A2

Population and Housing Modelling

Population and Housing Projections for County Waterford 2011 to 2017

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1. Introduction and structure of this paper

This working paper provides detailed discussion of key issues relating to the expected growth and distribution of population in County Waterford, with concomitant housing and land zoning requirements, as well as, when linked to expected income and house price movements, requirements for the provision of affordable housing.

The paper sets out a single scenario based on demographic guidance provided by the DEHLG, tabulating the assumptions used and the principal results. It then checks these scenarios against supply side considerations in the housing sector.

Although a single scenario for population has been used, there are a number of variants that may be adopted related to, inter alia, growth of income and house prices. The sensitivity of the modelling to changes in these parameter values and the implications for policy, in particular, policy on Part V of the 2000 Planning and Development Act, are explored.

2. Approach to population projections for County Waterford and sub-County Allocations

In previous work carried out for Waterford County Council in 2008, projections were based on the projected growth in the defined area of the Waterford Gateway as defined by the PLUTS study for Waterford on the one hand, and the rest of the County on the other.

The PLUTS area was further divided into the City, the environs as defined by that plan (which included part of County Waterford), the three satellite towns (including Tramore in County Waterford) and the remainder of the PLUTS area.

The publication in August by the Department of the Environment of "Regional Planning Guidelines Review: Gateway and Hub Population Targets", when taken together with regional population targets, both considerably changes and simplifies the projection process, in the following respects:

1. Local Authorities are instructed to use the 'low' alternative in their projections at regional level;
2. Specific targets are included for Gateways and hubs for 2022;
3. The area of the Waterford gateway is defined by the Department as the city and suburbs as determined by the CSO in 2006. There are no census suburbs in County Waterford [1].

The Department indicate that population targets set out should be the guide to which policies and ongoing decision-making should be directed (even though some Gateways or Hubs may not reach their minimum targets by the milestone dates in the RPGs).

The Department further sets out the relative growth rates of gateways and hubs in comparison to the general growth of population, indicating that

- Gateways and hubs should grow faster than the remainder of the State;

- The growth in Gateways other than Dublin in the period 2016 to 2022 should be 1.5 faster than the regions of which they are a part;

- The growth in hubs in the period 2016 to 2022 should be 1.33 faster than the regions of which they are a part.

For both gateways and hubs, the period from 2010 to 2016 is considered to be a transitional period between the current growth rates and the minimum growth rates that are targeted for the 2016 to 2022 period.

Regarding the distribution of the remainder of the regional population, the Department says that this should be distributed across the rest of the region as a matter to be resolved within the process of making RPG's

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[1] The guidelines say in relation to Waterford "To support the strategic development of the city in line with the Waterford Planning and Land Use Transport Strategy, the figures are to be applied to the area of the prevailing Waterford City Council Development Plan and the Environs of Waterford City Development Plan of Kilkenny County Council."

The Department indicate that the land needs of the Gateways and hubs must be addressed first, followed by meeting the needs of other towns and rural areas.

Finally, the guidelines stress that population distribution must support policies in relation to:

1. Achievement of compact sustainable urban development
2. Integration of future housing, employment, retailing and other community services
3. Implementation of the planning guidelines on sustainable rural housing
4. Promotion of development at locations both along existing or future planned public transport corridors and or that have been serviced or have good prospects of being serviced by water services infrastructure

3. County Population Projections

Taking the DEHLG framework set out above, Table 1 may be derived for the region and its constituent elements:

Table 1: Projections in a regional context

South East Region	2002	2006	Percentage of County Remainder in 2002	Percentage of County Remainder in 2006	2010	2016	2022
COUNTIES							
Waterford City	44,594	45,748					
Waterford County	*56,952*	*62,213*			*68,932*	*73, 223*	*79,495*
Carlow	46,014	50,349					
Kilkenny	80,339	87,558					
Tipperary, S.R.	79,121	83,221					
Wexford	116,596	131,749					
South East Region	**423,616**	**460,838**			**507,900**	**542,200**	**580,500**
GATEWAYS, HUBS AND REMAINDERS							
Waterford Gateway	46,736	49,213			52,500	56,500	62,500
Kilkenny Hub	20,735	22,179			24,000	25,800	28,200
Wexford Hub	17,235	18,163			21, 000	23,500	26,700
Remainder of Region	338,910	371,283			412,000	439,100	467,000

