.

The hybrid application comprises the following:

Full Application

- 1,742 sq m (GIA) A1 Aldi Foodstore
- 502 sq m (GIA) D1 Happy Days Nursery Childcare Facility
- 5,903 sq m (GIA) B1a Offices in three buildings

Outline Application

- 7,730 sq m (GIA) B1a Offices in two buildings

The application site is currently vacant agricultural land. Previous outline consent was granted for 16,800 sq m of B1 employment uses (14/01323/OUT) but has not been implemented. A plot immediately adjacent the application site secured full consent for a flagship BMW/Mini car showroom which is now fully developed (13/01101/FUL). The area surrounding the application site comprises a mix of uses including residential, retail, health and employment.

1.3 Approach

The method employed for this assessment aligns with the principles set out in HM Treasury Green Book and draws on other best practice guidance, most notably the Homes & Communities Agency *Additionality Guide (Fourth Edition 2014)*.

The analysis considers the construction and operational phases separately. This acknowledges the temporary nature of construction activity, particularly for a scheme of this size, whereas the operational phase impacts will continue year on year.

Given the hybrid nature of the application, the full and outline elements are also considered separately.

For both the construction and operational phases impacts are set out in terms of gross direct effects and net additional effects. The former captures the first round impacts through employment and expenditure. The latter make adjustment for a range of 'additionality' factors (leakage, deadweight, displacement and multipliers).

Wherever possible primary data has informed the assessment. This includes employment data provided by prospective occupiers and construction cost information supplied by the developer[1]. Where assumptions and modelling adjustments have been made these are referenced in full and accord with best practice guidance.

Headline fiscal impact is based on an assessment of likely business rates income using local comparators.

1.4 Report Structure

Chapter 2 of this report sets out a brief analysis of the baseline situation.

Chapter 3 sets out the assessment of construction phase impacts.

Chapter 4 sets out the assessment of operational phase impacts.

[1] Initial estimates have been adjusted to take account of construction cost inflation over the period October 2016 to June 2018. This inflates costs by 4.6%.

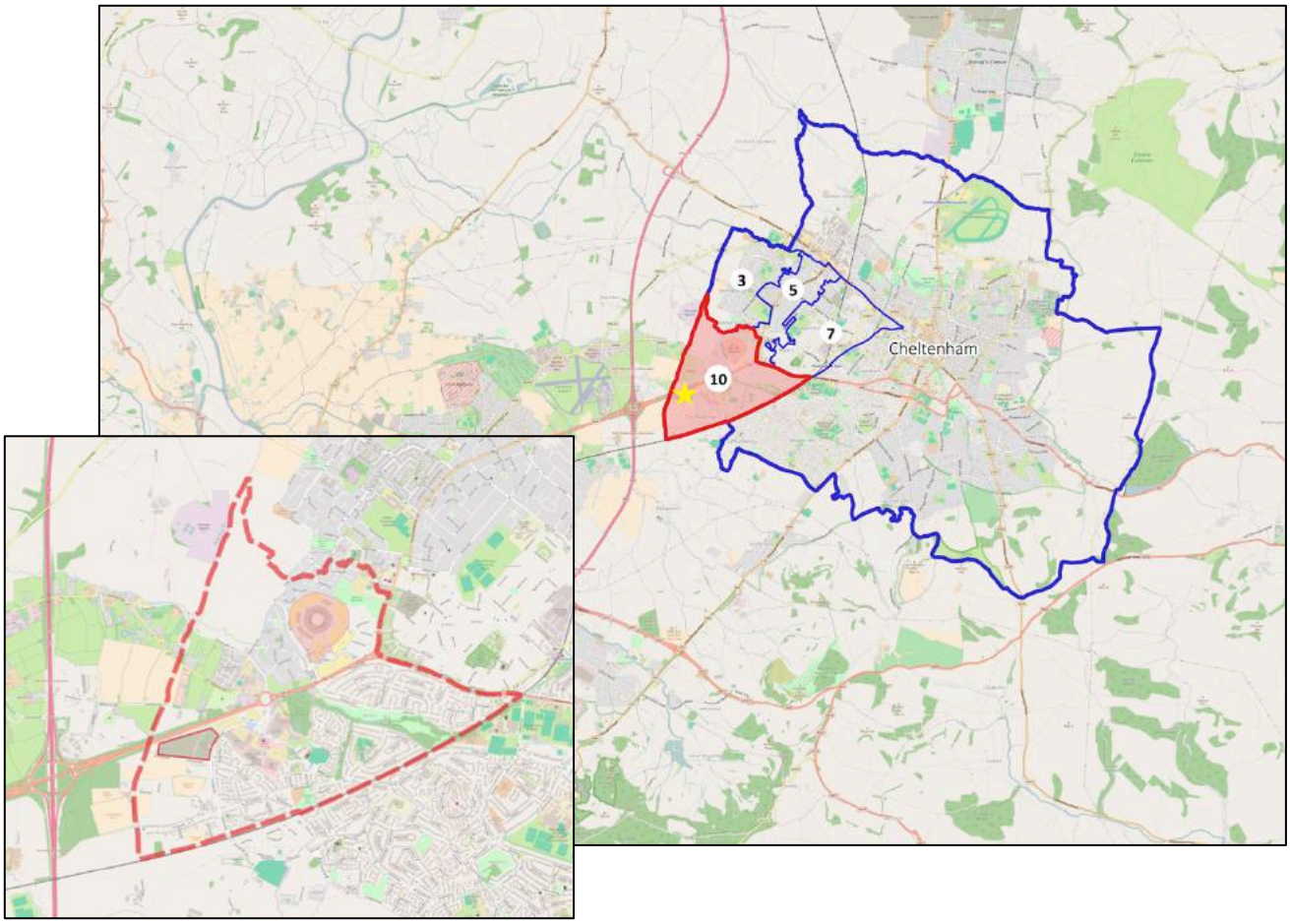
2 Context and Baseline

This chapter provides brief contextual analysis to the economic impact assessment that follows. It considers the economic situation at the present time, and how it has changed in recent years.

2.1 Geographic Focus

This analysis considers the immediate vicinity of the site within the Cheltenham 010 MSOA, the Cheltenham Borough as a whole and provides benchmarking against the Joint Core Strategy (JCS) area and Great Britain. Figure 2.1 illustrates these geographic designations.

Figure 2.1 – Geographic Analysis Areas



Prepared by HJA using QGIS. Contains OS data © Crown Copyright.

2.2 Employment

There are approximately 8,000 persons employed within the immediate vicinity of the site (ONS BRES 2016). This represents around 11% of total employment in Cheltenham as measured by BRES.

The primary employment location is GCHQ – 75% of employment within the immediate vicinity of the site is in public administration, defence and compulsory social security sector. The retail/employment park south of the A40 to the east of the application site, which includes the

Nuffield Cheltenham Hospital, is also a large employment location – 500 jobs are recorded within the wholesale and retail trade and 250 jobs within the health sector.

Employment within the immediate vicinity of the site increased between 2012 and 2016. There has been a steady level of employment, with jobs changing very little between 2013–2016[2]. Cheltenham has also seen employment growth between 2012–16, although levels have decreased since 2014. The JCS Area has seen a steady increase in employment since 2012. These figures are set out in Table 2.1 below.

Table 2.1 – Total employment in study area (2010-2014)

	2012	2013	2014	2015[3]	2016
Cheltenham 10	7,000	8,000	8,000	8,000	8,000
Cheltenham	64,000	67,000	69,000	67,000	67,000
JCS Area	167,000	169,000	174,000	177,000	179,000
Great Britain	27,905,000	28,217,000	28,970,000	29,819,000	30,305,000

Source: Business Register and Employment Survey (ONS)

2.3 Unemployment

The claimant count measure of unemployment which is available for localised areas shows low unemployment within the immediate vicinity of the site. At December 2017 just 25 claimants were recorded within Cheltenham 010. There were 660 claimants in the entire Cheltenham Borough. Claimant count can be an underestimate of total unemployment given the eligibility criteria for claiming job seekers allowance.

Table 2.2 – Total claimant count (July 2016)

	Age 16+	Aged 16-24
Cheltenham 10	25	5
Cheltenham	660	140
JCS Area	2,260	470
Great Britain	769,785	151,525

Source: Claimant Count (ONS)

Claimant unemployment is higher in other parts of Cheltenham including neighbouring MSOAs. Cheltenham 003 (50 persons), Cheltenham 005 (105 persons) and Cheltenham 007 (65 persons) lie immediately to the north east of Cheltenham 010 and straddle Princess Elizabeth Way, including the Springbank, Hester's Way, Arle, Rowanfield, St Marks and Alstone areas. Almost 40% of Cheltenham claimant unemployment falls within these four MSOAs.

[2] BRES figures are rounded to the nearest 1,000, which means some caution must be applied when interpreting data, especially at smaller spatial scales.

[3] Note: Figures for 2015 and 2016 are taken from the latest version of BRES data. There may be minor inconsistencies with earlier years.

3 Construction Phase Impacts

This chapter assesses the likely economic impacts arising during the construction phase. This is separated from the operational phase given the temporary nature of construction impacts over a finite construction period.

For this assessment the full and outline elements of the accompanying planning application are considered separately, with an aggregate impact presented for completeness. Data on the construction period and estimated construction costs has been provided to HJA by the Hinton Group Ltd[4].

3.1 Gross Direct Impacts

The A1 and D1 elements of the proposed development are expected to be constructed within 6 months of receipt of planning. The three office blocks within the full application are anticipated to be constructed over a 15-month period from receipt of planning. The timetable for constructing the remaining office element which is subject to outline application is not yet confirmed and will depend on market interest.

Total construction costs are estimated at £24.7 million. This includes £12.6 million of costs related to the full application and £12.1 million relating to the outline application.

Employment impacts are expressed as 'person years' of employment. This measure is used to represent one full time equivalent post for a single year. This approach captures the contract nature of much construction work, encompassing a range of trades on varying contract lengths. An estimate of person years is generated on the basis of average turnover per worker in the construction sector taken from the ONS Annual Business Survey (released May 2018). This indicates turnover per worker of £178,569 in the UK. Wage impacts are estimated using the ONS Annual Survey of Hours and Earnings (released October 2017) at £31,048 median full time wage.

Table 3.1 sets out the gross direct employment and wage impacts. It does not capture knock on indirect and induced effects. This shows that in aggregate the application will support 139 person years of employment generating wages of £4.3 million. This is split broadly in two halves between the full and outline elements of the application.

Table 3.1 Gross Direct Construction Phase Impacts

	Construction Spend (£m)	Employment (Person Years)	Wages (£m)
Full Application	£12.6m	71	£2.2m
Outline Application	£12.1m	68	£2.1m
Total	**£24.7m**	**139**	**£4.3m**

Source: Hinton Group Ltd and HJA Analysis. Figures may not sum due to rounding.

[4] Initial estimates were provided at October 2016. These costs have been inflated using ONS Construction Output Indices for the period October 2016 to June 2018. Increase of 4.6% for private commercial new build.

3.2 Net Additional Impacts

The above analysis presents a measure of the direct effects at the application site. The following considers the net additional impacts at the Cheltenham Borough and Joint Core Strategy (JCS) area levels. This takes account of leakage, deadweight, displacement and multiplier effects. Full discussion of the approach taken is set out in Appendix 1 to this report.

In adjusting to net additional impacts, rather than reporting on a workplace basis, the impacts are reported on a resident basis. That is, the scale of employment and wage impacts on residents of Cheltenham Borough and the JCS area.

Table 3.2 sets out the results of the analysis. It is estimated that 100 person years of employment will be secured by Cheltenham Borough residents, supporting wages of £3.1 million across the construction period. When considering the wider JCS area the local benefits increase to 147 person years of employment and £4.6 million in wages.

Table 3.2 Net Additional Construction Phase Impacts

	Cheltenham Borough		JCS Area	
	Employment (FTEs)	**Wages (£m)**	**Employment (FTEs)**	**Wages (£m)**
Full Application	51	£1.6m	75	£2.3m
Outline Application	49	£1.5m	72	£2.2m
Total	**100**	**£3.1m**	**147**	**£4.6m**

Source: HJA Analysis. Figures may not sum due to rounding.

4 Operational Phase Impacts

This chapter assesses the likely economic impacts arising during the operational phase of the proposed development. Impacts are shown in terms of gross direct and net additional.

4.1 Gross Direct Impacts

The proposed development includes a range of employment accommodating uses. The following analysis assesses the likely employment and wage impacts at full occupancy. For the A1 and D1 uses this is based on primary employment data provided by the anticipated occupiers. For B1a elements employment has been assumed using best practice employment density assumptions[5]. Wage effects are assessed based on the latest ONS Annual Survey of Hours and Earnings (data for 2017, released October 2017) for full time median earnings for the appropriate sectors[6]. All employment and wage data is based on full time equivalents (FTE).

Table 4.1 sets out the estimated gross direct employment and wage impacts by element. The full scheme has the capacity to accommodate almost 1,039 FTE jobs generating annual wages of almost £35 million year on year. The elements of the scheme subject to the full application have the capacity to support employment of 479 FTEs generating wages of more than £15.6m per annum.

Table 4.1 Gross Direct Operational Phase Impacts

	Employment (FTEs)	Wages (£m Annual)
A1 – Aldi Foodstore	26	£0.50m
D1 – Happy Days Nursery	25	£0.40m
B1a – Full	428	£14.75m
Full Application	***479***	**£15.65m**
B1a – Outline	560	£19.31m
Outline Application	***560***	***£19.31m***
Total	**1,039**	**£34.96m**

Source: HJA Analysis. Figures may not sum due to rounding.

4.2 Net Additional Impacts

The above analysis presents a measure of the direct effects at the application site. The following considers the net additional impacts at the Cheltenham Borough and Joint Core Strategy (JCS) area levels. This stakes account of leakage, deadweight, displacement and multiplier effects. Full discussion of the approach taken is set out in Appendix 1 to this report.

In adjusting to net additional impacts, rather than reporting on a workplace basis, the impacts are reported on a resident basis. That is, the scale of employment and wage impacts on residents of Cheltenham Borough and the JCS area.

[5] Homes & Communities Agency, *Employment Densities Guide, 2015*
[6] A1 - SIC 4711, D1 – SIC 8891, B1a – Hybrid based on relevant SICs.

Table 4.2 sets out the results of the analysis. The total scheme has the capacity to deliver 515 FTE net additional jobs supporting over £17 million in wages per annum at the Cheltenham Borough level. This increases to 6265 FTEs and almost £21 million in wages at the JCS area level.

Table 4.2 Net Additional Operational Phase Impacts

	Cheltenham Borough		JCS Area	
	Employment (FTEs)	**Wages (£m Annual)**	**Employment (FTEs)**	**Wages (£m Annual)**
A1 – Aldi Foodstore	16	£0.32m	21	£0.40m
D1 – Happy Days Nursery	16	£0.25m	20	£0.32m
B1a – Full	214	£7.40m	261	£7.28m
Full Application	***247***	***£7.96m***	***302***	***£9.01m***
B1a – Outline	268	£9.25m	324	£11.18m
Outline Application	***268***	***£9.25m***	***324***	***£11.18m***
Total	**515**	**£17.21m**	**626**	**£20.90m**

Source: HJA Analysis. Figures may not sum due to rounding.

4.3 Headline Local Fiscal Impact

The proposed development has the potential to deliver substantial local fiscal benefit through business rates. This will generate increased revenues to local government and will enable the safeguarding and creation of new jobs and the protection and enhancement of services to local residents.

The following analysis is intended as indicative and the final revenue position will be based on formal assessment once constructed. It is acknowledged that there is a complex system for determining locally retained business rates and consultation has recently been completed relating to a revised system of local retention. Cheltenham Borough Council participates in the Gloucestershire Business Rates Pool and will participate as part of the Gloucestershire 100% Business Rate Retention pilot in 2018/19. The exact value of the element retained by Cheltenham Borough Council is therefore not stated. The purpose of the analysis below is to provide an indication of the scale of business rates to be generated from the Proposed Development under the current regime assuming no reliefs and before any adjustment for local top-ups and tariffs. However, what is clear from the direction of policy is that the move to greater reliance on business rates income to fund local government brings the incentive for growth into even sharper focus.

Based on the headline assessment of potential business rates generated by the proposed development the gross rateable value is estimated at approximately £2.7 million. Based on the 2018/19 multiplier the rates payable are estimated at more than £1.3 million. Based on a maximum rate of 50% locally retained the Proposed Development has the potential to deliver additional local revenues in excess of £670,000 once fully implemented. A detailed breakdown is provided in Table 4.3.

Table 4.3 Estimating Business Rates Revenues

	Estimated Rateable Value[7]	Total Rates Payable[8]	Maximum Local Retention[9]
A1 – Aldi Foodstore	£287,400	£141,700	
D1 – Happy Days Nursery	£50,200	£24,700	
B1a – Full	£1,033,000	£509,300	
Full Application	***£1,370,600***	***£675,700***	***£337,850***
B1a – Outline	£1,352,800	£666,900	
Outline Application	***£1,352,800***	***£666,900***	***£333,450***
Total	**£2,723,400**	**£1,342,600**	**£671,300**

Source: HJA indicative analysis. Figures may not sum due to rounding.

[7] Estimated based on local comparables. Based on 2017 revaluation estimates.
[8] Based on 2018/19 multiplier for large businesses of 49.3 pence in the pound.
[9] Based on current rules with maximum 50% locally retained.

Appendix 1: Assessing Net Additional Impacts

This appendix sets out details of the approach to assessing additionality. This is based on the approach outlined in the Homes & Communities Agency *Additionality Guide, Fourth Edition 2014*. Assumptions vary between the construction and operational phases which are each considered in turn.

Construction Phase

Leakage

Leakage captures those impacts which 'leak' outside the impact area. For this analysis the primary impact area is identified as Cheltenham Borough with analysis also presented for the Joint Core Strategy (JCS) area. Commuting data is used as the source of data to assess leakage of employment. Data from both the 2001 and 2011 Censuses of Population has been analysed. This shows that the majority of employment impacts are retained within Cheltenham Borough. Where benefits do leak to those that in-commute to the area, the majority are retained within the wider JCS area.

2001 Census data suggests slightly lower than average leakage for construction sector. This records 28% of construction sector employees in-commuting to Cheltenham from outside the Borough. This falls to 13% from outside the JCS area. For comparison, for the whole economy the figures are 30% and 13% respectively.

The 2011 Census does not allow sectoral analysis of this data. Data for the whole economy, calculated on the same basis as the 2001 Census reporting shows in commuting at 38% from outside the Borough and 17% from outside the JCS area. It is uncertain whether the effect of increased in commuting has been felt equally across sectors, but for the purposes of this analysis we adopt the 2011 Census figure.

It should be noted that these figures are slightly different to the whole economy averages listed for the operational phase. The reason for this is the way in which those working at or from home, and those with no fixed place of work are treated. Within the construction sector there will be a high proportion of itinerant workers that need to be incorporated in the analysis. In the operational phase analysis, the focus is on workers with a fixed workplace outside the home. As a result the leakage analysis differs.

Deadweight

Deadweight is a measure of impacts that would be expected to accrue without the proposed development. It is often referred to as a reference case or do nothing option.

Deadweight at the site level is anticipated to be very low. An extant outline planning permission for office development is in place but has not been implemented. Large parts of the current development proposals are similar in nature and therefore it would be inappropriate to consider the extant scheme as deadweight.

Displacement and Substitution

Displacement is a measure of impacts that are offset by reduced activities elsewhere in the target area. Substitution is a form of internal displacement. This could be where a construction contractor secures work on the proposed development and declines work elsewhere in the area. Typically displacement and substitution effects have been considered together.

Gross Direct impacts are shown to peak at approximately 3% of current Cheltenham construction employment and not at a scale that is likely to have substantial displacement impacts. Displacement and substitution effects are therefore deemed to be low in this instance, a figure of 10% at the Cheltenham level and 15% at the JCS level is assumed.

Multipliers

Multipliers capture the effects of further rounds of indirect and induced economic activity. This includes the expenditure through the supply chain of core occupiers and the effects as employees spend their wages in the local economy.

The construction sector has particularly high multipliers, with high levels of locally retained expenditure. This reflects the local sourcing of labour and the expenditure of earned incomes in the local area, as well as the often localised purchase of building materials, particularly non specialised materials. The analysis above has specifically separated out those major areas of expenditure that will flow outside the UK. Multipliers of 1.3 at the Cheltenham level and 1.5 at the JCS area are applied.

Operational Phase

Leakage

Leakage captures those impacts which 'leak' outside the impact area. For this analysis the primary impact area is identified as Cheltenham Borough with analysis also presented for the Joint Core Strategy (JCS) area. Commuting data is used as the source of data to assess leakage of employment. Data from both the 2001 and 2011 Censuses of Population has been analysed. This shows that the majority of employment impacts are retained within Cheltenham Borough. Where benefits do leak to those that in-commute to the area, the majority are retained within the wider JCS area.

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2001 Census of Population data on commuting patterns suggests much lower levels of in commuting to Cheltenham for service sectors including wholesale, retail and trade and hotels and restaurants which one would expect for what are typically lower wage activities. The 2011 Census does not allow such fine-grained analysis. To reflect the available evidence the level of in commuting is reduced by 10% points at the Cheltenham level and 5% at the JCS area level.

A proxy for office based work, using financial intermediation, real estate and public administration sectors shows a level of in commuting broadly in line with the whole economy average, perhaps

fractionally higher, which one would expect for higher wage activities. No adjustment is made to the headline level.

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Deadweight is a measure of impacts that would be expected to accrue without the proposed development. It is often referred to as a reference case or do nothing option.

Deadweight at the site level is anticipated to be very low. There are no substantive employment generating activities on the site at present, with the land supporting negligible agricultural employment. There is therefore no loss of existing employment at the site which needs to be offset. An extant outline planning permission for office development is in place but has not been implemented. Large parts of the current development proposals are similar in nature and therefore it would be inappropriate to consider the extant scheme as deadweight.

In the absence of the development some jobs might be accommodated elsewhere within Cheltenham or the JCS area. However, the need for employment capacity is well known locally, with examples cited of businesses either failing to locate within the JCS area, or relocating outside the JCS area as a result of constrained supply. On this basis it is appropriate to set deadweight at a minimum level of 10% within Cheltenham and 20% across the JCS area.

Displacement

Displacement is a measure of impacts that are offset by reduced activities elsewhere in the target area. This could be where a new business within the proposed development captures market share from an existing business in Cheltenham.

This is anticipated to be very low for the A1, A3 and D1 uses (10%) and low (25%) for office elements. The Cheltenham population and economy are forecast to grow over the coming years and to facilitate this there is a need for additional employment space and appropriate service infrastructure. However, within the office element there is the potential that some take up will be from existing occupiers within the borough with existing office premises lost to other activities. This would be true of any new office development.

Multipliers

Multipliers capture the effects of further rounds of indirect and induced economic activity. This includes the expenditure through the supply chain of core occupiers and the effects as employees spend their wages in the local economy.

Multiplier effects are assessed as medium. For A1, A3 and D1 uses these are set as 1.2 at the Cheltenham level and 1.3 for the JCS area. For office uses these are set as 1.29 at the Cheltenham level and 1.35 at the JCS area. All assumptions based on the HCA *Additionality Guide, Fourth Edition 2014*.

Appendix 4:

Homes & Communities Agency, Employment Density Guide, 3rd Edition (November 2015)

Homes & Communities Agency

EMPLOYMENT DENSITY GUIDE

3rd edition

November 2015

Contents

If you have any questions on the Guide, please contact: Simon Dancer, Economist at **Simon.Dancer@hca.gsi.gov.uk**

November 2015

For and on behalf of GVA Grimley Ltd

Disclaimer:

This Guide has been prepared with the utmost care and due diligence by Bilfinger GVA and the Homes and Communities Agency in partnership with a range of industry experts. It provides a strategic view of general employment and economic trends and their influence on employment density. It is intended to provide a general guide to employment density and a robust and consistent base for the HCA and its partners to assess the potential local employment benefits of impacts of changes to the size and use of commercial floorspace in an area.

The Guide is not intended to replace detailed development-specific information or analysis but provide a consistent benchmark to assess local employment density changes. Its contents should not be relied upon for property, investment or financing valuation or economic appraisals requiring central government approval. The authors accept no liability for the use of the Guide beyond its stated aims and objectives.

1. Introduction

1.1 This report provides the latest version of the Employment Density Guide ("the Guide"). The previous version of the Guide was published in 2010 and represented the second edition following publication of the original research report in 2001. In the 14 years since the first Guide was published, it has become the 'go to' resource for a range of property, planning, regeneration and economic development professionals underpinning a range of impact assessments and appraisals, policy development and strategy production.

1.2 Whilst the Density Guide is an important tool in the decision making process there are a range of guides that should be used for specific appraisal purposes. For example, for economic appraisals, the primary source of guidance is HM Treasury's Green Book, which sets out the appraisal techniques required for an economic appraisal requiring central government approval.

1.3 The Guide's ever increasing role at the centre of a range of property related activities requires that its density metrics remain as up to date as possible, reflecting the latest industry 'norms' of how space is planned, developed and utilised to ensure it provides a robust and reliable basis for its ongoing use.

1.4 It is against this backdrop of increasing prominence and utilisation that an update to the existing Guide has been prepared. Much has changed since the production of the 2010 Edition, which drew on data and information from earlier years. These changes have had profound effects on not just the shape of the economy but also the way businesses operate and use their premises and the very types of property that now support economic activity.

1.5 The core focus of this update has been the identification of the factors influencing the use of employment generating property within the UK and understanding what impact this has on how floorspace supports employment in order to ensure that the Guide remains accurate and relevant in the densities it provides. At the core of the commission is the task of testing the 2010 density matrix against current usage trends and making appropriate modifications to the matrix where necessary.

1.6 In order to provide a robust update to the Guide, a number of research approaches have been utilised to understand how use of employment generating floorspace has changed. At the Scoping Stage an extensive literature and research review was completed, drawing on both academic and industry information to set the context.

1.7 Consultation was then undertaken to test the findings of the literature review and support the development of the employment density matrix. These consultation 'interviews' were held with a range of property advisors, including planners, property agents, investment advisors and property managers in order to gain a rounded view of industry specific behaviour (See Appendix I).

1.8 Finally, draft findings were tested with property occupiers, operators and representative bodies in order to ensure the final matrix aligned with the most up to date trends in property utilisation. This exercise was primarily focused on testing assumptions within the Guide that were subject to the greatest change.

2. Calculating employment densities

2.1 This section provides details on the method and issues that must be considered when calculating densities.

Employment densities

2.2 Employment density refers to the average floorspace (in m²) per full-time equivalent (FTE) member of staff. It is used as a measure of intensity of building use and an indicator of how much space each person occupies within the workplace.

2.3 Calculating the jobs generated by a particular use or building using employment densities relies upon a consistent understanding of floorspace. We provide a simple, introductory guide to floorspace measurement and employment below.

2.4 More detailed analysis and guidance is provided on calculating floorspace is provided in the RICS Code of Measuring Practice (6th Edition) which was updated in May 2015 to reflect and incorporate the new International Property Measuring Standards, which currently only apply to offices.

Average employment density figures

2.5 Historically average employment densities have been derived from surveys of a large number of buildings; this has provided the baseline understanding of the relationship between floorspace and jobs. Since 2001, a number of industry bodies have continued to survey specific sectors and we draw on this research to inform the Guide, as considered in Section 3 in more detail.

2.6 With a robust understanding of employment density, it is also important to ensure the floorspace estimates are as accurate as possible.

Measuring floorspace

2.7 The Royal Institution of Chartered Surveyors (RICS) recognises 3 principal measurements of floorspace: gross external, gross internal and net internal. In summary these are:

- Gross External Area (GEA) – this measurement includes walls, plant rooms and outbuildings, but excludes external space such as balconies and terraces. It has a narrow field of use mostly limited to calculating building costs for large industrial and warehouse buildings, planning applications and approvals, council tax banding, and rating in Scotland for industrial buildings
- Gross Internal Area (GIA) – this refers to the entire area inside the external walls of a building and includes corridors, lifts, plant rooms, service accommodation (e.g. toilets). It is a widely used metric used in calculating building costs, marketing, valuation, property management and rating (in England and Wales) of industrial buildings (including ancillary offices), warehouses and leisure units and also the valuation of new residential developments
- Net Internal Area (NIA) – this is commonly referred to as the net lettable or 'usable' area of offices and retail units. It includes entrance halls, kitchens and cleaners' cupboards, but excludes corridors, internal walls, stairwells, lifts, WCs and other communal areas. It is a widely used metric and is the recognised method for marketing, valuation, property management and rating for offices, shops and supermarkets.

Floorspace metrics

2.8 In Section 4, the Table of Employment Densities gives the measurement basis for each use class. It is recommended that the relevant floorspace metrics are used consistently throughout a project's development, appraisal and evaluation.

2.9 **It is important to understand the basis of floorspace measurement and to use it consistently.** If necessary, a given figure on one basis can be converted to the appropriate basis for the employment density type.

Converting gross internal to net internal area

2.10 Gross internal to net internal ratios can vary significantly according to use:

- For office space the gross figure is typically 15-20% higher than net internal space. However, this will be dependent upon building design and configuration, in particular relating to heights, number of cores and building servicing

- for all multi-tenanted buildings the range may be higher than 15-20% given the space allocated for shared or common areas. More often job estimates will be based on the 'let-able' area which exclude common parts such as meeting spaces
- for larger warehouses, the net area can be as much as 95% of the gross area
- for retail units the net to gross internal area relationship can be in the region of 90%

2.11 As a general benchmark, 15-20% acts as a suitable assumption for converting gross to net areas in non-industrial properties.

2.12 It is worth noting that figures for notional or proposed schemes may be presented as a GEA measurement. To convert these to a GIA, the general benchmark is a reduction of 5%.

Table 1 - Worked Example, Converting GIA to NIA

	Approach
Example Development	1,000sqm GIA development of B1a office used by the Finance & Insurance sector
Appraisal	NIA is calculated using the benchmark in Paragraph 2.10 above: 1,000 x (100-15)% = 850sqm NIA Or 1,000 x (100-20)% = 800sqm NIA

2.13 The figure used will be dependent on the level of space efficiency anticipated at the building. For more efficient buildings, use a lower conversion percentage of 15%.

