

4NW

SETTING EMPLOYMENT LAND TARGETS FOR NORTH WEST ENGLAND



TYM & PARTNERS
Planners and Development Economists

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CONTENTS

- 1 INTRODUCTION 1
- 2 NATIONAL POLICY 3
 - PPS4: Policies 3
 - PPS4: Implications 6
 - Conclusions 8
- 3 EMPLOYMENT FORECASTS AND TARGETS 11
- 4 TRANSLATING JOBS INTO LAND 13
 - Overview 13
 - Sector to Land Use 13
 - Floorspace per Worker 19
 - Plot Ratios 30
- 5 LOSSES AND CHURN 33
- 6 FINALISING LAND REQUIREMENTS 35
- 7 'MARGINS' AND PHASING 37
 - Analysis 37
 - Recommendations 38
- 8 CONCLUSIONS 41

1 INTRODUCTION

- 1.1 The purpose of this report is to provide a method that produces district-level quantitative targets for the provision of employment land. The report will help inform the emerging Single Regional Strategy and Local Development Frameworks (LDFs) across the North West region. The report was commissioned in December 2009 by the Regional Leaders Board 4NW, which, with the North West Development Agency (NWDA) is one of the 'responsible regional authorities' jointly producing the Single Regional Strategy for the North West (RS2010).
- 1.2 4NW's study brief, issued in November 2009, explained that the report was needed because of emerging government policy set out in the new consultation draft of PPS4, Planning for Sustainable Economic Growth (October 2009). The draft advised that Regional Spatial Strategies should provide minimum employment land targets by district. But the current Regional Spatial Strategy, known as the North West of England Plan (2008) only provided employment land targets for sub-regions, which are groups of districts, and did not break them down by district - intending that local authorities in each sub-region should work together to agree the distribution of the targets between them. To comply with new Government policy, the new Single Regional Strategy, which would replace the North West of England Plan, would need to change this approach and provide district-level targets. The present report would propose a method for this, which would be consistent across the region.
- 1.3 PPS4 was published in final version in December 2009, after the study brief was issued. This final PPS confirms the proposal in the consultation draft, that Regional Spatial Strategies and the Single Regional Strategies that succeed them should provide minimum targets for districts. But, contrary to the draft, it advises that these targets should relate to numbers of jobs rather than provision of land. Thus, under the new PPS the task of setting land provision targets falls to local planning authorities rather than regional authorities. Therefore much of the advice in this report is addressed to local authorities preparing or updating evidence bases
- 1.4 In future, new evidence base documents, including employment land reviews, will need to take account of the employment targets in the new Single Regional Strategy, and existing evidence bases will need to be updated in the light of these targets. The main purpose of this report is to help inform the land provision targets (land requirements) that are proposed in these new and updated evidence bases. (Other elements of existing evidence bases, in particular the analysis of land supply, may remain valid and not yet need updating, depending on when the original study was carried out.) The report also considers the role of the regional authorities and the division of tasks between the local and regional levels. We aim to provide a method that can be flexed to meet local circumstances and local objectives, without compromising strategic objectives or the necessary technical consistency across the region.
- 1.5 As required by 4NW's study brief, the report focuses on 'employment land uses' as traditionally defined by planners, broadly equivalent to Classes B1 to B8 of the Use Classes Order. It does not consider the many other land uses that provide jobs, such as

retail, leisure and public services. A further limitation of the report is that it deals only with quantitative provision targets - how much land should be provided for employment uses. It does not discuss qualitative aspects of provision - what kinds of sites should be provided to match future demand and policy objectives.

- 1.6 At the same time as the present report, we have been working on a study for Yorkshire Forward which addresses some of the same questions¹. The two reports share some of the same content. In particular, in Chapter 4 below we rely on the findings of surveys carried out as part of the Yorkshire Forward study. We are grateful to Yorkshire Forward for permission to use these data.
- 1.7 Below, we begin in Chapter 2 with an analysis of PPS4, which sets out the main policy requirements that local and regional authorities need to observe in planning for employment. In Chapters 3-7 we go on to develop the method for deriving employment land targets, in a sequence of stages. Chapter 8 summarises our recommendations.

¹ Roger Tym & Partners for Yorkshire Forward, Planning for Employment Land: Translating Jobs into Land, 2010, forthcoming

2 NATIONAL POLICY

2.1 In planning for employment, as for any land use, regional and local authorities must take account of national planning policy. In relation to employment land, the main source of national policy, as noted earlier, is Planning Policy Statement (PPS)4, Planning for Sustainable Economic Growth, published in December 2009. In this chapter, we first summarise those aspects of PPS4 that bear on employment land targets generally. We then analyse its specific implications for the target-setting method.

PPS4: Policies

Objectives

- 2.2 Prior to PPS4, national planning policy documents dealt separately with different economic land uses. Planning Policy Guidance (PPG)4 dealt with the traditional employment (B-class) uses, comprising industry, warehousing and offices, while town centre uses, including retail and leisure, were covered by PPG6, later replaced by PPS6. PPS4 marks a new approach. Aiming to encourage planning for the economy as a whole, it covers all economic land uses ('economic development'), including the B-class uses, retail, leisure and public and community services. This whole-economy approach is a key feature of PPS4.
- 2.3 The central message of PPS4 is that the Government wants planning positively to support sustainable economic growth. To help achieve this, the document sets out specific objectives for planning, of which the most relevant to employment land uses are to:
- 'Build prosperous communities by improving the economic performance of cities, towns, regions, sub-regions and local areas, both urban and rural';
 - Promote regeneration and combat deprivation;
 - Deliver more sustainable patterns of development, reduce the need to travel, especially by car, and respond to climate change;
 - Promote the vitality and viability of town and other centres as important places for communities;
 - Promote thriving, inclusive and locally distinctive rural communities while continuing to protect the open countryside.'
- 2.4 Policies EC2 and EC5 show how these objectives should be delivered through regional and local development plans. We summarise these policies below, selecting the key points relevant to our subject and illustrating each point with direct quotes. We have re-ordered these points to bring out themes which are relevant to employment land targets.
- i) Planning should support economic growth by responding to market requirements (demand):
 - '[Development plans should] set out a clear economic vision for their area which positively and proactively encourages sustainable economic growth.'

- [They should] reflect the different location requirements of businesses, such as the size of site required, site quality, access and proximity to markets [and] the locally available workforce.'
- ii) To this end, it should aim to predict future requirements, but also be flexible so it can respond to unexpected requirements:
 - '[Development plans should] where possible identify and plan for new or emerging sectors likely to locate in their areas, such as those producing low-carbon goods and services. However, policies should be flexible enough to accommodate sectors not anticipated in the plan and allow a quick response to changes in economic circumstances.'
- iii) Planning should prioritise the land needs of certain sectors:
 - '[Development plans should] positively plan for... clusters or networks of knowledge-driven or high-technology industries.
 - [They should also] identify, protect and promote key distribution networks and locate developments which generate substantial transport movements in locations that are accessible.'
- iv) Planning should pursue sustainability objectives that include regeneration of deprived areas, a high-quality environment, re-use of previously developed land, sustainable transport and efficient use of infrastructure, and support town centres.
 - '[Development plans should] identify priority areas with high levels of deprivation that should be prioritised for regeneration investment.
 - [They should] have regard to the character of the area and the need for a high-quality environment
 - [And] seek to make the most efficient and effective use of land, prioritising previously developed land which is suitable for re-use.
 - [Development plans should also] plan for the delivery of the sustainable transport and other infrastructure needed to support their planned economic and development.
 - [They should also] seek to make the most efficient and effective use of land, prioritising previously developed land which is suitable for reuse.
 - Sites for main town centre uses [which include offices²], should be identified through a sequential approach [where town centres come first, followed by edge-of-centre sites and then out-of-centre sites, with preference given to those that are or will be well-connected to the centre and well served by public transport].'

2.5 To summarise still further, the PPS sets out two broad sets of objectives that development plans should have regard to in providing employment land. Firstly, the plans should aim to *meet market demand* for land, both present and future. Secondly, they should pursue a range of *policy (or public interest) objectives*, relating to economic efficiency (e.g.

² Offices are classed as a town centre use as well as an employment (B-class) use.

promoting industry clusters), social well-being (e.g. investing deprived areas) and environmental sustainability (e.g. reducing travel to fight climate change).

- 2.6 We will use this analysis of objectives to underpin our recommendations for setting targets. But first, to complete the summary of PPS4, in the next section we discuss some of the more practical provisions of the Statement.

Evidence Bases

- 2.7 PPS4 advises that development plans should be informed by robust evidence bases that 'understand both existing business needs and likely changes in the market'. In particular:
- At regional level, the evidence base should 'assess, in broad terms, the overall need for land or floorspace for economic development'.
 - At the local level, the evidence base should 'assess the detailed need for land or floorspace for economic development' and 'assess the existing and future supply of land available for economic development, ensuring that existing site allocations... are reassessed against the policies in this PPS'.

Employment Targets

- 2.8 As mentioned in the Introduction above, PPS4 requires Regional Spatial Strategies³ to set minimum job targets by local authority. Policy EC1.2b says that in assessing the need for office development 'authorities should take account of forecast employment levels', which by implication refers to these same employment targets.
- 2.9 With regard to the other employment uses, industry and warehousing, PPS4 is less precise. It merely says that planning evidence bases should 'assess the need for land or floorspace for economic development', without referring to employment numbers. Nevertheless, the fact that RSSs are required to set job targets does seem to imply that land provision should have regard to these job targets for all land uses, not just offices. But the Statement does not specify in detail how this should be done. More detail may be provided in supporting guidance if such guidance is produced in future (a guidance document has been published to accompany the PPS, but it deals with retail and town centres rather than employment uses).
- 2.10 With regard to the phasing of land supply, PPS4 advises that for town centre uses development plan documents should allocate sufficient sites to meet at least the first five years' identified need. This advice applies to offices, because they classed as a town centre use⁴ as well as an employment use, but there is no similar advice on the other employment uses, industry and warehousing.

³ In PPS4 all references to Regional Spatial Strategies also apply to their successors, Single Regional Strategies.

⁴ This includes offices which are not actually in town centres.