Table 1 has been completed in the following way:

1. Regional totals have been abstracted and where required interpolated directly from the DEHLG guidance notes

2. Gateway and Hub totals have been abstracted and where required interpolated directly from the DEHLG guidance notes

3. County balances have been obtained by taking the Regional residual population in any year, after removal of gateway and hub populations, and assuming this is distributed by County as it was in 2006

4. County Household Projections and Land requirements

Table 2 sets out interpolated population figures derived from Table 1, for 2011 and 2017, at County level. It further develops these data to provide estimates of required house construction during the plan period. The steps used to obtain these results are as follows:

1. The number of households in each year is calculated by application of an average household size which is projected on the basis of observed trends

2. Application of reduced household size to households existing in 2006 provides an estimate of population in these households in 2011 and 2017

3. When these populations are deducted from the total populations projected for these years, the numbers in new households is revealed

4. When divided by projected average household size, the net number of new households results

5. These figures are then grossed up to allow for obsolescence and second homes, and the result is the number of new houses required to be built.

Table 2: Houses required at County level during the Plan period

County Waterford	2006	2011	2017
Population	62,213	69,647	74,233
Private Households	21,527	25,326	27,392
Ratio of total persons to private households	2.89	2.75	2.71
Number of persons in households existing in 2006	62,213	59,199	58,338
Persons in new households	-	10,448	15,895
Number of new households	-	3,799	5,865
Total households	21,527	25,326	27,392
Net change in number of households		3,799	2,066
Ratio of gross to net (includes allowances for vacs.)		1.75	1.75
Number of new houses required to be built		6,649	3,616
Annualised rate of house building required		933	
Average number built in last ten years		1,189	

5. Allocation of growth to settlement hierarchy

The population and households projected at County level must now be allocated to levels in the settlement hierarchy [2].

The approach that is taken is as follows:

1. To accept the population projection for the Primary Centre of Dungarvan set out in regional planning guidelines demographic projections (i.e. 12,000 in 2016);
2. To select a figure for the Secondary Centre of Tramore based on half the rate of growth experienced in the period 2002 to 2006;
3. To allocate all remaining population growth to named settlements in the hierarchy of centres, with 60 per cent going to district centres

On this basis, Table 3 is derived:

Table 3: Allocation of population and household growth to settlement hierarchy

Type of Settlement	Population			Households			New build 2006 to 2017
	2006	2017	Increase	2006	2017	Increase	
Primary Centre	8,362	11,882	3,520	2,893	4,385	1,491	2,610
Secondary Centre	9,634	10,924	1,290	3,334	4,031	697	1,221
District Centre	8,614	12,940	4,326	2,981	4,775	1,794	3,140
Other centre	4,803	7,687	2,884	1,662	2,836	1,175	2,055
Remainder	30,800	30,800	0	10,657	11,365	708	1,239
TOTAL	62,213	74,233	12,020	21527	27,392	5,865	10,264

All developments in the remainder of the County are assumed to take place on white lands.

6. Adequacy of existing zoned land to accommodate required housing development

Requirements for centres in the County may then be compared with the amount of zoned and available land in 2009.

Table 4 shows the committed and uncommitted land available in each centre by type of centre, based on 2009 data (using the settlement hierarchy proposed for the 2011-2017 CDP)

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[2] No allocations to individual settlements other than Dungarvan and Tramore are undertaken here.