Vacant space

2.14 When evaluating actual densities, only the occupied floorspace should be used in the evaluation. Appraisers should include a note on the amount of unoccupied space in the building at the time of calculation so that the basis of the calculations are clear. This mitigates the risk of the vacant area distorting the employment density figure.

Table 2 - Worked Example, Calculating Vacant Space

	Approach
Example Development	1,000sqm GIA development of B1a Finance & Insurance Sector office space as per Table 1, resulting in 800sqm NIA
Appraisal	Apply benchmark of 12sqm per FTE as per guidance in Section 4 to NIA floorspace. 800 ÷ 10 = 80 FTE
Evaluation	Despite a floor area of 800sqm only 700sqm is occupied, therefore employment is calculated as: 700 ÷ 10 = 70 FTE
Note:	*The building has remaining vacant floorspace of : 800 – 700 = 100sqm* *Equating to potential additional capacity of: 100 ÷ 10 = 10 FTE*

2.15 The FTE and employment density figures in Section 4 are based on 100% occupation of a building.

2.16 Vacancy rates in buildings can vary significantly. There is no 'rule of thumb' to allocate a vacancy rate for any specific reason such as use type, scale, timing or location. It is recommended that in carrying out a project appraisal, sensitivity analysis is used to generate a number of vacancy rate scenarios (e.g. 50%, 70%, 90%) for, say, 12 months after first occupation of the building to assess the impact on the forecast gross jobs figure.

2.17 This sensitivity analysis would also enable an allowance to be made for any 'void' periods, i.e. periods when a property is unoccupied and unable to be re-let. These often occur at lease expiry where a property requires refurbishment prior to a new tenant taking up occupancy. Void periods will be directly influenced by the age and condition of the property and the strength of the local market. Estimates should be based (where possible) on these localised trends.

Measuring employment

2.18 Employment can be measured in several ways:

- Actual – the number of employees who are full-time, part-time, or on contract
- Full-time equivalent (FTE) – the number of total hours worked as a proportion of the average annual hours worked in a like-for-like full-time job
    - 1 FTE means the person works full-time

- 0.5 FTE means the person works half-time. Thus 2 part-time staff who work half-time each will equal 1 FTE

2.19 In evaluating completed projects it is recommended that FTE numbers are used to measure employment achieved. These figures should be compared with the employment forecast made as part of the project appraisal. Where there is a significant variance (i.e. +/- 10%) between ex ante appraisal and ex post evaluation, an explanation for the difference should be provided in the evaluation.

Trends in full and part - time working

2.20 The ONS Annual Survey of Hours and Earnings (ASHE), provides data on the proportion of employees working full or part-time in different occupations:

- Service industries: part-time employment ranges between a low of 40% (found in the financial services sector) and a high of 63% (found in the leisure and recreation sector – reflecting shift patterns in bars, pubs and restaurants and seasonal working)
- Manufacturing: less than 10% are part-time

2.21 With regard to the proportion of hours worked by part-time staff to FTE, the majority of part-time staff work between 45% - 55% of full-time hours, with an overall average of 50% for all services and industry.

2.22 A ratio of 2:1 part-time staff to FTE should therefore be applied.

Calculating employment densities for redevelopment projects

2.23 Predicting employment density figures during the project appraisal stage is most accurate for new build (or recently constructed) properties and less accurate for older properties. This is because new buildings are usually designed with regular shaped floors and capable of servicing the employment densities set out in Section 3. See also Section 4 for guidance on density variances in older buildings.

2.24 When an occupied building is to be redeveloped, care needs to be taken in the application of employment density metrics when calculating the **additional** new jobs created by the project (i.e. the gross number of jobs accommodated in the redeveloped building less the previous number of jobs in the original building). If firm

data sets are not available on employment in the original building and employment density ratios are used to determine employment levels, appraisers should adjust for the type and age of the building(s) concerned and the businesses within them.

3. Influences on employment density

3.1 As noted within the introduction, there have been significant changes within the property industry and economy more generally that have had a direct influence on how commercial property is planned and utilised since the publication of the previous Guide in 2010.

3.2 However, these changes have resulted in more than just a shift in occupier and operational density. Rather than focusing on the buildings themselves, employment density is increasingly more closely aligned to the *nature* of the business or sector which they accommodate. This means that an understanding of the occupier is equally as important as knowing the planning use class. It should be recognised that this can be challenging without an identified 'pre-let' occupier.

3.3 As such, it is clear that changes to the economic context have driven a fundamental shift in how many types of property can be categorised and therefore considered in employment density terms.

3.4 Within this section we provide an overview of the key drivers of change and the broad nature of their influence across property, full details of which are contained within Appendix 1 to this report. This section also provides definitions of the new property classifications used within the density matrix to ensure users can apply the new approach to employment densities effectively.

Key influences on employment density

3.5 Based on an initial scoping exercise to identify the key factors influencing employment density, the research has sought to consider the implications of:

- advances in technology
- the evolution of new forms of workspace
- changing trading formats
- sector and sub-sector activity

3.6 This list is clearly not exhaustive but these factors appear to have the strongest influence on the design and utilisation of employment space. They reflect

fundamental changes in the way businesses can and do operate and therefore have different influences on different types of businesses or economic sectors. Their influence is not only changing employment density per se, but also more closely aligning levels of employment with the nature of business activity as much as the 'category' of property they occupy. This is explored in more detail below.

3.7 Our engagement and consultation with industry representatives, operators and occupiers confirmed these were the key factors they had experienced that were changing the way property was utilised and the level of employment a given quantum of floorspace would support.

3.8 The influence and effect of these factors on the full range of property types contained within the 2010 Guide were considered. Impacts were considered in terms of broad effects and classified as having no discernable influence, an *upward* influence (i.e. they enable people to use space more densely) or a *downward* influence (i.e. they result in a 'less dense' use).

3.9 The assessment of broad effects has principally been informed by a mixture of desktop research, which has considered sector-specific and use class-specific information on development delivery and interviews with senior property advisors who are engaged in advising property developers across the full range of property use classes.

3.10 The majority of the influencing factors served to have some impact on employment densities and, therefore, necessitate an update to the employment densities within the matrix. However, as set out below, the effects from any single factor are not uniform across all property types or even within a single use; as such some level of judgement has had to be applied in determining the final Density Matrix.

Advances in Technology

3.11 The advances in technology made in recent years are having a broad range of impacts on the way employment floorspace is used and, therefore, the level of jobs it supports. However, the impacts of technology on employment density are not linear and have contributed to a complex set of relationships that on the one hand serve to reduce density by making existing processes more efficient. On the other they create

new servicing and employment requirements, placing upward pressure on employment density.

3.12 These upward and downward pressures are felt across a range of activities in different ways. From 'high street' activities (such as banking and retailing) through to large scale distribution the effects of new technology are influencing how much employment an activity supports.

High street

3.13 Technology is having a major impact on the 'retail' sector in terms of how goods and services are sold to customers and how these are then supplied. Clearly the impact of internet retailing is a major factor and we consider this later in this section.

3.14 Technology is also improving the manner in which transactions are completed, increasing the usage of new point of service (POS) technology such as 'self-scan' checkouts and also introducing online terminals in stores for customers to 'self-order' products that the stores do not carry.

3.15 Both of these trends impact the level of employment within a store, however they do so in different ways. Increased use of POS reduces the number of cashiers required to deliver sales levels however the relatively new experience has required a number of staff to fill 'customer service' roles, helping customers familiarise themselves with the technology. This has protected some employment however still resulted in a lower density overall.

3.16 Increasing use of online ordering within stores has been a major factor for many larger department and other comparison goods stores. This has not appeared to have a significant impact on employment levels, with the focus still retained on customer service, as such employment densities has remained static.

3.17 Outside of the retail environment technology has also impacted on the nature of activity undertaken within high street banks and building societies. Branches now provide a much higher level of self-service machines allowing basic banking tasks to be undertaken without the need for a cashier.

3.18 However, similar to the retail sector, high street banks have increased the presence of 'customer service' staff who provide much more of a host role, helping customers

themselves or providing support in using self-service machines. Clearly, the nature of high street banking and the range of financial and mortgage advice provided limits the scope for decreasing employment levels substantially as specialist employees are still required.

Office

3.19 Generally technology is having an upward influence on employment density within office properties through the increased flexibility it provides for space planning/usage and the decreasing space requirements of physical infrastructure.

3.20 For example, the shift towards flexible working is driven by enhancements to wireless connectivity, which is now much more reliable and able to provide much higher bandwidths. This allows more agile working, lessening the need for many workers to have a 'fixed desk' and therefore reducing under-utilisation of space.

3.21 More agile forms of working have also been supported by (and driven) innovations in hardware and office fit outs. The increasing use of laptops and the advent of flat screen monitors have allowed actual desks sizes to be reduced by as much as 10% meaning it is possible to fit a greater number of desks within a fixed area. Taken with greater utilisation of these desks employment density enhancements could be significant.

3.22 Similarly increased usage of 'Cloud' computing and the growth in datacentre provision (supported by improvements to the UK's fibre infrastructure) has resulted in less office space being turned over to large server rooms. This reduces the level of non-active spaces within an office, again enhancing the potential employment generated by a particular building.

3.23 This has decreased the relative proportion of a business's cost base which is dedicated to property costs, providing an even greater focus on labour costs as a much more significant cost component. This has also begun to change the way offices are designed with greater flexibility and agility allowing new work areas such as breakout and collaboration spaces to be delivered. This creates a more diverse and interesting environment for workers and reduces the employment density of the office to some degree.

3.24 Ultimately, through greater electronic storage of information, more flexible working (including hot-desking and increased working from home) and the adoption of open plan space rather than cellular offices businesses are able to make better use of the space they occupy.

3.25 However, these trends are not universal, with their impact limited by sectoral activity, floorspace supply and job role. The nature of some activities where there is a high reliance on personal interaction, a need to use specialist equipment or provide call centre services will prevent the introduction of increased flexible working. As such, the influence of technology and changing working practices is likely to be more keenly felt in office-based sectors.

3.26 There may be some limitations to increased utilisation in some professional service activities (such as legal and accounting practices) which are unlikely to be able to achieve high space efficiencies through higher occupational density as they need to accommodate greater provision of cellular offices and meeting spaces. However, these would enable some degree of flexible, remote working, raising potential efficiency levels.

3.27 Through our research and in consultation with key industry bodies such as the BCO the differing impacts across sectors have been confirmed and have directly influenced both the revised structure of the Guide, which for the first time suggests different densities based on occupier activity.

Automation and Production

3.28 Increased automation has had a particularly significant effect on the manufacturing and distribution sector. It is most marked within the UK's automotive sector where much more significant elements of production are automated, reducing the need for production line staffing.

3.29 The impact of automation within the distribution sector is not uniform. Whilst widely used in the clothing sector, others are yet to fully embrace new technology, albeit some systems are being developed by industry leaders which are likely, in time, to be adopted by others. Much of the drive towards greater automation is to increase the speed and efficiency of multi-product order picking, which at present is largely

undertaken manually. However, as racking techniques and stock management software advance there may be reductions in the employment requirement.

3.30 These factors have had a downward pressure on employment density within units; however there are other factors which are offsetting this trend. With greater automation comes a greater level of servicing and support of the machinery. This has seen an increase in skilled employment within these sectors, particularly for maintenance engineers and computer programmers.

3.31 Furthermore, ongoing requirements to improve operating efficiencies are introducing new activities into manufacturing plants and distribution centres in particular. Costs of shipping and reducing margins are driving operators to do more 'final assembly' within units rather than store completed products, which often occupy more space. This reduces the amount of 'pure' warehousing space and increases employment density.

3.32 Similarly, facilities are integrating greater levels of office floorspace to enable complete business operations to be accommodated under one roof, reducing property costs. These increase levels of employment within units and hence serve to increase overall employment density.

The evolution of new forms of workspace

3.33 There has been a significant shift in business practices in the last 2 decades. The growth in information and digital technology has transformed the way companies organise and communicate. This has also made office functions more complicated.

3.34 The economic shift towards knowledge intensive sectors has brought a shift in work practices and the way businesses communicate. Workforce productivity in the UK has stalled since the recession, with some estimates placing it at c.16% below pre-recession levels (Source: Bank of England Quarterly Bulletin, Q2 2014). Given the UK has continued to see employment growth at its highest in the 'knowledge economy' (i.e. professional services, technology and digital/media firms) there is no clear, singular explanation of this apparent 'puzzle' within the UK economy. Economists believe a number of factors are contributing to this weaker than anticipated performance, including: potential mis-management of resources; latent capacity within existing businesses; reduced capital investment driven by tightening

lending and even potentially 'artificially high' productivity in key sectors such as finance in the pre-recession era.

3.35 Despite these potentially structural challenges in the UK economy as a whole the growth in knowledge based economic activity has seen firms demand and require new functions from their office space compared to more traditional firms. Digital media firms often need multi-functional spaces in which dedicated desks can combine with collaborative areas to create a communal space to increase creativity. Emerging companies require more flexibility in terms of both office space and rental lease.

3.36 Home working in the UK has seen a significant rise over recent years. Data produced by the ONS in June 2014[1] suggests that almost 14% of the UK's working population now work from home, the highest rate since comparable data collection began in 1998, growing at an average rate of 1.2% per annum. The analysis suggests homeworkers tended to be higher skilled, with approximately two thirds self-employed.

3.37 Although all regions in England have seen growth in the proportion of people working from home this has been strongest in the South East and North West of England and London, where there has been a percentage point increase of c.2% since 2008. The proportion of the population working from home is highest in the South East and South West, with 16% and 17% of the working population respectively working from home.

3.38 This increase has been driven by a range of factors including growth in self-employment, improved broadband connectivity, property prices, commuting distances and efficiency and cost savings. This increase has been present in previously office reliant sectors i.e. consultancy and accountancy. Businesses are adapting to the varying lifestyles of modern employees. Increased flexibility allows for a balance between work, family and other commitments.

3.39 There has also been an increasing preference towards the major urban centres with more businesses preferring to re-locate closer to the urban core services. This

[1] http://www.ons.gov.uk/ons/rel/lmac/characteristics-of-home-workers/2014/rpt-home-workers.html

process has in part been driven by market and lifestyle choices with workers wanting to be in close proximity to urban amenities.

3.40 Affordability is also one of the determining factors for the shift away from more traditional workspace models. With the increasing rental values in the urban core and increasing demand for residential property, affordability is the key factor for many micro and small businesses. New forms of workspace provide a more sharing based option which helps businesses with offsetting some of their operational costs.

Changing trading formats

3.41 When the 2010 update of the employment densities guide was undertaken, the retail sector was experiencing considerable challenges as a consequence of the rapid deterioration in the national economy into a prolonged period of economic recession. Much has changed during and since this period of economic instability and recession, with significant implications for retail and town centre growth, which in turn can have influence on the use of floorspace and density levels observed within the sector.

3.42 Our engagement with the retail sector suggests that, broadly, the trend identified within the 2010 Guide that employment aligns more closely with a retail unit's turnover rather than its typology remains true. However, a diversification in the way retail is serviced and the way in which it interacts with its customers suggest that the nature of activity within the retail unit is also critical.

3.43 The most significant impact and influence lies within the growth of internet retailing, which has increased significantly over the past decade as a share of overall consumer spending. However, recent data suggests that internet shopping has begun to plateau and the days of rapid growth may be over which, in turn, suggests that current practices are likely to be the new normal for the foreseeable future.

3.44 The rise in internet shopping has brought new occupiers to the high street. Some retailers were initially 'internet only' but have now sought a shop front on the high street. These tend to be very selective in their locations, focusing on retail centres with high levels of footfall in order to maximise exposure.

3.45 Such stores seek to provide a customer 'experience' allowing them to interact with products or whole brands prior to purchase. This activity has a significant focus on customer service and hence tends to provide a high level of employment compared to

the unit size. However, this is partly offset by the range of goods displayed within the unit, which require larger floorplate units without necessarily requiring increased staffing.

3.46 Technology and internet shopping has also changed the nature of activity within stores. The 'Click and Collect' market is the largest on-line growth sector in the UK at the current time and is now recognised as providing a reason for retailers to retain a network of stores to service local markets.

3.47 This has 2 opposing influences on employment density within retail units. The provision of click and collect services requires a greater level of customer service provision to enable goods to be collected in an efficient manner by the consumer. Within stores employees are required to staff specific collection points, with further needs for staff within storerooms to sort deliveries and retrieve them for customers. As such, there is a potential uplift in staffing as the storerooms become more active and staff cannot cover the whole 'shop floor'.

3.48 Further employment demand has resulted from other specialist click and collect package 'holding' services that occur outside of major retail stores. A range of small and medium sized retailers (including independent convenience stores and firms such as Argos) now offer collection services. These may result in a need for additional staffing to manage deliveries and also serve customers. A further recent trend is the growth in specific collection 'kiosks' in range of locations (such as Doddle who locate within or close to transport hubs). These new entrants to the 'high street' again require staffing.

3.49 Depending on the nature of the click and collect goods, a greater level of storage space may be required within retail units, shifting the focus away from active 'trading space'. This may decrease overall density if the relationship is considered solely as one of active floorspace to employment. However, given click and collect have a positive impact on turnover and trading levels this is likely to be offset by increased needs to 'service' customers.

3.50 The other major sector that has been heavily influenced by changing customer needs is foodstores. Recent trends show a shift towards more repetitive top-up shopping rather than single large bulk shopping trips. These have been driven by (and also

influenced) the shift in focus from convenience retailers away from the development of new large superstores towards smaller metro style provision.

3.51 This shift is only possible thanks to improvements in the stores supply and logistics chain, which allows efficient stock delivery and management and, in turn, reduces the level of stock held on site. This allows convenience retailers to reduce storage requirements and therefore the size of unit they occupy whilst still providing a full retail offer. This also requires greater stock replenishment activity, with dedicated staff required to deal with more regular deliveries and ensure these are quickly on the shelf for sale. This is critical in stores which provide greater levels of fresh produce or pre-made meals and snacks.

3.52 As a result of this shift employment densities within smaller, high street convenience stores have been slightly enhanced, albeit with no actual increase in staff numbers. However, what has happened is that these improved efficiencies have offset any potential reductions from other technology advances such as self-scan.

Sector and sub-sector activity

3.53 The nature of activity across all parts of the economy has changed significantly in recent years, with new sectors emerging and existing sectors diversifying or radically changing the way in which they operate. These changes have a significant impact on how space is used and needs to be understood in order to estimate the employment density of particular property types.

Office

3.54 The 2010 Guide split the office sector into General Office use (B1a), Call Centres use (B1a), IT / Data Centres use (B1a), Business Park use (B1a) and Serviced Office use (B1a).

3.55 However, our analysis of more recent research into office trends suggests that the current categorisation of floorspace in the office sector based on ‘typologies’ does not capture the nuances of the way floorspace is used by different office sub-sector occupiers. They do not acknowledge the different types and scales of uses undertaken by the varied occupiers within them. This was tested further through consultation with key stakeholders, who confirmed a much closer relationship existing between employment and activity rather than the location or type of property.

3.56 **Employment density is much more closely aligned to the type of activity undertaken within the property rather than its location or building type**. Our understanding of occupier density (informed by the BCO Occupier Density Study (2013)) suggest that there are five sub-sectors which have identifiable occupancy trends:

- Corporate
- professional services
- public sector
- technology, media and telecoms (TMT)
- financial and insurance.

3.57 It should be noted that many of these sub-sectors fall into more than one office typology, which suggests a more nuanced approach towards understanding office employment density.

3.58 Engagement with both the BCO and BPF has confirmed the differences in density are now more closely aligned to the occupier activity rather than building typology.

B1b uses and the R&D sector

3.59 Within the 2010 Guide B1b uses are not included. In the practical application of the Guide research and development of products and processes have tended to fit within the industrial category of uses. However, more detailed analysis of trends in the sector suggests they do not fit neatly within the current B2 and B1c classification.

3.60 The R & D sector is a dynamic and broad sector, which reflects the significant technological and scientific advances which are shaping the evolution of the industrial sector. The sector can be considered to be split into two key directions; an innovation and science focussed direction which is associated with the knowledge economy and life sciences activity, and a more traditional industrial focussed direction which fits alongside manufacturing.

3.61 The more traditional industrial focussed R&D sector, which sits alongside manufacturing uses, bears similarity with the Light Industry (Business Park) use types within the current density guide, however further analysis into the alignment of

floorspace use will identify the level of alignment with the 47sqm FTE figure from the 2010 report.

3.62 The nature of business parks has changed, with a lower presence of light industry activity and a greater focus on space for research and development and office activity. This is much more pronounced than suggested by previous guides with the growth of major new campus based research activities across the UK which tend towards the provision of B1a and B1b floorspace.

3.63 The more innovation and science focussed R&D sector, associated with the knowledge economy and life sciences activity, incorporates pharmaceuticals, biotechnology, industrial technologies, creative industries, and technology, media and telecoms (TMT). This sector benefits significantly from agglomeration and the clustering of activity with similar uses and higher education institutions.

Distribution

3.64 The 2010 Density Guide identifies two forms of distribution activity: the General Warehousing and Distribution category and the Large Scale and High Bay Warehousing category, both falling within the B8 use class. The 2010 Guide suggested that "*technological developments and restructuring in most industrial sectors is setting a trend for an increase in floorspace per head so that average density is likely to become lower over time*".

3.65 However, our analysis suggests that whilst some factors have decreased the density of employment (such as increased automation within the order picking activity) these have been more than offset by the wider range of job roles required to ensure the distribution facility functions. Similarly changing shift patterns towards 24 hour working as distribution needs increase are also offsetting reductions in the number of workers per shift.

3.66 The rise in zero-hours contracts has been a recent trend in the employment conditions of the distribution sector, particularly where activity is linked to the retail sector and therefore staffing requirements more seasonal. However, consultation with the industry has suggested that the impact on total staffing levels has been relatively small to date, and certainly outweighed by wider drivers of change

considered below. These contracts represent a relatively new shift for businesses and therefore the full effects are not yet understood or quantified.

3.67 The warehouse and distribution sector provides a range of employment opportunities at a range of skill levels, which is supported by research by Prologis[2] undertaken with occupiers of their own sites, indicating the following activities:

- warehouse staff (including forklift drivers)
- drivers
- admin
- managerial
- other (inc. ICT, customer service, sales and engineering).

3.68 This increasingly diverse range of employment opportunities within the distribution sector was supported by research undertaken by Skills for Logistics on behalf of the South East Midlands Local Enterprise Partnership (SEMLEP)[3].

3.69 The Prologis research was originally completed in 2010 and benchmarked findings against a similar study by Cranfield University in 2003, allowing some degree of objectivity in the data and research approach. Comparing the two studies shows a number of trends that suggest employment densities have changed within the sector.

3.70 Firstly, the data shows a broadening of activity types between the two surveys, with a greater range of activities in the 'other' category, most notably ICT support. Furthermore, the data shows a reduction in the proportion of workers employed at the lowest levels of 'warehouse staff' decreasing from 68% to 43% of the total workforce. This fall has been offset by increases in the share of workers within admin, managerial and 'other' roles.

3.71 Given the shifts in the sector's occupational profile it is unsurprising that actual employment densities have risen in recent years. When calculated by Prologis in 2006 they estimated distribution activity employed one person per 95sqm, however by

[2] Prologis: Technical Notes 2011 – Do Distribution Warehouses Deliver Jobs? (http://www.prologis.co.uk/pdfs/technical-notes-1.pdf)

[3] http://www.semlep.com/resources/uploads/SEMLEP_LOGISTICS_REPORT_2013_final.pdf

2010 this had increased to one person per 77sqm. This is a significant increase in employment density for the distribution sector, highlighting the increasing number of employees that can be supported by new, modern high quality distribution floorspace, even with significant increases in the scale of floorspace. Despite increased mechanisation and deployment of technology the data suggests that as logistics becomes more specialised both a greater number of employees and range of skills are required to operate a modern distribution facility.

3.72 A later update to the Prologis research was published in May 2015[4] suggests that densities have increased even further to around 69sqm per employee, largely driven by an increased share of jobs within office-based activities. Despite this research having tested this through consultation with others involved in the industry and based on our own understanding of the sector through a range of agency and employment land projects it would appear this level of density is not yet the 'norm'.

New Categorisation Definitions

3.73 Our review of the influences on property planning and utilisation list above has suggested that the density matrix needs to consider a new approach to classifying employment generating spaces. This involves the identification of different 'categories' of space that sit within the use class framework. Below we provide a short definition of each new category.

3.74 These categorisations have been tested with a range of stakeholders through the consultation process informing this update to the Guide. They have also increasingly formed the basis of other research undertaken by both industry bodies (such as the BCO) and public sector agencies (such as the Greater London Authority or Local Planning Authorities).

Office

3.75 The **Corporate sub-sector** is defined as including the following business types; energy, engineering, food, manufacturing, mining, property and retail. The nature of the corporate sub-sector, which incorporates a proportion of space designated for

[4] Technical Insight from Prologis UK - Distribution Warehouses Deliver More Jobs (http://www.prologis.co.uk/downloads/technical-insights/prologis-technical-insight-jobs.pdf)

client meetings and functions, reception space, and internal meeting and break out space, means that there is a requirement for additional floorspace which cannot accommodate any additional full time employees. This has the effect of reducing the efficiencies of the floorspace occupation for this sub-sector, despite space efficiencies achieved through flexible working approaches.

3.76 The **Professional Services sub-sector** is defined as including the following business types; lawyers, accountants, management consultants and property companies. This sub-sector has a wide distribution of employment densities depending on specific uses, more so than for other sectors. Two key business types which exemplify this distribution are management consultants, which commonly adopt flexible working practices facilitating the achievement of relatively high densities, compared with legal firms, which adopt a more structured, less flexible approach to space allocation with many more client meeting rooms and therefore achieve relatively lower densities.

3.77 The **Public Sector** is self-explanatory in its inclusion of central government, local authorities and the third sector. This sub-sector again has a requirement for cellular offices and meeting spaces and, for local government 'civic' buildings, public spaces in order for the full range of services to be provided. These tend to drive lower densities. However, increasing requirements for public sector efficiency are increasing densities through the introduction of more flexible working and shared services across previously separate entities.

3.78 The **Technology, Media and Telecoms (TMT)** sector is very diverse and incorporates a wide range of tech, media and telecoms businesses ranging from small start-ups to large corporates. This diversity is identified as being contributed to by the way in which some large scale tech and media firms have large corporate environments adopting flexible working and a dense use of floorspace, where other more creative firms (which include significantly smaller firms and start-ups) have much more creative space consuming approaches to their working environment.

3.79 The **Financial & Insurance sub-sector** is self-explanatory in its inclusion of banks, building societies and insurance companies etc. This sub-sector tends to have high employment densities given the provision of trading floors and, to a lesser extent, more open plan floorspace with fewer requirements for client meeting and breakout space. There has been little change in the nature of office occupation in this sector

beyond the more general impacts of improved technology allowing more flexibility and efficient desk sizes, as discussed elsewhere.

Workspace

3.80 Our analysis has suggested there us a need to include a broader definition of workspaces that seek to provide a base for small and start-up businesses. The sector is becoming increasingly diverse, and our current understanding of the most common typologies is set out below.

3.81 **Incubator –** There is no set definition of an incubator in property terms as their form will be developed in a bespoke manner to meet the needs of the particular business activity or sector they are seeking to support. In essence incubators are high specification managed workspaces that provide a high level of service in terms of technology, equipment and business support. Within scientific sectors incubators will often provide shared laboratory space alongside cellular offices.

3.82 **Studio** - Studio workspaces are usually artist spaces that can be operated as standalone, individually occupied units within a range of settings or as part of a more managed collection of spaces. Traditionally these have come forward in locations with an industrial heritage given the building types these locations provide; they tend to be similar to 'light industrial' units in their specification but are likely to include some integrated desk space.

3.83 **Maker Spaces** – These spaces provide an 'open workshop' within a light industrial type unit. They provide a single shared space for working which provides a range of tools and machinery aimed at reducing costs for small and start up production businesses. Maker Spaces tend to be run on a membership model where businesses rent time within the space and time using the large equipment separately.

3.84 **Co-Working Spaces** - Co-working space tends to consist of a large open plan office area offering shared desks where businesses work alongside one another. They often provide small meeting rooms and conference facilities alongside shared workspace. Operationally they tend to work on a membership basis with businesses having access for a pre-determined amount of time per month, although many do rent desk space on a permanent basis to provide an anchor tenant.

3.85 **Managed Workspace** - A managed workspace is commercially rented serviced premises from which small businesses can trade. The delivery of managed workspace could potentially accommodate a range of spaces, from small office suites through to workshop and light industrial units. The principal focus of these spaces is on providing more formal, individual spaces for small and start-up businesses with a number of shared facilities such as meeting rooms and reception services with an on-site management. These tend to be orientated towards meeting 'general' business needs rather than target specific sectors or activities.

Distribution

3.86 Greater importing of both finished products and production components from a range of global locations (most notably China and the 'Far East') has driven the demand for a new network of distribution spaces within the sector generally. These tend to focus on two distinct offers:

- **National Distribution Centres -** where bulk loads of imported goods are processed, sub-divided and shipped (largely via road freight)
- **Regional Distribution Centres –** these centres play the role of distributing goods to end users, either in terms of retailers or manufacturers or, increasingly, direct to clients.

3.87 A third distinct offer, which is a newly emerging type of space relating specifically to the retail sector is **local / 'final mile' distribution centres.** This accommodates 'final mile' parcel distribution companies who move goods from RDCs to individual consumers. These tend to focus on meeting the distribution needs of online retailers who lack the scale to have their own distribution networks, and are known as fulfilment centres.

Data Centres

3.88 Our consultation with leading industry advisors suggests that datacentres have a completely different employment impact than other storage facilities and therefore require their own classification within the matrix.

3.89 There are also different types of datacentre currently operating and being developed within the UK, which generate different employment levels, these are:

- **Wholesale Datacentres** - where 1 or 2 corporate businesses occupy a dedicated data centre
- **A Dark Site Data Centre** - which is managed remotely, so there are considerably fewer staff
- **A Co-location Facility** - where a customer leases a smaller space within a data centre, which could have up to 15 occupiers, with the site managed on site by a service provider.