Allocating and Safeguarding Sites

- 2.11 With regard to the allocation of new sites for economic uses, PPS4 advises:
- ‘The regional level should set criteria for, or identify the general location of, strategic sites, ensuring that major greenfield sites are not released unnecessarily through competition between local authority areas.’
- 2.12 On the safeguarding of existing sites, PPS4 says:
- ‘[Development plans should] at the local level, where necessary to safeguard land from other uses, identify a range of sites to facilitate a broad range of economic development, including mixed use. Existing site allocations should not be carried forward from one version of the development plan to the next without evidence of need... If there is no reasonable prospect of a site being used for the allocated economic uses [during the plan period], the allocation should not be retained, and wider economic uses or alternative uses should be considered.’
- 2.13 This advice implies that within the stocks of land identified for employment uses there should be turnover, or ‘churn’, as some old sites are lost to the stock, possibly to be replaced by new sites. As we will discuss in Chapter 5 below, land provision targets need to take account of this churn.

PPS4: Implications

- 2.14 Below, we first consider whether, given PPS4’s ‘whole-economy’ approach, employment land targets are still required at all. We conclude that the answer is yes and go on to discuss what national policy tells us about *how* these targets should be set.

Is ‘Employment Land’ still relevant?

- 2.15 Further to earlier national policy and guidance, local and regional development plans for some years have been expected to include targets for the provision of employment land, informed by evidence base studies called employment land reviews. But the new PPS4 does not mention employment land reviews, or indeed employment land. Rather, in line with its ‘whole-economy’ approach, it implies that the B-class uses will be subsumed into wider development plan policies that cover all economic land uses, informed by similarly wider evidence bases.
- 2.16 So far there is no national guidance on how these wider evidence bases should be structured. However, we expect that they will still need to put forward land provision targets for the B class - industry, warehousing and offices - separately from other economic land uses, because different methods fit different uses. Predicted demand or need for B-class land is traditionally derived from employment, while the demand or need for retail space for example is derived from consumer expenditure, and for local services such as schools from housing and population. Therefore, while employment land studies may be consigned to history, evidence base studies will still need to develop provision targets for the B use class.

Setting Employment Land Targets

- 2.17 As illustrated in the last section, PPS4, like planning policy documents before it, says repeatedly that planning should assess and meet the need for land. But it does not provide an explicit definition of that 'need'. In effect, the document uses 'need' as a synonym for 'provision target', to mean 'land that the planning system ought to provide'. So the concept of 'need' adds nothing to what we already know: employment land policies, including quantitative targets, should be based on the policy objectives summarised at paragraph 2.5 above.
- 2.18 Nor does PPS4 advise on how future 'need' should be measured, other than to say it should take account of employment forecasts, as we mentioned earlier.
- 2.19 For more specific advice on defining and measuring need, we have looked to the Employment Land Reviews Guidance Note, published by ODPM (now CLG) in 2004. It is not entirely clear how far this note is still relevant. It is not mentioned in PPS4 but there are brief references to it in other national policy documents, including PPS3. Therefore we assume that it remains in force, although perhaps with reduced weight, until new guidance is published to replace it.
- 2.20 The 2004 Guidance Note does not define 'need' either. But large parts of it imply that needs is the same as market demand, as in the following sentence (there are many similar examples; the italics are ours):
- 'The three-stage methodology [comprises] the preliminary or 'brief' stage, followed by the *assessment of demand or need*, followed by the detailed appraisal of the stock of sites and premises available.'
- 2.21 This view that need and demand is the same thing remains an implicit assumption, which is not stated, let alone discussed, and indeed not held constant throughout the Guidance Note. We disagree with this assumption, because, as we discussed earlier, it is clear from national planning policy that market demand is not the only consideration in deciding how much land should be provided in the development plan⁵.
- 2.22 To measure the future demand or need for land, the Guidance Note advises that there are three possible methods. Future need can be estimated from future employment ('labour demand'), from the future workforce ('labour supply'), or by projecting forward the past take-up of land. The Note suggests all three methods can be useful but does not say which is preferable. This is not surprising, because to decide how to measure need we must first define it, which the Guidance Note does not attempt to do.
- 2.23 So to determine how to measure need - or to set targets, which comes to the same thing - we first have to define need. As discussed earlier, national guidance provides this definition indirectly, through the two sets of objectives discussed earlier:

⁵ To think coherently about policy, we need to distinguish statements of fact (is, will be) from statements of value (should be). We use 'demand' as a positive (factual) concept, meaning the amount of land that the market *will* take up if the planning system makes it available. We use 'need' as a normative (value) concept, meaning the amount of land that the planning system *should* make available.

- i) The plans should aim to *meet market demand* for land, both present and future;
 - ii) They should also pursue *policy objectives*, relating to economic efficiency (e.g. promoting industry clusters), social well-being (e.g. investing deprived areas) and environmental sustainability (e.g. reducing the need to travel).
- 2.24 The development plan needs to balance these different objectives, or considerations. In this, it should take account of factual evidence, which shows the relationship between land provision and different objectives - for example, how much land would have to be provided to meet market demand, or how much development would be needed to regenerate a given locality. It should also take account of value judgments, which determine the weights of different objectives.

Conclusions

- 2.25 In summary, therefore, to set provision targets (or determine need) for employment land we need to know:
- i) What market demand will be
 - ii) What different policy objectives require.
- 2.26 In the present state of knowledge, to answer the first question three methods are available, two of which are mentioned in the ODPM Guidance Note. Expected market demand can be estimated from formal econometric forecasts, which try to predict what the market will deliver, by translating employment that these forecasts predict into land requirements. Alternatively, it can be estimated by projecting past trends, in the expectation that the future will resemble the past. Both these methods can only provide broad approximations, subject to great uncertainty. Another possible method is property market analysis, which generally uses both hard data (e.g. on transactions and values) and expert opinion.
- 2.27 The second question, about policy objectives, is even more difficult to answer, certainly in quantitative terms, because there are many objectives and most of them cannot be readily quantified. One important objective which *can* be quantified is the balance of the labour market, which is a broad indicator of sustainability (because it affects travel to work) and of social well-being (because it affects worklessness). This is probably why the ODPM Guidance Note suggests labour supply as a measure of 'need'. But in general there is no standard method for converting policy objectives into 'need' for given numbers of jobs and quantities of space.
- 2.28 In sum, the 'need' for employment land (the correct provision target) depends on two broad factors: market demand and policy objectives. Future market demand, though very difficult to measure, is easier to measure than the amounts of land required to meet policy objectives. Partly for this reason, we suggest that the first step in setting targets should be to forecast market demand, and the next step should be to assess how far the resulting figures are consistent with policy objectives. A further and decisive reason for beginning with demand is that demand sets a ceiling for provision targets: it would be pointless to provide more land than the market will absorb, because the 'surplus' development and jobs would not be delivered in practice.

- 2.29 We conclude that to produce land provision targets we should proceed in three stages:
- i) Predict market demand over the plan period.
 - ii) Assess these predictions, both for land take-up (volume of development) and the associated employment change, against policy objectives, including the balance of workers and jobs (labour demand and supply).
 - iii) If appropriate, amend i) to improve policy fit.
- 2.30 At the first stage, as noted earlier there are three possible ways of forecasting demand: to project forward past take-up, to use property market analysis and to use economic and employment forecasts based on econometric models. One problem with the first method is that it assumes that the future will be like the past, and so it ignores major structural changes in the economy. There are also technical problems with projecting past take-up, because local authorities seldom have long enough time series of past take-up, and even fewer record losses of existing employment space as well as development of new space (to measure true change, we need to know both gains and losses).
- 2.31 The second method, property market analysis, by its nature is relatively short-term, because market participants seldom need to or can predict the future beyond a few years. Rather than formal long-term forecasts, this type of analysis tends to produce only a broad range of what possible demand might be. (It is also useful in providing a qualitative profile of likely demand, which neither of the other methods do.)
- 2.32 The third method for predicting demand, based on modelled econometric forecasts, as we have seen is favoured by new national policy in PPS4. Another important advantage of this method is that it tries to understand the mechanisms of economic change, rather than simply assuming that the future will be like the past, and that it is normally based on long runs of past data. Finally, formal forecasts provide a coherent view across the region, which is essential for sound planning. (The next chapter discusses how this top-down method can be adjusted to take account of local factors.)
- 2.33 However, as noted earlier, econometric forecasting is far from an exact science. It can only provide broad approximations of the future, especially for small geographical areas, including individual districts. In using forecasts, planners must have regard to these limitations. At relevant points in the rest of this report we will make suggestions on how this should be done in practice, by reality-checking and customising forecasts.
- 2.34 From the above discussion we conclude that formal economic/employment forecasts should be the starting point in predicting future demand. Projections of past trends and property market analysis may be used as complementary methods, to reality-check forecasts and perhaps generated upside/downside scenarios to supplement the central targets to be provided in the Regional Strategy. In the next chapter we look at this process more closely.

3 EMPLOYMENT FORECASTS AND TARGETS

- 3.1 In the last chapter, we showed that national policy in PPS4 advises that future Regional Spatial Strategies should set out employment targets by district and suggests that these targets should be based on forecast employment change, as the best available indicator of the future demand for land.
- 3.2 In the North West region, such forecasts are currently being prepared. The Regional Economic Forecasting Panel has produced economic forecasts for the region to 2030, and 4NW and NWDA have commissioned Cambridge Econometrics to disaggregate these results by district. The details of these local forecasts lie beyond the scope of the present report. Nevertheless, in this chapter we comment briefly on how they should be specified, used and translated into policy targets.

Specifying Economic Forecasts

- 3.3 Users of economic/employment forecasts - in this case the regional and planning authorities - should understand and agree the key assumptions and (broadly) the methods behind the forecasts. In particular, they should agree what the forecasts assume about future changes in the population and workforce and ensure that these assumptions are consistent with the region's housing targets. In many cases forecasters' default assumptions are taken from ONS population projections, which imply quite different housing provision from what is planned. The users should also understand if and how the forecasts take into account policy inputs and one-off events such as major items of new infrastructure. If, for example, a proposed airport expansion or a new university is not factored in, it might be useful at a later stage to try and incorporate the impacts of these developments through manual adjustments. But if the forecasts already 'know' about the airport or university, to make further adjustments would be double-counting.
- 3.4 Initially, it is important that forecasts be produced 'top-down' at regional level, to ensure that they are consistent across the region. If each authority uses its own forecasts, there is no reason to believe that their collective effort will produce either reasonable totals for the region or a coherent spatial distribution of that total. But at the next stage, when the forecasts are reality-tested and translated into policy targets, it is important that local planning authorities be involved.

