

# B

## **SUPPORTING ANALYSIS**

This section of the report provides a summary of the analysis undertaken in support of the proposed strategy. It provides background information as regards population and employment projections and discusses the development potential and capacity of Waterford City and Environs in terms of transport and services infrastructure and environmental and tourism resources. In the final chapter, the alternative development strategies that were considered for the PLUTS are identified and discussed in detail.



## 4. POPULATION AND EMPLOYMENT PROJECTIONS

### 4.1 Introduction

A long-term, sustainable pattern of growth and development in Waterford requires a balance of population and jobs in the future. Population and employment projections are therefore key to a study of this sort. They affect most aspects of the planning process and have a direct bearing on household formation rates, trip generation, infrastructure impacts (gas, water, electricity, telecoms) and service impacts (schools, hospitals).

This chapter summarises the population and employment projections that were undertaken for Waterford as part of the PLUTS. It includes an estimate of the baseline data as well as the methodology and rationale used to derive demographic projections for the proposed strategy as well as for each of the alternatives considered to the year 2020.

### 4.2 Baseline Population

Waterford City is the largest City in the South–East of Ireland. The City and its environs, as defined in the Waterford City Development Plan 2002, has a population in excess of 50,000 persons, with an economic zone of influence well in excess of 100,000 persons.



In 1991, the population of Waterford City and Environs was almost 46,000. Between 1991 and 1996, it grew to a little over 49,500. This represented an annual percentage growth rate of 1.6%. In the period from 1996 to 2002, the population of Waterford City and Environs again increased (by approximately 2500) to almost 52,000 people. However, this represented an annual growth rate of 0.8% or half that of the previous 5 years.

This pattern of increasingly diffuse growth in the PLUTS Study Area is also demonstrated by the growth of the satellite towns in recent years. Growth in Carrick-on-Suir, New Ross and Tramore now exceeds that of Waterford City and Environs in absolute and percentage terms – due largely to strong growth in Tramore. Growth in rural areas is also strong, within the environs of the City as well as on the road corridor to Carrick-on-Suir and along the coastal strip.

Growth in the resident population of Waterford is given an additional twist when translating into numbers of households. This is due to the reduction in the size of households and the increased rate of household formation. This means that for any given level of population growth there will be even more new households. In Waterford City and Environs, there were 15,670 households in 1996. By 2002, the number of households is estimated to have grown to 17,893.

Analysis of the age distribution of the PLUTS Study Area population was based on 1996 data, the latest available data from the Central Statistics Office (CSO). 65% of the total PLUTS Study Area in 1996 was of working age, i.e. between 15 and 64 years. 24% was made up of young dependents (0-14 years) and the remaining 11% was of retirement age (65+ years). Similar proportions applied to the age distribution of the City and Environs population in 1996. When compared with 1991 data, it is evident that little change occurred in the percentage age distribution of the population in the Study Area in the following five years. There was a slight increase in the proportion of those of working age and an associated decrease in the proportion of young dependents. This indicates a reduction in birth rate. The proportion of those of retirement age remained the same.

The population changes in the PLUTS Study Area over the periods 1991-1996 and 1996-2002 are set out in **Table 5.1** below. **Table 5.2** shows the resulting changes in household numbers for the same time period. More detailed historic demographic data for the PLUTS Study Area is given in **Appendix H**.

Table 4.1: **Recent Population Trends**

	<b>1991 Population</b>	<b>1996 Population</b>	<b>2002 Population</b>
Waterford City and Environs	45,763	49,521	51,917
Satellites	19,047	19,626	22,290
Remainder of PLUTS Study Area	42,386	42,019	44,870
<b>Total</b>	<b>107,196</b>	<b>111,166</b>	<b>119,077</b>

Table 4.2: **Recent Household Trends**

	<b>1991 Households</b>	<b>1996 Households</b>	<b>2002 Households (estimate)</b>
Waterford City and Environs	13,636	15,670	17,893
Satellites	5,562	6,170	7,355
Remainder of PLUTS Study Area	11,451	12,262	15,953
<b>Total</b>	<b>30,649</b>	<b>34,102</b>	<b>41,201</b>