3.90 Whilst the size of datacentres can vary significant, with ranges from 4,000 sq m to 30,000 sq m (NIA) there is very little difference in employment generation from size, with operational model the key driver. Even within each classification there are wide variations in density:

- wholesale: 200 to 950 sqm
- wholesale dark site: 440 to 1,400 sq m
- colocation facility: 180 to 540 sq m

3.91 To further complicate matters data centre space is not always quoted in terms of floor area, they may be quoted in terms of the cooled IT equipment area, which often only accounts for circa 50% of the total floorspace.

Hotels

3.92 The hotel sector has become highly differentiate on the basis of quality, with the star rating system failing to capture significant differences in the levels of service provided within the sector. As the market has become more segmented in the UK new categorisations have become common which reflect international categorisations.

3.93 These terms can broadly be explained as:

- Limited Service / Budget – low cost hotels within the 1, 2 and 3 star category, providing little or no services or amenities to guests. Examples include Travelodge, Premier Inn, Ibis
- Mid-Scale – usually a part of a chain and can relate to 3 or 4 star properties that target both leisure and business travellers, providing some dining and leisure facilities. Examples include Hilton Garden Inn, Holiday Inn Express, Park Inn

- Upscale – 4 or 5 star properties providing a range of services for leisure and business travellers, often also include conferencing facilities. Examples include Marriott, Grand Mercure, Crowne Plaza
- Luxury – 5 star plus hotels that provide full, high quality services to guests, most often including restaurant, spa and other leisure facilities. Examples include Sofitel, Inter-Continental, Ritz Carlton.

3.94 These figures assume employment within an individual standalone hotel, not supported by a head office.

Cinemas

3.95 The cinema industry has been through major restructuring in recent years, which on the one hand has seen consolidation of larger multiplex offers into larger centres whilst also seen increased differentiation of offer (such as arthouse or formats aimed at adults).

3.96 The introduction of more adult orientated or arthouse facilities has also diversified the range of facilities within the cinema and often includes a bar and potentially restaurant. With less automation and a greater range of facilities employment densities within this market segment tend to be higher, however it is only a relatively small part of the market.

3.97 Within larger mainstream cinemas improving technology has had an impact on employment levels. The introduction of digital projection has removed the need for specialist projectionists to be employed. Much of the cinema ticketing has now moved online, reducing the need for cashiers and ticket sales staff within the cinema itself, replacing them with self-service collection machines.

3.98 As a result there has been a significant reduction in staffing levels within the mainstream cinema sector which, alongside a move towards larger multi-screen facilities, has greatly reduced employment density.

Implications for the density matrix

3.99 Given the factors considered above it is clear there is a need to revisit both the densities within the matrix and also the way spaces are categorised and considered in the future.

3.100 Some of the factors considered clearly require new forms of workspace to be added to the matrix to enable it to be useful as the workspace environment changes. Others confirm that there are nuances within the office, distribution, retail and hotel markets that suggest an alternative characterisation is required that moves beyond a general typology approach.

3.101 In the next section we set out the new density matrix which draws all of the research together to provide a guide for future employment assessment. It should be noted that this is a Guide only and that many factors beyond the scope of this Guide will influence how space is delivered and used in the future. Some of these considerations are set out in Section 4 of this report, but this is not intended to be a definitive list.

3.102 Any use of the Guide and its density matrix will require the user to exercise their professional judgement to identify any specific factors that may result in a different employment output than is shown in the general trends within the matrix.

4. Employment density matrix

Use Class	Sub-Category	Sub-Sector	Density (sqm)	Notes
B1a Offices	General Office	Corporate	13	NIA
		Professional Services	12	NIA
		Public Sector	12	NIA
		TMT	11	NIA
		Finance & Insurance	10	NIA
	Call Centres		8	NIA
B1b	R&D Space		40-60	NIA lower densities will be achieved in units with higher provision of shared or communal spaces
B1c	Light Industrial		47	NIA
B2	Industrial & Manufacturing		36	GIA
B8	Storage & Distribution	National Distribution Centre	95	GEA
		Regional Distribution Centre	77	GEA
		'Final Mile' Distribution Centre	70	GEA
Mixed B Class	Small Business Workspace	Incubator	30-60	B1a, B1b – the density will relate to balance between spaces, as the share of B1a increases so too will employment densities.
		Maker Spaces	15-40	B1c, B2, B8 - Difference between 'planned space' density and utilisation due to membership model
		Studio	20-40	B1c, B8
		Co-Working	10-15	B1a - Difference between 'planned space' density and utilisation due to membership model
		Managed Workspace	12-47	B1a, b, c
B8 / Sui Generis	Data Centres	Wholesale	200-950	
		Wholesale Dark Site	440-1,400	
		Co-location Facility	180-540	
A1	Retail	High Street	15-20	NIA
		Foodstore	15-20	NIA
		Retail Warehouse	90	NIA
A2	Finance & Professional Services		16	NIA
A3	Restaurants & Cafes		15-20	NIA
C1	Hotels	Limited Service / Budget	1 per 5 beds	FTE per bed
		Mid-scale	1 per 3 beds	FTE per bed
		Upscale	1 per 2 beds	FTE per bed
		Luxury	1 per 1 bed	FTE per bed
D2	Fitness Centres	Budget	100	GIA
		Mid Market	65	GIA – both types tend to generate between 40-50 jobs per gym
		Family		
	Cinema		200	GIA
	Visitor & Cultural Attractions		30-300	The diversity of the cultural attraction sector means a very wide range exists
	Amusement & Entertainment Centres		70	Potential range of 20-100sqm

5. Further considerations & guidance

5.1 It is clear from the research that the relationship between economic activity, property development and employment generation is changing rapidly. It has been impossible to capture all of these complexities and nuances within a Guide that is intended for more generalised use and needs to remain accessible to a wide audience.

5.2 Therefore, within this section we provide some strategic guidance and consideration of other factors which influence employment density but are, as yet, not sufficiently established or robustly evidenced to form generalised assumptions from.

Difference between space planning and space utilisation

5.3 The advent of new forms of workspace and the changes to office sector explored in previous sections have meant that the way space is planned and the way in which occupiers ultimately use it are increasingly diverging.

5.4 The regulatory framework for the design and construction of commercial buildings within the UK sets firm guidelines for the provision of key emergency and servicing infrastructure which relate directly to the level of employment within any one building or floor within it. Whilst these apply across the commercial property sector they have their strongest influence within the office sector.

5.5 At the basic level there is a difference between the current typical fit out assumptions and the built specification of new office development. Whilst typical fit-out specification has now moved towards 10 sqm/per person for a standard office they are actually built to meet the regulatory requirements of a building that is being occupied at 8 sqm/per person. Many developers are delivering buildings in this manner in order to 'future proof' their buildings and ensure they have sufficient flexibility to continue to accommodate changing working practices.

5.6 The regulatory framework, however, ultimately limits how efficient a building can become with the 8 sqm per person level currently the maximum a standard office could achieve (although this would be significantly different for a 'trading floor'). The core reason for this is the requirements for the provision of emergency escapes and toilet facilities, which are based on the headcount of each floor within a building.

5.7 Therefore, whilst it is potentially possible in occupation terms to achieve a density above 8 sqm it would be uneconomic to construct a building that allows this and meets all the safety regulations. This is partly a cost issue in terms of the infrastructure required but also relates to the impact this has on the scale of servicing cores and therefore the overall efficiency of the building these requirements create. It is likely to deliver compromised floorplates which, in turn, are unlikely to prove attractive to occupiers.

5.8 Therefore other methods of driving efficiency are being explored as occupiers seek to reduce costs and there is a greater divergence in how different sectors function and therefore utilise space. In some sectors and property types this is beginning to see a move away from using the amount of space as basis for employment creation and, in the future may require further changes to the approach of the density guide, however at this point no firm conclusions can be drawn.

5.9 Hot desking and agile working have already driven up the effective density of office spaces, albeit with some offset for increased provision of breakout spaces. The efficiencies gained from these are exacerbated by further shifts towards greater flexibility in workplace location, resulting in even greater acceptance of home working. The prevalence of home working has continued to rise since the publication of the 2010 Guide, with 2014 ONS data indicating that almost 14% of the workforce now works from home at least some of the time, up from 11% in 1998.

5.10 Increasing the utilisation space is particular high on the public sector agenda as cost savings are sought as a result of austerity measures. Typically public sector agencies are seeking a 20% increase in space efficiency, effectively making provision for 8 desk spaces for every 10 employees. This would bring occupation broadly in line much of the private sector, albeit the BCO now report that businesses are moving towards a 7:10 ratio of workstations to FTEs.

5.11 The establishment of membership based club rooms and co-working spaces has also driven up the level of employment supported by a given amount of office space. The flexibility of co-working memberships and the lack of fixed workstations mean a much greater number of employees and businesses can be supported from a single workstation.

5.12 However, there are inter-relationships between agile working and co-working spaces. Early indications are that some co-working provision is being used by those working flexibly away from their base office. As such it is important not to over-state the employment potential of co-working and to understand the make-up of members as part of employment density calculations.

5.13 Essentially, these efficiencies mean that employment generation may be significantly higher than a simple density calculation may suggest. However, this is not uniform within, let alone between, occupier sectors and whilst the Matrix seeks to make allowances for increased efficiencies as best it can further research is required on a case by case basis, particularly where co-working spaces are proposed.

Approach to leisure/cultural attractions

5.14 The diversity of the cultural attraction sector indicates that providing a single density is impossible, and even the range provided requires significant levels of specific understanding to ensure employment estimations are accurate.

5.15 The complexity is increased further by the use of volunteers within some sectors such as small theatres and museums, who enable the facility to function but are not actually employed. Heritage attractions and zoos also add complexity as their staffing requirements are intrinsically aligned with their offer and the intensity of management this requires; as such they do not demonstrate any clear relationship between 'space' and employment levels.

5.16 Based on our understanding of the sector it is possible to provide some benchmark proxies which can be used to calibrate where within the matrix range a particular use may lie. However it is important to stress these should not be used as the basis for specific calculations themselves. **Given the specificity of these uses and their employment it is vital primary research is undertaken to provide robust employment estimates**.

Attraction Type	Effective Density per FTE
Small Theatre	350 sq m
Arts / Conference Venue	260 sq m
Mixed Use Venue	125 sq m
Commercial Visitor Attraction	120 sq m
Concert Venue	100 sq m
Large Museum	50 sq m

Shift working and contracting

5.17 As consumer and customer demands increase and businesses are seeking greater operational efficiencies there have been some shifts in working hours and patterns in the past decade. This has affected a number of sectors but most notably has changed the way distribution and retailers operate. Many of these influences had been addressed by the 2010 Guide and our research has not discovered major differences in the assumptions made at the time.

5.18 The introduction of more flexible employment contracts has also made employment more fluid within operations, with the level of 'active' workers able to be more easily adjusted in line with required output. However, this has not really impacted the overall level of employment and hence employment density of an operation, but may impact how and when these jobs are deployed.

5.19 We have consulted with the operators and property industry representatives to test how these changes have influenced employment and have based the Matrix on their advice on total employment requirements. This has enabled us to understand the staffing requirement (in terms of FTEs) that enables the particular activity to function under industry standard operating patterns.

5.20 As such the density figures presented allow for usual hours of operation, such as 24 hour working within many distribution activities, and therefore do not requirement adjustment to allow for these trends. However, at an operator or development specific level it may be necessary to adjust the figures if they propose a significantly different operating approach.

5.21 At present it would appear that any changes to the shift working patterns have been outweighed by other changes in sectors which have affected the relationship between floorspace and FTE employment.

5.22 As discussed elsewhere in this report the recent shifts in contracting towards zero hours contracts is yet to have a noticeable impact on employment density. Whilst it may mean employment activity fluctuates over time our conversations with industry stakeholders suggests that it hasn't altered the overall level of staffing for a property but provided more 'flexibility' for their utilisation.

Other types of employment generating spaces

5.23 The density guide focuses on the core commercial property typologies within the UK as a basis for understanding how private sector development and potential public support for commercial property delivery can support wider economic and regeneration aims.

5.24 However, it is clear that these are not the only sources of employment, with a much wider range of education, health, institutional and infrastructure related activities also providing a considerable scale of jobs.

5.25 These are very complex development types and encompass a wide range of building types, operational models and services which do not have a clear or identifiable relationship between floorspace and employment levels and hence no 'general' employment density.

5.26 Rather than a space driven employment requirement jobs in these sectors are much more closely related to the type of offer that the individual facility makes. As such two identically sized spaces within the same sector can have significantly different levels of employment.

5.27 As an example, employment levels within a hospital can vary based on any particular specialisms in treatment, teaching and surgery they may have. Where they require higher numbers of operating theatres or specialist care facilities these will have much higher staffing levels than a hospital with more 'general' ward space.

5.28 Similarly a school with a particular focus towards vocational courses may have a lower employment density as the teaching spaces are larger than those for classroom based more academically orientated activities.

5.29 In all of these sectors it is important to understand that employment is not necessarily the primary driver of space design and utilisation. Spaces are designed and constructed to meet a specific activity's requirements with the level of jobs then determined by what is required for that facility to function.

5.30 Some research has been undertaken previously into this field[5] however no consistent approach has been identified that can be more broadly applied. Given the bespoke nature of property and then the specialised nature of activities within them identifying simple density proxies would require significant primary research and would require a separate Guide where each operation (or mix of operations) could be to be considered on its own merits.

Changes to mMeasuring practices

5.31 The RICS has launched new professional guidelines on property measurement, the International Property Measurement Standards (IPMS), which aim to bring transparency and consistency to the global commercial property sector. Initially, this updates the Code of Measuring Practice for office space, and will be further updated to include residential, industrial and retail properties.

5.32 IPMS will become mandatory for chartered surveyors from January 2016. Whilst this may potentially impact how density is measured in the future, we have found no evidence of any impact to date on the way space is planned or utilised.

5.33 Clearly as use of the new standards becomes common place and is deployed across all property types there may be a need to revisit or reframe the way the relationship between floorspace and employment is described.

[5] For example see "Planning for Prosperous Economies", Bilfinger GVA, 2009, www.gva.co.uk/WorkArea/DownloadAsset.aspx?id=2147488578

6. Comparison of densities 2015 to 2010

Use Class	Sub-Category	Sub-Sector	2015 Density (sqm)	2010 Density (sqm)
B1a Offices	General Office (NIA)	Corporate	13	12
		Professional Services	12	
		Public Sector	12	
		Tech	11	
		Finance & Insurance	10	
	Call Centres (NIA)		8	8
B1b	R&D Space (NIA)		40-60	n/a
B1c	Light Industrial (NIA)		47	47
B2	Industrial & Manufacturing (GIA)		36	36
B8	Storage & Distribution (GEA)	National Distribution Centre	95	General: 70 Large Scale & High Bay Warehousing: 80
		Regional Distribution Centre	77	
		'Final Mile' Distribution Centre	70	
Mixed B Class	Small Business Workspace	Incubator	30-60	Serviced Office: 10 *Detailed explanation for the changes in this category are provided in Section 3 Para's 3.77-3.82*
		Maker Spaces	15-40	
		Studio	20-40	
		Co-Working	10-15	
		Managed Workspace	12-47	
B8 / Sui Generis	Data Centres	Wholesale	200-950	47 *Detailed explanation for the changes in this category are provided in Section 3 Para's 3.85-3.88*
		Wholesale Dark Site	440-1,400	
		Co-location Facility	180-540	
A1	Retail (NIA)	High Street	15-20	19
		Foodstore	15-20	17
		Retail Warehouse	90	90
A2	Finance & Professional Services (NIA)		16	16
A3	Restaurants & Cafes (NIA)		15-20	18
C1	Hotels	Limited Service / Budget	1 per 5 beds	Budget: 1 per 3 beds General: 1 per 2 beds 4/5 Star: 1 per 1.beds
		Mid scale	1 per 3 beds	
		Upscale	1 per 2 beds	
		Luxury	1 per 1 bed	
D2	Fitness Centres	Budget	100	Sports Centres & Private Clubs: 65
		Mid Market	65	
		Family		
	Cinema (GIA)		200	90 *Detailed explanation for the changes in this category are provided in Section 3 Para's 3.92-3.95*
	Visitor & Cultural Attractions (GIA)		30-300	36 *Further Guidance is provided in Section 5 Para's 5.14-5.16*
	Amusement & Entertainment Centres (GIA)		70	70

Appendix I – Consultation and Engagement

To inform the development of the 2015 Density Guide one to one interviews were undertaken with a cross section of occupiers, developers, investors and consultants from within Bilfinger GVA and the wider industry.

To test draft findings and refine our understanding key representative bodies were invited to review and comment on the study, including the:

- British Property Federation (BPF)
- British Council of Offices (BCO)
- British Council of Shopping Centres (BCSC)
- Royal Institute of Chartered Surveyors (RICS)
- Royal Town Planning Institute.

All interviews and other feedback has been incorporated into the analysis presented within Section 3 of the Guide and used to inform the density assumptions used within Section 4.

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The Homes and Communities Agency is committed to providing accessible information where possible and we will consider providing information in alternative formats such as large print, audio and Braille upon request.

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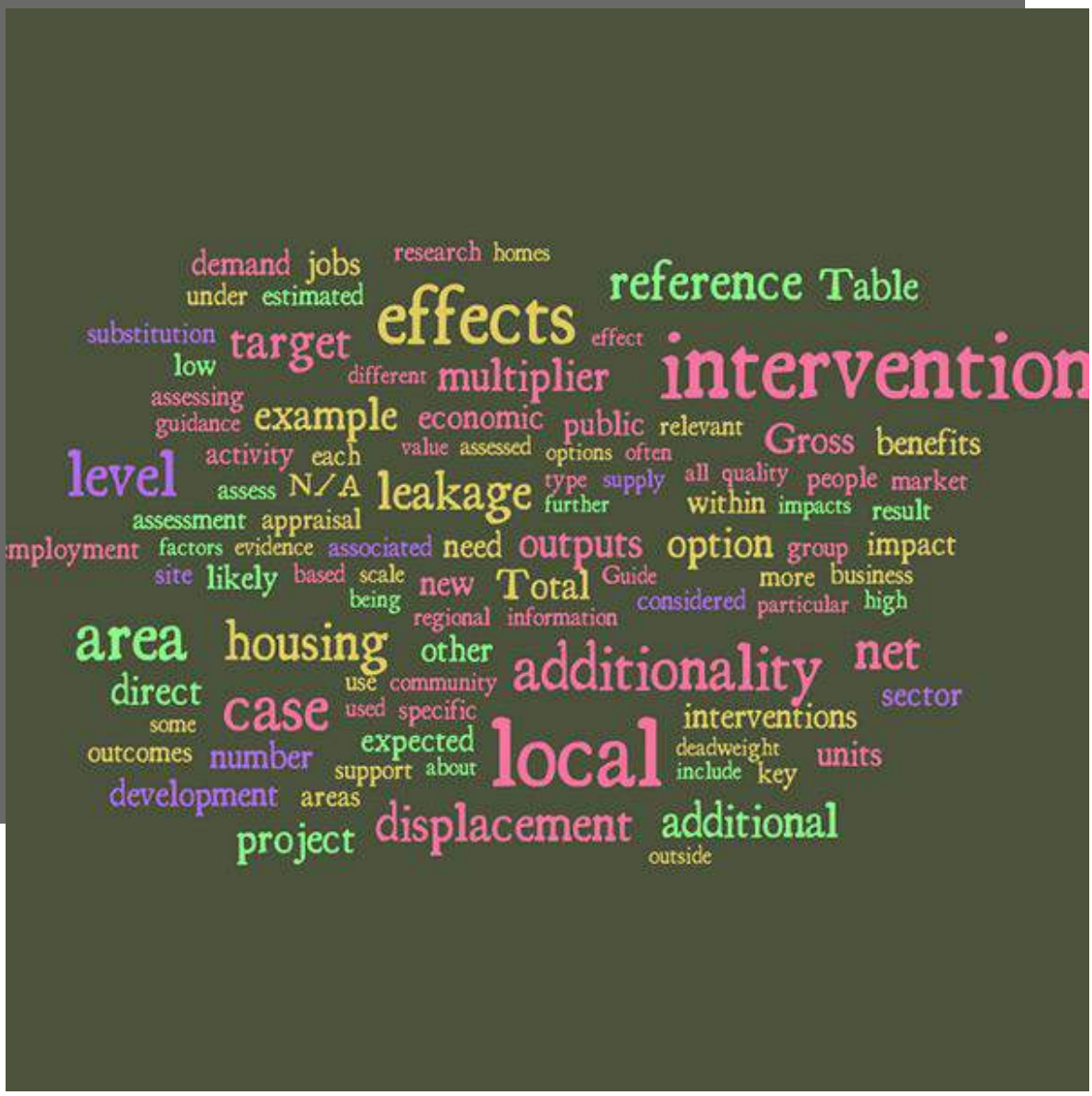
Appendix 5:

Homes & Communities Agency, Additionality Guide, 4th Edition (2014)

Homes & Communities Agency

ADDITIONALITY GUIDE

Fourth Edition 2014



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Contents

1 Introduction

This Guide explains how to assess the additional impact or additionality of local economic growth and housing interventions. Additionality is the extent to which something happens as a result of an intervention that would not have occurred in the absence of the intervention.

It is the fourth edition of the Guide, which has been updated to include new benchmark evidence on the scale of each of the additionality factors, reference to new research, additional information and links to guidance on valuing benefits and further sources of helpful guidance within the bibliography, In this edition of the Guide, consideration has also been given to different delivery structures and their effect on additionality, the issue of persistence of benefits and agglomeration effects. Further details of the main changes since the last edition of this Guide are set out at Appendix A.

The approach to assessing additionality remains consistent with:

- HM Treasury's guide to Appraisal and Evaluation in Central Government (referred to as 'The Green Book')
- guidance on Assessing the Impacts of Spatial Interventions: Regeneration, Renewal and Regional Development (referred to as the 3Rs guidance) produced by the now Department for Communities and Local Government (DCLG)

Project appraisal entails being clear about objectives, thinking about alternative ways or options of intervening to meet them, estimating and presenting the costs and benefits of each potentially worthwhile option and taking full account of associated risks. It is an important management tool and is essential to good decision-making because it:

- provides information to redesign interventions in order to maximise their impact
- helps to test ideas and select interventions that will work
- enables decision-makers to make the best possible decisions
- produces more effective and efficient interventions that deliver real results

Central to good appraisal is the need to assess whether the intervention concerned will bring additional benefits over and above what would have happened anyway in its absence.

However, assessing the additional outputs and, where possible, outcomes of an intervention option is only one of the steps involved in appraising an intervention. This Guide is primarily concerned with the methodology for calculating additionality. There are many appraisal issues that affect the ability to measure additionality accurately, such as defining options, measuring outputs/outcomes and assessing the risk associated with each option. These issues are touched upon but not dealt with in any detail in this Guide.

HM Treasury recommends that the '5 Case Model' is used to assess the business case for investment decisions – this guidance is concerned with part of the 'economic case'. It therefore does not cover strategic fit ('strategic case'), the need for public funding and affordability (the 'financial case'), commercial aspects (the 'commercial case') or achievability (the 'management case').

Additionality is relevant to various stages of an intervention's lifecycle, including strategy development, project appraisal, monitoring and evaluation. However, whilst the same thought processes and logic applies to each stage, the focus of this Guide is on project appraisal.

The resources allocated to assessing the additional impact of an intervention should be proportionate to the nature and scale of the intervention. Interventions that are novel, contentious, repercussive or involve a high level of risk will require more in-depth

analysis, as will larger interventions – in other words, those that involve a significant amount of public expenditure. It is recognised that assessing additionality is not an easy task and that generally this will be carried out by specialists or those with experience in intervention development and appraisal. This Guide is generally aimed at economists and other suitably qualified and experienced professionals. However, it is also intended to be accessible to non-specialists in order to provide an understanding of the principles and importance of assessing additionality. The Guide does cover some material of a more technical nature and where it is necessary to use technical terms we have sought to explain each term or concept carefully and provide examples.

The Guide continues in the following five chapters:

- Chapter 2: sets out the basic methodology and key issues in order to assess the additional impacts of an intervention
- Chapter 3: discusses the reference case or deadweight – in other words what would happen anyway, without the intervention
- Chapter 4: explains the adjustments that need to be made to the intervention and reference options to calculate additionality
- Chapter 5: presents examples of how to calculate additionality
- Chapter 6: sets out a number of concluding remarks

2 Additional impacts

2.1 Overview

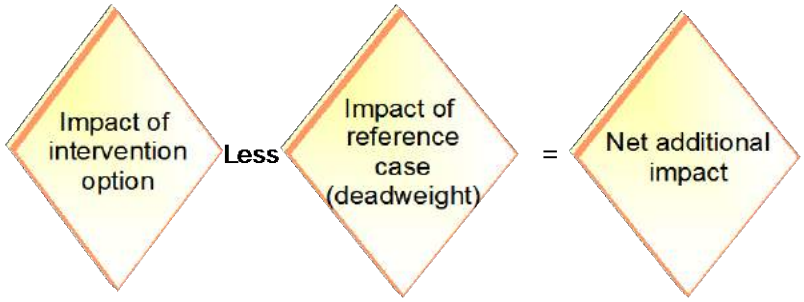
Most interventions will have both positive and negative impacts. In appraising the effects of an intervention it is important that all of these are taken into account in order to assess its additional impact or additionality – in other words, the net changes that are brought about over and above what would take place anyway.

HM Treasury's Green Book states that an impact arising from an intervention is additional if it would **not** have occurred in the absence of the intervention. DCLG's guidance on *Assessing the Impacts of Spatial Interventions* defines additionality as:

> "The extent to which activity takes place at all, on a larger scale, earlier or within a specific designated area or target group as a result of the intervention''

In addition, greater **quality** can provide additional effects. The additional impact of an intervention is therefore the difference between the reference case position (what would happen anyway) and the position if the intervention option was implemented (See Figure 2.1).

Figure 2.1: Net additionality framework



Additionality may relate to:

- **Scale** - a greater quantity of outputs in an area.
- **Timing** - activity may happen earlier than would otherwise have been the case. Where there are large timing differences, it may be appropriate to discount the profiles of quantified outputs and outcomes. For example, use is now often made of cost benefit analysis, with the benefits and costs being 'valued' and discounted. Further information on this can be found in Annex 7 of the 3Rs guidance.
- **Quality** - the quality of the outputs / outcomes may be different because of a public sector intervention. For example, a new building may incorporate a high quality of design and public realm. (Further details about how to assess additional qualitative impacts are set out in Section 2.7);

  and/or

- **Specific area or group** - the extent to which the target beneficiaries actually benefit from an intervention. For example, for a key worker housing project, will all of the occupiers be key workers?

It is possible to assess the additional impacts of an intervention using two alternative approaches, as follows:

- **Top-down** - by assessing expected changes in overall indicators, such as the level of employment, total population or number of dwellings (this is also sometimes referred to as the outcome indicator approach).

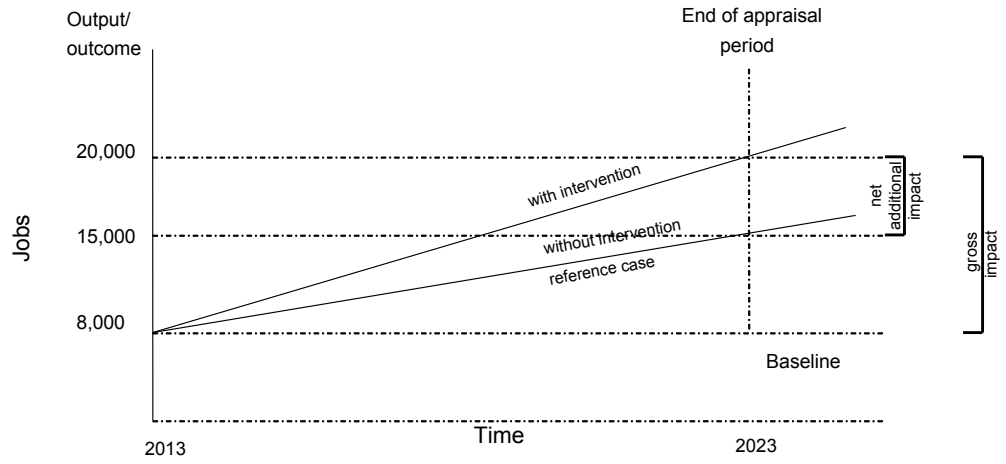
  and/or

- **Bottom-up** - appraising the expected impact of individual actions or projects, through consideration of their likely outputs and outcomes.

At the strategy or programme development stage the focus will often be, albeit not exclusively, on top-down approaches, while at the project design and development stages, the principal emphasis is on bottom-up analyses. Both approaches are often used in evaluations.

Figure 2.2 below shows an example of top-down analysis of expected overall employment change in an area as a result of an intervention. It shows that, over a ten-year period, total employment in an area is expected to rise from 8,000 to 20,000. However, without the intervention, it is estimated that employment would have grown to 15,000 anyway. Thus, whilst the gross change in employment is 12,000, the net additional impact of the intervention is 5,000 jobs.