Table 4: Disposition of zoned lands in June 2009

Settlement Node	Total	Developed	Committed and/or undeveloped
Primary Service Centre			
Dungarvan Town Plan	-	-	142.0
Dungarvan Environs	58.8	30.5	28.2
Secondary Service Centre			
Tramore LAP	-	-	285.2
District Service Centres			
Ardmore	60.4	33.6	26.8
Ballyduff (East of County)	15.9	7.3	8.6
Cappoquin	53.3	22.4	30.9
Cheekpoint	34.7	11.7	23.0
Crooke	34.0	21.1	12.9
Dunhill	15.3	9.7	5.7
Dunmore East	***174.7***	***106.1***	***68.5***
Kill	13.6	7.3	6.3
Kilmacthomas	53.2	24.8	28.4
Kilmeaden	35.1	32.5	2.7
Lismore	77.1	34.6	42.5
Portlaw	127.2	57.4	69.8
Stradbally	42.3	26.8	15.4
Tallow	80.4	29.6	50.8
Local Service Centre	-	-	-
Aglish	25.2	9.1	16.2
Ballyduff (West of County)	4.4	1.6	2.8
Ballymacarbry	25.8	14.9	10.8
Bunmahon	24.3	19.2	5.1
Clashmore	18.2	7.6	10.6
Clonmel Environs	46.5	11.2	35.3
Clonea Power	11.2	6.7	4.5
Maoil na Choirnigh	15.6	8.3	7.2
Villerstown	20.8	7.7	13.0
Settlement Nodes	-	-	-
Annestown	3.3	1.6	1.6
Baile na nGall	13.7	12.2	1.5
Ballinroad	49.7	32.5	17.2
Bawnfune	17.4	4.8	12.6
Fenor	9.1	1.7	7.3
Heilbhic	4.9	2.6	2.3
Knockanore	7.5	0.9	6.6
Lemybrien	15.7	6.1	9.6
Passage East	2.1	2.0	0.1
Piltown	8.3	4.4	4.0
Rathgormuck	11.0	1.9	9.1
Sean Phobal	3.5	0.7	2.8
Touraneena	11.0	7.2	3.8
Total	**1,224.8**	**620.2**	**889.8**

Source: WCC Planning Section

Drawing together the two data sets presented in Tables 3 and 4, we obtain the balances set out in Table 5.

Table 5: Surplus (Deficit) of development land available at each level of the settlement hierarchy

Type of Settlement	New build 2006 to 2017	Undeveloped and/or committed land available 2009 and density of development in hectares				Housing capacity of lands to 2017 *	Surplus (shortfall) of housing unit availability
		Higher Density Urban (30)	R1 (20)	R2 (10)	RP/R3 (not available before 2017)		
Primary Centre	2,610	142.0	28.2	-	-	4,825	2,215
Secondary Centre	1,221	199.7	25.7	59.8	-	5,992	4,771
District Centre	3,140	-	259.4	29.5	103.4	5,483	2,343
Other centre	2,055	-	70.2	74.2	39.7	2,147	92
Remainder	1,239	-	-	-	-	-	-
TOTAL	10,264	341.7	383.6	163.5	143.1	18,446	9,422

Notes: (1) District Centre heading includes Dunmore East
(2) Secondary Centre lands excludes town centre zoning in Tramore
(3) Remainder refers to building outside centres with zoned lands

It should be noted that the matter of sanitary services infrastructure and its adequacy has not been dealt with in these projections.

Also, in relation to the 'surplus' figures set out in Table 5, it should be noted that:

- o An extra three years of building capacity has been allowed for, in line with Departmental recommendations;
- o There is an assumed 75% surplus of housing completions over net household change. Although some of this related to obsolescence, in recent years more important factors have been investment properties allowed to remain vacant, and holiday and second homes. With a more difficult economic environment, one would expect these numbers to be reduced
- o There is currently a high level of vacancies which will be reduced over the period ahead and this will contribute to the meeting of housing requirements, in addition to the lands shown in Table 5.

7. Affordable Housing Projections

The Planning Authority is obliged to ensure that adequate provision is made for affordable housing and must set a requirement for the provision of such housing by private developers under Part V of the 2000 Planning and Development Act.

The requirements for such housing have been calculated, based on a large number of parameter values and assumptions, which are summarised in an annex to this paper and which are further detailed in an MS Excel Workbook supplied to the County Council, together with a technical note on its application.

Table 6 summarises the range of outcomes arising from the population and household projections set out above, the expected local authority and voluntary and co-operative housing effort and a variety other parameter values

Table 6: Sensitivity ranges in projections of affordable housing requirements

SENSITIVITY ANALYSIS SUMMARY					Population Growth assumption:		DEHLG Guidelines		
					Baseline house price assumptions:				
					Percentage of houses selling for less than		180,000	in 2007 is	7.5
					Percentage of houses selling for less than		190,000	in 2007 is	10.0
					Cheapest house in 2007 (averaging all areas)		170,000		