### 4.3 Projection Methodology

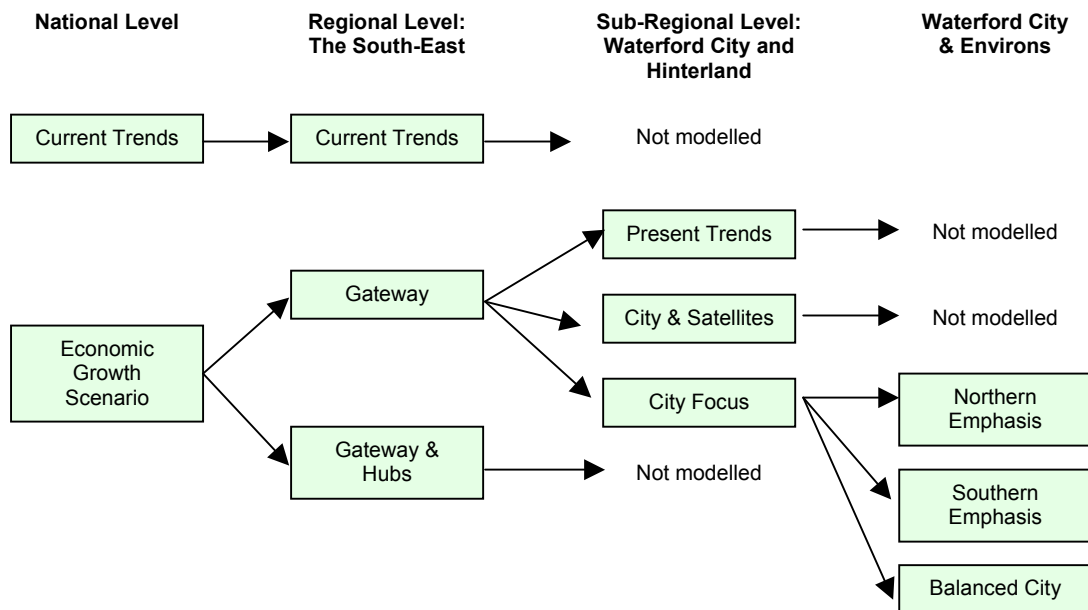
#### Hierarchical Approach based on NSS Methodology

The approach to population projection for the Waterford PLUTS was in the first instance a “top-down” process as illustrated in **Figure 4.1**. It is based on the methodology and approach adopted for the NSS. National and regional population projections, as laid out in the NSS working paper on demography, were accepted and sub-regional projections were subsequently articulated.

It is important to note that the population projections herein illustrate the potential effect of increased levels of economic activity and therefore population growth occurring in the South-East region as a result of the implementation of the NSS. The projections assume that a proportion of employment growth projected to take place in the Greater Dublin Area (GDA) will instead take place in the Regions as a result of the NSS and the critical mass of strategic centres such as Waterford.

The methodology described below was used to arrive at the proposed Waterford PLUTS strategy. It is consistent in method and in terms of headline numbers with the NSS even though the projection work undertaken for the PLUTS was substantially completed before the NSS was published.

Figure 4.1 **Population Projection Process**



#### Projection Process

At a national level, two scenarios were modelled. These are the Current Trends Scenario (CTS), which is broadly in line with the CSO regional allocation of its 1999 national population projection and the Economic Growth Scenario (EGS), variant 2-2. Variant 2-2 assumes that in the first five years of the projection, 24% of the new propulsive employment, (defined as ‘modern’ manufacturing and internationally traded services) which would otherwise accrue to Dublin, will be relocated elsewhere in the State. It assumes that 12.5% of the reallocated jobs will go to the South-East Region.

At a regional level, three alternative scenarios were set out for the distribution of population and jobs. Under the CTS 1 national scenario, it was assumed that the share of the Regional population enjoyed by each of the areas being projected would continue to expand or contract in line with current trends. Under the EGS 2-2 scenario, two variants were set out, namely the Gateway strategy and the Gateway and Hub strategy.