Figure 2.2: Assessing additionality (improving reference case)



Gross impact = 20,000 - 8,000 = 12,000

Net additional impact = 20,000 - 15,000 = 5,000

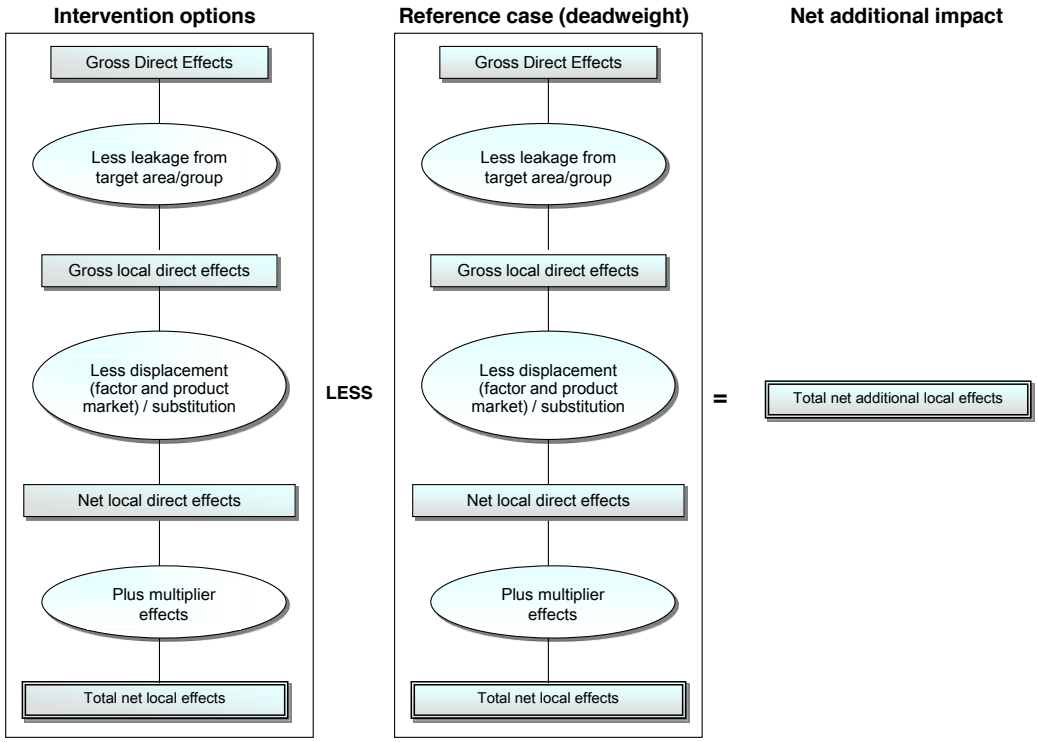
If employment in the area were expected to decline to say 5,000 jobs if the intervention did not go ahead then the net additional impact at the end of the appraisal period would be 15,000 jobs (i.e. the difference between 5,000 jobs and 20,000 jobs). Further examples of various possible relationships between the intervention option and reference case are set out at Appendix B.

However, as noted above, in reality it will not normally be possible to appraise interventions by dynamically modelling net effects at a specific target level. In the vast majority of cases there are serious difficulties in using such top-down approaches to assess what are usually highly marginal gross and net impacts. Therefore, the focus in

project appraisal is upon a bottom-up or project specific approach to assessing additionality. In order to do this a clear analytical framework is needed.

To calculate the total net additional local effects of an intervention, a number of adjustments need to be made to both the intervention and reference case options. The approach adopted to assessing the additionality of an intervention is shown in Figure 2.3.

Figure 2.3: Approach to assessing project level additionality - key components



The figure introduces a number of important key concepts, as set out in the Box 2.1 below.

Box 2.1: Key components of additionality

- **Intervention options**: these are the alternative ways or options that the public sector might choose in order to intervene to achieve its objectives. An estimate will need to be made of the level of target outputs/outcomes that would be produced under each of the alternative intervention 'do something' options. Further discussion of the generation of options is presented in Appendix C.
- **Reference case**: this is the estimate of what level of target outputs/outcomes would be produced if the intervention did not go ahead. It is the 'do nothing' or do minimum option and the outputs/outcomes produced under this option are referred to as **deadweight**. In some cases, deadweight might be estimated by assuming that a proportion of the total gross additional local effects would go ahead anyway under the reference case. For example, if it were estimated that 25% of, say, 200 total net local training places would have been provided anyway, then some 50 total net local training places would be deadweight and the total net additional local would be 150. However, the preferred approach is to construct and quantify a specific reference case scenario.

- **Gross direct effects**: an estimate of the total effect of an intervention option or the reference case in terms of a specific output. This would mean consideration of wider consequential or induced effects, as well as the immediate effects. When undertaking an evaluation, it will also be appropriate, in calculating the gross direct effects, to account for any unintended consequences - consequences that were not anticipated for the targeted outputs and outcomes. It may also be relevant to consider agglomeration effects (see Section 2.8). This could include, for example, the positive effect of a housing scheme on adjacent property values or in causing private sector housing development to take place which would, for example, not otherwise have happened or would have happened later. As such it is important to consider and include positive externalities associated with the intervention.
- **Leakage effects:** the number or proportion of outputs (occurring under the reference case and the intervention options) that benefit those outside of the intervention's target area or group should be deducted from the gross direct effects. However, it is also important in an appraisal to consider positive and negative effects on other areas. Impacts outside the target area or group should not be ignored, particularly, those in other priority area or groups.
- **Displacement:** the number or proportion of intervention outputs (occurring under the reference case and the intervention options) accounted for by reduced outputs elsewhere in the target area should also be deducted.
- **Substitution effects:** this effect arises where a firm substitutes one activity for a similar one (such as recruiting a jobless person while another employee loses a job) to take advantage of public sector assistance. Again these effects need to be deducted.
- **Economic multiplier effects:** further economic activity (jobs, expenditure or income) associated with additional local income, local supplier purchases and longer term development effects then need to be added.

For very large interventions, consideration will also need to be given to **crowding out** and **crowding in** effects. These effects occur where increases in public expenditure cause other variables in the economy to adjust resulting in either a decline (crowding out) or increase (crowding in) in private expenditure. These effects are normally considered only in very large appraisals concerned with regional and national level impacts. Further information on crowding out and crowding in effects is given at Appendix D.

It is important to recognise that the analytical framework presented above does have a number of limitations, in particular in accounting for macro-economic adjustments, which may reduce (or increase) the additionality of an intervention at wider spatial scales. This limits its appropriateness in discussing national economic efficiency impacts, unless it is combined with detailed macro-economic modelling.

Since it is not practicable, or indeed often possible, in the context of relatively small interventions to develop dynamic, full equilibrium models, the approach proposed is a form of partial equilibrium analysis. As such, it is a simplification and it is essential to ensure that the analysis is a sufficiently reasonable representation of reality. In a context of tighter labour and other markets, it may be important to assess price feedback effects and other adjustment mechanisms, such as changes in participation rates and migration flows. These effects can, in principle, be handled via the displacement adjustments although, in practice, this has often not occurred.

If prices are likely to change significantly as a result of an intervention, the analysis becomes more complicated. For example, when considering the additionality of economic activity associated with a commercial development, the following issues need to be considered:

- how far the individual development is additional

- how far it represents a net addition to the stock of property taking account of effects in raising land prices or depressing rentals and the consequent effects of this on private sector development activity
- how far the activity generated by the greater availability and/or reduced cost of property is additional.

Where an intervention results in effects "off the direct causal chain" the nature and additionality of these effects also need to be considered. For example, a project to provide homes or jobs for a particular target group might be judged a failure based on a narrow view of leakage but it may have had significant secondary benefits through "freeing up" homes or jobs which are taken up by the target group. It may be that different proportions for factors such as displacement need to be applied to each impact where the effects are not directly associated with the intervention.

The assessment of additionality is not a mechanistic process but depends on the appraiser's judgement and knowledge of the intervention and the wider environment. It is important that these judgements are informed by evidence and the reasons for them explained. In order to assess the level of additionality it is necessary to consider how the intervention has affected market activity, as well as its impact on other public sector activities.

The Guide presents various estimates for the potential scale of each of the factors discussed above. However, significant care needs to be taken in using default or ready reckoner values. The following best practice framework for the use of these and other values is therefore suggested:

- Best - bespoke investigation using various data capture methods, such as surveys or the results of bespoke economic or other modelling.
- Good - values chosen through a review of previous evaluations recognising differences in:
  - (i) the policy and location (e.g. geographic, demographic or economic differences);
  - (ii) the assumptions made in the original evaluation; and
  - (iii) significant changes in situation (due to time of investigation).
- Adequate - default values chosen from available guides, where the choice has been carefully considered and the reasoning explained.
- Not adequate - default values without consideration of any of the above. Values used without reference to origin or fitness for purpose.

When applying estimates of the potential scale of each additionality factor, the sensitivity of the appraisal results to variations in these estimates should be considered. In the case of larger, complex projects it might be appropriate to use a range. For example, research undertaken on behalf of the Department for Business, Innovation and Skills (BIS 2009a) identifies average benchmarks for each additionality factor and confidence intervals around the base case.

2.2 Assessing the additionality of outputs and outcomes

Additionality is relevant to all outputs and outcomes. The aim of public sector interventions is to achieve desired outcomes. However, many outcomes (such as changing behaviours and attitudes) are difficult to measure and will often only occur sometime after an intervention has been implemented.

Thus, whilst interventions are concerned with delivering outcomes, the focus of attention in project appraisals is often on assessing the net additionality of outputs.

It is important to identify intervention outputs that are expected to contribute to an improvement in the desired outcomes and for these outputs, where relevant, to consider leakage, displacement, substitution, multipliers and deadweight. However, it is important to recognise that outputs are necessary but not sufficient to deliver desired outcomes. Table 2.1 shows examples taken from the New Deal for Community (NDC) Guidance that illustrates related outputs and outcomes by intervention type.

Table 2.1: Examples of related outputs and outcomes

	Examples of Outputs	Examples of Outcomes
Housing	Units refurbished, demolished, built	Improved housing conditions, changes in tenure, reduction of turnover, satisfaction with accommodation
Crime	No. of locks and entry phone systems installed, hours spent by a community police officer in schools, CCTV points installed	Reduction in volume of crime, reduced fear of crime relative to other areas
Health	No. of home visits by health outreach workers, new community health centre	Improved mortality rates, lower illness rates relative to other areas
Education	No. taking part in parent-school initiative, no. of contacts with truants, improvement to school facilities	Improved school attainment levels, improved school leaver destinations into employment and HE/FE

It is important that the outputs and outcomes are accurately estimated. A number of sources can be used to estimate the scale and timing of outputs and outcomes, including:

- project specific information, such as a business plan;
- comparable interventions;
- consultation with experts;
- standard ratios, such as, floorspace to employment density by use (see, for example, HCA (2010), Employment Densities Guide – 2nd Edition);
- specific research; and
- previous evaluation results.

Care should be taken to ensure that there is no doubling counting between the output and outcome indicators used. For example, if the number of jobs created has been weighted to allow for the wider benefits arising from the high skill level attached to these jobs, this should not be added to a regional Gross Value Added (GVA) measure that already takes into account the same benefit.

H.M. Treasury has published work on the tendency for project appraisers to be overly optimistic (referred to as optimism bias) and to redress this tendency appraisers should make explicit, empirically based adjustments to the estimates of an intervention's costs, benefits and duration. Further guidance on optimism bias can be found in Section 5 of the Green Book and in DDCLG's (2007) optimism bias guidance note.

2.3 Relevance by intervention type

All of the key concepts described in Figure 2.2 are relevant when it comes to considering the employment or other economic outputs generated by an intervention. However, not all interventions are designed solely to generate employment or economic outputs and outcomes. Interventions vary considerably in the outputs and outcomes they produce depending on whether they are targeted on local economic development issues relating to housing, crime, health, education or a wide range of other service areas. Whilst the net additionality of all intervention outputs and outcomes should be considered, it should be borne in mind that the applicability of the key concepts depends on the intervention type and category, as well as the individual project itself. Table 2.2 below examines for a range of different interventions when it is likely that each of the key additionality concepts (leakage, displacement, substitution, multipliers and deadweight) discussed previously may need to be addressed.

Table 2.2: Assessing additionality of outputs by intervention type

Intervention type	Intervention category	Leakage	Displacement	Substitution	Multiplier effects	Reference Case (Deadweight)
Housing	Social Economic	Always need to assess	May be displacement within housing market	May be relevant	May exist depending on local labour and materials used in construction. Generally not likely to be relevant except as part of long-term development multiplier effects	Always need to assess
Commercial development	Economic	Always need to assess	May be displacement within commercial property market	May be relevant	Relevant to employment, investment and income associated with construction phase and occupation of the premises.	Always need to assess
Transport	Economic Environmental	Always need to assess	May, for example, affect modal split	Not likely to be relevant	May exist depending on local labour and materials used in construction. Also relevant to induced effects.	Always need to assess
Environmental improvement	Environmental	Always need to assess	Not likely to be relevant	Not likely to be relevant	May exist depending on local labour and materials used. Generally, not likely to be relevant	Always need to assess
Business support	Economic	Always need to assess	Displacement may arise in relation to private sector business support (e.g. banks) and product and factor market displacement	May be relevant	Relevant to employment, investment and income	Always need to assess
Community & social	Social	Always need to assess	May be relevant	Not likely to be relevant	May be relevant, depends if local labour and materials used	Always need to assess
Crime prevention & community safety/Health	Social	Always need to assess	Not likely to be relevant, although crime may be shifted elsewhere. This is a different form of displacement, which should be described and, where practicable, quantified in an appraisal	Not likely to be relevant	May be relevant depending on local labour and materials used	Always need to assess
Training	Economic	Always need to assess	May result in displacement of other provision	May be relevant-substitution of labour	May be relevant	Always need to assess

2.4 Target area or group

The level of additional outputs and outcomes of an intervention will depend, in part, on the area or focus of analysis. Thus, for example, the level of economic linkages – and therefore multiplier effects – will be greater if a larger spatial area is being considered. As a result, when appraising an intervention the spatial level and target group within that area against which the intervention is being assessed must be clearly specified. They should relate directly to the identified need (the rationale for intervention) and be wide enough to take into account spill over or unintended effects on other groups, areas or markets.

It is quite common in project appraisals to consider effects at different spatial levels. The four most often used geographical levels are: site, local/wider areas and national. However, in other cases a specific policy priority area may be the appropriate level. Many project appraisals unless tasked otherwise concentrate on the site and local/sub-regional level. The appropriate target area should be assessed by thinking about the project rationale and objectives, the policy context and who is expected to be affected. For interventions like a website or portal, the target area of benefit could be region-wide or national.

The issues associated with each of the four spatial levels are as follows:

Site

The site level is the immediate vicinity of the intervention. Very few interventions should be assessed only at the site level, as it is rare that the costs and benefits will be concentrated in the actual area of physical activity. Even for very small interventions, for example, a scheme to reclaim a fly tipping area for recreational use, the benefits will be much wider than just the improved visual amenity of the site itself. The area of benefit could be within, say, a one-mile radius of the site if this is the distance users will travel to make use of the facility.

Local/sub-regional

The impact at the local level would be assessed to determine the effect on local populations or markets. For interventions that are expected to have sub-regional impacts the intervention may, for example, need to be appraised at the single or multiple local authority / Local Enterprise Partnership level depending on the spread of the costs and benefits.

The local level for interventions that generate employment effects or other economic benefits is often considered to be within the relevant travel to work area or if this is not appropriate then a 10-15 mile radius of the site concerned if it is a physical development. The precise delineation will depend on the density of the settlement pattern in relation to the location of people and business activity. For very rural areas it is usually more. For very urban areas it might well be less.

Wider areas

For interventions which are intended to have wider area (for example, regional) impacts this is the level at which the costs and benefits should be measured. These will typically be very large interventions, which generate outputs that significantly add to the stock of these types of outputs at a regional level. Given these regional impacts it would also be necessary to assess the impact of the intervention at a sub-regional and possibly even local level as the impacts (costs and benefits) may positively or adversely affect local populations or markets.

National

Few interventions are likely to be considered at the national level as the costs and benefits of an individual project are unlikely to be of such quantity that they would change the position of a target group or market on such a large scale or wide geographical area. An intervention would have to deliver tens of thousands of homes or jobs and/or millions of square metres of commercial floor space before its impact at the national level would have to be assessed.

When choosing the target group and spatial area for appraisal it may appear cheaper and easier to use people classifications or geographic areas for which there is existing data. However, if this does not accurately reflect the specific intervention target group or area then the measurement of the intervention's outputs and outcomes both at the appraisal and the evaluation stage will be made more difficult, if not impossible. For example, for an intervention designed to improve housing conditions at the very local level of a large housing estate, it may be tempting to use existing local authority data on housing satisfaction at the district level to act as a baseline. Then subsequent years' data could be used for monitoring purposes because it is cheap and readily available. However, it will not enable a real measure of the outputs and outcomes of the intervention to be assessed because the more local experience, which could be better or worse, may not be discernible at the district level. It is often better to supplement existing data by further analysis or carry out additional surveys to obtain information that directly corresponds to the target group or target area.

Having thought through and clearly identified the target area and group, when measuring additionality it is worth noting that the level of displacement and size of the multiplier effect are likely to vary with the size of the area under assessment. The larger the area over which the benefits of the programme are being analysed, generally the higher will be:

- the level of displacement: because there is likely to be a greater number of enterprises/organisations providing the product or service that the intervention is seeking to provide and with which it will be competing. A high level of displacement will reduce the number of additional outputs/outcomes.
- the size of the multiplier effects: these are likely to be greater as there are more opportunities for economic linkages in terms of suppliers and local expenditure than there are in a smaller geographical area. Larger multiplier effects will increase the number of additional outputs/outcomes.

The level of leakage from a target area will often be lower as the target area grows, since there are likely to be a greater number of target beneficiaries able to access the target outputs. It is also worth noting that interventions located on the boundary of an area designed to tackle spatial areas or groups are likely to suffer from higher levels of leakage than the same interventions more centrally located. This is because intervention benefits are likely to be more easily accessed by those in adjacent locations. As noted above, careful consideration needs to be given to what is the appropriate target area and group. A low level of leakage is desirable as, all things being equal, it will increase additionality and give better value for money. Moreover, it is important that each additionality factor should be calculated using the same target area or group.

2.5 Time period for the appraisal

The time period over which you are appraising the intervention should be set out and the reason for selecting it made clear. Normally the period chosen should be sufficiently distant to include all important costs and benefits. For physical assets it will usually extend to cover its useful lifetime. The residual value of any asset at the end of the appraisal period would need to be included in the appraisal.

Often the achievement of desired outcomes will occur only after many years following the project implementation. Outputs, on the other hand, will normally be produced earlier on.

For example, reclamation of a brownfield site for housing development could generate five hectares of reclaimed land in years one and two of the intervention and 100 housing units and 10,000 sq m of commercial floor space in years three and four with no further outputs from year five onwards. However, the outcome of a thriving community may not occur until, say, year ten or later.

In assessing the effect of an intervention one of the issues that will need to be considered is whether activity is likely to happen sooner than would otherwise be the case. For example, the intervention of the public sector may enable a project to be implemented at an earlier date. As a result, the intervention option may not only generate additional outputs compared to the reference case, but also bring forward the achievement of the target outputs. In some cases, interventions may principally be concerned with accelerating the delivery of outputs and outcomes.

To take account of time additionality, **discount factors** can be applied. Discounting involves reducing future costs and benefits to reflect the fact that society places greater value on costs and benefits that arise sooner rather than later. This provides a present value (i.e. the value that is placed on them today) of costs and benefits. In practice only interventions with a cost/benefit profile that extends over a number of years (say three or more) are usually subject to discounting.

In addition, the impacts of an intervention or policy will often change over time. Take a housing clearance and redevelopment project. During the early period there may be negative effects, due to demolition and the relocation of residents, although there could be employment opportunities in the construction industry. The main outputs and outcomes associated with new homes and communities will only occur later on.

2.6 Persistence of outputs and outcomes

As part of considering the time period for appraisal, it will also be important to form a view as to the persistence of the outputs and outcomes of an intervention. That is establishing the extent to which benefits persist over time is a crucial part of any assessment of overall impact. In particular, if the present value of the benefits is to be calculated, this will necessitate assumptions being made about the time profile of the impacts expected to be generated. Moreover, where the persistence of benefits would differ between varying potential options, it will be important to take account of this within the project appraisal.

The persistence of outputs and outcomes will depend on the capacity of the individual/s or organisation/s involved to sustain the impacts of an intervention. The level of persistence will also vary between different types of project. Estimates of persistence for a range of project types were produced by PriceWaterhouseCoopers (PwC) as part of their evaluation of the impact of Regional Development Agency interventions (see Section 5.3.11). These vary from between 2 to 10 years, although it should be noted that the persistence related to some intervention types could be much longer. For example, the economic life of an asset such as housing would normally be expected to be around 60 years. The DCLG paper on valuing the benefits of regeneration (DCLG, 2010) also identifies persistence effects for different types of project. In addition, consideration should be given to the potential for benefits to diminish over time, as opposed to remaining constant (i.e. whether there is any decay in the persistence effects).

Currently, there is limited evaluation evidence on the issue of persistence, and it will be important that longer term monitoring is built into projects such that this weakness can be addressed. The collection of primary beneficiary data should be explored as the basis for estimating persistence. However, this is not always feasible, particularly at the appraisal stage where it is not always clear who the specific beneficiaries will actually be. Nevertheless, effort should be made to understand the ability of the individual's or organisation's involved to sustain benefits into the future.

2.7 Quality of outputs and outcomes

The traditional emphasis in many assessments of additionality has been on quantitative indicators, such as the number of housing units produced by an intervention. However, in many cases these quantitative measures will not take sufficient account of the qualitative differences between intervention and reference case options. In addition, an intervention may deliver higher quality outputs and this needs to be reflected in the additionality assessment. Therefore, it is important that the qualitative effects are also assessed.

There are three main approaches to assessing additionality in qualitative terms:

(i) **minimum thresholds** – in other words to only count gross direct outputs that exceed a minimum quality standard. Thus, for example, only housing units that meet decent homes standards may be counted as an output. Public sector support may be offered to assist the delivery of enhanced design or environmental standards. Say 100 units would be delivered to this standard under the intervention option and none under the reference case. On this basis, the gross direct housing units would be 100 under the intervention option and zero under the reference case.

(ii) **weighting the outputs/outcomes through a scoring assessment** – where differences in the quality of outputs arise it may be appropriate to weight the outputs according to a scale, which reflects the quality aspects. Quality adjusted net additional outputs can then be more easily compared across options. As the quality of the jobs will often be affected by a consideration of what type of outcomes are needed in an area it is not possible to propose a standard scale. For example, the public sector sometimes has the opportunity to bring on board the private sector at different stages of an intervention's development and thus generate greater or lesser amounts of private sector investment. This is often a desired intervention outcome. However, earlier and greater investment by the private sector might, for example, lead to the same number but lower quality outputs and outcomes. In these cases, an explicit adjustment would be needed to weight the higher quality outputs associated with a public sector only option to ensure that like was being compared with like. The weighted outputs under the various delivery options would then be used to calculate the cost per unit of adjusted output/outcome and be taken into account in the value for money assessment.

(iii) **valuing the outputs/outcomes** – in some cases, outputs are traded and have a market value. These values can be used in calculating the additional impact of an intervention. One obvious example is where consideration is being given to an intervention, which produces a rather low number of net additional jobs, but these jobs are qualitatively different from those that would arise in the reference case. Often the wage will approximate many of the quality characteristics of the jobs. Therefore, the level of net additional earnings (or Gross Value Added) can be calculated for each option and compared. However, this would not be appropriate if the rationale for an intervention was to create accessible employment for low skilled, disadvantaged individuals. In other cases (for example, many social or environmental outputs), valuing a non-marketed commodity is difficult. There are a number of potential techniques available to do this, such as contingent valuation and hedonic pricing, but these are often methodologically complex and can be expensive to apply. When valuing benefits (both those with a market value and those that are a non-marketed commodity) it is recommended that a value is attributed to the output once it has been adjusted to take account of each additionality factor. In other words, the valuation should be applied to the net additional benefits. Further guidance on valuing benefits is provided within the HCA's summary cost-benefit analysis guide (HCA, 2011) and DDCLG's paper on valuing the benefits of regeneration (DDCLG, 2010).

A number of examples of how to assess quality additionality are set out in Section 5.3.11.

2.8 Agglomeration effects

The term agglomeration refers to the concentration of economic activity over an area. Empirical evidence demonstrates that the level of agglomeration affects the productivity of firms and workers in an area, even after controlling for characteristics specific to firms and workers in that area. As identified within the BIS/Cambridge Economic Associates (CEA) research into improving the assessment of additionality, the three main sources of agglomeration benefits are: input externalities arising from the co-location of companies and their input suppliers; labour market externalities resulting from the geographic concentration of workers with relevant, specialised skills; and knowledge externalities that occur from companies in close proximity being better able to share and exchange relevant knowledge (BIS 2009a).

The potential to augment the assessment of additionality to account for agglomeration effects has been considered as part of BIS/CEA research. This explores the appropriateness of including a multiplier that captures agglomeration benefits. However, the scale of agglomeration benefits can be difficult to determine. They will vary significantly, for example, depending on the location of an intervention and the industrial composition of the companies involved. There is also limited good quality data upon which to base estimates of agglomeration effects, although new research findings are emerging. Furthermore, with any given intervention, there is likely to be some uncertainty in terms of the extent to which agglomeration effects extend beyond a localised geography and, for instance, the degree to which benefits may be offset by factors such as increased congestion.

Based on the uncertainty surrounding agglomeration effects and the desire to avoid over-estimation of benefits, the BIS/CEA research recommends that 'it would seem sensible to proceed with caution and avoid any mechanical application of yet further multipliers to the calculation of net additionality at the local level.' However, for large scale projects that involve sufficient investment to alter the industrial composition of an area, an allowance for agglomeration effects may be appropriate. Infrastructure investment, particularly in relation to transport, is also a form of intervention that has the potential to result in significant agglomeration benefits. For example, transport can act to increase the accessibility of an area to a greater number of firms and workers, thereby impacting on the level of agglomeration externalities. Guidance on assessing the agglomeration impact associated with transport interventions is provided as part of the Department for Transport's (DfT's) WebTAG (see DfT, 2009).

2.9 Delivery structures

Many interventions now involve the use of loans and land instruments, rather than grants. This means that the direct involvement in projects may be over a longer time period and that the public sector is expecting to receive a financial return or receipt. This will clearly affect the analysis of public sector costs and thus the appraisal of value for money. However, it would not in most cases affect the way in which the additionality of the outputs and outcomes is assessed. In some cases it may, for example, have an impact on the persistence of benefits if the delivery structure ensures that an activity continues for longer than it would have done if the nature of the intervention was different.

2.10 Maximising additionality

Interventions should be designed (or re-designed) so that their additional impact is maximised. It is unlikely that 100% additionality could be achieved, as not all factors will be within the control of the project developer.

The additionality of an intervention should be considered from the earliest stages of an intervention's development so that where possible leakage, displacement and substitution

are minimised and potential multiplier effects are maximised (see Box 2.2 below). Wherever possible, interventions should be designed to maximise additionally (or "design-out" non-additionality).

Box 2.2: Maximising additionality

Example 1: A project to provide new housing for key workers could minimise leakage if only those on an approved list are allowed to occupy the homes.

Example 2: A housing project will reduce the scale of displacement if the type of accommodation provided is designed to meet demand that is not being met by the private or public sector.

Example 3: A project aimed at providing specialist business advice to new start-ups in a specific area could reduce the amount of leakage by setting out eligibility criteria based on the project objectives. These might, for example, include target area and size of turnover and/or number of employees per company.

Example 4: A project aimed at increasing the computer skills of local people could minimise displacement by checking that there are no other providers of similar training courses either within or outside the target area that the target beneficiaries would be able to access.

Example 5: A project to assist a large company to locate in a particular area aimed at increasing employment opportunities for local people could maximise the multiplier effects by putting in place local procurement and local supply chain development initiatives.

Example 6: A project aimed at providing community facilities in a particular spatial area could restrict bookings to activities that benefit the target population and thus reduce leakage of benefits.

3 The reference case (assessing deadweight)

3.1 Overview

The reference case is the position in terms of target outputs and outcomes that would occur at the end of the intervention life if the intervention was not implemented. The quantification of outputs and outcomes under the reference case is referred to as deadweight.

The reference case is a dynamic concept and involves judgement about, amongst other things, the economic, social and environmental trends or events that are planned or are thought likely to happen over the intervention period (but assuming the intervention did not go ahead). The forecast reference case can be better or worse than the existing position (known as the baseline position) depending on the view taken of what economic, environmental or social changes will take place over the intervention period.

It is not an easy task to estimate what would happen in the future if the intervention did not go ahead and the longer the appraisal period the more difficult it is to predict with any degree of accuracy what might happen to the target outputs/outcomes compared to the baseline position.

This section sets out the issues that should be considered when assessing the baseline position and modelling the future reference case scenario. It discusses the evidence from evaluations and sets out the key question that needs to be answered in relation to deadweight.

3.2 Measuring the baseline position

An early and key step in carrying out an appraisal is to measure the baseline position and trends. The baseline is the state of the economic, social or environmental context at the beginning of the intervention period. This is usually described quantitatively but, depending on the nature of the intervention, can often also involve qualitative descriptions of important features. An assessment of the policy context will also normally form part of a baseline assessment.

Interventions designed to address economic and social problems, such as new housing for key workers, will need to review a wide range of quantitative and qualitative baseline and trend indicators, including market and housing need information. Interventions with economic objectives will generally focus on describing the 'economic state' of the target group or area in terms of the level of employment, unemployment, skills, job vacancies and industrial classification of employers in the travel to work area. Interventions designed to promote community capacity building would draw on socio-economic statistics but are also likely to describe the existing infrastructure and agency relationships and other capacity indicators such as attendance at community events.

3.3 Assessing the reference case

The starting position for making an assessment about the likely reference case is to identify all of the factors that will influence the target outputs and outcomes. For different types of outputs/outcomes different factors will be relevant.

Amongst the factors that may need to be considered are the following:

- likely changes in social, economic and environmental variables;
- the nature of the activity being considered;
- evidence from past changes in the local and comparator areas;

- the extent of market failure in the area concerned;
- impacts of health and safety, legal or other statutory requirements; and
- impacts of other relevant existing and/or planned investments/policies by the private or public sector.

Considering the impact of these contextual factors on the target outputs and outcomes will enable a reference case to be developed.

For a development project, particular attention should be paid to the assessment of the reference case when a site has a particular land-use planning allocation. Where the intervention involves the use of land, the planning context is likely to be an important consideration in determining the reference case. Where, for example, the planning authorities have made it consistently and unambiguously clear that housing development will not be permitted then it is not realistic to suggest that a piece of land proposed in the intervention option to be used for commercial development will have as its reference case a residential use option. However, a planning allocation in itself does not warrant the allocation becoming the reference case. A market assessment or other evidence which shows that the site is likely to be developed for such a use is needed. Each case has to be judged on its own merits.