Testing Forecasts and Setting Targets

- 3.5 On receipt of the employment forecasts, local authorities should reality-test these forecasts against information known to them, which may not be known to the forecasters. For example, there may be errors in the official employment statistics on which the forecasts are based, which are not visible at regional level but come to light on close local inspection of the historical figures - usually because employment in the official series shows large jumps from one year to another which are due to just one or two sectors. Alternatively, when the forecast is compared with past trends there may be large differences for which there is no ready explanation. Or the area might be about to benefit from new infrastructure which the forecast does not 'know' about and which is expected to produce additional employment growth.

- 3.6 Local authorities and the region should also test the employment forecasts against policy objectives, to see if they make suitable policy targets. Forecasts which provide a perfectly reasonable view of likely future demand may be unsatisfactory nevertheless, because the future they describe is not consistent with current economic and spatial strategies. For example, the location of forecast employment growth might be misaligned with planned housing and population growth, or the forecast might fail to put enough new jobs in priority locations such as the main cities and towns and areas targeted for economic regeneration. If at all possible all these issues should be considered sub-regionally, with joint working between neighbouring authorities, because both business location decisions and journeys to work cut across local authority boundaries.
- 3.7 If the forecast is unsatisfactory in these ways, local and regional authorities should consider how employment growth and development could be steered or managed so it is more in line with policy objectives. Within sub-regional market areas, the demand for employment space can be footloose, so to steer growth to policy-preferable places in some cases it will be enough to provide development sites in these places through the development plan, while restricting land supply elsewhere. In other cases, active intervention will be required to shift the location of growth, for example through infrastructure investment or economic development initiatives.
- 3.8 Where forecasts are amended to provide targets, the amendments should be based on realistic judgements, not wishful thinking. If authorities aim to attract more growth to regeneration areas, for example, evidence base studies should indicate what interventions are necessary to bring this about and who will deliver and fund these interventions.
- 3.9 When recasting forecasts to produce targets, regional and local planners should also consider the impact of the recast on neighbouring authorities. Suppose for example that one particular authority aspires to much more employment growth than shown in the forecast, and can demonstrate that this is achievable, through forceful economic development policy. If this local growth is achieved, it might quite likely be at the expense of neighbouring authorities, either through competing for occupiers or competing for labour. Both commercial property markets and labour markets are sub-regional, encompassing more than one district. This is one reason why the target-setting process at this stage should be sub-regional, based on joint working for city regions or other agreed groups that approximate to market areas.
- 3.10 The process of finalising employment forecasts and translating them into targets should iterate between local authorities and the region. This should ensure that the district-level employment targets shown that finally appear in the regional strategy are realistic, aligned so far as possible with both strategic and local policy objectives, and consistent across the region.

4 TRANSLATING JOBS INTO LAND

Overview

- 4.1 To translate future employment into land requirements (future take-up) involves three stages:
- i) Sector to land use
Translate jobs by sector into jobs by land use, identifying those future jobs that will occupy 'employment space' or B-class space - that is, offices, industrial space and warehousing.
 - ii) Jobs to floorspace
Translate jobs by land use into occupied floorspace, using assumed employment densities (floorspace per worker).
 - iii) Floorspace to land
Translate floorspace into land, using assumed plot ratios (floorspace to site area).
- 4.2 Below, we consider these stages in turn.

Sector to Land Use

Analysis

- 4.3 To translate jobs into space, we need to understand that not all employment units occupy B-class ('employment') space. Many jobs (in many places more than half of all jobs) are based in other kinds of space, such as health and educational establishments, shops and stores, hotels and restaurants and so forth. These jobs are normally planned for differently to B space. A new hospital or university, for example, is likely to have a bespoke land requirement; schools are planned according to the demographics of the population and shops and stores according to retail expenditure. So, from the sectors (industries and services) that make up the B space economy, any study needs to extract the 'B space sectors' - those that occupy factories, offices and warehouses.
- 4.4 Traditionally, this mapping of sectors into land uses was often done on the basis of broad sector categories, assuming for example that factories are occupied by manufacturing, warehouses by wholesaling and offices by financial and business services. But in recent years planning evidence bases have used finer-grained mapping, pioneered by Roger Tym and Partners. This approach matched categories in the 2003 Standard Industrial Classification (SIC) to property types. Broadly, it assumed that:
- Industrial space was occupied by Manufacturing, plus certain parts of Construction, Motor Repairs/Maintenance and Sewage/Refuse Disposal.

- Warehousing was occupied by a variety of transport and distribution activities which were widely spread across the Standard Industrial Classification.
- Office sectors were as defined by ODPM in research on town centres⁶, plus selected parts of Public Administration and Defence.
- Jobs classified to SIC74.5, Labour Recruitment, which covers people employed through agencies, were distributed across land uses in proportion to the share of each land use in total employment. This recognises that agency workers are employed in the whole economy, not just the B-space sectors.

4.5 Although these assumptions are fundamental to employment land reviews, until recently they had not been formally tested in practice. But in early 2010 we tested them in a study for Yorkshire Forward, through a survey of some 1,200 business units⁷. The survey compared each unit's SIC classification, as recorded in National Statistics' Interdepartmental Business Register (IDBR) to the that unit's type of space, as recorded by the Valuation Office Agency (VoA). It confirmed that our existing method was broadly correct, subject to some adjustments. The resulting matrix, updated to SIC (2007) is shown in Table 4.1 below. (In this new version of the SIC, the sector previously known as 74.5, Labour Recruitment, has been renamed SIC 8, Employment Activities.) The appendix below provides an alternative version of the matrix, identical in substance but based on the 2003 SIC.

4.6 The match of activity sectors to land uses of course is only of approximation of reality, and furthermore it does not match planning use classes exactly, because the VoA uses different and looser categories. Thus, in the office sector the Yorkshire and Humber survey found that some 80% of the jobs which our matrix classifies to offices were in fact located in properties described by the VoA as offices. The remaining 20% of jobs in 'office sectors' were based in a variety of types of space, including 'shops' and 'banks' - many of which in planning terms would also be classified as B1a offices, or alternatively to class A2, financial/professional services provided to visiting members of the public.

4.7 With regard to industry and warehousing, the evidence is more complicated. In the Yorkshire and Humber survey, we found that 80% of jobs classed by our matrix as industrial indeed occupied industrial space, i.e. units classified by the VoA as factories, workshops or garages; 10% were in warehouses and the remainder in other types of space, including offices and shops. But of the jobs which our matrix classes as warehousing, only 65% occupied properties described by the VoA as warehouses, another 20% occupied VoA factories; the remaining 15% were spread across various types of space.

⁶ ODPM, Producing Boundaries and Statistics for Town Centres England and Wales 2000, Interim Report, April 2004

⁷ For details of this survey, see Roger Tym & Partners for Yorkshire Forward, Planning for Employment Land: Translating Jobs into Land, 2010, forthcoming.

Table 4.1 Sector-to-Floorspace Mapping Based on SIC (2007)

Industrial & Warehouse Sectors	SIC (2007)	Activities
Industrial Sectors		
Manufacturing	15 - 33 95	All manufacturing Repair of computers and personal and household goods
Some Construction	43.2, 43.3, 43.9	Electrical, plumbing and other construction installation activities Building completion and finishing Other specialised construction activities
Motor Vehicle Activities	45.2, 45.4	Maintenance and repair of motor vehicles Sale, maintenance and repair of motor cycles and related parts and accessories
Sewage and Refuse Disposal	37, 38	Sewage Waste collection, treatment and disposal activities
Employment Activities (part) ⁸	78	
Warehouse Sectors		
Wholesale	46	
Freight Transport by Road	49.41	
Removal services	49.42	
Storage and Warehousing	52.10	
Other Supporting Land Transport Activities	52.21	
Cargo Handling	52.24	
Post and Courier Activities	53	
Packaging Activities	82.92	
Employment Activities (part)	78	
Office Sectors		
Publishing	58.1	
Motion picture, video and TV programme activities	59.11, 59.12, 59.13, 59.2	Motion picture production activities Motion picture programme post production activities Motion picture distribution activities Sound recording and music publishing activities
Programming and broadcasting activities	60	Radio broadcasting TV programming and broadcasting activities

⁸ SIC 78 covers all workers employed through agencies. These workers operate in a wide range of activities throughout the economy. Therefore they should be allocated across the different economic land uses (offices, industry/warehousing and non-B sectors) in proportion to each sector's share of total employment.

Office Sectors continued

Computer programming, consultancy and related activities	62	Computer programming activities Computer consultancy Computer facilities management activities
Information services	63	Data processing Web portals Other information service activities
Financial & insurance activities	64, 65, 66	Financial services, except insurance and pension funding Insurance, reinsurance and pension funding except compulsory social security Activities auxiliary to financial services and insurance activities
Real estate activities	68	
Legal and accounting activities	69	
Activities of head offices, management consultancy activities	70	
Architectural and engineering activities, technical testing and analysis	71	
Scientific research and development	72	
Advertising and market research	73	
Other professional, scientific and technical activities	74	Specialised design activities Photographic activities Translation and interpretation activities Other professional, scientific and technical activities not elsewhere classified
Renting and leasing activities	77.4	Leasing of intellectual property and similar products
Employment activities (part)	78	Activities of employment placement agencies Temporary employment agencies Other human resource provision
Security and investigation activities	80	
Office admin, office support and other business support activities	82.1, 82.2, 82.3, 82.91, 82.99	Office admin and support activities Activities of call centres Organisations of conventions and trade shows Activities of collection agencies Other business support service activities
Administration of the State	84.1, 84.3	Administration of the State & economic & social policy of the community Compulsory social security activities

Source: RTP

4.8 Thus, our definition of industrial jobs fits reality fairly well, though not perfectly. But our definition of warehouse jobs fits quite poorly, and from the survey we could not identify any alternative SIC-based definition that provided a better fit. The underlying reason appears to be the VoA does not fully distinguish space used for storage and distribution from space used for production. This is not surprising; in our practical experience we have found that the distinction is very difficult to make, including for planners, because except

for large specialist units industry and warehousing largely occupy the same kinds of buildings. Moreover many properties combine the two activities, in proportions that vary over time, and smaller buildings are allowed to shift between the two with no need for planning permission.