The Gateway strategy proposes that the growth of the hubs (Kilkenny and Wexford) and their hinterlands should be largely organic (i.e. achieve growth rates not dissimilar to recent trends) and that the balance of regional growth under the EGS 2-2 strategy should be allocated to the Waterford PLUTS Study Area.

The Gateway and Hub strategy, in contrast, proposes that growth of the propulsive economic growth sectors should be divided between the Gateway of Waterford and the hubs on the basis of their existing populations.

*Projections for Waterford PLUTS Study Area*

At the sub-regional level, the projection methodology involved a two-stage approach. It is based on the methodology used in the Study to assess the various alternative strategies as set out later in **Chapter 6**. The two components of this approach are as follows:

- Projections for Waterford and its Hinterland – This sets the targets for Waterford in a regional context and defines its relationship with the surrounding satellite towns and other settlements;
- Projections for Waterford City and Environs – This sets the detailed targets for the City and Environs as a basis for land use and transport planning.

For Waterford City and its Hinterland, three alternative population projection scenarios were considered:

1. Present Trends - This examined the pattern of population growth in the City and environs, the satellite towns and rural areas in the period 1996 to 2001 (the latest period for which solid evidence was available to the demographers at the time of writing of the relevant working papers) and continues the shares of growth experienced in that period, over the next twenty years;
2. City and Satellites – This scenario assumed that propulsive employment would be allocated to Waterford, New Ross, Carrick-on-Suir and Tramore in accordance with 1996 populations. The resultant population, household and workforce projections were then based on the total jobs and assumed commuting patterns;
3. City Focus – In this scenario, 90% of growth in propulsive employment was allocated to Waterford and the remainder to New Ross, Carrick-on-Suir and Tramore. The resultant population, household and workforce projections are then based on total jobs and assumed commuting patterns.

Following an assessment of the merits of the three sub-regional strategies, a further three sub-regional strategies were considered under the City Focus scenario as follows:

- A – Northern Emphasis;
- B - Southern Emphasis;

C – Balanced City.

The scenarios are concerned with the spatial distribution of jobs and population within the various parts of the City in order to test their land use and transportation impacts. A discussion of these issues is articulated further in **Chapter 7 – Alternative Spatial Development Strategies**.

**Projection Model Outputs**

*Scale of Growth in PLUTS Study Area*

The PLUTS Study Area currently accounts for some 30% of the population of the South-East region. Under the Current Trends Scenario, the population of the PLUTS Study Area is projected to rise from an estimated level of 116,000 in 2000 to almost 138,000 in 2020. However, the ratio of population in the PLUTS Study Area to population in the South-East region would remain static under this scenario over the 20 year Study period. Under an active Gateway strategy, the population of the PLUTS Study Area would increase to as high as 160,000 people. This would result in an increase of its share of the regional population to 33% over the 20-year Study period. A Gateway and Hub emphasis would result in a population of almost 148,000 in the PLUTS Study Area.

**Table 4.3** below sets out the population projections in the PLUTS Study Area in 2020 based on Current Trends. **Table 4.4** sets out the population projections in 2020 based on the Gateway and Gateway and Hubs strategies.

Table 4.3: **Regional Population in PLUTS Study Area - Current Trends Scenario**

	1991		1996		2000		2020	
	No.	%	No.	%	No.	%	No.	%
South-East Region	383,188		391,517		402,700		453,657	
PLUTS Study Area:	107,196	28	111,166	28	115,691	29	137,931	30

Table 4.4: **Regional Population in PLUTS Study Area – Economic Growth Scenario**

	1991		1996		2000		2020	
	No.	%	No.	%	No.	%	No.	%
South-East Region	383,188		391,517		402,700		482,111	
PLUTS Study Area:								
• EGS 2-2 Gateway	107,196	28	111,166	28	115,691	29	160,140	33
• EGS 2-2 Gateway and Hubs	107,196	28	111,166	28	115,691	29	147,547	31

*Distribution of Population in PLUTS Study Area*

The distribution of the projected population in the PLUTS Study Area for each of the three projection scenarios is indicated in **Tables 4.5 - 4.7**. The assumptions made for each of the scenarios are set out below.