The best approach to estimating the scale of target outputs and outcomes under the reference case will normally be to construct a detailed 'do nothing' or 'do minimum' (for example, health and safety requirement or statutory obligations)option. This will present what you think would have happened anyway without the intervention, based upon a reasoned case with supporting evidence. Where it is not possible for reasons of proportionality/resources or data limitations to construct a detailed reference case then it is possible to use an estimate of the proportion of activity that would have occurred anyway. Scottish Enterprise's 'Additionality and Economic Impact Assessment Guidance Note' sets out a guideline range of values for deadweight, as a percentage of the gross direct effects of the intervention option, as follows: none - 0%; low - 25%; medium - 50%; high - 75%; and total - 100%. These ready reckoners should only be used where better quality data is unavailable.

It is sometimes seen as convenient and perhaps conceptually easier to assume that nothing would happen if an intervention did not go ahead. However, it is highly unlikely that the current situation (the baseline position) will remain unchanged over the chosen appraisal period. The variables that affect local sustainable development are numerous and constantly changing. Robust justification would be needed to assume that the baseline and the reference case were the same.

When assessing the additional impacts of an intervention, care has to be taken that like is compared with like. Thus, the gross direct outputs and outcomes generated under the reference case must be adjusted for displacement, leakage and multiplier effects, where relevant, to arrive at a total net local reference case. The total net local impacts of the reference case are then deducted from the total net local effects of the intervention options to provide an estimate of their net additional impacts. Linked to this is the treatment of the costs associated with the reference option. In some cases this may be zero where there is no public sector intervention. Where the reference case is a do minimum and there is a cost involved this cost should be subtracted from the intervention cost option to arrive at a marginal cost. For example, if the intervention option costs £10 million and the reference case £2 million, the marginal cost is £8 million. The net additional outputs should be considered in relation to the gross and net marginal public sector cost in the value for money assessment.

Table 3.1 opposite sets out a worked example of estimating the reference case – explaining the assumptions used to appraise an intervention aimed at providing key worker housing over five years. Under the reference case, additional housing is expected to be 50 units based upon historical data and the expectation that the trend is likely to

continue or improve slightly due to housing pressures. Consideration of the remaining additionality factors, based on an assessment of the social, economic and physical context, reduces this gross direct output from 50 housing units to 20 housing units likely to be provided and occupied by key workers.

Table 3.1: Establishing the reference case for key worker housing

		Basis for assumption
Gross direct housing units	50	Local authority data shows that 10 housing units on average have come forward per annum in the target area over the last 5 years
Less estimated leakage	- 30	The latest Census of Population results show that approximately 40% of those in employment in the area are employed in key services. Previous evidence has been that the proportion of key workers accessing new housing has been broadly similar to this. The project does not place any restrictions on the characteristics of occupiers.
Gross local direct effects	20	
Less displacement	0	There is little opportunity for new developments that are accessible to key workers. Displacement is thus expected to be minimal.
Net local direct effects	20	
Plus multiplier effects	0	Whilst there may be economic benefits in terms of additional income and jobs arising from the use of local labour and materials in the design, construction and fit out of the new housing this is unlikely to lead to further new housing
Total net local effects under the reference case	20	

3.4 Evidence from evaluations and research

Estimates of the level of activity that would have happened anyway are now made as a matter of routine in most evaluations of local economic growth and housing initiatives. There is thus a considerable body of evidence to refer to. The level of deadweight varies considerably across programmes reflecting the nature of the activity and the local economic circumstances.

Research undertaken on behalf of BIS by CEA has identified deadweight estimates for a range of intervention types (see Table 3.2). This research as based upon evaluations of economic development and regeneration interventions, particularly evidence gathered through the independent assessment of the impact of the spending of the now abolished nine English Regional Development Agencies.

Table 3.2: Deadweight factors by type of intervention – BIS/CEA guidance		
	Sub-regional (mean)	**Regional (mean)**
All observations	39.5%	43.0%
Business development & competitiveness	47.2%	45.5%
Regeneration through physical infrastructure	7.5%	33.9%
People and skills	26.3%	39.4%

Note: a more detailed breakdown by project type is contained within the BIS/CEA guidance

The Final Evaluation of City Challenge (2000) identified a range of estimates of deadweight for different intervention types, including an allowance for the effect on the timing and scale of activity. The estimates of the level of deadweight were based upon two key sources - a beneficiary survey and programme and project manager consultations. Table 3.3 shows the deadweight estimates by intervention type. The assessment highlights that significant differences - for example, in relation to housing - can occur in the estimates by source.

Table 3.3: Estimated deadweight – City Challenge			
Intervention type	**Programme and Project Manager survey-based estimate (average)**	**Beneficiary survey-based estimate (average)**	**Overall average**
Development schemes	40%	16%	28%
Housing	41%	10%	26%
Transport	37%	12%	24%
Environment and amenity space	39%	21%	30%
Business support	15%	36%	26%
Training and access to labour market	16%	15%	15%
Community and social	23%	15%	19%
Crime prevention	21%	16%	19%
Health	30%	23%	27%
Average across intervention types	**31%**	**17%**	**24%**

Source: the, then, Department of the Environment, Transport and the Regions (DETR) (2000)

Evidence from a review of Neighbourhood Renewal Fund projects, shows relatively low levels of estimated deadweight (see Table 3.4). This is, in particular, due to the nature of the programme.

Table 3.4: Estimate of deadweight – Neighbourhood Renewal Fund	
	Evaluator's view
Crime	18%
Education	19%
Health	18%
Housing and environment	24%
Worklessness	20%
Other (including community)	23%
Average	20%

Note: Unweighted averages
Source: AMION Consulting (2007)

3.4.1 Key question

The key question that needs to be answered in terms of deadweight is:

> ***What level of outputs and outcomes would happen anyway without the intervention?***

The possible sources of information to answer this question include:

- evidence from past changes in local and comparator areas;
- assessments of forecast market, economic and demographic trends;
- local policies and strategies; and
- evidence from previous evaluations and research.

4 Adjusting the reference case and intervention options

4.1 How to assess the additionality of each option – the factors explained

The Guide now goes on to consider leakage, displacement, substitution and multiplier effects in turn. For each type of effect we set out:

(i) a simple definition

(ii) a description of the factors influencing its scale. As we have already seen the size of the target area or area of benefit will significantly affect the various factors

(iii) a review of the various approaches available to estimating the scale of each factor

(iv) a brief review of the evidence available from evaluations and other research

(v) a ready reckoner – which simplifies the process of assessing the net additional impacts by providing a series of estimates of the scale of each effect. However, project specific information should always be used in preference to the ready reckoner, where it is available. In addition, evidence should be presented in an appraisal to justify the ready reckoner impact selected for each effect. The ready reckoner should never be used without reference to the project context. Where there is uncertainty, it may be helpful to use ranges.

(vi) the key questions to ask as part of a project appraisal in order to assess each factor

Each of the additionality factors will need to be applied to both the reference case and intervention option, so that the net additional impact can be calculated (see Section 5).

4.2 Leakage

4.2.1 Definition

> ***Leakage***
>
> The proportion of outputs that benefit those outside of the intervention's target area or group.

The target beneficiaries for many local economic growth and housing interventions are individuals, organisations or businesses who form a formal or informal group, based on a shared characteristic or characteristics. For individuals these characteristics may, for example, include key worker status, graduates, ethnic minority, gender and/or employment status. Frequently interventions are also designed to benefit groups and/or individuals living in a particular location/community or those in specific industries or with or without particular skills. The latter may or may not share other personal characteristics. Not all projects will have solely economic efficiency-type aims. Many will be focused on achieving redistributive objectives. Adjusting for leakage will help to ensure that the calculation of net additional impact takes account of these redistributive concerns. As such, leakage is used to make some allowance for distributional issues.

Given the range of local economic growth and housing type interventions and the contexts in which they are implemented, assessing the extent of benefit or output/outcome leakage is often not straightforward. A number of complex and inter-related issues need to be addressed, including:

- Users and beneficiaries: there are cases where the output/outcome under consideration may relate to the usage of a facility. In some cases the users and beneficiaries will be the same – for example, the users of a community facility. In others the target beneficiary may be indirectly related to users. The latter may include the number of tourists visiting a new facility, where the beneficiaries are local people gaining jobs as a result of visitor expenditure.
- Multiple target beneficiaries: many interventions will seek to benefit a range of beneficiary groups. For example, a new business incubator may wish to encourage graduates into employment and also to generate employment opportunities for disadvantaged local residents. The leakage rates for these would be different.
- Leakage of physical outputs: many appraisers have found it conceptually difficult to understand how leakage can relate to physical asset, such as commercial floorspace developed. Where users are from outside of the target group there is logic in reducing the floorspace claimed as being additional. However, this has not normally been done.
- Is the area or the individual the target? For example, how far is it the objective of relevant local policies to improve the lot of people who live in the area and how far to reduce the deprivation of the area? Thus, an appraiser would need to determine whether, if a resident secures employment as a result of the intervention and relocates, this is leakage or not.
- Sources/evidence for estimated leakage for geographic areas or target groups: the sources/evidence to inform an assessment of the level of leakage associated with a geographic area or a specific target group are different. In the case of the former leakage will usually relate to the place of residence of the beneficiary – for example, whether the person gaining a job lives within or outside of the target area. For jobs this can be informed by secondary source evidence on travel to work patterns. However, for specific target groups the sources upon which to make evidence-based judgements will often be less readily available. As such, in many cases, they will need to be drawn from project specific information (such as the project business plan), analogous interventions (where data is available), or primary research.
- Leakage implies that no value is attached to benefits that accrue to non-target beneficiaries: where interventions are concerned with distributional issues this can be argued to be logical. However, where the rationale relates to a market failure argument and therefore economic efficiency it is not obvious why these potential benefits should be discounted, although this may relate as much to how the beneficiary group is defined. The positive and negative impacts on other areas or groups should also be considered in an appraisal.
- Leakage in relation to outputs and outcomes: the leakage of benefits from target groups is likely to be relevant to all outcomes, but as the above discussion demonstrates, can be more of an issue in relation to outputs.

Past experience has been that leakage has been reasonably consistently applied in relation to employment outputs/outcomes. However, it has either not been applied or has been applied inconsistently in relation to other output/outcome areas. In view of the importance of targeting particular beneficiaries in relation to local economic growth and housing interventions, this guide recommends that leakage be applied consistently to all outputs/outcomes, including outputs such as the number of houses developed. As such the precise definition of the intended beneficiaries is a key part of the additionality assessment and project appraisal more generally. Where there is no specific target beneficiary then leakage will be zero. Thus, for example, if the objective is to increase

take-up of homes in an area and it does not matter who the occupiers are, then no leakage will occur in this case.

However, as with the other components, the level of analysis and resource devoted to assessing leakage should always be related to the nature of the investment. Thus, a novel, contentious, repercussive, large and/or complex intervention will require more effort, as will one where distributed effects are a particularly important objective.

4.2.2 Examples of potential leakage effects

The potential benefits of an intervention may be lost to an area or group in a number of ways and the following discussion considers the ways in which leakage may occur and may need to be assessed for a variety of intervention types.

(i) Housing

Interventions designed to provide new or refurbished housing units will normally need to consider the possibility of leakage. The key issue is the relationship between the character of the occupier and the target group. Where the housing units have been built with the intention of providing residences for particular groups or people from a particular area and it is possible that these intended beneficiaries will not take up the accommodation then leakage might occur and needs to be assessed.

Another form of leakage that might occur would be if existing local residents - who were the target beneficiaries - decided to “cash in” and move out of the area.

(ii) Commercial development

This usually involves the reclamation or refurbishment of existing land or buildings or the bringing forward of new developments to provide increased capacity for commercial activity.

In terms of the beneficiaries of the building, this may be either the immediate users of the building, that is, the companies occupying space or those employed by the tenant companies. Where the rationale for the intervention is to create job opportunities for people in a particular area or target group and not all the space or jobs are likely to be taken up by those targeted, then leakage will need to be assessed. Similarly, if the development was brought forward with the intention of providing space for particular industry sectors or businesses at a particular stage in their development and the eligibility criteria is such that the possibility exists that these businesses or sectors do not use all the space then ‘leakage’ may occur and needs to be assessed. However, different leakage rates would apply if the target beneficiaries were both local residents gaining jobs and businesses within a specific sector.

Where a development takes place with no objective of attracting a specific group or sector and indeed is keen to attract newcomers to an area then leakage will be zero.

(iii) Transport

Transport interventions designed to benefit particular areas or groups of individuals can also have leakage associated with the outputs and outcomes they generate. The important point is to be clear about the reasons why the intervention is to be undertaken and what is the target outcome. A new road built to improve access to an industrial area will not have leakage of outputs if the intention was purely to increase the uptake of development space on the site. However, if the primary objective was to increase uptake of jobs on the site by residents in a particular area then there is a likelihood that some leakage of benefits will occur and these will increase depending on how accessible the new road makes the site to non-target beneficiaries and whether their usage is at the expense of the target beneficiaries.

(iv) Business support

An intervention aimed at providing intensive business support to early stage, high-tech, start-ups in the bio-science sector located within a particular area, is, assuming the eligibility criteria for determining who can receive support are strictly applied, likely to have a very small amount of leakage associated with its outputs and outcomes. However, an intervention providing general business advice to an unspecified audience with the aim of generating jobs in a particular area is likely to have a greater degree of leakage associated with its activities as businesses may receive advice and generate jobs that do not go to target area residents or target groups.

(v) Community and social

Interventions aimed at improving the quality of life of a target group or those living in a particular area, such as provision of a community centre, playground or leisure facility may find it difficult to 'design out' all elements of leakage as it may be impracticable to develop or implement user policies that mean that non-target beneficiaries are excluded from using the facility provided. The level of leakage will depend on the degree to which access can be controlled. Other community interventions such as crèches or health centres have the potential to limit users more directly by allowing only those within a catchment/target area to register. Nonetheless, there is still the possibility of a degree of leakage as non-target beneficiaries may be able to benefit from literature/workshops/emergency provision offered by the Health Centre or other activities offered by the Crèche such as a summer play scheme. Where the Health Centre or Crèche serves an area wider than the target area, there is likely to be a high level of leakage. Again an important consideration will be the extent to which the usage by non-target beneficiaries is actually at the expense of use by target beneficiaries.

(vii) Training/Education

Training interventions can be developed with the objectives of improving skills and enabling trainees to gain a qualification. This can be aimed at the population as a whole, or, as is often the case the training will be targeted at a particular sub-set of the population - such as mothers returning to work, the unemployed, ethnic minorities, graduates, those working in a specific industry and those in a specified occupation. Training is also frequently targeted at those living in a priority area. Even for those interventions with a small target group it should be possible, in theory, to design out leakage with good project design and delivery using appropriate eligibility criteria, rigorously applied. In practice, of course, this is likely to prove difficult. Thus, the likelihood of non-target beneficiaries taking up training places should always be considered and the scale of potential leakage assessed.

4.2.3 Factors influencing the leakage effects

The level of leakage will be influenced by factors such as:

- how accessible the intervention outputs are to people from outside of the target area or from outside of the target group. This will depend upon both road and public transport linkages, as well as policies to target usage:
- the nature of the output, such as new jobs, that will be created and the ability of local residents or a particular target group to access or to compete for these. In the case of jobs, for example, this would depend upon the skills of the target population. As an example, if an intervention created local employment in the retail sector, given the low required skills levels and low salaries associated with the sector, it is less likely that there would be significant interest in available positions from outside the local area. Coupled with this is the likelihood of their being a significant pool of suitable potential employees in the locality. Leakage would therefore be expected to be low. In contrast, the creation of higher quality jobs is

likely to lead to higher levels of leakage as they provide more incentive for people from outside the area to commute in order to access the employment opportunities; and

- the state of the economy in the target area - if the intervention is aimed at generating economic benefits and the economy in the target area is very buoyant with limited spare resources (labour, capital, etc) able to take up the opportunities offered by the intervention, then leakage may be high as capital and labour may have to be sourced from outside of the target area.

Interventions should be designed to limit the level of leakage. Thus, for example, development projects which will accommodate new employment opportunities, and where the objective is to increase local employment, will often need to be combined with a package of training support for local residents to ensure that they have the skills required by the businesses that will occupy the new developments.

4.2.4 Approaches to estimating leakage

In order to estimate the likely level of leakage, information can be used from the following sources:

- published secondary sources, such as travel to work information;
- local business surveys undertaken by, for example, local authorities, will sometimes ask about the place of residence of employees. The local JobCentre Plus is also an important source of information upon which to draw;
- labour market studies again produced by, for example, a Local Enterprise Partnership may also include information on skills and travel to work flows;
- evaluations of previous programmes may have included estimates of leakage; and
- surveys/primary research.

4.2.5 Evidence from evaluations and research

It is perhaps somewhat surprising that there is a relatively limited amount of research relating to the size of leakage effects. This undoubtedly reflects the difficult conceptual and measurement problems that exist in seeking to derive good estimates.

Research in the 1980s and 1990s into property driven regeneration initiatives (HMS0 1987, HMSO 1995A and 1995B) revealed that leakage effects depended heavily on the type of jobs created and thus the occupations of the people who got the jobs. Thus, the higher the number of managerial, professional and technical staff, the more likely it is that workers from outside the area targeted for regeneration would secure the jobs generated. Most other occupational groups had around 10% of staff recruited from outside the local area with the exception of skilled manual workers where the equivalent figure is around 20%. The study was also able to ascertain that in general companies in fairly deprived areas were filling about 40% of their vacancies from unemployed people in the local area.

The Final Evaluation of City Challenge (the, then, DETR, 2000) found that 38% of employees in businesses supported by City Challenge Partnerships lived outside of the City Challenge area and 11% outside of the local authority district.

Relatively low levels of leakage were identified through a review of Neighbourhood Renewal Fund projects (see Table 4.1) because the targeting of the interventions was effective.

Table 4.1: Estimate leakage – Neighbourhood Renewal Fund	
	Evaluator's view
Crime	5%
Education	9%
Health	9%
Housing and environment	6%
Worklessness	9%
Other (including community)	13%
Average	8%

Note: Unweighted averages
Source: AMION Consulting (2007)

Estimates of leakage have also been identified in the guidance on assessing additionality produced on behalf of BIS (see Table 4.2). The average (mean) leakage rate at the sub-regional level is 15.8%, compared to 11.3% at the regional level.

Table 4.2: Leakage factors by type of intervention – BIS/CEA guidance		
	Sub-regional (mean)	**Regional (mean)**
All observations	15.8%	11.3%
Business development & competitiveness	16.3%	11.5%
Regeneration through physical infrastructure	14.1%	10.4%
People and skills	13.5%	14.2%

Note 1: a more detailed breakdown by project type is contained within the BIS/CEA guidance
Note 2: Under the people and skills theme, the BIS/CEA average benchmark for leakage is higher at the regional level than the sub-regional level. This reflects that the averages calculated for each spatial level were not based entirely on the same set of projects. In reality, in relation to a given project you would expect the leakage rate to be lower at the regional level compared to the sub-regional level.

4.2.6 Ready reckoners

Leakage effects can be assessed as follows:

Table 4.3: Leakage		
Level	**Description**	**Leakage**
None	All of the benefits go to people living in the target area/the target group	0%
Low	The majority of benefits will go to people living within the target area/the target group	10%
Medium	A reasonably high proportion of the benefits will be retained within the target area/target group	25%
High	Many of the benefits will go to people living outside the area of benefit/outside of the target group	50%
Very high	A substantial proportion of those benefiting will live outside of the area of benefit/ be non-target group members	75%
Total	None of the benefits go to members of the target area/target group	100%

If leakage was anticipated to be very high (i.e. 75%) then only 25% of the intervention output (i.e. 100% – 75%) would be expected to benefit members of the target group or those living in the target area of benefit.

4.2.7 Key Question - Leakage

In order to address the issue of leakage in an appraisal, the following questions need to be answered:

Who are the target beneficiaries?

Are the outputs/outcomes likely to benefit non-target group(s) at the expense of the target group(s)? If yes, by how much?

4.3 Displacement

4.3.1 Definition

Displacement

The proportion of intervention outputs/outcomes accounted for by reduced outputs/outcomes elsewhere in the target area.

4.3.2 Examples of displacement

Displacement arises where the intervention takes market share (called product market displacement) or labour, land or capital (referred to as factor market displacement) from other existing local firms or organisations. For example, an intervention may help a business to expand its operations. However, this business may take market share from other local firms producing the same goods or services, resulting in them losing trade and possibly staff. Alternatively, the supported business may use up scarce local factors of production (such as skilled labour) or bid up factor prices.

In terms of housing, a supported scheme may result in a decrease in demand in adjoining areas or elsewhere in the target area. Another longer term form of displacement could be the gentrification of an area, with low income residents being displaced. Displacement may also occur between tenures – for example, from private rented to social rented. In the latter case, issues such as the quality of accommodation would need to be considered in the appraisal.

Another form of displacement may occur if crime prevention initiatives cause criminal activities to happen elsewhere outside of the target area.

4.3.3 Factors influencing the scale of displacement

The scale of displacement effects will vary depending upon the nature of activity supported and local markets. For example, if the supported business has few local competitors then the level of product market displacement will be low. In terms of factor market displacement, an intervention may result in an increase in demand for construction workers. If these are in short supply, the result may be delays to this or other interventions or an increase in costs.

4.3.4 Approaches to estimating displacement

An assessment of the likely level of displacement can be informed by:

- **market analyses**: relevant local markets (including product, property and labour) will need to be carefully assessed;

- **surveys and studies**: some local business surveys will ask questions such as where are your competitors located and where are your main markets. This information can be used to inform an assessment of displacement; and
- **evaluations**.

4.3.5 Evidence from evaluations and research

There is a considerable body of evidence concerning estimates of the scale of displacement associated with initiatives at the local and regional level. The level of displacement at the regional level (North East) associated with various business support activities is set out in Table 4.4. A high level of variation is evident.

Table 4.4: Displacement – Objective Two Business Support

	Jobs	Turnover
Generic business support	49%	63%
Access to finance	19%	14%
Targeted support (including new markets, technological development and support for sectors and clusters)	42%	23%

Source: Regeneris (May 2006).

There is also evidence that smaller companies tend to be associated with higher displacement than larger companies. The reason for this is that small companies will have more tendency to trade a higher proportion of their output locally than larger companies (see, for example, the evaluation of TEC Delivered Services, HMSO, 1995).

The Final Evaluation of City Challenge assessed displacement for a number of intervention types. Displacement was considered to be low at the City Challenge level, but increased rapidly beyond the local area (see Table 4.5). The high levels of displacement at the county, region and UK level reflect the fact that City Challenge was concerned principally with redistribution, rather than removing major supply side constraints.

At the local level, displacement ranged from 8% for training and education and business support projects to 17% for commercial development schemes.

Table 4.5 : Displacement rates City Challenge

Intervention type	Within City Challenge	Immediately adjoining area	District	County	Region	UK
Development	17%	21%	38%	71%	89%	91%
Housing	10%	19%	38%	84%	100%	100%
Training and Education	8%	17%	31%	77%	78%	80%
Business support	8%	19%	31%	49%	75%	75%

Source: DETR (2000)
Note: Displacement/substitution in the case of Training and Education only applies to jobs created through training as opposed to qualifications gained.

The recent review of Neighbourhood Renewal Fund projects identified similarly low displacement rates to City Challenge at the local level (see Table 4.6). In relation to crime, displacement effects principally related to the adverse impacts of the intervention on levels of crime outside of the target area. The displacement effects in terms of education and health, on the other hand, were mainly concerned with the intervention replacing other public sector provision.

Table 4.6: Displacement rates – Neighbourhood Renewal Fund	
	Evaluator's view
Crime	9%
Education	13%
Health	11%
Housing and environment	15%
Worklessness	13%
Other (including community)	7%
Average	11%

Note: Unweighted averages
Source: AMION Consulting (2007)

The research undertaken on behalf of BIS has set out a range of average (mean) displacement rates at the sub-regional and regional levels (see Table 4.7). An overall displacement rate of 21.5% at the sub-regional level is identified, compared to an average of 29.6% at the regional level.

Table 4.7: Displacement factors by type of intervention – BIS/CEA guidance		
	Sub-regional (mean)	**Regional (mean)**
All observations	21.5%	29.6%
Business development & competitiveness	19.5%	29.3%
Regeneration through physical infrastructure	38.7%	37.4%
People and skills	17.9%	24.7%

Note 1: a more detailed breakdown by project type is contained within the BIS/CEA guidance
Note 2: Under the regeneration through physical infrastructure theme, the BIS/CEA average benchmark for displacement is lower at the regional level than the sub-regional level. This reflects that the averages calculated for each spatial level were not based entirely on the same set of projects. In reality, in relation to a given project you would expect the displacement rate to be higher at the regional level compared to the sub-regional level.

4.3.6 Ready reckoners

In the absence of specific local information the level of displacement can be assessed as follows:

Table 4.8: Displacement		
Level	**Displacement**	**Displacement effect**
None	No other firms/demand affected	0%
Low	There are expected to be some displacement effects, although only to a limited extent	25%
Medium	About half of the activity would be displaced	50%
High	A high level of displacement is expected to arise	75%
Total	All of the activity generated will be displaced	100%

If the level of displacement was estimated to be low (i.e. 25%), then 75% of the outputs would be taken forward (i.e. 100% – 25%).

4.3.7 Displacement and crowding out

There is often confusion between displacement effects and crowding out. The former relates to the impact of an intervention on other, normally similar, activities within the target area. The latter is concerned with macro-economic adjustments that result from an

intervention. Crowding out effects are normally only considered for very large interventions.

4.3.8 Key question - displacement

The following key question needs to be answered:

> ***Will the intervention/option reduce existing activity from within (or outside) the target group or area? If yes, by how much?***

4.4 Substitution

4.4.1 Definition

> This effect arises where a firm substitutes one activity for a similar one (such as recruiting a jobless person while another employee loses a job) to take advantage of public sector assistance. It can be thought of as "within firm" displacement.

4.4.2 Examples of substitution

Substitution is a very specific form of non-additionality that has in the past been largely subsumed within the displacement effect and as a result not considered sufficiently.

If a grant was introduced to encourage local employers to recruit long-term unemployed people, some employers may replace existing employees with new workers in order to secure the grant. Such substitution effects should be deducted in assessing the net output/outcome. However, care needs to be taken when assessing substitution effects if the target group are, for example, the long-term unemployed. In this case some degree of substitution may be considered acceptable.

Substitution has been an issue for wage subsidy programmes and work experience programmes. Employers have an incentive to dismiss unsubsidised workers and replace them with subsidised workers. A particular concern is that the finite duration of assistance could tempt employers to dismiss subsidised workers when subsidies run out and bring in a new cohort of subsidised workers.

Substitution could be an issue where the strategy is to persuade local employers to recruit more workers locally and fewer from outside the area. On the other hand, it might be argued that non-local workers could get other work anyway. However, it would be more of a concern if the attempt to increase local recruitment resulting in the new local workers taking the place of other local recruits.

Substitution could also arise in relation to other factor inputs such as land and property. A firm renting premises could, for example, take advantage of accommodation provided by the public sector at a reduced cost by relocating from its current building. In the case of a residential development, a developer could switch to undertake a public sector funded scheme, rather than an alternative scheme elsewhere in the local area. An individual could purchase a newly-built home, which was, in part, funded by the public sector, rather than acquire an older, existing property.

4.4.3 Factors influencing the scale of substitution

The scale of substitution effects will vary depending upon the nature of the activity supported, the degree to which substitution is an intended effect and the ability of recipients to engage in substitution where it is an unintended effect. Substitution will tend

to be larger, for example, where no controls have been established on recipients regarding the potential substitution activities.

4.4.4 Approaches to estimating substitution

An assessment of the likely level of displacement and substitution can be informed by:

- direct questioning of recipients – on their expected behaviour;
- surveys and studies – of previous initiatives;
- evaluations – for example, the Department for Work and Pensions has commissioned a number of evaluations that have assessed the level of substitution associated with an initiative. A full discussion of concepts and their application can be found in report ESR 14, available via http://webarchive.nationalarchives.gov.uk/+/http://www.dwp.gov.uk/jad/1999/esr14rep.pdf;
- evidence from evaluations and research;

4.4.5 Evidence from evaluations and research

There is a limited amount of research concerning the size of substitution effects. This is mainly due to, as noted, substitution often being subsumed within displacement. However, a range of substitution estimates are identified within the additionality guidance produced by BIS/CEA (see Table 4.9). These estimates are considered to be relatively low, which may be because many of the evaluations underpinning the BIS/CEA research did not fully assess the level of substitution as a separate factor to displacement.

Table 4.9: Substitution factors by type of intervention – BIS/CEA guidance

	Sub-regional (mean)	Regional (mean)
All observations	2.7%	3.5%
Business development & competitiveness	2.7%	3.4%
Regeneration through physical infrastructure	-	2.2%
People and skills	-	4.4%

Note: a more detailed breakdown by project type is contained within the BIS/CEA guidance

4.4.6 Ready reckoners

Where there is no specific information on substitution the following effects could be applied appropriately:

Table 4.10: Substitution		
Level	**Substitution**	**Substitution effect**
None	No substitution takes place	0%
Low	There are expected to be some substitution effects, although relatively limited	25%
Medium	About half of the activity would be substituted	50%
High	A high level of substitution is expected to arise	75%
Total	All of the activity would be affected by substitution	100%

4.4.7 Key question - substitution

The key question in relation to substitution is as follows:

Will the intervention/option result in a firm substituting one activity or input for a similar one to take advantage of public funding? If yes, where and by how much?

4.5 Economic multiplier effects

4.5.1 Definition

Multiplier Effects

Further economic activity (jobs, expenditure or income) associated with additional local income and local supplier purchases.

4.5.2 Types of economic multiplier

The economic impact (jobs, expenditure or income) of an intervention is multiplied because of knock-on effects within the local economy. Two types of multiplier can be identified:

- a **supply linkage multiplier** (sometimes referred to as an indirect multiplier) due to purchases made as a result of the intervention and further purchases associated with linked firms along the supply chain.
- an **income multiplier** (also referred to as a consumption or induced multiplier) associated with local expenditure as a result of those who derive incomes from the direct and supply linkage impacts of the intervention.

A number of impact studies have also identified a longer-term development multiplier associated with the retention of expenditure and population in an area.