- 4.9 Because the VoA does not fully distinguish between industrial and warehouse space, our sector-to-land-use assumptions work much better if we merge these kinds of space into one. Our survey findings show that, based on activity sector (SIC classification) it is very difficult to identify businesses that occupy warehousing. But it *is* possible, with reasonable accuracy, to identify businesses that occupy industrial *or* warehouse space. Therefore, in setting broad top-down land provision targets, it is advisable to merge industrial and warehouse space (VoA factories, workshops and warehouses) into one category. This should not cause many problems in practice, because, as discussed later in this chapter, industry and warehousing seem to have similar floorspace per worker (employment densities).
- 4.10 In translating SIC sectors into land uses we separate out Employment Activities (SIC78), which mainly consists of employment agencies. Our survey finds that businesses in this sector operates from either VoA offices or VoA shops but we know that the vast majority of the people they employ work elsewhere, on customers' premises. So we recommend that these jobs be split between office, industrial, warehouse and non-B space in proportion to the shares of each type of space in the whole economy.
- 4.11 Ideally we would like to split B1a office space from A2 space but the data show that this cannot be done, either on the basis of SIC codes or VoA descriptions. For example, in our survey half of the jobs classified to Banking (SIC64.191) occupy space described by the VoA as offices and the other half are in space described by the VoA as banks. But the near-neighbour of banks in the SIC, the building societies (SIC64.192), almost all occupy space labelled by the VoA as offices.
- 4.12 The sector-to-space relationships we have described are regional averages, calculated over large numbers of business units. They do not, of course, necessarily hold for individual units or over small geographical areas. Both in the Yorkshire and Humber survey and our other experience, we found many individual instances where relationships are quite different. Where there is one large untypical unit, or a cluster of smaller untypical units, sector-to-space relationships for a whole local authority district can be quite different from the broad averages shown in our matrix.
- 4.13 An extreme example of a 'difficult' sector is SIC72, Scientific Research and Development (R&D), which covers both 'natural sciences and engineering' and 'social sciences and humanities'. SIC72 is classed in our matrix as an office sector. In practice, based on our experience we believe that R&D takes place in a variety of spaces, which in physical terms are sometimes offices, sometimes labs, and sometimes industrial premises. On balance, we think that more R&D jobs are in offices than other types of space, but this remains an opinion. It is not an opinion which our survey can test, because there is only one R&D unit in our Yorkshire and Humber sample - a reflection of the tiny size of the sector, which accounts for just 0.4% of all jobs in the UK.

- 4.14 The assumption the R&D activities are based in offices will not be correct in all cases, but on average any resulting error in the calculations will be far too small to affect a district's land provision targets. However, in some places R&D may be a large sector, and it may be known to operate in space other than offices. In such places, the planning authority should adjust our default assumptions in the light of this local knowledge.
- 4.15 As another example of untypical sector-to-space relationships, one district is the employment base of many workers classified to SIC 52.21, Other Supporting Land Transport Activities, whose work consists of maintaining transport infrastructure over a large geographical area. Our matrix would suggest that these workers require large amounts of warehouse space in the district. In reality they occupy very little business space of any kind, since they largely work out of doors, and even less space in the district, since they mostly spend their time elsewhere. To produce reasonable estimates of the district's warehouse requirements, we need to correct this distortion.
- 4.16 Another example of untypical sector-to-land-use relationships are certain small service businesses such as plumbers, electricians and builders. Businesses in these and similar trades are classified to industry/warehouse sectors, but the smaller ones often occupy no property other than an office, which they use for administration and sales/marketing. In some districts, typically in or around city centres, there may be so many businesses of this kind that the relationship between sectors and types of space is quite different from what our matrix shows.
- 4.17 Top-down analysis at the regional level cannot capture these untypical relationships. But local authorities can readily identify them in local evidence base studies and adjust their demand calculations accordingly. As part of these studies, they could apply to National Statistics for its IDBR data - which lists all business units, as we have seen - and use our survey method to match IDBR units to VoA records that show the types of space these businesses occupy.

Conclusion

- 4.18 For the region as a whole and other large areas, the sector-to-land-use matrix in Table 4.1 above provides the correct type of floorspace for a large majority of B-space jobs, provided that the industrial and warehousing categories are combined.
- 4.19 The matrix slightly over provides B class floorspace overall, because our survey shows that some of the jobs we expect to occupy factories, warehouses or offices are actually provided in other (non-B) types of space; including shops and retail properties. The small 'leakage' of jobs into non-B space is small; around 5% of jobs to shops and 5% to miscellaneous 'other' types of space. But it is also likely that some non-B space sectors, which mostly take other types of space, on occasion use B space. So we don't recommend making any special adjustments or corrections to the matrix.
- 4.20 The split of jobs between the B space classes is not always perfect. A small proportion of the employment classified to industrial/warehouse sectors is in fact in offices; but conversely a small proportion of jobs in office sectors is in industrial/warehouse space. So we consider that no adjustments are needed.

- 4.21 We also suggest that combining industrial and warehouse space is reasonable, because all our practical experience suggests that the two kinds of building are physically similar or indistinguishable, with the one exception of large purpose-built units, including strategic warehouses, ('Big Sheds'), which are specialist property products. In all our work, we have found that planners have no reliable way to distinguish between B1/c/B2 and B8 units, especially as many businesses are involved in both production and storage/distribution, or shift between one and the other without telling anyone. Moreover, as shown in the next section, employment densities in factories and warehouses are similar - with the possible exception of Big Sheds.
- 4.22 So we recommend that the sector-to-land-use matrix at Table 4.1 be used to translate jobs into space in top-down calculations at regional level, and as the default method for districts and sub-regions. But the translation method should be adjusted where local evidence shows untypical relationships between sector and land use, which will often be the case.
- 4.23 On a technical note, most employment forecasts split the economy into about 20-30 broad activity sectors. These sectors are not detailed enough to be used in our sector-to-land-use mapping, because the mapping in some case uses finer-grained sectors. For example we count as a B-space activity only part of Construction industry (SIC 43.2, 43.3 and 43.9), whereas the forecasts only show the whole of Construction (SIC43). To estimate future employment in those 'sub-sectors' which are not identified separately in the forecasts, we assume the future share of each sub-sector's employment in the larger sector of which it forms part remains constant. If, for example, in the base year SIC codes 43.2, 43.3 and 43.9 accounts for 40% of all construction jobs in the study area, we assume that they will continue to account for 40% of all construction jobs throughout the forecast period.

Floorspace per Worker

Evidence

Offices

The main standard reference source on employment densities remains the 'Full Guide' produced by Arup for English Partnerships in 2001⁹. The Guide does not report original research, but is a review of earlier empirical studies. These studies are few in number and their geographical coverage is uneven. Thus the Guide cites 13 reference documents, of which just six relate to office densities; of these six studies four are about London and/or the South East. Most of the studies referred to date from the 1990s and some from the 1980s, so the evidence in the Guide is even more out of date than its publication date suggests.

⁹ Arup Economics and Planning, Employment Densities: A Full Guide, Report English Partnerships and the Regional Development Agencies, July 2001

The EP Guide recommends the following density assumptions ‘for use in the appraisal of potential employment at land and property projects’:

Table 4.2 Office Employment Densities in the EP Guide

Gross Internal Area per Workspace sq m	
General (purpose-built) offices	19.0
Headquarters	22.0
Serviced business centre	20.0
City of London	20.0
Business park	16.0
Call centres	12.8

Source: Arup

- 4.24 There are three main ways to measure commercial floorspace:
 - The *net internal area (NIA)* in the usable area of a building, excluding common areas such as stairways, corridors, lifts and toilets, as well as boiler rooms, plant rooms and the like.
 - The *gross internal area (GIA)* is the entire enclosed area of a building, including these common parts.
 - The *gross external area (GEA)* is the gross external area plus the thickness of the external walls¹⁰.
- 4.25 As a rough guide, the GIA and GEA are approximately equal. For an office building, according to property agents’ rule of thumb the NIA is typically around 15% smaller than the GIA, although the ratio of course depends on the design and layout of buildings.
- 4.26 The EP Guide is unusual in dealing with gross external space. In the discussion below, we focus on *net* internal floorspace, which is the measure used in all or most studies and discussions of employment densities. Assuming a ratio of net to gross area of 85%, EP’s headline figure of 19 sq m of gross floorspace would convert to 16.2 sq m of net space.
- 4.27 The EP Guide says that the above ratios ‘reflect the median figure¹¹ across a range of sources’ that they have reviewed. It also says that the ratios show space per workspace rather than per worker - and important distinction, because at any one time one would expect that a significant proportion of workspaces would be unoccupied. Assuming for illustration that on average 85% of workspace are occupied, EP’s headline figure of 19 sq

¹⁰ See VoA, A Summary of Valuation Office Agency Code of Measuring Practice Definitions for Rating Purposes, http://www.voa.gov.uk/business_rates/comp/index.htm

¹¹ The EP F/L ratios are sometimes understood as median density ratios across business units, which would mean that half the units have ratios above the figure given and half have lower ratios. This is wrong. Careful reading of the Guide shows clearly that its ratios are *weighted means* calculated across business units, but *medians* calculated across the studies reviewed. This is an obscure mathematical point but it is important, because a median value calculated across business units could not be used to translate jobs into space.

m gross per workspace, which as shown earlier equates to 16.2 sq m net per workspace, when translated into net space per worker reverts to 19 sq m.