### Scenario 1: Present Trends

In this scenario, it is assumed that:

- Most propulsive jobs go to Waterford City and Environs;
- Additional growth is taken from other Gateways and added to Waterford;
- Daily commuting levels rise to 10,000 trips;
- Growth is divided between satellite towns and rural areas in accordance with 1996 population

Table 4.5: **PLUTS Study Area Population – Present Trends**

	1996	2000	2020
County Borough <sup>(1)</sup>	44,153	46,216	58,350
Satellites	19,626	21,472	37,935
Remainder of PLUTS Study Area	47,387	48,002	67,574
<b>TOTAL</b>	<b>111,166</b>	<b>115,690</b>	<b>163,859</b>

(1) City plus population in Kilculliheen (pt) and Killoteran DEDs in Cos. Kilkenny and Waterford respectively

### Scenario 2: City and Satellites

In this scenario, it is assumed that:

- Most propulsive jobs go to Waterford City and Environs;
- Additional growth taken from other Gateways and added to Waterford;
- Daily commuting rises to 10,000 trips;
- 75% of growth in the PLUTS Study Area outside Waterford City & Environs goes to satellite towns. 20% is assigned to specified towns and villages as set out in **Appendix F**. The remaining 5% goes to smaller settlements.

Table 4.6: **PLUTS Study Area Population - City and Satellites**

	1996	2000	2020
County Borough <sup>(1)</sup>	44,153	46,216	58,350
Satellites	19,626	21,472	48,498
Remainder of PLUTS Study Area	47,387	48,002	57,011
<b>TOTAL</b>	<b>111,166</b>	<b>115,690</b>	<b>163,859</b>

(1) City plus population in Kilculliheen (pt) and Killoteran DEDs in Cos. Kilkenny and Waterford respectively

### Scenario 3: City Focus

In this scenario, it is assumed that:

- Most propulsive jobs go to Waterford City and Environs;
- Additional growth taken from other Gateways and added to Waterford;
- Daily commuting remains at existing levels;
- 75% of growth in the PLUTS Study Area outside Waterford City & Environs goes to satellite towns. 20% is assigned to specified towns and villages as set out in **Appendix F**. The remaining 5% goes to smaller settlements.

Table 4.7: **PLUTS Study Area Population – City Focus**

	1996	2000	2020
County Borough <sup>(1)</sup>	44,153	46,216	74,099
Satellites	19,626	21,472	36,686
Remainder of PLUTS Study Area	47,387	48,002	53,074
<b>TOTAL</b>	<b>111,166</b>	<b>115,690</b>	<b>163,859</b>

(1) City plus population in Kilculliheen (pt) and Killoteran DEDs in Cos. Kilkenny and Waterford respectively

The approach recognises that development will continue to a significant extent outside the largest settlements. The seventeen centres to which population growth is attributed give a broad geographical spread of development, whilst also recognising the need to curtail the present level of urban generated rural development.

No cognisance has been taken of development constraints for the purposes of this component of the strategic exercise, though some centres will naturally require greater control of development because of their developmental and environmental sensitivity. In particular, the sensitivity of Tramore as a coastal settlement that has experienced significant development pressure in recent years must be carefully considered. Further development of the town is likely to lead to more extensive commuting to Waterford City.

The projections and relative relationships between Waterford City, the satellite towns and other settlements in the PLUTS Study Area have been set out in **Chapter 3.3**.

#### *Population Distribution within Waterford City and Environs*

The population distributions associated with each of the strategies for Waterford City and Environs are set out in **Table 4.8**. The projections for the City and Environs have been outlined in detail in **Chapter 2.4**.

Table 4.8: **Forecast Population Distribution in Waterford City & Environs under Three Spatial Scenarios**

Scenario	Population Change 2000-2020		
	North	South	Total
A (80/20)	23,015	5,754	<b>28,769</b>
B (20/80)	5,754	23,015	<b>28,769</b>
C (50/50)	14,385	14,385	<b>28,769</b>

This table reflects the distribution north and south of the River in accordance with the methodology for considering alternative strategies. A discussion of the merits of the various alternatives is set out in **Chapter 6**.