Many appraisals use a combined or composite multiplier. Thus, for example, if at the regional level the supply linkage multiplier was 1.1 and the income multiplier 1.2, the composite multiplier would be 1.32 (i.e. 1.1 x 1.2). Applying the multiplier gives an estimate of the total direct and multiplier effects. For example, say an intervention created 100 jobs, then the total direct and multiplier effects would be 132, if the composite multiplier were 1.32. The multiplier effects alone would be 32 (i.e. 100 x 0.32).

4.5.3 Factors influencing the scale of multiplier effects

The scale of the multiplier effects will be influenced in particular by:

- supply linkage multiplier: the extent of supply chain linkages in area of analysis. These linkages vary substantially by sector and area;
- income multiplier: the proportion of additional income spent within area of analysis.

4.5.4 Approaches to estimating multiplier effects

There are a number of ways in which multipliers can be estimated, including:

- Surveys of businesses and employees: businesses can be asked about the local content of the purchases they make and this information can be used to calculate the local supply linkage multiplier effects, assuming that the proportion of expenditure net of non-recoverable indirect taxes incurred on local goods and services is similar throughout the supply chain. If the purchases made at a particular point in the supply chain is x per annum and a proportion S is spent on local inputs the effects down the remainder of the chain is estimated as: x $(1+S+S^2+S^3……S^n)$ or x.1/(1-S). In addition, estimates can be calculated of the income multiplier using data on local consumption patterns in the local economy. If the total net direct and supply multiplier increase in local business turnover is E, a proportion m of this turnover is paid on average in net local incomes, and a proportion q of net local incomes is on average spent on the products of local businesses, then the total impact on turnover, including induced effects, may be estimated as $E(1+mq+m^2q^2+m^3q^3…m^nq^n)$ or E.1/(1-mq).
- Again the assumption is that behaviour is similar at each point in the supply chain.
- Previous research/evaluations: a number of previous studies have assessed the scale of multiplier effects- see, for example, research by Oxford Economics (2012) into the economic impact of the UK film industry.
- Economic models: various commercial and academic organisations have developed models of the national economy and of local economies. For example, one such model is LM3. These can be used to assess the scale of multiplier effects resulting from a particular investment or change in the level of employment.
- Input-output tables: these tables provide estimates of supply linkages between sectors and can be used to estimate the supply linkage or indirect multiplier effects.

4.5.5 Evidence from evaluations and research

The scale of income and supply linkage multiplier effects vary according to the mix of economic activity that exists in an area and the type of intervention that is being undertaken. The Scottish Government provides information on multiplier effects for individual Scottish industries, which demonstrates the extent of the difference between various sectors. For example, the composite employment multiplier effect at the Scottish level for the refined petroleum and nuclear fuel industry is 13.41, compared to a composite multiplier of 1.47 for other service activities. Construction has a compositive multiplier of 2.19, while retail distribution is 1.31 and Research and Development is 1.46. Further data from the Input-Output tables can be accessed via the following link:

http://www.scotland.gov.uk/Topics/Statistics/Browse/Economy/Input-Output.

As an example of evidence from econometric studies, Oxford Economics recently produced a set of output multiplier estimates at the UK level, using data from the ONS Annual Business Survey and their own detailed econometric model of the UK economy (see Table 4.11). In using data from secondary sources such as the Scottish Input-Output tables or from econometric studies, care should be taken to consider the spatial level at which the multipliers relate to. As noted in Section 2, the size of the multiplier effects is likely to be greater the larger the area over which the benefits of an intervention are being assessed.

Table 4.11: Output multipliers (UK, 2011)

Sector	Composite output multiplier
Electricity production and distribution	2.8
Construction	2.7
Iron and steel	2.2
Motor vehicles	2.1
Sports goods and toys	2.3
Machine tools	2.0
Hotels, catering, pubs etc	2.2
Computer services	1.9
Legal activities	1.8
Education	1.8
Economy average	2.2

Source: ONS, Oxford Economics (2012)

Table 4.12 below is based on the extensive evidence generated by a number of studies including the Evaluation of the Enterprise Zone Experiment. It provides composite income and supply linkage multiplier estimates that are appropriate for four types of property related activity, namely B1 Office, B2/B8 (general industrial/warehousing), Recreation and Retailing. The estimates are provided for the local area and regional level. At the local level the range is between 1.21 and 1.38. At the regional level the range is between 1.38 and 1.56. Generally speaking retailing projects generate the lowest combined income and supply linkage effects.

Table 4.12: Composite multiplier effect by type of area: site related problems but active private sector

Intervention type	Local area	Region
B1 Office	1.29	1.44
B2/B8	1.29	1.44
Recreation	1.38	1.56
Retailing	1.21	1.38

Source: Based on Rhodes et al, (1994) and Enterprise Zone research (HMSO, 1995).

For specific sectors and interventions, multiplier values can be higher than those shown in the table. For example, The Toyota Impact Study identified a composite employment multiplier at the level of Derbyshire, Nottinghamshire, Leicestershire, Staffordshire and the West Midlands of 1.6. Research by the then Dti into broadband projects identified multiplier effects ranging between two to four times the direct effect.

Sub-regional and regional multipliers for a range of intervention types are set out within the BIS/CEA additionality guidance (see Table 4.13). At the sub-regional level, an overall

average composite multiplier of 1.25 is identified, while at the regional level the overall average is 1.45.

Table 4.13: Composite multipliers by type of intervention – BIS/CEA guidance		
	Sub-regional (mean)	**Regional (mean)**
All observations	1.25	1.45
Business development & competitiveness	1.25	1.51
Regeneration through physical infrastructure	1.33	1.40
People and skills	1.66	1.36

Note 1: a more detailed breakdown by project type is contained within the BIS/CEA guidance

Note 2: Care should be taken in applying the sub-regional estimate under the people and skills theme, as this is based on fewer than 10 observations. In addition, the BIS/CEA average multiplier benchmark for people and skills is lower at the regional level than the sub-regional level. This reflects that the averages calculated for each spatial level were not based entirely on the same set of projects. In reality, in relation to a given project you would expect the multiplier to be higher at the regional level compared to the sub-regional level.

4.5.6 Ready reckoners

The ready reckoner values below express general ranges at the very local (neighbourhood) level, and the regional level. The following range of multiplier effects can be used:

Table 4.14: Multiplier effects			
Level	**Multiplier**	**Composite multiplier (Neighbourhood level)**	**Composite multiplier (Regional level)**
Low	Limited local supply linkages and induced or income effects	1.05	1.3
Medium	Average linkages. The majority of interventions will be in this category	1.1	1.5
High	Strong local supply linkages and income or induced effects	1.15	1.7

Source: Based upon the, then, DETR (October 2000)

4.5.7 Key question – multipliers

The following key question needs to be answered in relation to multiplier effects:

How many, if any, additional outputs and outcomes will occur through purchases along local supply chains, employee spending rounds and longer term effects as a result of the intervention/option?

5 Calculating additionality

5.1 Introduction

This section sets out how to calculate additionality. It contains a number of illustrative worked examples of how to assess additionality for different intervention types. A worked example from the evidence base is also presented. In addition, the ratio of net additional to gross outputs is also discussed.

The principal focus of the examples in this section is on calculating, in a quantitative sense, the level of additionality associated with an intervention output. Within an appraisal, consideration would also need to be given to:

- timing effects; and
- quality.

Wherever possible, the additionality of outcomes should be a key concern of an appraisal. A qualitative assessment of the likely level of outcome additionality should form part of an appraisal. This would mean answering each of the questions posed in the preceding section. However, the emphasis in most appraisals is on assessing the additionality of those outputs that are expected to lead to the desired outcomes. Applied appropriately the additionality framework has the potential to significantly improve practice. However, failure to do so correctly could produce partial or misleading analyses.

5.2 How to calculate additionality

In order to calculate net additionality, the level of total net local activity under each option – intervention and reference case – needs to be assessed. This involves making adjustments, where appropriate, for leakage, displacement, substitution, and multiplier effects. The total net additional local impact is then calculated by deducting the total gross additional local effects of the reference case from the total net local effects of the intervention options.

The calculation of the total net additional local impact of an intervention can be summarised using the following equation:

$$AI = [GI \times (1-L) \times (1-Dp) \times (1-S) \times M] - [GI^* \times (1-L^*) \times (1-Dp^*) \times (1-S^*) \times M^*]$$

Where:

AI= Net additional impact

GI= Gross impact

L=Leakage

Dp= Displacement

S=Substitution

M=Multiplier

* denotes reference case and hence deadweight

The net additional impact is therefore the adjusted intervention option minus the adjusted reference case.

The multiplicative formulation described in the equation represents the relationship in its simplest form. It implies, for example, that leakage effects occur to the same extent to

the gross effects, as they do to displacement and multiplier effects. For many interventions, this may be a reasonable assumption. However, for others, more specific assessments may need to be made and detailed, individual calculations of each factor prepared.

The calculation should be based upon evidence-based judgements and involves being explicit about assumptions and the expected implications of a set of actions.

For example, if an intervention was initiated to create local jobs, the following issues would need to be assessed:

- **leakage** - can local people physically get to where the job opportunities are expected to be? Do local people have the necessary skills to compete for the jobs? What linked programmes are in place to ensure local people can access the opportunities?
- **displacement** - will the new jobs taken up by local people result in a reduction of other local people in employment? Have the potential adverse effects been minimised by targeting appropriate sectors?
- **substitution** - will local employers just take on a local person and release another to take advantage of public funding?
- **multiplier effects** - will those local people who gain employment spend their income on goods and services that support local jobs? Will firms purchase more local goods and services?

5.3 Illustrative worked examples by intervention type

5.3.1 Housing

The public sector is seeking to promote the creation of new homes, particularly within mixed-use schemes, in an area containing a large number of historic buildings. Public sector support has been requested towards an intervention involving a former waterfront mill site that will deliver a mixture of commercial development and housing in a variety of new and refurbished buildings.

It is expected that the intervention will deliver 50 housing units and 2,000 sq m of commercial floorspace. Without public sector support it is likely that one of the old mill buildings on the site, which is in the best state of repair, would be brought forward by the private sector and would deliver 20 housing units. No speculative housing development has taken place on the site, although in the wider area there is evidence of unsupported private sector development along the rest of the river frontage. This has been reasonably successful to date. It is expected that the intervention will cause some decrease in the number of housing units built in the target area. The intervention is targeted on a number of deprived communities living in sub-standard accommodation with associated disadvantages in the local area. However, the intervention is intended to help to create a more diverse local community by attracting in new residents. Consequently, the leakage of benefits is in this particular case zero.

Table 5.1 sets out an assessment of the net additional housing units in sustained or long-term demand generated by this intervention option at the site level. It is important to note that housing units are one of a basket of outputs of this project for which the net local additional effects would need to be calculated. The other outputs may include new business start-ups, jobs, business support and environmental outputs

Table 5.1: Housing development – at site level (units in sustained demand)				
		Intervention Option	**Reference Case**	**Additionality**
A	Gross direct housing units	50	20	
B=A*0	Estimated leakage - none	0	0	
C=A-B	Gross local direct effects	50	20	
D=C*0	Displacement – none	0	0	
E=C-D	Net local direct effects	50	20	
F=Not applicable	Multiplier	N/A	N/A	
G=E+F	Total net local effects	50	20	
H=G(Intervention option) - G(Reference case)	Total net additional local effects			**30**

Note: There may be multiplier effects of the expenditure associated with the housing construction, the 'not applicable' refers to the likelihood that this spend will result in more housing units being built.

Table 5.2 considers the same output at the target area level.

Table 5.2: Housing development – at target area level (units in sustained demand)				
		Intervention Option	**Reference Case**	**Additionality**
A	Gross direct housing units	50	20	
B=A*0	Estimated leakage - none	0	0	
C=A-B	Gross local direct effects	50	20	
D=C*30%	Displacement – 30%	15	6	
E=C-D	Net local direct effects	35	14	
F=Not applicable	Multiplier	N/A	N/A	
G=E+F	Total net local effects	35	14	
H=G (Intervention option) - G (Reference case)	Total net additional local effects			**21**

As an alternative example, an intervention aimed at improving housing conditions could fund the refurbishment of existing vacant units in order that they are expected to be in long-term or sustained demand. Leakage would apply if non-target community residents occupied the refurbished housing units. On the basis of past local evidence, leakage is estimated to be 20%. If the refurbishment of the 100 units means that a local provider who would have built 50 new houses now will build only 10 new houses then displacement is some 40 housing units. In addition, it is expected that 10% of the 100 units refurbished would have taken place anyway. This would not be sufficiently large to result in displacement). On the basis of these assumptions, the total net additional local housing units would be 32 (see Table 5.3).

Table 5.3: Housing development – at target area level (unites in sustained demand)				
		Intervention Option	**Reference Case**	**Additionality**
A	Gross direct housing units	100	10	
B=A*20%	Estimated leakage – 20%	20	2	
C=A-B	Gross local direct effects	80	8	
D^1=C*50%	Displacement (Intervention option) – 50%	40		
D^2=C*0%	Displacement (Reference case) - zero		0	
E=C-D	Net local direct effects	40	8	
F=not applicable	Multiplier	N/A	NA	
G = E+F	Total net local effects	40	8	
H=G (Intervention option)-G (reference case)	Total net additional local effects			**32**

Some wider benefits might result as other residents in the area carry out improvements to their properties as a result of the intervention.

Further details of how to assess the additionality of housing interventions are included at Appendix E.

5.3.2 Business support

A business support project is proposed in order to help create jobs for local people in an area with high unemployment. It is expected to create 500 full-time equivalent jobs and the intervention's impact is being assessed at the neighbourhood level.

Research by the local council suggests that, given the recruitment and training support available, local people will take-up most of the jobs and thus the level of leakage will be low. Without the support (the reference case) it is estimated that some 80 full-time equivalent local jobs would be created in the businesses supported at the end of the appraisal period.

There are a number of other competing firms in the area and the level of displacement is therefore expected to be medium. The businesses concerned are known to have strong local supply linkages and thus the multiplier effects are anticipated to be high. Leakage, displacement and multiplier impacts similar to those under the intervention option would be expected to apply to the reference case position.

Using the ready-reckoners set out in Section 4 the estimated level of total local net additional jobs can be calculated as shown in Table 5.4.

Table 5.4: Business support - employment

		Intervention Option	Reference Case	Additionality
A	Gross direct jobs	500	80	
B=A*10%	Estimated leakage –10%	50	8	
C=A-B	Gross local direct effects	450	72	
D=C*50%	Displacement – 50%	225	36	
E=C-D	Net local direct effects	225	36	
F=E*(1.15-1)	Multiplier – 1.15	34	5	
G=E+F	Total net local effects	259	41	
H=G (Intervention option) - G (Reference case)	Total net additional local effects			**218**

Therefore the business support project is anticipated to create some 218 total net additional local jobs.

In undertaking an appraisal of a business support project, consideration would also often need to be given to the net additional outcomes generated, such as increased economic activity (Gross Value Added).

5.3.3 Commercial development

As part of a programme to tackle under-use and dereliction within a run-down City Centre, public sector support totalling £800,000 is being considered towards the demolition of a derelict building and construction of 8,000 sq m of workspace. The objective of the scheme is to bring new economic activity and jobs for local people into the City Centre and adjoining wards. The area has a large number of under-used and empty, derelict buildings. Over the last 10 years little commercial development has taken place either of a pre-let or speculative nature. The workspace will comprise offices (3,000 sq m) and industrial floorspace (5,000 sq m).

The Local authority has advised that there is evidence of unmet demand from businesses in the area. They have also indicated that the businesses occupying the new space are likely to be in the lower end of the skilled manufacturing and service sectors, although some hi-tech businesses might locate there. Displacement is expected to be low, albeit

slightly higher in terms of floorspace than jobs. Without the intervention it is estimated that 1,500 sq m of floorspace would be refurbished and brought back into industrial use anyway.

Due to the historically low economic activity and the multiple social problems, the area has become the target for a number of policy initiatives, with a total investment of £10 million. The building and site are readily accessible by public transport and within walking distance of a number of residential areas in the local travel to work area, some of which are within the top 20% most deprived in the country. It is also accessible by car and public transport to other residential areas outside of the local area.

Table 5.5 sets out the estimate of the net additional floorspace created.

Table 5.5: Commercial development – floorspace (sq m)

		Intervention Option	Reference Case	Additionality
A	Gross direct floorspace (sq m)	8,000	1,500	
B=A*25%	Estimated leakage -25%	2,000	375	
C=A-B	Gross local direct effects	6,000	1,125	
D=C*20%	Displacement – 20%	1,200	225	
E=C-D	Net local direct effects	4,800	900	
F=not applicable	Multiplier	N/A	N/A	
G=E+F	Total Net local effects	4,800	900	
H=G (Intervention option) - G (Reference case)	Total net additional local effects			**3,900 sq m**

The calculation of the number of net additional jobs created is summarised in Table 5.6.

Table 5.6: Commercial development – employment

		Intervention Option	Reference Case	Additionality
A	Gross direct jobs	311	33	
B=A*25%	Estimated leakage – 25%	78	8	
C=A-B	Gross local direct effects	233	25	
D=C*15%	Displacement – 15%	35	4	
E=C-D	Net local direct effects	198	21	
F=E*(1.1 -1)	Multiplier – 1.1	20	2	
G=E+F	Total net local effects	218	23	
H=G (Intervention option) - G (Reference case)	Total net additional local effects			**195**

Note: The number of jobs able to be accommodated calculated using standard employment density ratios and allowing for an 80% occupancy rate (source: HCA (2010)).

The outcomes associated with commercial development will include net additional local employment and GVA generated by the intervention.

Alternatively, if the intervention option will result in the same number of employment opportunities as the reference case, but of a higher standard, then it may be appropriate to measure additionality in terms of total GVA from employment in the local area. However, this will depend upon the objectives of the intervention. For example, this approach may well not be appropriate for an intervention that is seeking to create accessible jobs, which may be low paid and thus low GVA.

The public sector is considering an investment in the development of 1,000 sq m of office space. Without public sector intervention, a private sector developer would construct a warehousing building of the same size on the site. In this example, we have assumed that if the building is occupied for warehousing use, then using the HCA's employment densities, it will accommodate 14 jobs, many of them within lower order occupations. As office accommodation, it will accommodate 83 jobs with a high proportion of business and public service professionals. Leakage has been set at 0% as, under this example, the GVA impact is the principal outcome being measured and GVA is a work-place based measure (therefore, the residence of employees is not of relevance). The GVA generated

is calculated using regional average GVA per employee figures. In this example, the total net additional local GVA is £3.4m per annum.

Table 5.7: Commercial development – GVA

		Intervention Option	Reference Case	Additionality
A	Gross direct jobs	83	14	
B=A*0%	Estimated leakage (intervention option) – N/A	-		
B=0%	Estimated leakage, reference case) – N/A		-	
C=A-B	Work-place based direct effects	83	14	
D=C*15%	Displacement – 15%	12	2	
E=C-D	Net work-place based direct effects	71	12	
F=E*(1.1-1)	Multiplier – 1.1	7	1	
G=E+F	Total net work-place based effects	78	13	
H (Intervention option)	Average annual GVA per employee for office use (£)	50,000		
H (Reference case)	Average annual GVA per employee for warehousing use (£)		29,000	
I	Average annual GVA per employee in the region (£)	39,000	39,000	
J=(ExH)+(FxI)	Total net local effects	3,823,000	387,000	
K=I (Intervention option) -I (Reference case)	Total net additional local effects			**£3,436,000**

Note: The number of jobs able to be accommodated calculated using standard employment density ratios (source: HCA (2010)).

In examples such as this, it will be for the appraiser to determine which occupational groups to use to calculate GVA arising through the development, or whether a combination of occupational groups should be used.

An alternative approach would be to use figures for turnover per head or income per head by sector, which can be derived through such sources as the Annual Business Survey or the Annual Survey of Hours and Earnings respectively.

5.3.4 Transport

Public sector funding is being considered towards the construction of a new road, which will link a new social housing development and an existing residential area with an established industrial area and the main public transport interchange, which is about to be extended. The objective is to enable current isolated communities and disadvantaged individuals to access employment and other opportunities. The road will also enable pedestrians and cyclists to access the industrial areas more quickly and more safely than the existing route, which would require crossing a busy dual carriageway.

The road will be approximately 1.5km long and will become an adopted road on completion. There are no other public sector or private sector funders. The target beneficiaries are local residents who are expected to account for 80% of usage - giving a leakage rate of 20%.

Given the main users of the road and purpose of the intervention, it is not expected that the road would be constructed by the private sector in the planned location or that any alternative route would be constructed in the foreseeable future that would serve the same purpose. It is possible that the owner of the industrial area may construct a small portion of the road to further facilitate road traffic access into and out of the industrial park. However, under the reference case only a limited number of the users would be from the local community (a leakage rate of 80%). The additionality of the intervention outputs, in terms of number of trips by target beneficiaries is assessed in Table 5.8.

Table 5.8: Additionality of trips - annual number of trips by target beneficiaries				
		Intervention Option	**Reference Case**	**Additionality**
A	Gross direct trips on new road	50,000	20,000	
B[1]=A*20%	Estimated leakage (intervention option) – 20%	10,000	N/A	
B[2]=Ax80%	Estimated leakage (Reference case) - 80%	N/A	16,000	
C=A-B	Gross local direct effects	40,000	4,000	
D=Not applicable	Displacement	N/A	N/A	
E=C-D	Net local direct effects	40,000	4,000	
F=Not applicable	Multiplier	N/A	N/A	
G=E+F	Total net local effects	40,000	4,000	
H=G (Intervention option) - G (Reference case)	Total net additional local effects			**36,000**

The net additional local change in accessibility and the associated benefits (such as enhanced quality of life and increased economic activity) would need to be assessed in order to measure outcome additionality.

5.3.5 Tourism

The creation of a new museum is proposed, on a key site within a major city. It is intended that the intervention will stimulate economic activity within the surrounding area by creating a significant additional cultural attraction and tourist draw. Overall, it is expected that the intervention would create 300 jobs. If the intervention were not to go ahead it is envisaged that the existing development would remain on the site for the foreseeable future. As such, under the reference case some 100 jobs would be safeguarded.

An analysis of the anticipated level of jobs benefiting residents within the sub-region (target area) suggests that leakage under the proposed intervention will be low, with a leakage rate of 10%. Whilst, it is likely that the new Museum will draw some visitors away from existing attractions, it is intended that the Museum will represent a unique tourism product that is not offered elsewhere in the sub-region. As such, the overall level of displacement is expected to be low, at 25%. A medium to high level multiplier effect, of 1.5, is considered to be appropriate for the proposed intervention. This has been based upon local research relating to the extent of multiplier effects within the creative industries.

Leakage under the reference case is 5 jobs, based upon interviews with existing employers. The continuation of the existing activity is not assumed to result in displacement effects. A multiplier of 1.3 has been estimated, again as a result of interviews. Table 5.9 summarises the net additional number of jobs created or safeguarded under the proposed intervention after taking account of leakage, displacement, multiplier effects and deadweight.

Table 5.9: Employment additionality arising from the redevelopment of a museum				
		Intervention Option	**Reference Case**	**Additionality**
A	Gross jobs	300	100	
B=A*10%	Estimated leakage (intervention option) -10%	30	N/A	
B=A*5%	Estimated leakage (reference case) - 5%	N/A	5	
C=A-B	Gross local direct effects	270	95	
D[1]=C*25%	Displacement (intervention option) - 25%	68	N/A	
D=[2]C*0%	Displacement (reference case) - 0%	N/A	0	
E=C-D	Net local direct effects	202	95	
F=E*(1.5-1)	Multiplier (intervention option) – 1.5	101	N/A	
F=E*(1.3-1)	Multiplier (reference case) – 1.3	N/A	29	
G=E+F	Total net local effects	303	124	
H=G (Intervention option) - G (Reference case)	Total net additional local effects			**179**

5.3.6 Environmental

A request for public sector support has been received to reclaim a two hectare site currently used for unofficial fly-tipping in order for it to be brought back into use as an adventure playground and country park. There is substantial support for this at the local level as there are few alternative facilities nearby. Over the years the site has become increasingly neglected and unsightly, it is also a health hazard. The project site is adjacent to a number of residential areas and is easily accessible by pedestrians, cyclists and motorists. The areas from which pedestrians and cyclists are likely to come are high priority areas in terms of social need. Car borne users might come from a wide range of areas. However, the facility is not targeted at any specific group or area. Under the reference case, without public sector support, the site would be fenced off in order to prevent further fly-tipping, although a small playground would be provided.

The additionality of the hectares of land reclaimed for soft end use is assessed in Table 5.10.

Table 5.10: Additionality of land reclaimed				
		Intervention Option	**Reference Case**	**Additionality**
A	Gross direct hectares of land reclaimed	2	0.25	
B=A*0	Estimated leakage - none	0	0	
C=A-B	Gross local direct effects	2	0.25	
D=Not applicable	Displacement	N/A	N/A	
E=C-D	Net local direct effects	2	0.25	
F=Not applicable	Multiplier	N/A	N/A	
G=E+F	Net local effects	2	0.25	
H=G (Intervention option) - G (Reference case)	Total net additional local effects			**1.75**

The outcome additionality associated with environmental interventions would need to consider, for example, the net additional local impact on quality of life. Alternatively, measures such as the enhancement in property values or willingness to invest could be considered for the intervention and reference case options.

5.3.7 Community and Social

A comprehensive package has been developed aimed at addressing the social, environmental and economic issues faced by a rural area. As part of the package, the public sector is appraising an intervention comprising the acquisition of a site, construction and operation of a 250 sq m community centre. The Centre will be used for a wide range of purposes, including toddler groups, after school club, training in literacy

and numeracy, outreach for Citizen's Advice Bureau (CAB) sessions, community meetings, lectures and events and it will also enable computer training and act as an information access point. Many of these activities, such as Citizens Advice Bureau (CAB) sessions, do not currently take place in the local area.

Table 5.11 shows the calculation of the additionality of the number of community meetings involving more than 5% of target population. (This is one of a number of relevant outputs where the additionality of the project's outputs would need to be assessed. The other might include numbers of trainees and crèche places provided/used). It is estimated that five meetings of this scale would take place in the existing Parish Hall. In addition, five of the meetings held in the new centre would be primarily for non-local residents.

Table 5.11: Additionality of community meetings

		Intervention Option	Reference Case	Additionality
A	Gross direct number of meetings total attendance of more than 5% of target population	50	5	
B^1=A*10%	Leakage (intervention option) - low (10%)	5	0	
B^2=A*0	Leakage (reference case) - none			
C=A-B	Gross local direct effects	45	5	
D=C*0	Displacement - none	0	0	
E=C-D	Net local direct effects	45	5	
F=Not applicable	Multiplier	N/A	N/A	
G=E+F	Net local effects	45	5	
H=G (Intervention option) -G (Reference case)	Total net additional local effects			**40**

The capital cost of the centre will be fully funded by the public sector and income from charges will help to pay some of the running costs. The target area, which the centre is intended to serve, is quite large geographically, containing five small villages within a five mile radius of the centre with a combined population of 1,500 people. It is expected that the majority of users will come from the target area although it is possible that for a small number of the events and activities a number of the users will come from outside of the target area. For example, the CAB sessions might attract users from outside of the target area, as might a number of training sessions. In the absence of the centre the small parish hall would continue to be used as it is at present for a limited range of local activities such as the toddler group and lectures of local interest. It is likely that the parish hall will continue to be used at the same level regardless of whether or not the centre is built.

The additionality of the number of community users of CAB outreach services in shown in Table 5.12. It is estimated that 66 individuals would use the CAB services at the new centre, compared with 11 under the reference case.

Table 5.12: Additionality of CAB usage

		Intervention Option	Reference Case	Additionality
A	Gross direct	66	11	
B=estimated leakage	Leakage (specific estimate)	13	0	
C=A-B	Gross local direct effects	53	11	
D=C*0	Displacement - none	0	0	
E=C-D	Net local direct effects	53	11	
F=Not applicable	Multiplier	N/A	N/A	
G=E+F	Total net local effects	53	11	
H=G (Intervention option) -G (Reference case)	Total net additional local effects			**44**

Again, the outcome associated with such interventions would principally be based around net additional improvements to quality of life. For very large interventions, it would be possible to use survey-based contingent valuation exercises to measure such effects. However, the results of such surveys are likely to provide an overestimate of the overall effects. For example, if local residents were asked how many times per month they would expect to use a proposed new community swimming pool many of them would overstate expected usage in order to ensure that the development proceeds.

5.3.8 Crime prevention and community safety

A potential investment in Closed Circuit Television (CCTV) is being considered to help reduce the level of car theft, burglaries, violent attacks and street crime. The police have been consulted and they have advised that the measure is likely to be effective and could, for example, reduce the number of car thefts by 50% from 100 per annum to 50 or fewer. No other source of funding is available. The Police have advised that they will shortly be implementing a number of new initiatives that are aimed at reducing crime in the area, with a target reduction of at least 10%. If the CCTV were installed those new initiatives would not happen. The target beneficiaries are those suffering from crime. Crime could be displaced to other areas. However, in this case, such displacement is not expected to happen.

Table 5.13 sets out a calculation of the additionality of the reduction in car thefts. (Car theft is again just one of a number of relevant outputs that could measure the additionality of the project, others include, reduction in burglary and personal attacks and in the fear of crime).

Table 5.13:Additionality of reduction in car theft

		Intervention Option	Reference Case	Additionality
A	Gross reduction in car thefts	50	10	
B=A*0	Estimated leakage - none	0	0	
C=A-B	Gross local direct effects	50	10	
D=Not applicable	Displacement	N/A	N/A	
E=C-D	Net local direct effects	50	10	
F=Not applicable	Multiplier	N/A	N/A	
G=E+F	Net local effects	50	10	
H=G (Intervention option) - G (Reference case)	Total net additional local effects			**40**

As a further example, an intervention aimed at reducing fear of crime might install locks and entry phones in 50% of the 200 houses in the target community. If 10% of homes installed phones and locks at their own expense then deadweight is 10% (20 homes). Leakage is likely to be zero as the eligibility criteria will limit installation to homes in the target area. There are also wider effects that might be relevant and worth considering where an intervention's success encourages those outside the target area to adopt new practices. In this instance if the adjacent community recognised the benefits of installing locks and entry phones and 10 locks and phones were fitted, which would otherwise not have been, then this would increase the additional impact of the intervention, if the target area also included these homes. However, the initiative may have the effect of displacing crime to other areas and thus potentially increasing the fear of crime in these areas.