- 4.28 However we are not certain that the EP numbers really do relate to workspaces: certainly RTP's 1997 survey for SERPLAN, which is one of EP's main sources, measured floorspace per worker.
- 4.29 A slightly more recent reference source on employment densities is the Employment Land Reviews Guidance Note published in 2004 by the ODPM (now CLG)¹². This document has traditionally had authority as official planning guidance issued by the Government for local authorities. But as we mentioned earlier its status is now uncertain, because the latest Government policy statement on planning for economic development, PPS4 (December 2009) does not refer to it. The Guidance Note advises that
- 'There is no one correct figure and ratios vary due to a number of factors such as employment sector, function, location, age of building and point of the economic cycle. There are a limited number of large-scale surveys that have been undertaken. The study carried out for SERPLAN by Roger Tym & Partners (RTP) in 1997¹³ remains one of the most comprehensive data sources for London and the South East. This surveyed over 1,200 firms. More recent work done only in the South East (DTZ, 2004)¹⁴ surveyed over 1,000 firms.'
- 4.30 The Guidance Note goes on to quote the density figures from these two surveys, which in the case of offices are around 18 sq m per worker (net internal area) both in RTP (1997) and DTZ (2004)¹⁵. It also reproduces the ratios from the EP Guide which we have shown at Table 4.2 above - which are based in part on RTP's 1997 study - but labels them as floorspace per worker, contrary to the original Guide, which as we have seen refers to floorspace per workspace.
- 4.31 In practice, the 2004 Guidance Note is the most popular source for the density assumptions used in planning documents, including employment land reviews and other evidence bases. Most such documents use the headline ratio of 18 sq m for offices and interpret it as floorspace per worker.
- 4.32 Since the 2004 DTZ study there has been only one large-scale regional survey of floorspace per worker, produced by RTP with King Sturge and Ramidus Consulting in 2006 for the London Development Agency and covering London only¹⁶. This found a London-wide F/L ratio of 16.2 sq m per worker (net internal area). It also found

¹² Office of the Deputy Prime Minister, Employment Land Reviews - Guidance Note, A Report to ODPM from Environmental Resources Management, December 2004

¹³ Roger Tym & Partners for SERPLAN, The Use of Business Space: Employment Densities and Working Practices in London and South East England, 1997

¹⁴ DTZ for SEERA, The Use of Business Space and Changing Working Practices in the South East, 2004

¹⁵ This is a rounded figure. More precisely, averaged F/L ratios were 17.9 in the RTP study and 18.3 in the DTZ study. The former figure related to London and the South East and the latter to the South East region only.

¹⁶ Roger Tym & Partners, Ramidus Consulting Limited, King Sturge, for London Development Agency, The Use of Business Space in London, Final Report, May 2006

- geographical variations across the capital, with ratios of 14.4 in the Central Activities Zone (central London), 14.7 elsewhere in Inner London and 20.5 in Outer London.
- 4.33 The 2006 London study also considered whether floorspace per worker in offices might be changing over time. The study investigated this through a review of earlier research, case studies and its own business survey. It concluded that many office occupiers, had been working to reduce floorspace per worker, driven by increasing cost pressures and enabled by improving technology and design. The report identified two main kinds of space-saving practices: firstly flexible working methods such as hotdesking, which mean fewer workstations (workspaces) in relation to number of workers, and secondly reducing floorspace per workstation, for example through shifting from cellular to open-plan layouts or reducing support space such as catering. In an extreme scenario, these space-saving practices could potentially reduce floorspace per worker by up to 75%.
- 4.34 But the London study found no evidence that space-saving practices had made a measurable impression on *average* office densities to date. One reason for this is that only minorities of firms were implementing space-saving initiatives. A more general reason was that not all offices were correctly occupied in line with best practice norms: many were under-occupied, sometimes dramatically so. Another factor is that under-occupation of offices is probably more common than over-occupation, because an occupier who needs to expand has the option of taking up additional space without moving out of existing premises, while in order to reduce its space the occupier normally has to relocate to smaller premises. In the UK, it is especially difficult to relocate, because offices are typically let on fixed-term leases.
- 4.35 In the years since the RTP and DTZ studies, there have been a number of smaller-scale studies, some of them based on empirical surveys. Several such studies were reviewed in the 2006 London report and contributed to its conclusions.
- 4.36 More recently, a further study of office densities was produced by the British Council of Offices (BCO) in 2009¹⁷. This study is based on a survey of 88 organisations occupying 249 properties. Details of the sampling method are not provided, so we cannot tell if it is a representative sample, and if so for what geographical area and type of occupier. But, since the sample is formed of BCO members, it seems likely that it was biased towards the larger and more professional occupiers and those which are especially interested in using space efficiently.
- 4.37 The BCO study finds an average of 11.8 sq m per workspace. Assuming that the average office operates at 85% of capacity, this would translate to 13.9 sq m per worker. The BCO's previous good practice guidance (2005), which suggested 12-17.5 sq m per workspace, has been revised to take account of these latest findings.
- 4.38 A further and important source of survey-based evidence is RTP's Yorkshire and Humber study which we have already referred to. Based on a survey of 286 randomly sampled units across the region, the survey found floorspace per worker of 15.7 sq m net internal

¹⁷ British Council of Offices, Occupier Density Study Summary Report June 2009

area. This is virtually equal to earlier findings from the 2001 EP Guide and 2006 London study and some 2 sq m below estimates for London and the South East from the RTP (1997) and DTZ (2004) studies.

- 4.39 We have also researched office employment densities across England and Wales, using an alternative method, which we call 'top-down'. In this research, we estimated office employment by region from the Annual Business Inquiry (ABI)¹⁸, using the sector-to-land-use mapping discussed earlier in this chapter. We then divided this total by each region's total office floorspace, as published by CLG and derived from VoA data, to provide estimated floorspace per worker. In this calculation, floorspace includes vacant floorspace and jobs excludes the self-employed, since the ABI only counts employee jobs. Therefore our top-down calculations produce a higher F/L ratio than the estimates we have been discussing so far. These top-down ratios are shown in the table below.

Table 4.3 Office Floorspace per Employee, Top-Down Estimates, England and Wales, 2008

Region	Sq m/Worker (employee jobs to occupied+vacant floorspace)
East Midlands	17.2
East of England	19.3
London	20.5
North East	19.1
North West	20.2
South East	18.9
South West	18.8
West Midlands	21.6
Yorks and Humber	20.0
Wales	18.4
England and Wales	19.7

Source: RTP

- 4.40 In themselves, these top-down figures are less useful than the survey-based figures discussed earlier, because for planning purposes we are more interested in the ratio of occupied floorspace to all workers. But the top-down figures are useful for what they tell us about regional differences. The table shows very little variation between regions, and virtually no difference between the North West and Yorkshire and the Humber. This

¹⁸ The ABI is the standard official source of local employment statistics.

suggests that it is reasonable to apply survey-based findings from Yorkshire and the Humber to the North West.

- 4.41 Behind the broad averages we have been discussing so far, there is of course considerable variation between individual office units. In particular, floorspace per worker is likely to fall as unit size increases, at least in part because some of the largest units are call centres, which typically have very low ratios, in some cases as low as 6 sq m per worker - probably because they work shifts.
- 4.42 As well as surveys which assess what actual office densities *are*, we have looked at targets, or norms, which indicate what they *ought to be*. One source of such norms is central Government, which is the country's largest office occupier. The Office for Government Commerce (OGC), in its report on The State of the Estate in 2008, says that the Government in April 2008 set standards for office space per worker (net internal area) of 10 sq m per full-time equivalent (FTE) in new buildings or major refurbishments and 10-12 sq m in other 'workspace improvement opportunities' such as flexible working. Translated into space per worker as opposed to FTE¹⁹, this would produce a range of roughly 9-11 sq m - much less than the survey-based figures mentioned earlier. But this is as one would expect, because good practice norms measure what should ideally be achieved in new offices or an initiative to improve an existing office, and this by definition is more efficient than the average of all offices. The OGC report confirms this, mentioning that the average space per FTE across Government departments is 14.5 sq m - which is well above the target and would equate to around 13 sq m per worker.
- 4.43 As part of the Yorkshire and Humber study discussed earlier, we discussed office space standards informally with occupiers and also with IPD Occupiers, a service which provides performance benchmarks to corporate real estate and facilities management. Our discussions identified a rule of thumb of around 10 sq m per workstation or per worker, with a lower figure, such as 7 sq m, used for call centres. Yet again, this probably reflects the views of the larger, more professional and more efficiency-minded companies, rather than all office occupiers. Moreover, our discussions showed that the rule of thumb is applied very loosely; partly because occupiers often allow additional space for expansion. In any case, in choosing a new office density is only one of many considerations; other factors, such as location and building features, may be more important. Even though occupiers when taking up space intend to occupy it at maximum efficiencies, practical considerations may mean that the space is never optimally used, or only for a short time.
- 4.44 Thus, in summary:
- Large surveys from the 1990s and early noughties suggested that the average F/L ratio for offices was in the region of 16-18 sq m (net internal) per worker.

¹⁹ To provide a rough translation of FTE jobs into total jobs, we assume that 23% of workers are part-time (based on Annual Business Inquiry (ABI) 2008) and these part-time workers on average work 50% of full-time hours (based on the Annual Survey of Hours and Earnings 2009). (Both sets of figures relate to the UK and to Financial and Business Services, which is the main occupier of office space.). It follows that the ratio of total jobs to FTE jobs is approximately 112%.

- This evidence was based largely on London and the South East. More recently, our survey of Yorkshire and the Humber showed an average ratio of approximately 16 sq m per worker.
- Qualitative evidence suggests that office floorspace per worker may be falling over time, driven by increasing pressures to improve efficiency and enabled by new technology and design, but there are no rigorous statistics to confirm this. The norms or targets used by the more sophisticated occupiers in planning new or redesigned offices show much lower space per worker.
- Over time, actual ratios may fall towards these ‘ideal’ figures. But we expect that actual averages will always be lower than the ideal, because inevitably some office space will be used less than optimally, and due to fixed-term leases offices are more likely to be under-occupied than over-occupied.

Industry and Warehousing

4.45 For industry and warehousing, as for offices, a standard reference source on floorspace per worker is the 2001 EP Guide referred to earlier. The Guide uses the same method for industry/warehousing as for offices. Its findings are shown in the table below.