Part V Requirement in percentage terms					Part V Requirement in total housing units 2011 to 2017				
Mortgage Lend Rate	**5%**				**Mortgage Lend Rate**	**5%**			
Annual average increase in house prices	Average annual increase in disposable income				Annual average increase in house prices	Average annual increase in disposable income			
	2	3	4	5		2	3	4	5
-2	29.3%	27.7%	26.2%	24.8%	-2	936	882	833	787
-1	31.9%	30.1%	28.4%	26.9%	-1	1,019	960	906	858
0	34.6%	32.7%	30.9%	29.2%	0	1,108	1,044	986	932
1	37.0%	35.2%	33.5%	31.7%	1	1,186	1,128	1,071	1,013
Mortgage Lend Rate	**6%**				**Mortgage Lend Rate**	**6%**			
Annual average increase in house prices	Average annual increase in disposable income				Annual average increase in house prices	Average annual increase in disposable income			
	2	3	4	5		2	3	4	5
-2	32.5%	30.7%	29.1%	27.6%	-2	1,039	980	926	877
-1	35.0%	33.3%	31.5%	29.9%	-1	1,121	1,066	1,007	954
0	37.5%	35.9%	33.9%	32.4%	0	1,201	1,149	1,086	1,036
1	40.1%	38.3%	36.6%	34.8%	1	1,288	1,229	1,172	1,115
Mortgage Lend Rate	**4%**				**Mortgage Lend Rate**	**4%**			
Annual average increase in house prices	Average annual increase in disposable income				Annual average increase in house prices	Average annual increase in disposable income			
	2	3	4	5		2	3	4	5
-2	26.3%	24.8%	23.4%	22.1%	-2	838	788	742	700
-1	28.6%	27.0%	25.5%	24.1%	-1	913	860	811	765
0	31.1%	29.4%	27.7%	26.3%	0	995	936	883	835
1	33.8%	31.9%	30.1%	28.5%	1	1,082	1,019	961	908

The sensitivity analysis set out in Table 6 contains the following parameter ranges:

- Mortgage lending rate: 4 to 6 per cent
- Annual average house price increase: -2 to 1 per cent
- Annual average increase in disposable income (at market prices): 2 to 5 per cent

Using this range of parameter values, the range of outcomes for Part V affordable housing requirements obtained was 703 to 1,286

The Part V percentage exceeds 20 per cent in every case, ranging from 22.0 to 39.7 per cent.

The conclusion must therefore be that the continuation of a 20% Part V requirement from private development is a robust policy decision.

It should be noted, however, that there is an inherent contradiction in these projections, in that the DEHLG population guidelines have been used together with medium term ESRI guidelines on income and recent projections of house prices, which are based around the current monetary and fiscal position, associated with much slower population growth.

8. Key results from the modelling process

Table 7 summarises the key elements of the overall projection process for population, households and affordable housing at County level. Three variants are produced which are deisgned to address the implications of the inherent contradictions between DEHLG population projections and ESRI income and house price scenarios, as well as the uncertainty which now attends public sector housing provision in the current fiscal climate.

Table 7: Key Results from Scenarios Modelled

KEY RESULTS (central projections)	Baseline *	Baseline with better income and houseprice performance **	Baseline with increased public sector housing ***	Baseline with better income and houseprice performance and increased public sector housing ****
Population increase April 2006 to April 2017	12,020	12,020	12,020	12,020
Household increase April 2006 to April 2017	6,830	6,830	6,830	6,830
New houses required 2006 to 2017	10,264	10,264	10,264	10,264
New houses required 2011-2017	5,535	5,535	5,535	5,535
Affordable homes required 2011 to 2017	909	819	909	819
Affordables to be provided through Part V	909	819	909	819
Part V percent requirement	28.5%	25.8%	28.5%	25.8%

*   Expected public housing programme, recession influenced income and house prices
**   Expected public housing programme, non-recession influenced income and av. house price increase of 3% per annum
***   Double public housing programme, recession influenced income and house prices
****   Double public programme, non-recession influenced income and av. house price increase of 3%

9. Testing scenario outcomes against supply-side issues

An alternative approach to projection of population and household change is to look at the capacity of the construction sector and set realistic targets for output over the period ahead, based on historical performance, recent trends and national projections of housing activity.

The number of dwellings required in the plan period (2011 to 2017) under the projections set out above, averages 940 per annum over the whole period 2006 to 2017. In this regard, it is instructive to examine recent trends in the County. The lead indicators set out in Tables 8 and 9 – New House Guarantee Registrations, Commencement Notices, Planning Applications and House Completions, confirm the present severe downturn in building activity.