It should be noted that the area that is being considered under these projection scenarios is narrower than the City and Environs and comprises the City plus the DEDs of Kilculliheen and Killoteran in Counties Kilkenny and Waterford respectively. This is because it is proposed to limit the growth of the City to this area, with growth elsewhere in the environs being organic in nature. Also, the commuting figures quoted above refer to the daily net inward flow to the County Borough.

#### 4.4 Land Requirements for Housing

Demographic projections form the basis for determining future housing needs. Household formation rates are applied to these projections so as to determine the projected number of new units required, their market segmentation and spatial allocation within the PLUTS Study Area.

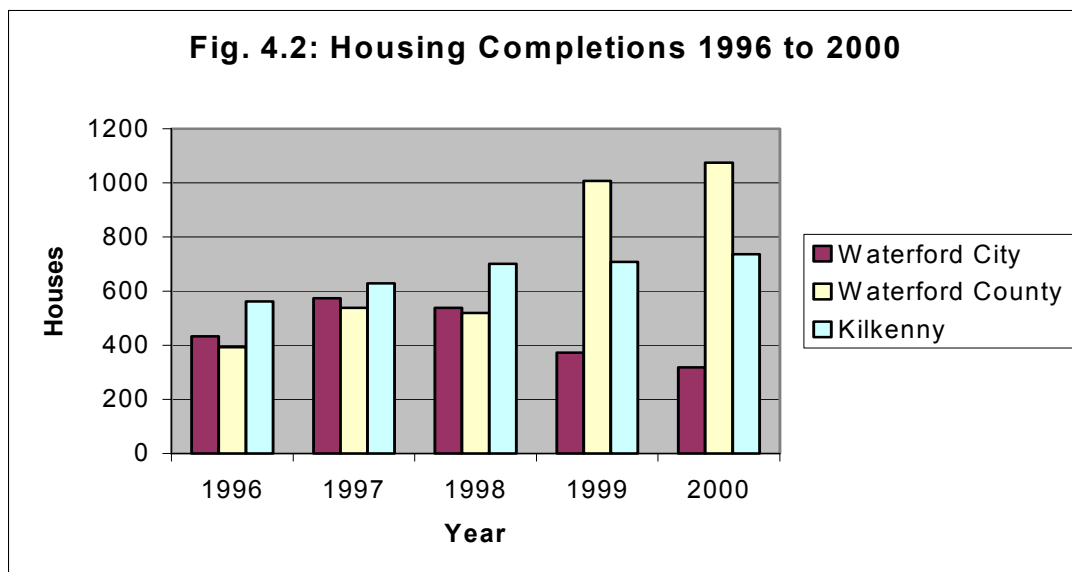
The following paragraphs focus primarily on the land and housing requirements for Waterford City and Environs based on the demographic projections set out earlier in **Section 5.3**.

##### Current Housing Demand

Within Waterford City, the construction industry completed an average of 447 houses per annum during the period 1996 to 2000 or a total of 2,237 units in the City. There has also been significant housing development during the same period in the East Waterford and South Kilkenny areas.

**Figure 4.2** illustrates the trend in housing completions in Waterford City, Waterford County and Kilkenny in the period from 1996 to 2001

Figure 4.2: **Housing Completions 1996 to 2000**



There is evidence from a review of the property market, that private housing demand arising from within the City is being supplied outside the City and that the demand is largely in the middle and upper ranges of the market. This is reflected in the population statistics presented earlier, which show a pattern of diffused growth. This 'leakage' is into rural areas and the satellite towns.

There is no corresponding evidence however that the lower end of the private, owner-occupier market is accommodated outside the City. Affordability issues are concentrated in this sector of the market. Similarly, the social housing demand is catered for solely within the City, other than where Waterford Corporation itself

provides social housing outside the City boundary. There is also potential for the in-migration of social applicants in the future.

It is notable that all this activity outside the City is happening whilst there remain considerable undeveloped residential land banks within the City itself.

Existing housing densities in Waterford are generally fairly low, and there is little variety in the type and size of dwellings on the market. The two planning authorities have also put in place policies to promote a wider mix of house types within their respective planning areas in response to demographic changes, in particular the continuing reduction in household sizes and the need to provide affordable housing to all sections of the community.