Table 4.4 Industry/Warehousing Employment Densities in the EP Guide

Gross Internal Area per Workspace sq m	
General industrial buildings	34
Small business units	32
High-tech/R&D (not science park)	29
Science park	32
General warehousing	50
Large-scale and high-bay warehousing	80

Source: Arup, 2001

4.46 For industrial/warehouse space, there is generally no significant difference between net and gross area, so comparisons between EP and other sources are more straightforward than for offices. As for offices, the sources cited in the EP guide suggests that it is largely based on London and the South East.

4.47 The 2004 ODPM Guidance Note, also mentioned earlier, highlights the findings of the RTP and DTZ surveys of London and the South East, in sq m per worker, as follows:

RTP (1997)

- Industrial 31.8
- Warehousing (general) 40.1

DTZ (2004)

- Industrial 38.2

- Warehousing (with loading bays e.g. DIY) 78.2
- 4.48 These figures only relate to London and the South East, and the DTZ figures appears to relate to retail warehousing, which of course is not an employment (B-class) use. Nevertheless, these figures are the assumptions most often used in planning documents relating to employment uses throughout England, probably because there are no comparable studies for other regions.
- 4.49 In recent years industrial and warehouse densities have also been investigated by a number of smaller studies, often undertaken by commercial agents. It is difficult to assess the accuracy of these studies, because most are based on small samples and do not provide details of their research method. However, they are broadly consistent in suggesting the following broad ranges:
- 'Standard sheds', both manufacturing and warehousing: 40-50 sq m
 - Large warehouses, probably over 10,000 sq m: 80-100 sq m.
- 4.50 The evidence, both from the RTP and DTZ studies and these smaller studies, is that density ratios are far more variable for industry and warehousing than for offices. But one finding that is consistent across all data sources is that the larger the warehouse, the higher its floorspace per worker. For the largest warehouses, of 10,000 sq m and over, average ratios are almost certainly around 90 sq m, though individual units vary widely around this figure.
- 4.51 A closer look at the surveys we have reviewed, suggests that there are some finer-grained differences in density between types of activity and unit sizes:
- Light industrial units generally have higher employment densities (i.e. lower F/L ratios) than either B2 or B8 uses.
 - Historically B2 uses significantly higher employment densities (lower ratios) than B8 uses, but this has now changed. The recent research suggests that the differential has either narrowed or been reversed.²⁰
 - Small industrial and warehouse buildings typically have higher employment densities than larger buildings in the same use class. In particular, the evidence suggests that large warehouse buildings have lower employment densities than smaller warehouse densities.
- 4.52 RTP's recent survey of Yorkshire and the Humber also covered industry and warehousing, and produced an average ratio of 67 sq m per worker.
- 4.53 As discussed earlier in relation to offices, we have also made top-down estimates of industrial/warehouse densities by region across England and Wales, by dividing employment figures from the ABI by floorspace figures from CLG. These estimates are shown below.

²⁰ GVA Grimley/Cranfield School of Management Making and Moving The Future Prospects for British Industry, Spring 2007 suggests the differential has narrowed. AtisReal Challenging Perceptions of B8 Part 2 - Dispelling the Myths, January 2007 suggests it has reversed. However, the B2 evidence in this study was not produced by a new survey but was based on one undertaken for the Black Country Consortium in 2005.

Table 4.5 Industrial/Warehouse Floorspace per Employee, England and Wales, 2008

Region	Sq m/Worker (employee jobs to occupied+vacant floorspace)
East Midlands	77.7
East of England	68.5
London	51.3
North East	87.0
North West	78.5
South East	57.2
South West	65.0
West Midlands	83.2
Yorks and Humber	86.1
Wales	83.3
England and Wales	72.9

Source: RTP

- 4.54 As for offices, these top-down ratios are not of great interest in themselves because they include vacant floorspace and exclude self-employed workers. The survey-based figures we have been considering so far, which cover occupied floorspace only and all jobs, are more relevant to planning. But the top-down figures are useful because they allow inter-regional comparisons.
- 4.55 Unlike for offices, the top-down ratios for industry and warehousing vary widely across regions, from 87.0 sq m per worker in the North East to 51.3 sq m in London. Yorkshire and the Humber has the second highest ratio, at 86.1 sq m. The North West's ratio is 78.5, higher than most regions' but only 91% of Yorkshire and the Humber's. If the same relationship between these two regions applied to the survey-based ratio of occupied floorspace to all jobs, that ratio for North West would be 91% of 67 sq m, which equals 61 sq m. In the absence of any survey-based information on the North West, we suggest this figure should be used as the best available estimate of occupied industrial/warehouse floorspace per worker in the North West.
- 4.56 The Yorkshire and Humber survey also confirmed that floorspace per worker increases with size of unit, as illustrated by the table below.

Table 4.6 Floorspace per Worker, Industrial & Warehousing, Yorkshire and the Humber

Unit Size, sq m	Sq m per worker
<500	36
500-999	45
1,000-2,499	67
2,500-4,999	72
= >5,000	87
All	67

Source: RTP

- 4.57 One likely reason why the ratio is higher in smaller units is that the work done in such units tends to be predominantly manual, whereas larger units are more likely to be automated. In addition, small light industrial units typically incorporate a 10% office content as standard, which in percentage terms may be twice that of a large warehouse or more. Since office floorspace typically has a higher employment density than industrial/warehouse space, this will push the overall employment density higher, and some light industrial units will have more than 10% offices.
- 4.58 While it is clear that the floorspace per worker ratio varies with unit size, there is no conclusive evidence that the ratio varies between industry and warehousing for units of equal size. Historically industrial space may have generated higher levels of employment than B8. This is because factories manufactured most of their components on site. But this is likely to have changed due to the off-shoring of labour intensive manufacturing jobs to low labour cost countries, in Asia Pacific and elsewhere. Many factories now perform only limited assembly or finishing tasks. Components and parts are imported and stored onsite so more of the space is devoted to warehousing these components.
- 4.59 In addition, increasing automation within industry is likely to reduce employment densities over time. Moreover, warehouse employment densities may have increased in some cases as the function of warehouses has changed over time. In particular, many warehouses incorporate a range of value-added activities including in some cases final assembly of goods, leading to a 'blurring of manufacturing and distribution boundaries'.²¹
- 4.60 Behind the averages we have discussed, there is very wide variation in floorspace per worker between individual industrial/warehouse units, much more so than for offices. The factors behind this variation include differences in shift working, off-site working, degrees of automation, and the nature of tasks performed. A more fundamental factor is that in industrial/warehouse space, unlike offices, there is no direct link between numbers of workers and amounts of space. In simple physical terms, the purpose of offices space is

²¹ GVA Grimley/Cranfield School of Management, *Making and Moving. the Future Prospects for British Industry*, Spring 2007.

to hold people, together with documents and some machinery. In contrast, the purpose of industrial/warehouse space is to hold and process goods, using large amounts of equipment; people are incidental.

4.61 In summary, the available evidence suggests that:

- In the absence of direct evidence on floorspace per worker in industry/warehousing in the North West, we have based our estimate on survey evidence from Yorkshire and the Humber together with top-down comparisons between regions.
- On this basis, we estimate average floorspace per worker in the North West as 61 sq m. This is much higher than earlier figures derived from surveys in London and the South East.
- This estimate is very much a second-best solution. To provide a robust basis for planning, there should be research on each region, because the evidence suggests that in this sector, unlike offices, there are large regional variations.
- Average floorspace per worker increases with unit size, from around 35 sq m for small units to 80-100 sq m for the largest warehouses. But there is no reliable evidence that, for units of the same size, the ratio varies between industry and warehousing.
- These averages hide very large variations between individual units.

Conclusions

4.62 Based on the evidence reviewed above, we recommend the following default assumptions for planning:

- Offices 16 square metres (net internal area) per worker.
- Industrial and warehouse 61 square metres per worker.

4.63 The available evidence suggests that the office ratio varies little across regions, so it should be robust for the North West, although it is based on evidence from other regions. But the industrial/warehouse figure appears to vary substantially across regions. Therefore the figure we have suggested may not be accurate - though we do think it is likely to be considerably closer to the truth than the figures shown in national guidance, which are based on London and the South East.

4.64 A direct survey of industrial/warehouse densities in the North West would provide a much better evidence base for planning in the region. The regional partners should consider carrying out such a survey, using the method which we piloted in Yorkshire and the Humber, based on matching industrial classification and employment data from the Interdepartmental Business register (IDBR) to floorspace data from the Valuation Office Agency (VoA) database.

4.65 Average employment densities are robust across large numbers of developments, and therefore they are suitable tools for relatively coarse-grained planning, at the level of the region, sub-regions and perhaps individual districts. But they will not necessarily be valid for individual developments or small areas, and in some cases may be misleading for districts, because employment densities vary hugely between individual units, especially in industrial/warehouse space, in ways that rigorous statistics cannot capture.

- 4.66 Therefore, planners should adjust the default densities in the light of local information, especially when planning for small areas or individual developments. For example, if a site is to be occupied by call centres we may assume very low floorspace per worker, in the region of 7-10 sq m. For a site accommodating large sheds of 10,000 sq m or more, whether warehousing or industrial, one would expect high floorspace per worker, around 90 sq m. In contrast, for a small industrial estate the ratio might be around 35 sq m.
- 4.67 Where employment space is being lost, for example in the redevelopment of old industrial areas, planners will need to estimate the numbers of jobs that may be lost. Here again, our default density assumptions may be altered in the light of local knowledge. Where old industrial areas are very under-occupied, as is often the case, using standard densities may seriously overstate the employment implications of releasing them for other uses. In such cases, rather than making blanket assumptions about such areas, authorities might wish to find out actual employment numbers.
- 4.68 To help customise the standard assumptions, authorities should consider researching their areas through local versions of our Yorkshire and Humber business survey, matching the IDBR to VoA floorspace data. This should provide a low-cost way of researching local densities and other questions on the use of business space, including questions about particular businesses or sectors and particular parts of the local authority area. For example, authorities could use this method to investigate the requirements of specific priority sectors, or the numbers employed in employment areas being considered for release to other uses.
- 4.69 It is often argued that cost pressures, new technologies and new working methods are producing steadily falling floorspace per worker in offices. This is certainly true of the more sophisticated office occupiers and of certain sectors and geographical areas, but we are not certain that it is true of offices in general, including in the North West region. Therefore we recommend that, for the time being, planning in the region should assume no future change in standard office densities. If the ratio does fall in future, we may find that our calculations have over-provided land for office, but over the five or 10 years until the calculations are reviewed the error will not be large; and if planning is not to stifle economic growth, land provision should err if anything on the generous side.