Table 8: Lead Indicator Set 1: New House Guarantee Registrations, Commencement Notices, Planning Applications

Indicator	2004	2005	2006	2007	2008	2009 (first 5 months)
New House Guarantee registrations	1,771	1,526	1,278	830	310	39
Commencement notices	1,554	1,092	895	629	396	103
Planning Applications	1,607	1,540	1,704	1,624	1,119	

Table 9: Lead Indicator Set 2: House Completions

1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
350	373	393	539	520	1,007	1,074	1,000	1,324	1,171	1,248	1,369	1,511	1,235	950

Table 6 shows very clearly the housing bubble in Ireland since 1999, which graphed in Figure 1 below:

Figure 1: Housing Completions in County Waterford
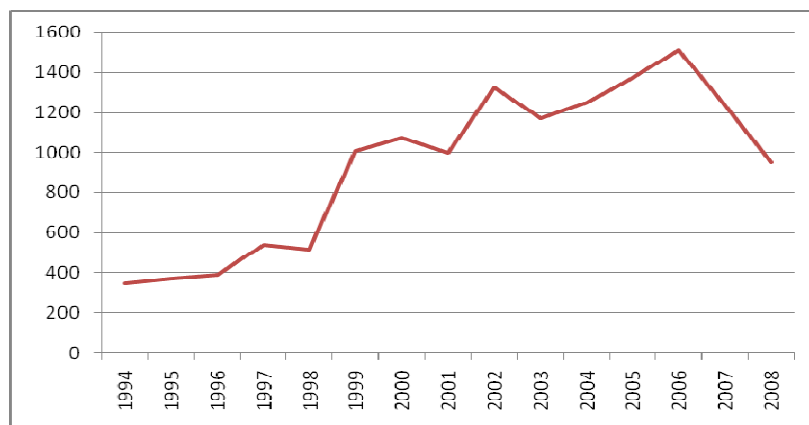
Completions in 2009 are likely to fall to the levels of the late 1990s. Commentators do not expect a return to the boom conditions which we have seen in the last decade. For example, the ESRI Recovery Scenarios paints the following picture:

Domestically one of the main reasons behind the decline in economic growth has been the sharp fall in activity in the housing market. The residential component of the construction sector increased in size to such an extent that the Irish economy was exposed to both a house price and a residential output shock. The recovery outlined above suggests that the Irish economy will return to growth in 2011. However, the housing market is expected to lag this recovery and growth in housing demand is unlikely to take place until households become more positive in their expectation about the economic outlook and job security.

Having peaked at over 93,000 dwellings completed in 2006, 22 per thousand population, it now seems likely that less than 20,000 units will be completed in 2009 and again in 2010 (Figure 1). However, many of the fundamentals that underpin the housing market remain in place and so, as the economy recovers, the volume of completions is expected to rise to an annual average of over 30,000 between 2010 and 2015.

This forecast for housing completions is based on an assumption of no change in headship and no additions to the stock of vacant dwellings over the period. However, other data suggests that this outlook **may** *err on the pessimistic side. Figure 2 shows the annual change in the number of households, based on estimates by the CSO OMHS (Quarterly National Household Survey). The most recent data show that the number of households in quarter 4, 2008 was approximately⁻ 60,000 higher than the same period in 2007. This reflects a significant increase in headship rates — the proportion of each group who are "head" of an independent household. This strength of household formation in 2007 and 2008 is surprising. A possible explanation is that headship rates, which are low in Ireland relative to the rest of the EU-15, may be beginning to converge on rates in other EU-15 countries now that rents are falling rapidly. Also the high rate of household formation is affected by the relative youth of Ireland's population.*

Based on these numbers for household formation, combined with the expectation that Irish headship rates will converge on UK rates by 2021 we have produced a decomposition of the demand for housing by its main components… In addition to rising headship rates, this decomposition takes account of a return to limited net immigration that is anticipated in the period after 2015. When the sources of demand are added together this would suggest a demand for more than 40,000 dwellings **a** *year over the period 2012-2.. This is substantially higher than the number of completions generated in the World Recovery forecast. If this proved to be the case then the economy would in fact require a higher number of dwellings in the future than is anticipated in the World Recovery forecast.*

(pages 34-35)