5.3.9 Training and education

An Information Technology training programme is proposed, targeting a specific neighbourhood. Evidence of residence in the target area will be a criterion for eligibility to ensure no leakage of benefits outside of the area. This course will involve the provision of one week (30 hours) of intensive training per trainee in a range of software packages, together with job search support. There are already a number of training providers

serving the local area, although the nature of the training is more limited in its scope and duration and it is not expected that this intervention will cause a reduction in demand for the existing training provision. In appraising the intervention it will also be essential to consider these qualitative aspects of the intervention. It is estimated that of the 40 trainees, perhaps eight of them would have undertaken another comparable course available elsewhere in the absence of this intervention.

Table 5.14 shows the calculation of the additionality of the number of trainees.

Table 5.14 Additionality of training places

		Intervention Option	Reference Case	Additionality
A	Gross direct trainees	40	8	
B=A*0	Estimated leakage - none	0	0	
C=A-B	Gross local direct effects	40	8	
D=Not applicable	Displacement	0	0	
E=C-D	Net local direct effects	40	8	
F=Not applicable	Multiplier	N/A	N/A	
G=E+F	Total net local effects	40	8	
H=G (Intervention option) - G (Reference case)	Total net additional local effects			**32**

As a further example, an intervention aimed at improving school attainment levels may improve school facilities. Where it is expected that a portion of these facilities would have been improved without the intervention going ahead this would be deadweight. If as a result of the new facilities, existing facilities were decommissioned before they were no longer fit for purpose then this would be displacement. If the facilities were used by non-school users then this could be leakage depending on the objectives and target beneficiaries. The size of the multiplier effect would depend on the amount of local labour and local materials used in the construction and operation of the new facilities.

5.3.10 Health

An intervention aimed at lowering mortality rates may build a local community health centre. A full appraisal of such an intervention would involve consideration of health impacts. This would normally take account of changes in life expectancy (including expected life years where lives are lost or saved) and changes in quality of life. This approach is known as the quality-adjusted life year (QALY). However, in the case of this example, we are considering only the additionality of the usage of the facility.

If existing facilities had to close down because of the new facilities there would be some displacement. It would also be necessary to consider how the target population might otherwise have obtained medical advice. All non-target users would be classified as leakage. The wider effects might be that non-target but priority population in an adjacent area will adopt the good health practices of the target community as a result of the health centre.

5.3.11 Quality

Minimum thresholds

Public sector funding is required to support the development of a residential scheme at a site on the edge of the city centre. It is intended that, in total, some 150 units will be delivered, each of which will be to a high standard of design and sustainability.

In the absence of public sector support, it is still thought likely that the site would be brought forward for residential use and that the number of units created would be the same as under the intervention option. However, due to the cost implications associated with achieving a high standard of design and sustainability, it is expected that under the reference case only 50% of the residential units delivered would meet the desired standard.

Table 5.15 sets out the estimated number of net additional housing units associated with the intervention option, after consideration has been given to the quality of the outputs created.

Table 5.15: Housing development – minimum threshold				
		Intervention Option	**Reference Case**	**Additionality**
A	Gross direct housing units	150	150	
B[1]=A*0%	Below minimum threshold (intervention option – none)	0	-	
B[2]=A*50%	Below minimum threshold (reference case - 50%)	-	75	
C=A-B	Gross direct housing units	150	75	
D=C*0	Estimated leakage – none	0	0	
E=C-D	Gross local direct effects	150	75	
F=E*25%	Displacement	38	19	
G=E-F	Net local direct effects	112	56	
H=Not applicable	Multiplier	N/A	N/A	
I=G+H	Total net local effects	112	56	
J=I(Intervention option) - I(Reference case)	Total net additional local effects			**56**

The extent of public sector support required to secure outputs that meet or exceed the minimum threshold should be compared against unit cost benchmarks, in order test for value for money. For example, a housing scheme delivering homes at a high standard of design and sustainability might have a public sector unit cost of £35,000 per home above the minimum threshold, which can be benchmarked against other comparable schemes.

Weighting the outputs/outcomes through a scoring assessment

The development of new public realm is proposed in the form of improvements to a town centre's main high street. The intervention will principally concern works to enhance the local environment and include new, distinct, high quality open space and landscaping, as well as the creation of pedestrian areas and public art. Overall, some 3,000 sq m of public realm will be developed.

Under the reference case, it is envisaged that improvement works to the high street would be undertaken, but to a lower specification of design. Less priority would be given to pedestrian use and the incorporation of public art, and the emphasis on creating a distinct 'sense of place' would be lost. The quantum of public realm developed would still be expected to be approximately 3,000 sq m, although the quality of this space would be poor compared to the intervention option.

The objective of the intervention is to create an environment that will attract additional economic activity to the town. The quality of public realm is therefore important. Consequently, the outputs under each option have been scored in terms of their impact on the image of the town, based upon the following scoring range:

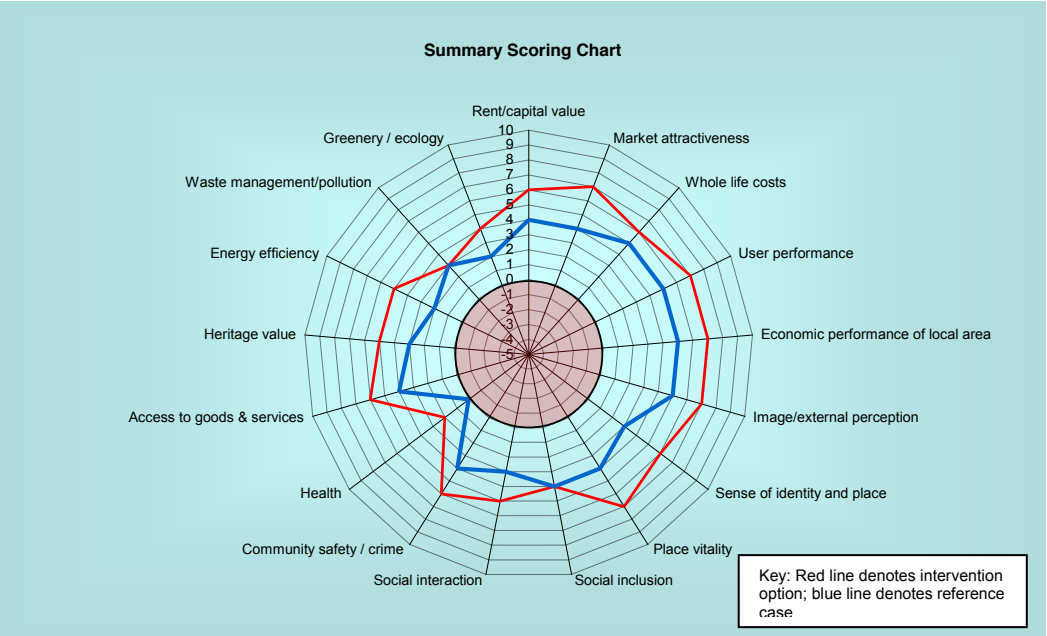
9-10	=	an extremely significant positive impact;
7-8	=	a significant positive impact;
4-6	=	a positive impact;
1-3	=	a marginal positive impact; and
0	=	a neutral/no change position.

The additional output score generated under each option are shown in Table 5.16.

Table 5.16: Public realm development – Output score				
		Intervention Option	**Reference Case**	**Additionality**

A	Gross direct sq m	3,000	3,000	
B=A*0%	Estimated leakage – none	0	0	
C=A-B	Gross local direct effects	3,000	3,000	
D=C*0%	Displacement – none	0	0	
E=C-D	Net local direct effects	3,000	3,000	
F=Not applicable	Multiplier	N/A	N/A	
G=E+F	Total net local effects	3,000	3,000	
H^1=	Output score (intervention option)	7	-	
H^2=	Output score (reference case)	-	3	
I=G*H	Weighted total net local effects	21,000	9,000	
J=I (Intervention option) – I (Reference case)	Total net additional local effects			**12,000**

Where more than one output is being considered, it may be appropriate to weight each output according to its relative importance. One approach to presenting a weighting and scoring analysis of multiple outputs is in the form of a summary spider diagram, as shown below.



Valuing the outputs/outcomes

A residential led scheme is proposed that will create 100 new housing units on a former derelict site, within the town centre. As part of meeting the required environmental standards, the energy use of each dwelling will be minimised through improvements to the buildings fabric to reduce energy demand, along with the provision of efficient energy supply and renewable energy sources.

If no public sector support is provided, the same number of units would be constructed as under the intervention option, but they will be built to a lower environmental standard. Consequently, the energy consumption associated with these units will be greater, leading to higher levels of carbon dioxide (CO_2) emissions. It has been assumed that, on average, the residential units delivered under the reference case will emit 1.8 tonnes of CO_2 per annum. In comparison, it is expected that the intervention option will achieve a 25% reduction in energy consumption (e.g. 1.35 tonnes of CO_2, and hence carbon emissions, per dwelling.

The value of reducing CO_2 emissions has been applied to each option, based upon a central carbon value of £57 per tonne (DECC 2011), to provide a total social cost saving per annum. Table 5.17 sets out the results of this analysis.

Table 5.17: CO_2 emissions – valuing the outputs				
		Intervention Option	**Reference Case**	**Additionality**
A	Gross direct housing units	100	100	
B=A*0	Estimated leakage – none	0	0	
C=A-B	Gross local direct effects	100	100	
D=C*25%	Displacement*	25	25	
E=C-D	Net local direct effects	75	75	
F=Not applicable	Multiplier	N/A	N/A	
G=E+F	Total net local effects	75	75	
H^1=G*1.35	CO_2 emissions p.a. (intervention option)	101	-	
H^2=G*1.8	CO_2 emissions p.a. (reference case)	-	135	
I=H*£57	Social cost p.a.	£5,757	£7,695	
J=I(Intervention option) - I(Reference case)	Total net additional local effects (annual savings p.a.)			**£1,938**

*It has been assumed that the units displaced under the intervention option would have been of a similar environmental standard and therefore would have resulted in the same level of social cost saving per unit. If the outputs displaced are of a lower quality, this should be reflected by a reduced displacement rate.

In this example, a project involves the provision of 3,000 sq m of high quality office space. Based on an assumed employment density of 1 job per 12 sq m of floorspace, the project is expected to create 250 gross direct jobs. Without the provision of public sector support, it is expected that a similar quantum of office floorspace would be provided, but that this would be of a lower standard and not attract the high value users targeted by the project.

A medium level of leakage (25%) has been assumed for the intervention case, whereas a low level of leakage (10%) has been applied to reference case on the basis that the jobs provided under the reference case will be more accessible for the local labour force. However, the level of displacement under the intervention case is assumed to be low (25%) given that the project will be attracting new uses to the local area. In comparison, the displacement rate under the reference case is assumed to be medium (50%). A composite multiplier of 1.3 has been applied to both the intervention case and reference case.

On the basis of the Annual Business Survey and given the nature of the businesses expected to take up the space provided, the appropriate GVA per employee figure is assumed to be £52,000 under the intervention case and £38,000 under the intervention case. The project would therefore generate an annual net GVA impact of £3.9 million. The cumulative GVA impact, assuming 10 years' persistence and a 3.5% discount rate, would be around £32.8 million.

Table 5.18: Gross Value Added – valuing the outputs				
		Intervention Option	**Reference Case**	**Additionality**
A	Gross direct jobs	250	250	
B^1=A*25%	Leakage (intervention option) – medium (25%)	63	-	
B^2=A*10%	Leakage (reference case) – low (10%)	-	25	
C=A-B	Gross local direct effects	188	225	
D^1=C*25%	Displacement (intervention option) – low (25%)	47	-	
D^2=C*50%	Displacement (reference case) – medium (50%)	-	113	
E=C-D	Net local direct effects	141	112	
F=E*(1.3-1)	Multiplier	42	34	
G=E+F	Total net local effects	183	146	
H^1=G*£52,000	GVA p.a. (intervention option)	£9,5m	-	
H^2=G*£38,000	GVA p.a. (reference case)	-	£5.6m	
I=H(Intervention option) - H(Reference case)	Total net additional local effects (annual savings p.a.)			**£3.9m**
J (assuming 10 years persistence and 3.5%	Cumulative net additional GVA impact			**£32.8m**

discount rate)				

The assumption of 10 years of persistence used in the above example is based on estimates of persistence set out within BIS's Impact Evaluation Framework Plus (IEF+) guidance (BIS 2009b). As noted in Section 2, there is relatively limited research on the persistence of benefits associated with local economic growth and housing interventions. In addition, collecting the necessary beneficiary data to estimate persistence for a given project is not always feasible, particularly at the appraisal stage. Therefore, in the absence of suitable primary data, it is recommended that the persistence estimates identified by BIS are adopted (see Table 5.19)

Table 5.19: Persistence of benefits (BIS IEF+)

Intervention type	Persistence of benefits (years)
Individual enterprise level support	3
Sector/cluster support	3
Promotion and development of science, R&D and innovation infrastructure	3
Inward investment promotion	5
Bringing land back into use	10
Public realm	10
Image, events and tourism	2
Skills and workforce development	3
Matching people to jobs	1
Supporting the development of educational infrastructure	10
Other – place	2
Cross-cutting themes – place	10

5.4 Gross to net additionality ratios

Another way of comparing the additionality of interventions is to consider their gross to net additionality ratios - the net additional outputs as a percentage of gross outputs. Under this approach, interventions which demonstrate high ratios would be more beneficial in terms of additional outputs than interventions with lower gross to net additionality ratios, where the gross direct effects are the same.

The use of gross to net additionality ratios is an alternative approach to calculating additionality, which is simpler than deriving individual estimates for deadweight, leakage, displacement and multiplier effects. However, this approach should only be used where a rough estimate of additionality is required – for example, at the project development stage. A detailed project appraisal should include a full assessment of each of the additionality factor.

A number of evaluations have calculated gross to net additionality ratios. For example, the Interim Evaluation of the Coalfields Regeneration Programmes in England (SQW, 2007) identified an overall additionality rate of 70 – 80%. This high level of additionality may be because of the targeted nature of interventions within a relatively small geographic area.

The mid-term report into ten Single Regeneration Budget (SRB) case studies (DTLR 2002) included details of aggregated additionality ratios by intervention outputs at the local SRB level. These ranged from 30% for the number of full-time equivalent jobs

safeguarded to 80% for the number of employee volunteering schemes. Net additionality ratios for 61 different outputs are set out in Table 5.20 below.

Table 5.20: Summary of net additional outputs for the ten case studies (all years)		
	Description	**Net additional outputs as % gross**
Jobs, training and education		
1a1	FTE jobs created	32
1a2	FTE jobs safeguarded	30
1a3	FTE construction jobs (person weeks)	33
1b	Pupils benefiting from projects assigned to enhance/improve attainment	54
1c	People trained obtaining qualifications	58
1d	Residents accessing employment through training advice or targeted assistance	55
1e	Training weeks	62
1f1	People trained obtaining jobs	48
1f2	▪ Who were formerly unemployed	45
1g	Entering self-employment	46
1j	Young people benefiting from projects to promote personal and social development	48
1k1	Employers in collaborative projects with educational institutions to improve student performance	62
1k2	Students in collaborative projects	50
1l	Teachers who have had a placement into business in the last period	60
Economic growth		
2a	New business start-ups	31
2b1	Business/commercial floorspace improved (m^2)	27
2b2	New business/commercial floorspace (m^2)	44
2c1	New businesses supported	36
2c2	▪ Surviving 52 weeks	36
2c3	▪ Surviving 78 weeks	35
2d	Businesses advised as a result of SRB assisted activities	33
Housing		
3a1	Private dwellings completed	48
3a2	Private dwellings improved	45
3a3	Local authority dwellings completed	-
3a4	Local authority dwellings improved	37
3a5	Housing Association dwellings completed	39
3a6	Housing Association dwellings improved	-
3b	Dwellings in tenant management organisation	65
Community safety/crime prevention		
5a1	Benefiting community safety initiatives	53
5a2	▪ Aged over 60	46
5a3	▪ Females	44
5b1	Dwellings with upgraded security	51
5b2	Commercial buildings with upgraded security	56
5c	Community safety initiatives	54
5d1	Youth crime prevention initiatives	51

5d2	▪ Nos attending crime prevention initiatives	63
Environmental improvements		
6a	Land improved / reclaimed for open space (ha)	58
6b	Land improved / reclaimed for development (ha)	58
6c	No buildings back into use	53
6d1	Roads built (km)	-
6d2	Roads improved (km)	67
6e	No traffic calming schemes	60
6f	No waste management / recycling schemes	50
Community facilities		
7a1	People access to new health facilities	66
7a2	People with access to new sport facilities	66
7a3	People with access to new cultural facilities	66
7a4	New health facilities	60
7a5	New sports facilities	64
7a6	New cultural facilities	65
7b1	Using improved health facilities	66
7b2	Using improved sports facilities	62
7b3	Using improved cult facilities	66
7b4	Health facilities improved	52
7b5	Sports facilities improved	61
7b6	Cultural facilities improved	63
Voluntary / community sector		
8a1	Voluntary organisations supported	68
8a2	Community organisations supported	75
8c	Individuals involved in voluntary work	65
8d	Employee voluntary schemes	80
8e	Community enterprise start ups	77
Childcare		
10a	Childcare places provided	65

Source: the, then, Department for Transport, Local Government and the Regions (DTLR) (2002)

Table 5.21 shows the calculation of gross direct to total net additional local impacts for a range of Neighbourhood Renewal Fund project types.

Table 5.21: Gross to net additionality ratio – Neighbourhood Renewal Fund (Evaluators views)	
	Gross direct to local net additional local %
Crime	71%
Education	64%
Health	66%
Housing and environment	61%
Worklessness	63%
Other	62%
Average	66%

Note: Unweighted averages
Source: AMION Consulting (2007)

The research produced on behalf of BIS in terms of the assessment of additionality also sets out a range of gross to net additionality ratios (see Table 5.22). The overall average net additionality ratio at the sub-regional level is 45.8%, compared to a regional average of 50.3%.

Table 5.22: Net additionality ratios by type of intervention – BIS/CEA guidance		
	Sub-regional (mean)	**Regional (mean)**
All observations	45.8%	50.3%
Business development & competitiveness	35.9%	49.7%
Regeneration through physical infrastructure	54.2%	50.8%
People and skills	54.0%	55.1%

Note: a more detailed breakdown by project type is contained within the BIS/CEA guidance

6 Conclusion

This Guide has explained how to appraise the additional impacts of an intervention, using evidence-based judgements.

The preceding discussion has made it clear that the assessment of additionality forms a critical part of any project appraisal. It is recognised that assessing additionality is not always a straightforward process, and it requires project knowledge and judgement as well as information on which to base an assessment of leakage, displacement, substitution, multiplier effects and deadweight. However, without an assessment of additionality we do not know what the intervention is adding over and above what would have happened anyway. In the absence of this information we cannot tell if the intervention offers good value for money.

This document has identified a number of issues that must be addressed if an intervention's additionality is to be correctly assessed and where possible maximised:

(i) What would happen anyway? (The reference case);

(ii) Who do we want to benefit and will they?

(iii) Will activity elsewhere in the target group or area be reduced?

(iv) Will there be additional benefits as a result of further expenditure?

As well as scale effects (i.e. the quantity of outputs/outcomes), it is important to also assess whether an intervention will result in a different quality of and/or timing of benefits.

Good practice is to always use values derived from local experience and research. In the absence of such primary information, project developers and appraisers may on occasions need to use ready reckoner values referred to in this Guide for the different additionality factors. Where these are used justification will be needed as to their appropriateness. They must not be used as replacements for detailed, project specific knowledge and research**. In assessing additionality, the important thing is not to calculate a spuriously precise figure, but rather to be clear about the likely scale and nature of an intervention's additional impacts.** Like many other aspects of economic appraisal it is possible to contrive figures - using the additionality assessment in this way is a waste of time. Where there is uncertainty, it may be helpful to consider using ranges.

The process of assessing additionality is more than an input into the value for money judgement. It is relevant to all stages of an intervention's lifecycle. It can be used in a positive way as a tool that the project developer should use to test the intervention as it is developed, with a view to re-designing it so that:

- as many of the outputs as possible reach the intended beneficiaries;
- existing outputs/outcomes are not unintentionally displaced;
- linkages are made to maximise the benefits; and
- the public sector does not support activity that individuals or the private sector or other organisation would have done anyway.

Overall, the assessment of additionality is an important element in maximising the impact and value for money of an intervention and ensuring that it delivers real results.

GLOSSARY

Additionality	The extent to which an activity is undertaken on a larger scale, takes place at all, or earlier, or within a given geographical area as a result of the intervention. Thus, an impact arising from an intervention is additional if it would not have occurred in the absence of the intervention.
Agglomeration effects	The benefits firms obtain when they locate near to each other. These effects are related to the concepts of economies of scale and network effects.
Deadweight	Output that would have occurred without the intervention.
Displacement	The proportion of intervention outputs accounted for by reduced outputs elsewhere in the target area.
Intervention	Project, programme or policy implemented or supported by the public sector to achieve its objectives
Leakage	The proportion of outputs that benefit those outside of the intervention's target area or group.
Market failure	A situation where barriers exist to the normal and efficient operation of a local economy. Examples may include information barriers, where local people do not know about nearby job vacancies.
Multiplier effects	Further economic activity (jobs, expenditure or income) associated with additional local income, local supplier purchases and longer term effects.
Outcomes	The wider effects or impact on an area of an intervention, for example the reduction in crime level over a set period of time.
Outputs	The physical products or measurable results of individual projects, for example, the number of firms assisted and training places taken up.

Persistence	The period of time over which the benefits generated will endure.
Present value	The future value of a cost or benefit expressed in present terms by means of discounting.
Reference case	The position in terms of target outputs over a set period of time if the intervention did not take place.
Substitution	Where a firm substitutes one activity for a similar activity (such as recruiting a different job applicant) to take advantage of public sector assistance.
Target area	The area within which benefits will be assessed.

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APPENDIX A

Major changes since the third edition of this Guide

Changes since the third edition (October 2008) of this Guide

There are six principal changes since the third edition of this Guide as follows:

(i) New benchmark evidence

BIS has produced new evidence on the scale of each of the additionality factors, based on evaluations of economic development and regeneration interventions. This new evidence has been incorporated into the Guide within each of the relevant sections relating to deadweight, leakage, displacement, substitution and economic multiplier effects.

(ii) Valuing the benefits

Additional text and links to further guidance has been added to Section 2 in terms of the approach to valuing net additional benefits. An additional example of how to value the net additional benefits has also been added to Section 5.

(iii) Multiplier benchmarks

Additional information from the Scottish Input-Output tables and Oxford Economics has been added to Section 4 to provide further benchmark data in relation to multiplier effects. Average multipliers covering a range of interventions, based on research undertaken for BIS, have also been included.

(iv) Persistence

In previous editions of the Guide, although the time period for appraisal was discussed, there was no mention of considering the persistence of the benefits created. A new section has been added to Section 2, outlining the issue of persistence, and estimates of persistence for a range of intervention types have been included within Section 5.

(v) New research and guidance

A number of useful research papers and guides have been published since the last edition of the Additionality Guide. This edition of the Guide has incorporated references to this research and included a list of sources of new guidance within the bibliography.

(vi) Agglomeration effects

Recent research studies, including the BIS/CEA research into improving the assessment of additionality, have identified the benefits of spatial agglomeration and the importance of taking these benefits into account when assessing the overall impact of an intervention. Additional discussion of agglomeration effects has therefore been added to Section 2 of the Guide, along with references to further sources of guidance.

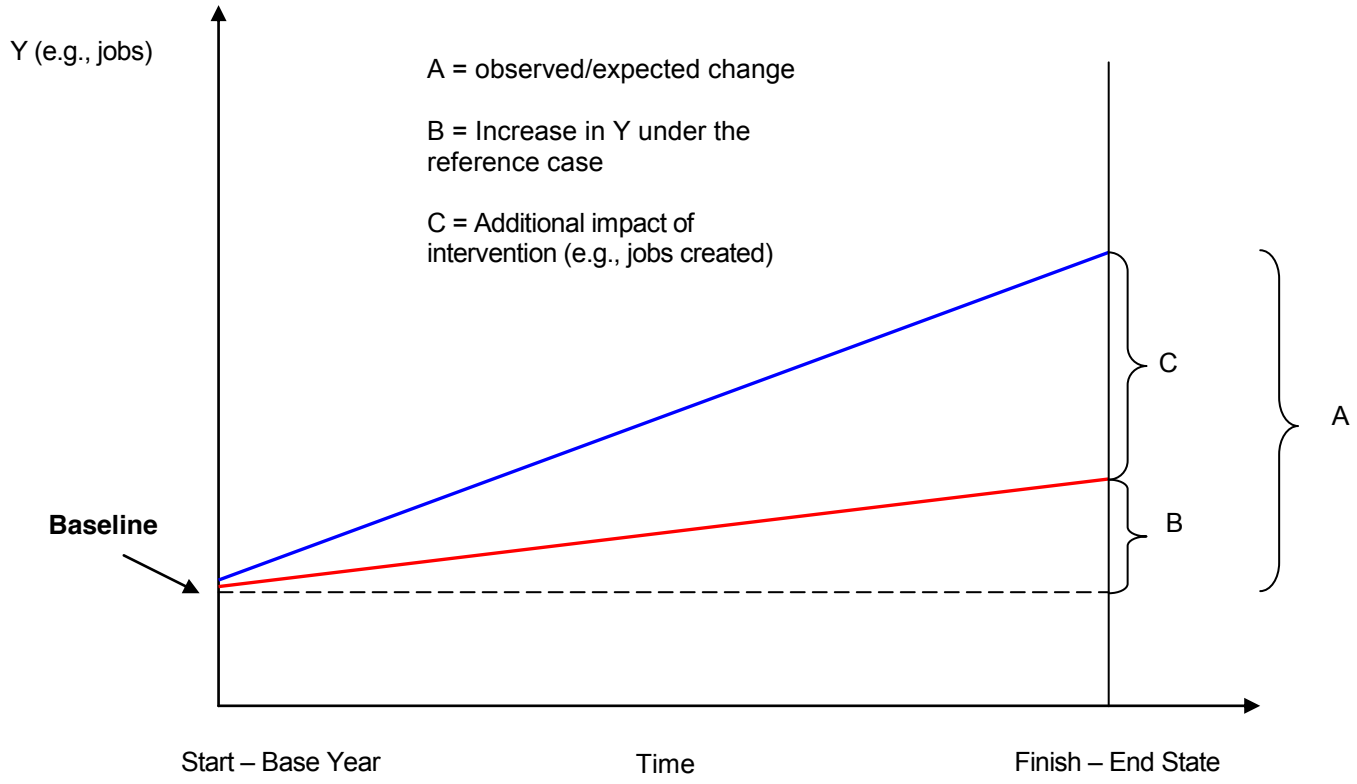
APPENDIX B

Illustrations of additionality in the context of different reference cases

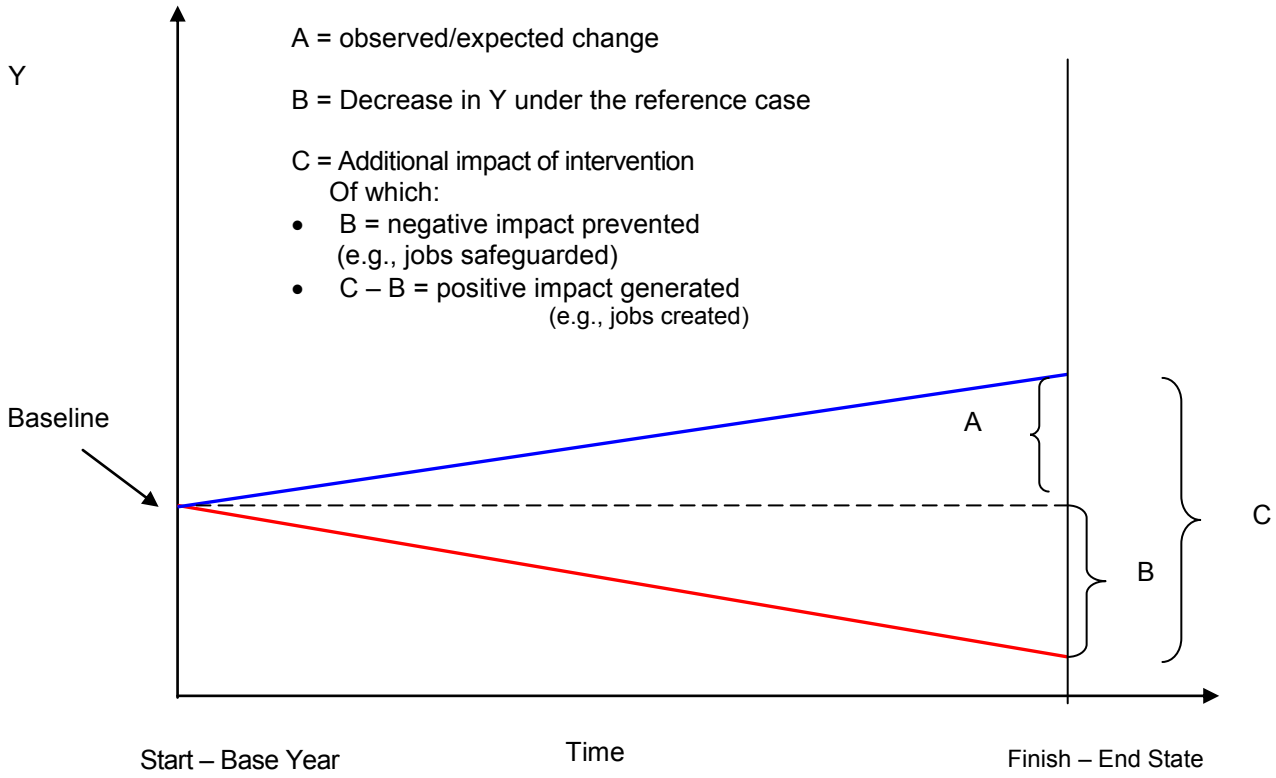
Illustrations of additionality in the context of different reference cases

This Annex provides illustrations of three different reference cases. The first case involves an improving reference case where the intervention involves an additional improvement. The second case involves a deteriorating reference case, but where the improvement associated with the intervention is sufficient to deliver a net overall improvement. The third case is one showing a deteriorating reference case, where the intervention partially offsets this deterioration, but not totally – leading to a net deterioration – but not as large as the one that would have occurred without the intervention.