Plot Ratios

Analysis

- 4.70 The capacity of land to accommodate floorspace is measured by the plot ratio, which is the ratio of built floorspace to site area, or - expressed slightly differently - the floorspace capacity of a hectare of land. For example, a plot ratio of 40% indicates that one hectare can accommodate 4,000 sq m per hectare of land²².
- 4.71 Planning documents generally assume plot ratios of around 35-40% for most employment land uses, based partly on practical experience and partly on the 2004 Employment Land

²² One hectare equals 10,000 sq m.

Review Guidance Note - which in turn reflects the 1997 RTP survey of London and the South East. Many note that this standard plot ratio does not apply to town centre offices, for which they either use a higher office or use floorspace to measure demand and supply, ignoring site areas altogether.

- 4.72 In our recent study of Yorkshire and the Humber, we investigated plot ratios through a survey of all local authorities in the region. We asked each authority for details of all B-class developments above a threshold of 1,500 sq m over the previous five years. Around half the authorities in the regions responded, providing information on a sample of some 300 developments.
- 4.73 For industry and warehousing, the survey found an average plot ratio of 35% (3,500 sq m per hectare). There were no significant differences between industry and warehousing or between greenfield and brownfield sites. This is probably because the features that determine how densely a site can be developed do not vary by geography or specific use. Most industrial/warehouse units are single-storey and have similar needs for circulation space, car parking and so forth.
- 4.74 In contrast, the Yorkshire and Humber survey showed wide variation in the plot ratios for offices. The average plot ratio for offices was approximately 40%, but developments in town and city centres showed much higher densities, averaging 150% (15,000 sq m per hectare).
- 4.75 We conclude that 35%-40% is generally a reasonable plot ratio for offices except in town centres. For town centre offices, each local authority should either estimate floorspace capacity site by site or estimate averages which take into account local circumstances. We understand from developers and property agents that 60% is often considered a reasonable assumption. At this density developers can offer three- or four-storey office with limited car parking on most town centre sites. But in the centre of major cities and high-density town centres, where the height of buildings can exceed 4 or 5 storeys and values are high enough to pay for high-rise construction, plot ratios can be much higher, with no obvious upper limit.

Conclusion

- 4.76 For industrial and warehousing development and for out-of-centre offices, a reasonable plot ratio assumption is around 35%. This ratio is quite stable across geographies because most development is largely single storey. Also a similar amount of circulation and servicing space is required to service a given quantity of floorspace.
- 4.77 But for offices plot ratios can and do vary. Most out-of-centre office development is developed at a similar density as B1c, B2 or B8 floorspace. Providing space at this density is cost effective for developers because it provides a type of space the market wants as efficiently as possible. Space can be provided with car parking, landscaping and the buildings may not even require lifts (which can be a considerable expense).
- 4.78 However in some locations there is scope for increasing the development capacity of the land by reducing (or removing) car parking, minimising (or removing) landscaping and building upwards. So very high plot ratios, far above 100%, are theoretically possible. If

planners must use an estimated plot ratio, based on our consultations 6,000 square metres per hectare could be a reasonable minimum, achievable on most town centre sites.

- 4.79 However, in our view it is preferable to avoid blanket assumptions about plot ratios, certainly for town centre offices, where such assumptions will often be unreliable. Therefore we suggest that floorspace should be the main yardstick used in planning documents, as is already done in many places. Land requirements (demand, targets) should be expressed in square metres of floorspace. Supply should be measured in square metres of development capacity, which should be estimated individually for large sites and collectively, based on geographical areas, for smaller sites. The plot ratios we have estimated should be used as defaults where no specific estimates are available.

5 LOSSES AND CHURN

- 5.1 In calculating future land requirement for any employment use, the starting point is net employment change - the future change in the stock of jobs over the plan period, equal to the jobs to be gained in new and expanding employment units, minus the jobs to be lost in closing and contracting employment units. Therefore the resulting land requirement also represents net change, i.e. the change in the stock of employment land, equal to the land that will be gained through new development and change of use, minus any existing employment land that may be lost to other uses.
- 5.2 To determine how much land should be allocated for employment, we need to translate this net land requirement into a gross requirement, or gross gain - an estimate of the new land that should be identified for employment uses, regardless of any existing land which will be lost to such uses. To arrive at this gross requirement, we need to add to the net requirement already calculated a further quantity of land that equals the expected future loss and will replace that loss. This replacement is often described as churn.
- 5.3 In existing planning documents, there are four main approaches to the calculation of losses and churn. The first and simplest, adopted by many planning authorities, is to ignore the issue and confuse net and gross change. This is not helpful, because it produces misleading results which are wide open to challenge, especially in places where large losses of existing space are occurring - which in practice means most places. The second approach is to make a blanket assumption that a given percentage of the existing stock will be replaced each year, and of this replacement a give proportion will need to be on new sites. We consider that this approach is unsatisfactory, for two reasons: there is no empirical evidence on what proportion of the stock is replaced each year, and common sense suggests that this proportion varies widely between places, so blanket assumptions will be inaccurate.
- 5.4 The third approach to estimating future losses is to project past losses, where known, to the future plan period. This does not seem unreasonable, but it is open to the obvious objection that the future may be very different from the past. If this method is to be used, the authority needs to look carefully at past losses and use local knowledge to make a judgment on how the future might compare with the past.
- 5.5 The fourth approach to losses and churn is that, as part of its employment land review or other evidence base, the authority conducts a qualitative assessment of its existing employment sites and areas, to identify those which could or should be lost to their existing employment use. Based on this assessment, the employment land calculation can develop different scenarios to illustrate the possible amount of land that may be lost in the future and hence need to be replaced.
- 5.6 In our opinion the fourth approach is the most robust, because it is based on real-life evidence of the prospects and merits of specific sites and areas, rather than arbitrary assumptions. To apply this approach, the evidence base should assess, for each existing employment area:

- *Market potential*, i.e. the chances that, should the area fall vacant in the plan period, it could be viably brought back into its current use, either using existing buildings or after redevelopment;
 - *Policy contribution*, i.e. how far retaining the site in its current use is in line with current spatial vision and policy objectives.
- 5.7 The assessment of market potential should use the specialist expertise of property consultants/agents with knowledge of the relevant market.
- 5.8 The qualitative assessment should divide existing employment sites and areas into three groups, perhaps using the popular traffic light notation:
- Those that should definitely be safeguarded for their current use, subject to market testing to ensure that they remain viable (**green**);
 - Those that, should they come forward for redevelopment for other uses, should be released (**red**);
 - Those that, should they come forward for redevelopment for other uses, should be considered for release, depending on circumstances at the time including the balance of demand and supply for employment land and the extent of need for an alternative uses, such as housing (**amber**).
- 5.9 Based on this assessment, the employment land calculation can assess how much land may be lost and need to be replaced and plan for new sites accordingly. These plans cannot be entirely fixed, because the authority cannot know for sure which sites will actually come forward for redevelopment. Therefore the demand-supply calculation might provide alternative scenarios, to show how the authority will respond to different sets of circumstances while keeping to its employment growth targets. The amber sites should help provide the necessary flexibility.
- 5.10 As well as informing land provision targets, the qualitative assessment of existing employment sites is useful and necessary because it will support policies that safeguard such sites. Without robust site assessments, authorities would find it difficult to safeguard sites which can and should be kept for employment against applications for higher-value uses. Conversely, they would risk protecting sites which do not deserve protection, because they are no longer suitable or commercially attractive for employment, and in the interest of sustainable economic growth should be replaced by better employment sites.

6 FINALISING LAND REQUIREMENTS

- 6.1 The process described above will produce estimated land requirements, both gross and net, by local authority area. But as yet we cannot be certain that these figures are entirely consistent with physical and commercial realities and spatial planning objectives. The figures, might, for example, imply large amounts of new development in places where this development will not be viable due to low property values, or little land is available, or the infrastructure is overloaded and cannot be expanded, or. Or they might locate little or no development in places earmarked for major physical regeneration.
- 6.2 Therefore, emerging land provision targets at the final stage should be tested against property market realities, land and infrastructure supply and spatial policy objectives, and flexed where necessary to improve the fit. This final stage in employment land planning is not just about quantities of land; in matching demand and supply, it should take account of the qualitative mix of demand for land and match it to the emerging planned supply.
- 6.3 At this stage, an important task for the region will be to consider the need for strategic sites of regional importance and where these sites should be located. These judgments, like other qualitative considerations, will feed back into quantitative requirements, because if major strategic sites are expected to attract large volumes of demand from wide geographical areas then quantitative targets should be adjusted accordingly.
- 6.4 If estimated requirements change substantially at this final stage, the resulting figures should be translated back into jobs to provide the final employment targets that will be shown in the Regional Strategy, in accordance with PPS4.