The projected housing completions based on these projections are shown in Figure 2 overleaf.
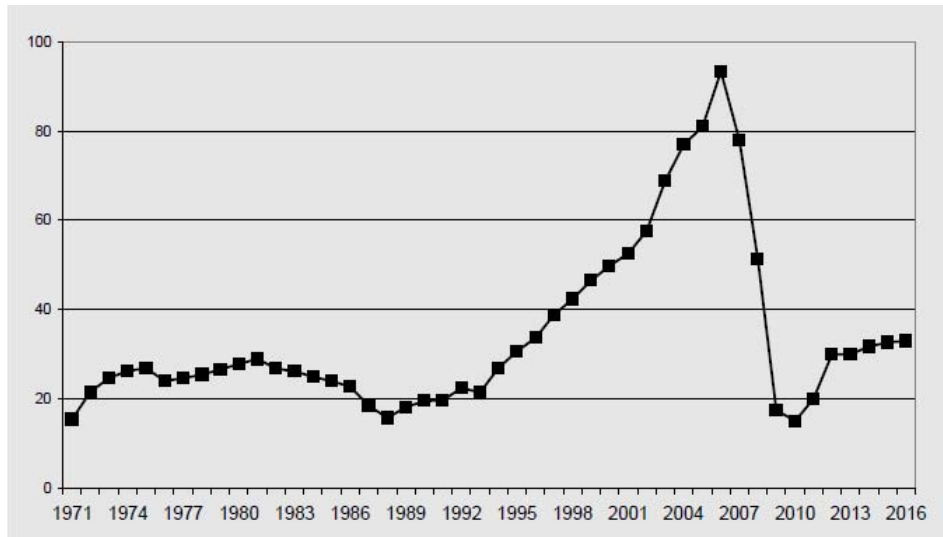
Figure 2: Housing Completions at State level from ESRI Recovery Scenarios (thousands of dwellings)

Nor does the fiscal position of the State lend much hope that public sector housing activity will recover swiftly. This is already evident. Looking at the composition of the 2009 PCP, the second largest provision is for Housing (€1.9bn) which is down by 12%. Within the total, the provision for local authority and social housing is down 27% (to €1.4bn) 3. This position is unlikely to change in the medium term.

Were the position in Waterford to reflect that of the State in the period 2010 to 2015, then we would expect output to be at about one third of the peak output or around 500 per annum – broadly the level of output in the last half of the 1990s. Allowing for the rise in headship rates alluded to in the Recovery Scenarios commentary, this might be increased to a maximum of 650. This compares with 940 under the DEHLG Guidelines scenario reported above.

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[3] DKM Economic Consultants *A Preliminary Construction Forecast for 2009* Dublin, DEHLG May 2009, page 18

10. Commentary on assumptions and results

There is now a stark contrast between the aspirations of the National Spatial Strategy and the realities of the Irish economy.

This reality leads to methodological difficulties in the projection process where income, house prices and population are being projected together. Whilst it is possible to adhere to the DEHLG population guidelines, the problem lies in the house price and income growth scenarios associated with them. High population change is associated with strong economic growth, and that in turn gives rise to rising house prices and incomes. Projections along this line are simply not credible in the short to medium term, yet to link higher population growth to falling prices and incomes does not make sense.

In the event, we have simply looked at the implication of a variety of 'mixes' In Table 7. At one extreme we link brisk population growth to rising incomes and house prices, but we also use lower income and house prices. The high variant represents the highest possible set of economic events: a threshold that denies any further upside risk.

In all cases, we have assumed a sharp decline in public and voluntary sector house building, as a result of the current fiscal climate.

On the other hand, the low projections may understate the number of houses required, as is pointed out in the ESRI publication 'recovery scenarios'. This is because falling rents may be contributing to rising headship rates as Ireland moves towards the European norm. Whilst rising headship rates are built into the modelling process we have used, they may require further upward revision.

As far as the distribution of population within the County is concerned, we have not attempted to go below primary, secondary, district and other centres and remainder (i.e. with the exception of Dungarvan and Tramore, we have not treated individual settlements).

Despite all these caveats and unresolved issues, the projections indicate clearly that:

1. There is more than sufficient land already zoned to accommodate development on any possible scale

2. There is a continuing requirement for a 20% take for affordable housing from private developments

11. Annex: Key assumptions and scenario values used in the projection process

The key assumptions relating to the projection process are set out in the following pages.