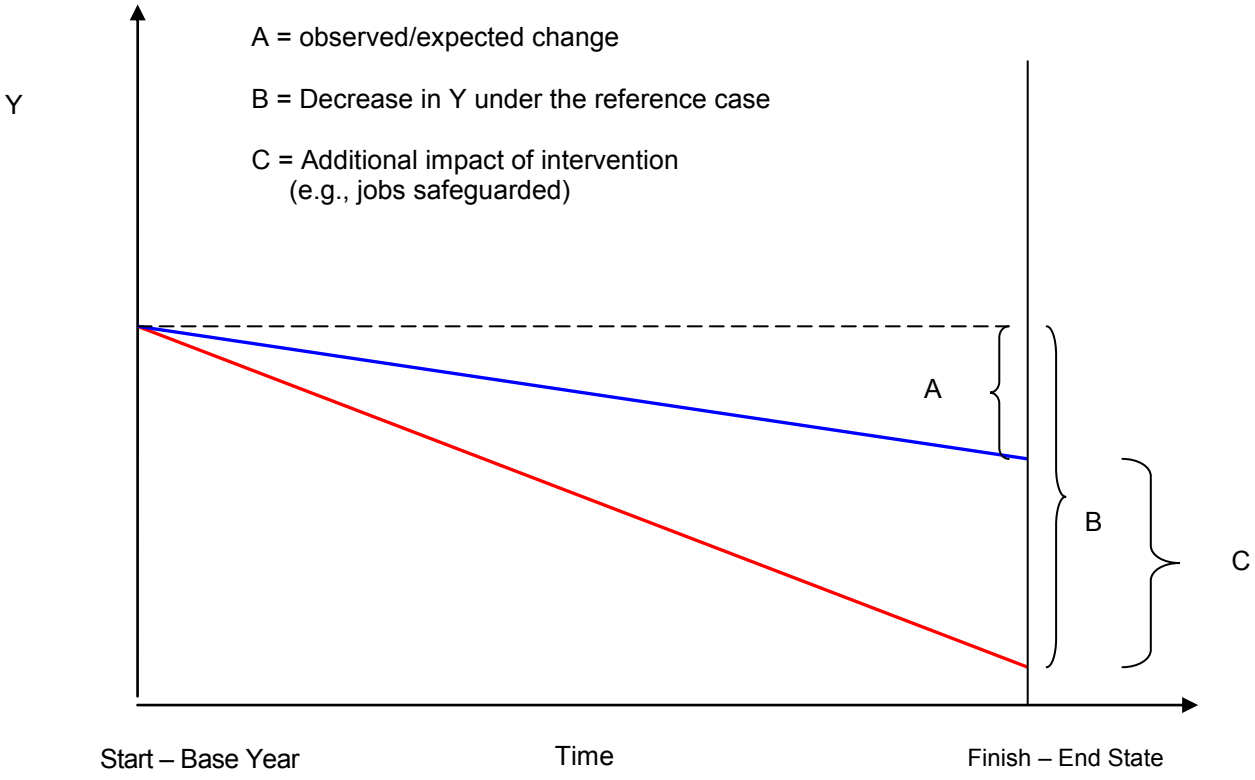
Case 1 - improving reference case



Case 2 – deteriorating reference case with overall improvement



Case 3 – deteriorating reference case with overall deterioration



Appendix C

Interventions options

Intervention options

The public sector intervenes to achieve specific objectives and generate particular outputs and outcomes in a specified period of time. There will always be a number of alternative options or ways in which the public sector might intervene. As a minimum these will include: different timings; increasing or decreasing the scale of investment; increasing or decreasing the quality of the outputs, and varying the delivery arrangements. Whilst not all of these will be feasible options in each case, very few, if any interventions could not be delivered in a different way and still meet the majority or all of its objectives.

The identification and assessment of alternative intervention options is central to project appraisal. Without a proper assessment of the options it will be difficult to have confidence in any assessment of the value for money of the intervention. Comparing the intervention option alone with the reference case will tell you only about the additionality of that option, it will not tell us whether or not greater additionality and more value for money could be achieved by delivering the intervention in a different way.

It is usual to start the process by generating and reviewing an initial list (long-list) of intervention options. In drawing up the initial list it is good practice to consult those who are the intended beneficiaries, others who have experience in delivering similar interventions and internal or external experts. Where this initial list is too long to make appraisal of all options possible, the list can be reduced to a shorter-list using appropriate criteria. The short-listing criteria could include constraints of a physical, legal or planning nature that make the intervention not feasible or it could be based on an analysis that showed some options were better than others at producing the same or more outputs at less cost.

The options on the shorter list - which depending on intervention size or nature should include at least four options - will then be subject to detailed appraisal. The full range of outputs and outcomes of the short-listed option need to be identified, then the level and timing of them estimated.

APPENDIX D

Crowding out and crowding in

Crowding out

(i) Definition

> ***Crowding out*** - The tendency for outputs (other than those that increase the rate of capacity growth through a supply side improvement) to be entirely offset because of macro-economic adjustments

(ii) Examples of crowding out

Crowding out is a specific case of an impact that needs a slightly different type of consideration. In assessing additionality there should be some recognition of the Government's overall macro-economic policy which determines the overall level of demand in the economy. That policy is currently aimed at ensuring that, over the longer term, expansion of demand is broadly in line with increases in capacity. This implies that boosting prosperity is a matter of raising the rate of capacity growth, through supply side improvements, as this will allow demand to be expanded without generating inflation. Thus, increasing economic activity through programmes and policies that do not increase capacity growth will be totally offset elsewhere in the economy, either directly through displacement or indirectly through higher taxes, interest rates and wages as a consequence of the extra Government expenditure. This indirect impact is called crowding out and it implies that if there is no supply side impact associated with an intervention then no additional outputs will be generated at the national level.

(iii) Factors affecting the scale of crowding out

This will largely be determined by the extent to which the impacts arise as a result of supply side improvements. Where a specific impact arises as the result of a supply side improvement there is no reason to expect that there will be a compensating macro-economic adjustment. This will need to be taken into account when an intervention has a range of impacts only some of which have an impact on the supply side of the economy.

(iv) Approaches to estimating

Crowding out is of most relevance in relation to impacts at the national level and hence a degree of proportionality must be applied in taking the effect into account. Typically it will be more important in the case of policies and programmes. Large interventions, or interventions where the costs and benefits are finely balanced, however may also need to consider the effect. It may be assumed that:

- for areas covering up to 5% of the UK population, crowding out can reasonably be ignored. Population is used here as a proxy for the magnitude of the impact. This will be relevant to some but not all interventions. An alternative would be the share of UK GDP; and
- for areas of 5-20% of the UK working population, it is reasonable to present results without taking account of crowding out so long as this is explicitly stated.

For programmes covering more than 20% of the UK working population, explicit account should be taken of crowding out, and estimates of net outputs reduced accordingly. It should be assumed that in the absence of a demonstrated supply side improvement, crowding out is 100% at the national level.

Crowding In

It is also possible that an intervention might result in crowding in effects, whereby variables in the economy adjust and result in an increase in private expenditure. Thus, investment in the physical and human capital infrastructure might result in a more efficient level of activity and therefore crowd in, rather than crowd out, private sector investment. The public sector can thus create the conditions for increased private sector activity.

APPENDIX E

Housing and Additionality

Housing and Additionality

1.0 Introduction

This Appendix presents further examples of how to assess the additional impact of housing programmes and projects. It also identifies some of the key sources of information needed to assess additionality in relation to housing.

The appendix includes examples of housing interventions within both low demand and growth areas. Like the rest of the Additionality Guide the focus in this appendix is on project appraisal and therefore an ex-ante assessment of expected impacts.

2.0 Additionality in low demand and growth areas

The additionality framework needs to be applied with due care and consideration in different situations – with thought given to the rationale/objectives for intervening and the market and policy contexts. Thus, for example, interventions that lead to increasing house prices in low demand areas could be seen as a positive market development, but would probably be negative in a growth area.

In relation to low demand areas, the focus will often be on changing the scale and nature of demand within a specific location. As such, supply-side interventions are undertaken in order to stimulate increased demand by enhancing the attractiveness of the area.

Conversely, in growth or high demand areas, interventions may be concerned with increasing affordability - for example, by increasing the supply of affordable or key worker homes to meet existing unmet demand, thereby increasing household numbers. There may be an increase in household formation in the intervention option and care must be taken when assessing displacement. New households that would otherwise not have existed would not be displaced. They will also result in other wider benefits, such as reducing travel distances, by altering commuting patterns and allowing people to live closer to work. The rationale for intervening will often be about ensuring sufficient local supply of key workers, such as teachers and nurses.

Whilst the additionality framework can in principle handle these differences, it will need to be applied flexibly and thoughtfully - not as a template to be imposed mechanically.

3.0 Examples of how to assess the additionality of a housing programme or project

3.1 Programme level additionality

In developing a programme, additionality can be considered through:

(i) an overall assessment of expected changes in conditions **(the macro or top-down approach)** under different scenarios;

(ii) assessing each of the factors (leakage, displacement/substitution, multiplier effects and deadweight) in turn, based upon aggregating programme/project level activities (**the micro or bottom up approach**). This involves making evidence-based judgements and being explicit about the assumptions for each additionality factor and the expected implications of a set of actions.

The **macro approach** would typically be based upon trend analyses or forecasting models, again comparing reference and intervention options. Model-based approaches can allow the potential repercussions off the direct causal chain to be considered. However, in many cases producing such forecasts is not straightforward and will involve subjective judgements about underlying assumptions. A wide range of indicators could potentially be assessed, including:

- changes in stock and changes in the stock in long-term or sustained demand, that is housing units for which there is expected to be long-term demand. A distinction needs to be drawn between occupation demand (from owners and for rent) and non-occupation demand (buy to rent and speculative). The latter will have a price effect, but may or may not result in occupation of the stock. In most cases it is the former which will be the primary concern;
- changes in the condition of the stock – this might include a deterioration in the physical condition of the housing stock;
- changes in the relative price of the stock and total stock value;
- changes in rates of out-migration (as a measure of resident satisfaction);
- changes in the tenure mix (again as a measure of social change and willingness to buy and thus confidence or the addition of a new type of dwelling, e.g. low cost home ownership to meet a defined need);
- levels of private sector investment in the stock – this might include improvements made by local owner occupiers; and
- supporting socio-economic indicators – such as crime and worklessness.

In undertaking a **micro-based approach** the expected trends in key variables, such as changes in household formation, will still need to be considered. The appropriate output/outcome indicators will need to be identified for any given intervention, but the range of indicators will be the same as those for the macro-approach. For most housing projects, a combination of indicators may need to be considered, which could be drawn from the following, depending on the objectives of the project:

(i) housing units which are in sustained demand. Care needs to be taken because housing units can differ significantly in their scale and nature – for example, a one bedroom flat and a five-bedroom detatched house. The appropriate type of housing unit for any specific project should be determined by reference to the policy objectives and the rationale for intervening;

(ii) sustained change in housing stock value – such effects can be very difficult to measure on an ex-ante basis and considerable care will need to be taken in using this indicator;

(iii) condition of the stock; and

(iv) wider impacts - including local environment and quality of life.

In each case, information and evidence would need to be provided concerning amongst other things:

- Key assumptions – the rationale for the assumptions used in assessing additionality. This would normally include information about key market segments and specific areas or neighbourhoods;
- Phasing and timing issues – consideration of the likely effects over time;
- Sensitivity analysis – consideration of the effect of varying key assumptions. This would be linked to key market drivers and to the risk assessment for the programme or project;
- Monitoring – details of the monitoring framework, including the indicators to be tracked, that will be established to monitor additionality and, in particular, displacement effects.

3.2 Project level additionality

Growth area examples

(i) New build housing project

In developing a project, as with a programme, additionality can be assessed by considering each of the factors in turn. For example, for a project involving the development of 120 new housing units on a cleared site, of which 30% will be affordable, for which there is believed to be long-term demand, the following factors would need to be considered at the growth area level:

- **Reference case (deadweight)** – for this example, if it is expected that 20% of the units developed on the site would have been affordable anyway in line with the local plan requirement. The original scheme would have been constructed at a lower density, with some 100 units likely to have been delivered. Thus, 20 affordable units would be the gross direct effects under the reference case.
- **Leakage** – if non-target households (i.e. those earning more than the minimum level specified) were to occupy any of the affordable units then leakage would occur. However, only those people on the Council's list would be allowed to occupy the affordable homes and therefore leakage would be zero in both the reference and intervention case options.
- **Displacement/substitution** – if demand for the units is expected to come from outside of the local area or from households that would not otherwise exist then no displacement would occur. In this case, there is excess demand for affordable housing and, as such, no displacement.
- **Multiplier effects** – since the focus of this analysis is on housing units then this factor is not relevant in this case.

Table E1 shows how the example would be worked through to calculate project level additionality in terms of the number of affordable units in sustained demand.

Table E1: Example 1 - Affordable housing in growth area

		Intervention option	Reference case
A	Gross direct effects	36	20
B	Less leakage from target group/area	0	0
C=A-B	Gross local direct effects	36	20
D	Less displacement / substitution	0	0
E=C-D	Net local direct effects	36	20
F	Plus multiplier effects	-	-
G=E+F	Total gross local effects	36	20
H=G(intervention options) - G(reference case)	Total net additional local effect	16	

The total net additional local effect of the project will be 16 affordable residential units in sustained demand (the total net effect for the intervention option minus the total net effect for the reference case).

In this case the project is not expected to result in the stimulation of additional, unassisted developments, although some stimulation of confidence is expected. However, it will result in a range of wider benefits that will also need to be considered in the appraisal. These might include environmental benefits as a result of removing an eyesore, as well

as demonstration effects that will help to change developer and occupier perceptions of the area.

(ii) Major brownfield housing development in a growth area

A major housing scheme, comprising 600 homes with 40% key worker and associated employment and leisure uses, is proposed on a brownfield site within a growth area with public support. The site is located within walking distance of the city centre. The scheme will include high design and other standards. As a result of the ground conditions, the affordable housing component and high standards the scheme needs public sector funding. Without the project, the less contaminated portion of the site, which is relatively easily developed would be expected to come forward, providing 200 homes.

The project is designed to help accommodate the significant growth in households that is projected in the growth area and specific criteria will be imposed in selecting potential occupiers for the key worker housing for which there is also very substantial demand – as such leakage is expected to be zero. In terms of displacement there is unmet demand and, as such, product market displacement is also zero. However, factor market displacement, as a result of the limited availability of construction resources is expected to occur. The level of factor market displacement is estimated to be 10%.

Table E2 shows an assessment of the total net additional local housing units in sustained demand.

Table E2: Example 2 – Key worker houses in growth areas (housing units in sustained demand)

		Intervention option	Reference case
A	Gross direct effects	600	200
B	Less leakage from target group/area	0	0
C=A-B	Gross local direct effects	600	200
D	Less displacement (factor and product market) / substitution	60	20
E=C-D	Net local direct effects	540	180
F	Plus multiplier effects	-	-
G=E+F	Total gross local effects	540	180
H=G (intervention options) -G(reference case)	Total net additional local effect	360	

Low demand area examples

(i) Mixed use refurbishment

In this example, it is assumed that public sector support has been requested towards a project on a canal-side former mill complex in a low demand area that will deliver a mixture of commercial development and housing in a variety of new and refurbished buildings. The Mill complex is Grade II listed.

The target area for the project is the site itself and the wider local authority area. It is expected that the project will deliver 50 housing units and 2,000 sq m of commercial floorspace (assumed to be B1 office space). Without public sector support it is likely that one of the former mill buildings on the site, which is in the best state of repair, would be brought forward by the private sector, and would deliver approximately 20 housing units and 500 sq m of commercial floorspace. It is not expected that the project will cause a large decrease in the number of housing units built elsewhere in the target area since demand is low, although because of the nature and quality of this scheme sustained demand is anticipated. As such a displacement rate of 20% has been assumed.

The objective of the public sector supporting the housing component of this project is to generally attract new residents to the area. Thus 'leakage' of housing benefits is not considered an issue in this case. However, jobs taken by people outside of the local authority area have been assessed.

Table E3 sets out an assessment of the net additional housing units in sustained demand generated by the proposed intervention option at the level of the site itself and at the target area.

Table E3: Example 3 - Housing in low demand area (housing units in sustained development) – at site and target area levels

		Intervention Option		Reference Case		Additionality	
		Site level	Target area level	Site level	Target area level	Site level	Target area level
A	Gross direct housing units	50	50	20	20		
B = Not applicable	Estimated leakage	N/A	N/A	N/A	N/A		
C = A-B	Gross local direct effects	50	50	20	20		
D = estimated displacement	Displacement – 20%	0	10	0	4		
E = C-D	Net local direct effects	50	40	20	16		
F = Not applicable	Multiplier	N/A	N/A	N/A	N/A		
G= E+F	Total gross local effects	50	40	20	16		
H = G (Intervention option) – G (Reference case)	Total net additional local effects					**30**	**24**

Note: There may be multiplier effects of the expenditure associated with the housing construction, the 'not applicable' refers to the likelihood that this spend will not result in more housing units being built.

Table E4 considers the net additional employment outputs at the target area level. The site level has not been considered in this case since the focus is on creating local employment opportunities.

Table E4: Example 3 - Employment in low demand areas – target area levels			
		Intervention Option	**Reference Case**
A (@ 20 sq m per job)	Gross direct employment	100	25
B = estimated leakage	Estimated leakage - 20% (Jobs taken up by people resident outside of the target area)	20	5
C = A-B	Gross local direct employment	80	20
D = estimated displacement	Displacement - 40%	32	8
E = C-D	Net local direct employment	48	12
F = Combined income & supply multiplier	Multiplier at 1.2	10	2
G= E+F	Total gross local effects	58	14
H = G (Intervention option) – G (Reference case)	Total net additional local effects	**44**	

Table E5 considers the overall effects of housing and employment at the site and target area levels.

Table E5: Example 3 - Summary of housing and employment additionality – at site and target area levels						
	Intervention Option		**Reference Case**		**Additionality**	
	Site level	**Target area level**	**Site level**	**Target area level**	**Site level**	**Target area level**
Gross direct housing units in sustained demand	50	50	20	20	50	50
Gross to net housing additionality effect	100%	80%	100%	80%	60%	48%
Total net additional local housing effects	50	40	20	16	30	24
Gross direct employment	100	100	25	25	100	100
Gross to net employment additionality effect	-	58%	-	56%	-	44%
Total net additional local employment effects	-	58	-	14	-	44

Note: This table presents the results of the calculation of additionality in a slightly different way.

(ii) Student housing

Another example of how project level additionality can be assessed using a more qualitative approach is set out in Table E6. In this case, the key output and outcome areas to be considered are housing and economy. The analysis includes discussion of both supply and demand side displacement.

Table E6: Example 4 – Student housing in low demand area		
Programme:	Student housing	
Intervention option:	Subsidised refurbishment of 100 vacant housing units for students by the local University	
Reference case:	Ad hoc refurbishment of 20 units based on past trends	
	Housing	**Economy**
Leakage	▪ No leakage due to project design (i.e. units exclusively for students)	▪ Students spend outside area ▪ Issue of supply of local facilities to meet demands from students (e.g. local fast food restaurants). Further investigation and possible linked programme.
Displacement	▪ It is estimated that 10 of the students would have occupied private rented accommodation in the low demand area. However, much of this is in a poor state of repair and would give students a lower standard of living. ▪ Issue about potential future vacancies in private rented stock. Linked to private rented programme which forms another strand of low demand area activity. ▪ Students may be disruptive and cause other residents to move away. Careful choice of units and design of works is required. ▪ Students would have found accommodation in wider area (say sub-region), therefore the vast majority of demand will be displaced at this level (i.e. it is existing demand rather than new at the sub-regional level).	▪ Reduction in private rented/room letting and the economic activity associated with this. ▪ Students cause other residents to move away resulting in a loss of local expenditure. ▪ At the wider level, the vast majority of this economic activity would have happened anyway since the students would have been spending their student loans elsewhere.
Economic multipliers	▪ Not relevant because the focus is on housing outputs and outcomes.	▪ Purchases by local shopkeepers due to increased turnover and increased local spending as a result of greater local incomes.
Deadweight	▪ 20 units would be expected to be provided anyway through refurbishment. The remaining 80 units would, on the basis of past trends, have remained vacant. .	▪ Economic activity associated with the 20 units
Net Additionality	▪ Likely to result in additional quantitative and qualitative benefits at the local, low demand area level. Careful choice of units and design will be needed to ensure that student accommodation does not result in disruption to existing households. ▪ The majority of the students would not have been living in the low demand area in the absence of this programme. ▪ At the wider sub-regional level the demand would have arisen anyway and therefore the activity in a quantitative sense would not be net additional. However, there would be	▪ Again net additional local benefits would be expected, although the availability of appropriate facilities will require further consideration. ▪ At the wider level the majority of the student related economic activity is likely to be displaced.

	qualitative benefits in terms of the standard of accommodation. The areas from which demand is likely to be displaced are significantly more buoyant than the target low demand area. Wider level, net additional benefits would include positive environment affects and increased vitality of the area. Vacancy rates would be reduced.	

Note: Care needs to be taken to ensure that, where housing units are being considered, that the nature of the units delivered under each scenario is comparable. Where this is not the case and different market segments are being targeted, then significant care needs to be taken in assessing additionality and in undertaking the project appraisal more generally.

Examples of how to use the ready reckoners in housing projects

A project is being assessed at a growth area level and involves the provision of 50 starter homes. In the absence of the project it is estimated that only 5 starter homes would otherwise come forward in the area. However, some of these new households would have been expected to find local accommodation in the form of older, poor quality stock. Thus, the project would result in qualitative benefits. Based on local market information and answering the questions set out in the main Additionality Guide, the expected additionality effects in relation to the number of units in sustained demand at the growth area level are estimated as follows:

Table E7: Ready reckoner assumptions - starter homes in growth areas

	Intervention option	Reference case
Leakage	Low – 10%	Low – 10%
Displacement/substitution	Medium – 50%	High – 75%
Multiplier effects	N/A	N/A

Table E8 presents a quantitative assessment of additionality for the starter homes project at the growth area level.

Table E8: Ready reckoner worked example – starter homes (growth area level) - units in sustained demand			
		Intervention option	**Reference case**
A	Gross direct effects	50	5
B	Less leakage from target group/area - i.e. homes going to none target group (Intervention – 10% and reference case – 10%)	5	1
C=A-B	Gross local direct effects	45	4
D	Less displacement (factor and product market) substitution (Intervention – 50% and reference case – 75%)	23	3
E=C-D	Net local direct effects	22	1
F	Plus multiplier effects	N/A	N/A
G=E+F	Total net local effects	22	1
H=G (intervention option)-G(reference case)	Total net additional local effects	**21**	

Another example would be a project to promote executive homes within a low demand area. In this case, the level of additionality, at the low demand area level, would be significantly higher since very little of this activity would have taken place anyway. In this example, it is assumed that 100 executive homes would be constructed under the intervention option and none under the reference case. For this project, the expected additionality effects, based on local market analysis and land use planning allocations at the low demand area level, are as follows:

Table E9: Executive Homes – Low Demand Area level		
	Intervention option	**Reference case**
Leakage	None - 0%	None - 0%
Displacement/substitution	None - 0%	None - 0%
Multiplier effects	N/A	N/A

As a result, the total number of net additional executive homes would be 100 at the low demand area level (i.e. 100 less zero).

However, the level of additionality of the executive homes project would be significantly lower at the sub-regional level. The project would be expected to draw demand from both the City Centre and sub-urban areas, where demand is high. The estimated level of additionality, based upon market analysis, are as follows:

Table E10: Executive Homes - sub-regional level		
	Intervention option	**Reference case**
Leakage	None - 0%	No homes built in area
Displacement/substitution	High - 75%	No homes built in area
Multiplier effects	N/A	N/A

Table E11 presents the results of the assessment of additionality at the sub-regional level.

Table E11: Ready reckoner worked example – Executive homes (low demand, sub-regional level) - units in sustained demand			
		Intervention option	**Reference case**
A	Gross direct effects	100	0
B	Less leakage from target group/area (Intervention and reference case – 0%)	0	0
C=A-B	Gross local direct effects	100	0
D	Less displacement (factor and product market) substitution (Intervention – 75% and reference case - zero)	75	0
E=C-D	Net local direct effects	25	0
F	Plus multiplier effects	N/A	N/A
G=E+F	Total net local direct effects	25	0
H=G (intervention option) - G (reference case)	Total net additional local effects	25	

4 Information sources

A wide-range of data will need to be considered to assess additionality in relation to a housing programme or project.

In order to make informed decisions about what programmes and projects will minimise negative effects and to ensure that the maximum additional benefits are being delivered, information will be required on a range of subjects, including potentially:

(i) ***Population, migration, household and economic forecasts*** – these forecasts should include information about areas within and outside the intervention area boundary. They provide the framework within which the assessment of additionality will be undertaken. The economic, social and other factors that have been assumed to 'drive' or underpin the forecasts should be explained and the likely housing implications considered. Wherever possible forecasts should relate to the specific areas of impact under consideration and consider the type of housing demanded. Alternative future scenarios will often need to be considered to test the robustness of the proposed programme or project.

(ii) ***Policy context and other public sector initiatives*** – in particular, planning, housing and economic development policies will need to be reviewed. These will include local authority and Local Enterprise Partnership policies. In addition, other public sector initiatives, in particular those concerned with economic growth, education and health will need to be considered.

(iii) ***Existing and forecast housing land supply*** – this should be based upon existing and proposed local authority and Local Enterprise Partnership and other housing policies, together with an assessment of outstanding planning permissions, within the various areas of impact and broken down into market segments (including type of dwelling and tenure). Alternative housing land supply scenarios may again need to be developed and tested.

(iv) ***Housing market conditions*** - this will include an analysis of current conditions and past trends for the local and wider area. The types of data

that will need to be considered include: house prices; land prices; rental levels; stock by type of dwelling and tenure; sale periods; turnover within the stock; vacancy rates by type and void information and housing management data for social rented accommodation. It will often be necessary to assemble and analyse neighbourhood level data to understand how the housing market is operating within a local area.

(v) ***Affordability*** - Housing Needs Studies, income and house price data, information from key local public sector employers, e.g. Police and National Health Service (NHS).

(vi) ***Surveys*** – these are likely to be a key source of data in assessing leakage, displacement and deadweight. Information may be collected from a number of primary sources:

- *Individual/households* – can be questioned about their views, likely future needs, aspirations, attitudes and location decisions.
- *Direct questioning of developers* – on their expected behaviour and on their proposed approach to marketing and expected sources of demand.
- *Mover/beneficiary survey* – occupiers of recent developments, supported projects or in/out movers, can be questioned about where they moved from, why and what they would have done if the homes they moved to were not available.
- *Focus groups* – detailed discussions with groups of, for example, residents or recent movers can be useful in providing in-depth discussions about complex residential choice decisions.
- *Other specific surveys* – for example, housing chain surveys to determine in detail the nature of housing movements within and beyond the local area.
- *Business views*, again obtained using surveys.

(vii) ***Monitoring data and evaluation results***.

In each case the analysis should consider the likely timing of changes and these should be related to the nature and phasing of the programme or project.

In relation to displacement there are a number of specific indicators that may need to be assessed and then subsequently monitored, depending on the objectives of the scheme, these may include:

(i) Housing stock, mix and condition/standard

Tracking changes in the total number and nature of the stock will be important in order to assess potential displacement effects. The information assembled should include data about the mix of housing (number of bedrooms, flat or houses), as well as the condition of the stock.

(ii) New starts and completions

The level of new development activity underway and completions should also be monitored. Identifying trends in activity within and outside the area can help to inform judgements about displacement.

(iii) Occupancy - Hard to let/vacancy/void rates

Vacancy is a further key indicator, and monitoring of adjacent areas will indicate whether problems being tackled in an area are being displaced to adjacent areas. Registered Social Landlords (RSL) are able to provide indicators of hard to let premises. Void rates is another useful indicator.

(iv) House prices and rental levels

The issue here is the extent to which they are affected by the programme or project, taking into account general trends. Property Agents, financial institutions, the District Valuer and RSL's are good sources of this information.

(v) Tenure patterns

Another key indicator is tenure mix, typically owner occupied, private rented, and social housing. Changes need to be monitored against typical conditions in the area itself and in other areas. Displacement often takes the form of 'gentrification' where relatively more affluent buyers force out lower income residents, who may be forced to move elsewhere.

(vi) Houses of Multiple Occupation (HMOs)

HMO's are an important indicator of pressures at the lower end of the private rented sector. Often, these will be displaced from the intervention area, and move to adjacent areas, potentially causing social and environmental nuisance.

(vii) Turnover

Turnover can be an indicator of vitality in a housing market, but high levels could be an indicator of displacement. However, it might reflect the transitory nature of the areas and their populations. As such careful analysis and cross-checking with, for example, survey results will often be needed if indicators like turnover are to be correctly interpreted.

(viii) Overcrowding

A further possible indicator, which may be relevant in a limited number of circumstances, is the degree of overcrowding where housing demand increases and housing supply is unable to cope.

(ix) Density/number of units

Density (and therefore the total number of units in an areas - in particular, occupied units) is again a possible factor in displacement, Typical low demand area terraced properties are a very efficient use of land, achieving 50-60 dwellings per hectare. Replacement dwellings may be at lower density (say 30 dwellings/hectare plus), which could also affect local businesses, especially shops and local services.

(x) Building costs

Engineering the supply of housing in a local area will attract development activity, involving both main contractors and sub-contractors of various types. There may well be a tendency to 'bid up' prices, as well as to displace activity from other, non-supported surrounding areas. A measure of this would be to monitor local building cost inflation, which local quantity surveying firms could assist with.

(xi) Community

Many communities have remained together in lower cost housing because of the ability to house extended families in close proximity, and because they may not wish to take traditional forms of mortgage. Acquisition and re-housing of such families can bring significant displacement of communities to other adjacent areas, or indeed between urban areas in different parts of the sub-region. These displacement effects could be identified through surveys.

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