Despite the general need to move towards higher housing densities, many parts of the City, notably in the south-east of the City along the Dunmore Road and on the north bank provide areas of very low density housing in mature, landscaped settings. In the Kilkenny Development Plan these areas are clearly defined as “Arcadian” residential areas, where the policy is to preserve their distinctive character and density on environmental grounds.

### **Zoning and Land Availability for Residential Development / Housing Land Requirements**

In purely numerical terms, there is an adequate supply of housing land provided within the City bounds. **Table 4.9** below summarises the capacity of currently zoned, undeveloped, residential lands in the City of Waterford and in Kilculliheen. The Ferry Bank zoning provision does not relate to any proposed development of the North Quays, which are zoned City Centre Commercial. The requirements in terms of population under each of the alternative strategies for Waterford City and Environs are also set out. The capacity and requirement figures are based on densities in the range of 30-40 units per hectare and an average household size of 2.5.

Table 4.9: Capacity of Zoned, Undeveloped Residential Lands &amp; Requirements under Each Strategy

	Capacity (hectares)	Land Required (hectares)		
		Scenario A	Scenario B	Scenario C
<b>South of River Suir</b>				
Gracedieu	148.8	76.7	148.8	102.3
South West	50.1	0	50.1	34.5
South	46	0	46	31.6
South-East *	65	0	27.9	0
Inner Areas	25.6	0	25.6	17.6
<b>Total South of River</b>	<b>335.5</b>	<b>76.7</b>	<b>298.4</b>	<b>186.9</b>
<i>Surplus (Shortfall)</i>		<i>258.8</i>	<i>37.1</i>	<i>148.6</i>
<b>North of River Suir</b>				
Ferry Bank	4.3	4.3	4.3	4.3
Kilkenny environs	192	192	142	142
<b>Total North of River</b>	<b>196.3</b>	<b>196.3</b>	<b>146.3</b>	<b>146.3</b>
<i>Surplus (Shortfall)</i>		<i>0</i>	<i>50</i>	<i>50</i>
<b>TOTAL</b>	<b>531.8</b>	<b>273</b>	<b>444.7</b>	<b>373.8</b>
<i>Surplus (Shortfall)</i>		<i>258.8</i>	<i>87.1</i>	<i>198.6</i>

\* Partially committed

The implications of increasing the proportion of smaller dwellings in the future housing stock because of changing household structure will be to allow overall housing densities to be increased throughout Waterford. This is in line with Government policy to minimise the loss of agricultural land and to reduce the per capita cost of providing services and supporting infrastructure. Higher densities are also necessary to support good quality public transport. However, it is important to emphasise that this does not imply a lowering of environmental conditions for new housing. Rather, the Strategy will require far more attention be given to the quality of design and layout of new residential areas than has hitherto been generally achieved.

Land requirements are estimated by calculating the gross density for each type of development, i.e. the amount of land required for housing plus an additional area to provide local roads, open space and community facilities. The total housing land requirements can vary depending upon actual densities achieved and the increasing opportunities to create new dwellings through the conversion of large houses, the sub division of large plots, and the creation of dwellings above shops.

Average residential densities are expected to be highest in the City and in public transport corridors. In the centre of Waterford, both infill developments in the City Centre and developments in the North Quays should aim to achieve 40 dwellings per hectare (net). Elsewhere in the City, 30 dwellings per hectare (net) is considered an achievable target.

## 4.5 Employment Projections

### Baseline Employment

The baseline (2000) employment data emerged from the traffic modelling calibration process. From this, it was apparent that the City and Environs dominates the jobs scene, with an estimated 53% of jobs in the contiguous built-up area of the City. Taken together, Waterford, Carrick-on-Suir, New Ross and Tramore account for nearly three-quarters of all jobs in the PLUTS Study Area and some 80% of non-agricultural jobs.