7 'MARGINS' AND PHASING

Analysis

- 7.1 In an area where the planning system provides exactly enough land each year to meet the expected demand, it is almost certain that land supply in practice will fall short of that demand, and hence development and employment growth would fall short of the target. One reason for this is that at any one time some development and redevelopment sites will be in the development pipeline, and thus not actually delivering jobs and floorspace. Indeed some sites may remain in the pipeline for a long time or forever, if they are constrained by factors such as ground conditions or lack of infrastructure. Moreover, there will be no room for choice or to accommodate the qualitative requirements of different occupiers and developers, and because occupiers and developers and occupiers have no choice landowners may enjoy monopoly power. Finally, a precise match between requirement and provision would mean that there is no room for error: if the planning authority were to underestimate demand for any reason, business occupiers and developers would be forced out of the area by lack of sites.
- 7.2 All this suggests that, if actual development is to provide enough space for the target numbers of jobs, land provision should exceed the estimated requirement by a margin. There is no accepted view on how this margin should be calculated. Many evidence bases and development plans include a margin not supported by any evidence. Often this is set as a percentage of the total requirement over the plan period. This is not helpful, partly because the size of the margin increases with the period being considered, which is logically wrong.
- 7.3 To try and estimate empirically what the margin should be, one would need to collect data on the size of actual development pipelines (outstanding planned supply) and actual take-up across many areas and/or dates, and calculate the resulting years supply indicator - the ratio of the pipeline to average annual take-up - for each place and date. One would then make an econometric analysis of the years supply ratio against indicators of market pressure, such as vacancy rates and rental change, to see what level of supply in relation to the pipeline seems to result in a balanced market. Alternatively, as a short cut, one might simply calculate an average ratio over time and space and assume that this provides a reasonable norm.
- 7.4 To our knowledge, this kind of analysis has only been carried out for central London offices, as part of evidence bases supporting the London Plan²³. Based on sophisticated time-series analysis, this research concluded that for a healthy market outstanding permissions should provide just over three years' supply of office space. Its definition of supply did not include planning allocations. This is a reasonable approach in central London, where virtually all development is brownfield and there is almost no new land to

²³ London Property Research & DTZ Research, London Office Monitoring Project - Stage II (Benchmarks) SDS Technical Report Ten, Greater London Authority, 2001. For an up-to-date analysis see Ramidus Consulting with Roger Tym & Partners for Mayor of London, London Office Policy Review 2009, Greater London Authority, 2009

be allocated for development. But in most other places, development sites allocated but not yet permitted will be a significant component of future planned supply, so calculations should take account of planning allocations as well as permissions.

- 7.5 There is no comparable analysis of the planning and development pipeline for places other than central London. We briefly attempted an analysis of planned land supply, including allocations, as part of the Yorkshire and Humber study referred to earlier, but failed to produce useful results, because the volume of allocations varies hugely between local authorities. As discussed in the Yorkshire and Humber report, we concluded that outside central London there is no empirical method at present for determining what the 'margin' should be.
- 7.6 As an alternative approach, therefore, we have looked at existing practice. In the light of common sense and the London research discussed earlier, it seems to us that the best practice is found in the rule of thumb which suggests that planning should provide a five-year reserve of deliverable land. As we have seen, this approach is adopted broadly speaking in PPS4, although it only applies to town centre uses (which include offices) and PPS4 does not require the five-year land supply to be readily deliverable. It is also used elsewhere, for example in the West Midlands RSS both in its current version and emerging Phase 2 Revision, and it parallels national policy on housing in PPS3. From informal discussions with the authors of some of these documents, we understand that there is no empirical basis for the five-year land reserve; it has been adopted because it was considered reasonable.

Recommendations

- 7.7 In our opinion, the most robust way to allow for constraints, competition, choice and uncertainty is that adopted in the West Midlands, which is similar to PPS4's approach to offices: authorities should ensure that at any one time they have enough readily available (unconstrained) land to meet the gross provision target for each employment use (including the land required to replace future losses) for the next five years.
- 7.8 The emerging West Midlands RSS (Stage 2 Revision) defines 'readily available' as follows:
- 'A site is defined as readily available if *all* the following conditions are met:
- The site *either* has planning permission *and/or* is allocated for economic development in the development plan *and/or* is committed by an appropriate Council resolution.
 - [It has] no major problems of physical condition.
 - [It has] no major infrastructure problems in relation to the scale of development / activity proposed.
 - The site is being actively marketed.'
- 7.9 We know from experience that the last criterion is problematic in practice because in depressed markets landowners are reluctant to market sites. Also if the plan proposes regeneration or structural change (which probably requires public intervention) then it is unlikely that owners will be actively marketing sites prior to that intervention.

- 7.10 So we suggest that the last criterion, regarding sites being actively marketed, should not be used as policy but as advice. Ideally all sites in the five-year supply should be actively marketed, but in some cases the authority may justify a site's inclusion because it has evidence that given normal market conditions, a willing buyer and a reasonable landowner, the site would be offered for development.
- 7.11 Local authorities should also identify a longer-term indicative supply to last for the whole plan period. This longer-term supply does not need to be available today. But authorities should have reason and evidence to show that it will become available over the life of the plan and that the profile and phasing of new land can maintain the five-year rolling reservoir.
- 7.12 In our opinion, development planning documents should also identify the extent, nature of development and boundary for sites expected to form broadly the next 5-10 years of supply; so easing the process of getting planning permission for the sites and providing developers and funder's certainty. But for the longer term land should only be identified in broad terms.
- 7.13 It is important to bear in mind that our advice covers only the quantitative aspect of land supply - how much land should be provided for offices and industry/warehousing respectively. Qualitative issues are beyond the scope of this report but will be at least as important in practice. Authorities in identifying land for employment should ensure that it is commercially attractive - especially to priority sectors and clusters - and sustainable, and that its locations are in line with the spatial vision for the area. If the development plan focuses on quantitative targets only, at the expense of these qualitative issues, there may be pressure to release easy but unsustainable greenfield sites to meet the target, while policy-preferable urban sites, which may be more difficult to develop, do not come forward.

8 CONCLUSIONS

8.1 This report has considered how regional and local authorities should set provision targets for employment (B-class) land, as part of the emerging Single Regional Strategy: We suggest a staged process as follows:

i) *Produce regional employment forecasts*

The region commissions econometric forecasts that show employment change by district and sector for the plan period - an indicator of the future likely demand for land.

ii) *Develop employment targets*

The region and local authorities (preferably working in sub-regional groups) test the forecasts against reality and policy aspirations. Based on this analysis, they translate them into employment targets, as discussed in Chapter 3 above.

iii) *Develop first-draft land provision targets*

The region:

- Translates these employment targets into first-draft, top-down net land provision targets for the plan period, using the default assumptions we have set out in Chapter 4 (Alternatively this task could be carried out at local level, but the regional authorities 'doing the sums' would guarantee consistency and probably save money);
- Makes proposals on the nature of strategic sites and their locations or criteria for selecting them.

iv) *Refine land provision targets*

Local authorities, working in sub-regional groups as appropriate:

- Refine the emerging net provision targets using local knowledge, as discussed in Chapter 4 above;
- Translate net into gross targets, based on estimating future losses as described in Chapter 5 above;
- Test these emerging targets against commercial and physical realities and policy objectives as suggested in Chapter 6, including to ensure that the required land is likely to be available and the proposed development is likely to be viable;
- Plan the phasing of land release to allow for competition, choice, uncertainty and development constraints, as discussed in Chapter 7. Based on existing practice and our own judgment, we suggest that authorities at any one time should have enough readily available (unconstrained) land to meet the gross provision target for each employment use for the next five years;
- Consider how far the region's proposals for strategic sites are realistic and consistent with local and sub-regional policy objectives;
- If any of the above suggests that the region's targets and proposals (see iii above) should be amended, discuss and try to agree these departures with the region and sub-regional partners.

- In particular, if revised land targets differ substantially from the region's proposals, they should be translated back into revised job targets, to be considered for inclusion in the regional strategy.
- 8.2 The fourth and final set of tasks should be part of local or sub-regional employment land reviews or wider evidence base studies. As well as feeding back into the regional planning process, the conclusions of these studies will of course inform local development planning documents.
- 8.3 Evidence and policies based on it should be kept up to date by regular monitoring and review. The quantity of land supply should be monitored continuously and routinely. Evidence base documents, including provision targets and qualitative assessment of supply, should be updated at least every five years and more often in case of major shocks.
- 8.4 4NW and local authorities will wish to consider how the approach outlined above can fit into the process of developing the new Single Regional Strategy (RS2010).

APPENDIX

SECTOR-TO-FLOORSPACE MAPPING Based on SIC 2003

Industrial Sectors	SIC (2003)	Activities
Manufacturing	15.11-37.20 (ex publishing, 22.11-22.15)	Includes all manufacturing, including recycling, but excludes publishing)
Some Construction	45.3-45.4	Electricians Plumbing Other building installation Plastering Joinery installation Floor and wall covering Painting and glazing Other building completion
Motor Vehicle Activities	50.20, 50.40	Maintenance and repair of motor vehicles Sale, maintenance and repair of motor cycles and related parts and accessories
Sewage and Refuse Disposal	90.00	Sewage and refuse disposal, Sanitation and similar activities.
Labour Recruitment and Provision of Personnel (part) ²⁴	74.5	Labour recruitment and provision of personnel
Warehousing Sectors	SIC (2003)	Activities
Wholesale	51.11-51.70	Wholesale on a fee contract basis Wholesale of goods
Freight Transport by Road	60.24	
Cargo Handling	63.11	
Storage and Warehousing	63.12	
Other Supporting Land Transport Activities	63.21	
Post and Courier Activities	64.11-64.12	
Packaging Activities	74.82	Packaging activities
Labour Recruitment and Provision of Personnel (part)	74.5	
Office Sectors	SIC (2003)	Activities
Some Other Business Activities	74.60, 74.85, 74.86, 74.87 74.1, 74.2, 74.3, 74.4	Investigation and security activities Secretarial and translation activities Call centre activities Other business activities nec Accounting/bookkeeping activities etc Architectural/engineering activities etc Technical testing and analysis Advertising

²⁴ Labour Recruitment and Provision of Personnel covers all the workers employed through agencies. These workers operate in a wide range of activities throughout the economy. Therefore, we allocate them to industrial, warehouse, office and non-B sectors in proportion to their shares in Crawley's total employment.

Office Sectors continued

Some Social and Personal Service Activities	91.11, 91.12, 92.11, 92.12, 91.20, 91.32, 91.33, 92.11, 92.12, 92.20, 92.40	Activities of business/employers orgs Activities of professional orgs Motion picture and video production Motion picture and video distribution Radio and television activities News agency activities
Administration of the State	75.1, 75.3	<ul style="list-style-type: none">Administration of the State and the economic and social policy of the communityCompulsory social services activities
Publishing	22.1	
Financial intermediation	65, 66, 67	<ul style="list-style-type: none">Financial intermediation, except insurance and pension fundingInsurance and pension funding, except compulsory social securityActivities auxiliary to financial intermediation
Real Estate and Business activities	70, 72, 73	<ul style="list-style-type: none">Real estate activitiesComputer and related activitiesResearch and development
Labour Recruitment and Provision of Personnel (part)	74.5	