Table 10: Key assumptions used in Scenario modelling

Parameter Type	Assumptions and parameter values
National Population projection	Accords with January 2009 DEHLG Guidelines (low end of range)
Regional allocation	Accords with January 2009 DEHLG Guidelines (low end of range)
County Allocation	See Text
Sub-County allocation	See Text
INCOME	
Aggregate and per head income at national level	Aggregate income is obtained from the ESRI Medium Term Review (which pre-dates the credit crunch and recession). National population projections are those provided by the January 2009 DEHLG guidance paper. A variant of this projection using income per head growth as used for the ESRI 'Recovery Scenarios' (World Recovery Variant). is also set out. National population in this case is taken from the same source.
County Incomes	CSO Data on County Incomes is used to calibrate income in Waterford based on national levels.
HOUSING	
House Prices	Data is available for 2008, at local level. Other sources of data that can be used to update to mid 2009 are the ESRI/TSB house price index. This shows an overall fall of 9.4% between the June 2008 figure and April 2009, for the State outside Dublin. Jim Power of Friends First * comments: "*House prices continue to fall in the face of excess supply and constrained demand. House prices are estimated to have fallen by at least 40% since the peak of the market in 2006 and could fall by another 15% over the coming year.*" * Friends First Quarterly Economic Commentary March 2009 The ESRI Recovery Scenarios suggests: *House prices have now been declining since the first half of 2007. Given the scale of the downturn in the economy, we expect that house prices will fall by around 35 per cent from their peak in 2007 (a drop of almost 50 per cent in real terms). On the basis of the economic outlook the trough in nominal prices is assumed to occur around the end of 2010 or the beginning of 2011. For the period 2010-2015 nominal house prices are expected to show little change.*(page 34) On this basis, we assume 2008-09 to be a 12% fall, and the same in the next twelve months. Thereafter the position is uncertain. We assume falls of 10 per cent and 5 per cent respectively in the years following, which would give an overall fall from the peak of the market of 40%. We assume 2% growth per annum thereafter. This is therefore a conservative position regarding overall falls from the peak of the market. It should be noted that there is an inherent contradiction between the population assumption and the house price assumption under this scenario. This is discussed in a later section of this paper.

Table 10: Key assumptions used in Scenarios (continued)

Parameter Type	DEHLG Guidelines Based
Average household size	Assumed to fall from 2.89 in 2006 to 2.63 in 2017. This is the ratio of private households to total population and differs from the average size of private households.
Ratio of gross to net household change	Assumed to be 1.75 – i.e. construction of 175 houses will lead to a net change in the number of households of 100. The difference is due to unoccupied investment properties, second and holiday homes, as well as obsolescence and the increased requirement for vacancies due to the increase in the size of the housing stock. The investment market has disappeared for the time being and reduced income and higher unemployment are likely to reduce the growth of second homes. A ratio of 1.5 could be assumed but the figure is held at 1.75 in the runs reported here.
LAND FACTORS	
Density of development	In the Range 10 to 30 to the hectare – see Table 5
Zoning overhead	1.5 (i.e. two thirds of zoned land is used)
AFFORDABILITY FACTORS	
Maximum loan	90%
Interest rate	Handled in sensitivity tests. Central rate assumed to be 4%
Repayment period	20 years
PLANNING ISSUES	
Proportion of new development on unzoned land	12 per cent. This is an output and assumes that all developments in all centres are on zoned lands, leaving only the rural residual of housing development on 'white' lands. However, it should be noted that for calculation purposes, no dezoning proposals which may be included as party of the Development Plan are acknowledged here.
HOUSING POLICY ISSUES	
Percent of waiting list cleared by 2017	100%
Social and affordable houses other than Part Vs 2011-2017	No firm data are available, in the absence of a multi-annual programme, for the local authorities and the voluntary sector. It is assumed that public finances will dictate a much reduced level of completions Based on discussions with WCC Housing Section it is assumed that 265 local authority and voluntary sector new dwellings are completed (average of 38 per annum, compared with an average of 113 in the period 2005-08). This excludes Part V dwellings. It is assumed that a further 119 casual vacancies (excluding deaths and migration) are brought into use, together with other housing solution apart from new build. In a variant of this, rates of completion and other solutions are doubled.