Within the City and Environs, some 46% of jobs are 'basic' rather than 'induced'. (Non-basic industries are dependent on the local (that is, regional) population and basic industries produce for wider markets, national and international.) This figure is only 24% in the remainder of the area, indicating the extent to which the City itself is the driving force for the Region and its welfare critical to the PLUTS Study Area as a whole.

However, there remains a relatively heavy reliance on manufacturing, and particularly traditional manufacturing. Only 8% of employment is in the advanced sectors. Only 15% (500 jobs) of advanced sector jobs have been created by new enterprises established in the last ten years. This reliance on traditional sectors manifests itself in lower skill levels in Waterford compared with other cities in Ireland. Another issue of concern is the fact that the level of internationally traded services in the South-East region is low by international standards – part of a general pattern of the centralisation of such services in Dublin.

### Projections

For the State as a whole, the employment projections were based on industry-specific growth rates derived from the *ESRI Mid-Term Review 1995-2005*. At the Regional level, this method was combined with a simple model that related non-basic employment to the Regional population.

In order to provide a basis for projecting population on an Economic Growth Scenario basis, employment estimates were required for each period to 2030. The starting data were the 1996 Census breakdowns by industry of the working population resident in each region. It was assumed that these were equivalent to the Regional employment structures – i.e. that the effects of commuting were negligible at the Regional level.

The calibration procedure for updating employment to the year 2000 was problematic because the ESRI Mid-Term Review does not give a complete employment structure for either 2000 or any of the preceding years. It simply gives percentage growth rates, together with some data on the level of employment in some of the industries at differing points in time. Application of the ESRI growth rates to the 1996 Census national structure gave 1.579 million jobs in the year 2000, whereas some 1.648 million would be expected from the latest CSO estimates. The difference is partly because the ESRI employs different base data but mainly, we believe, because employment growth has been greater than was suspected in 1999. Increasing the growth rates for the main growth industries bridged the difference.

Basic employment in each region was projected to 2000 in line with the growth rates implied by the (corrected) national figures. For regional market employment, the (corrected) national figures were firstly expressed as rates per 1,000 population using the CSO national population estimate of 3,787,400 for 2000. The 1996 regional rates per 1,000 population were then expanded in line with the national change from 1995 to 2000. The results were applied to the CSO 2000 estimates for regional populations to give regional market employment. Total projected employment for each region bears a reasonable relationship to the current trends projections of the Regional labour force. The implied unemployment rate is around 5%.

At the national level, the 2000 structure was projected forward using ESRI growth rates for 2000 to 2005. This gave 1.858 million jobs, which on the basis of likely activity rates and unemployment rates is equivalent to a total national population of about 4.143 million. This has been left unchanged for the purposes of the current illustrative exercise. Basic employment in each region was projected using ESRI growth rates. It was possible to iterate between jobs and migration until a solution to regional population and workforce levels was found. This procedure was repeated for each region and each time period.

The Economic Growth Scenario modifies the Regional growth trends established above, by re-assigning a proportion of the jobs growth of the basic sectors out of Dublin to other regions. **Table 4.10** shows the extent of this redistribution of basic sector jobs from Dublin and the Mid-east in percentage terms, assumed for the two options used under the EGS2-2 Scenario. In each case, the movement is front loaded, since the first five to ten years are the most critical in determining the success of any spatial policy. The levels chosen are illustrative only.

Table 4.10: **Percentage movement of basic sector jobs from Dublin + Mid-east**

	2000-2005 % Movement	2005-2010 % Movement	2010-2015 % Movement	2015-2020 % Movement
EGS 2-2	24	16	16	16

The impacts of commuting on the overall distribution of population are built into the model in this scenario. In the other scenarios, it is assumed that there are no cross-regional journey to work flows. Whilst this is a reasonable assumption for most regions, the faster growth and greater pressure which arises from this scenario, indicates that some provision should be made for persons resident in the Border, Midland and South-eastern regions, who are living in these regions but commuting to Dublin daily.

The total increase in the number of commuters is assumed to be 1,000 per annum or 20,000 over the twenty-year period. They are assumed to be all in the basic sectors. These jobs are regarded as having been transferred to the Border region (40%), the Midland Region (40%) and the South-East Region (20%) in order to simulate the spin-off impact through household expenditure etc. The 20,000 basic jobs must then be added back into the Dublin and Mid-east region over the period for the purpose of calculating the shift in such jobs that will actually be required.

## Distribution of Future Employment

**Table 4.11** below indicates the proposed distribution of jobs in 2020 under each of the sub-regional scenarios as well as for each of the City focus strategies for Waterford City and Environs. The division of jobs outside the City and Environs, between the satellite towns, other settlements and the rural areas, is based on the following assumptions:

1. A presumption of zero net change in jobs is made for the designated settlements. These are, for the most part, smaller locations, which predominantly comprise housing with a limited range of local services. It is unlikely that the growth of these services locally will exceed the reduction in agricultural employment, though it may match it.
2. The change in jobs in the remainder of the rural areas in the PLUTS Study Area is set at a reduction of 1% per annum. The rate of decline in agricultural employment is set at 2% per annum in these areas, but it is assumed that this is offset in some measure by development of jobs in tourism and local services.
3. The balance of employment growth is allocated to the three satellite towns.

Table 4.11: **Distribution of Jobs in 2020 under Alternative Strategies**

	Present Trends	City & Satellites	City Focus A	City Focus B	City Focus C
City – North	6,617	6,617	8,083	6,617	7,763
City - South	33,831	33,831	32,365	33,831	32,685
Satellites					
New Ross	7,042	7,042	7,042	7,042	7,042
Carrick-on-Suir	5,496	5,496	5,496	5,496	5,496
Tramore	5,088	5,088	5,088	5,088	5,088
Remainder of PLUTS Study Area	15,515	15,515	15,515	15,515	15,515
<b>Total</b>	<b>73,589</b>	<b>73,589</b>	<b>73,589</b>	<b>73,589</b>	<b>73,589</b>

Note: City jobs and workers include those located in Kilculliheen (pt) and Killoteran DEDs in Cos. Kilkenny and Waterford respectively. Definition of Satellites is more restrictive, for technical modelling reasons, than that used elsewhere in this report. Numbers in this table relate to those at work rather than the workforce, which includes unemployed persons.

## 4.6 Commercial Land Requirements

### Industrial Development

**Table 4.12** sets out the existing position regarding industrial land zoning in Waterford together with assumptions regarding the possible employment potential if these lands were to be fully developed. These projections must be tentative at best, and should be regarded as maxima. There are restrictions on development of some of these lands (for example at Grannagh). The densities assumed are 150 persons to the hectare.

Table 4.12: **Industrial Land Capacity**

Location	Ownership	Hectares	Employment
<b>North of the River</b>			
Christendom *		10	1,500
Grannagh		32	4,800
Belview	IDA	136	20,400
<b>Total North of the River</b>		<b>178</b>	<b>26,700</b>
<b>South of the River</b>			
Carrickphierish *	WCC	24	3,600
Knockhouse	IDA	16	2,400
Kilbarry	WCC	6.5	975
Ballybeg	WCC	10.5	1,575
Ballinakill	WCC	1.6	240
Bilberry	Private	2.1	315
Waterford Tech Park	IDA	28	4,200
<b>Total South of River</b>		<b>88.7</b>	<b>13,305</b>
<b>TOTAL</b>		<b>266.7</b>	<b>40,005</b>

\* Partially developed or committed – subject to confirmation

### Retail Development

Growth in retail activity has been a strong feature of Irish economic activity in the 1990s and this has been reflected in the growth of retail floor space in Waterford. The bulk of comparison spending has remained within the City Centre, in contrast to some other cities in Ireland.

The position of the City Centre is extremely strong in pure comparison goods terms. Currently, 91% of the gross floor space of comparison goods within the County Borough area is in the central area.

The current position regarding the volume and disposition of retail floorspace is set out in the Waterford City and Environs Strategic Development Plan. Since the projections of population on which future demand is based are somewhat lower than that now envisaged, the volumes of floorspace must also be regarded as low.

Under the PLUTS, the resultant land requirement for the forecast required expansion in comparison floorspace over the Study period is in the order of 15 hectares, excluding parking, which would be accounted for separately in the City Centre.