

Wicklow County Council and the
Dublin Transportation Office

Wicklow and Environs Integrated Framework Plan for Land Use and Transportation

Final Document

May 2005

In association with Cunnane Stratton Reynolds

Issue	Date	Status	Written by:	Reviewed by:	Authorised by:
1	Aug 2002	First Draft	M.D.Garrido	Rod Black	Rod Black
2	May 2003	2nd Draft	M.D.Garrido	Rod Black	Rod Black
3	Aug 2003	Final Draft	M.D.Garrido	R.Hamilton	J.Dent
4	Sept 2003	Final	M.D.Garrido	R.Hamilton	J.Dent
5	Oct 2004	Amended Final	Donal Donnelly	M.D.Garrido	R.Hamilton
6	Mar 2005	FINAL	Donal Donnelly	M.D.Garrido	Mike Wrigley
7	May 2005	Amended Final	Donal Donnelly	M.D. Garrido	Mike Wrigley

CONTENTS	PAGE
PART A - THE FRAMEWORK PLAN	6
1 Introduction	7
1.1 Study Background	7
1.2 Study Aim	8
1.3 Study Area	8
1.4 Study Methodology	8
1.5 Study Output and its Relationship with Other Studies	9
2 The Framework Plan	11
2.1 The Basis for the Framework Plan	11
2.2 The General Principles of the Framework Plan	12
2.3 Phasing the Framework Plan	15
2.4 Implementing the Framework Plan	16
3 The Spatial Strategy	19
3.1 Introduction	19
3.2 The Principles of Sustainable Integrated Development	19
3.3 Land Use and Transport Objectives	19
3.4 Reinforcement of Wicklow Town as a Commercial and Leisure Centre	19
3.5 Redevelopment of the Wicklow Port Area	20
3.6 Development of a Local District Centre in Action Area 6	21
3.7 Transfer of Employment Creating Development Close to Wicklow Railway Station	22
3.8 Reservation and Rezoning of Land at Rathnew for a Transport Interchange and Employment Opportunities	23
3.9 Increase of Density for Residential and Concentration of Development Along Local Public Transport Corridors	23
3.10 Containment of Development to Prevent Urban Sprawl	24
3.11 Ashford	27
3.12 General Recommendations	27
4 Transportation Strategy	30
4.1 Introduction	30
4.2 General	30
4.3 Concept	30
4.4 Walking and Cycling	31
4.5 Local Public Transport	33
4.6 Regional Public Transport	36
4.7 Railway Service	37

4.8	Major Transport Nodes	38
4.9	Traffic and Parking Management	39
4.10	Marketing	40
4.11	Information	41
4.12	Ticketing	42
5	Phasing The Framework Plan	48
5.1	General Approach	48
5.2	Phasing to Achieve Sustainable Integrated Development	48
5.3	Overall Strategy for Phasing to Meet Anticipated Growth	50
6	Implementation Programme	52
6.1	Introduction	52
6.2	Framework Plan Programme	52
6.3	Implementation of Land Use Zoning Priorities	52
6.4	Proposed Land Use Changes	52
6.5	Developer Contributions	53
6.6	Management and Monitoring	53
	PART B – SUPPORTING ANALYSIS	60
7	Planning And Land Use	61
7.1	General	61
7.2	Population	61
7.3	Analysis of Relevant Development Plans	61
7.4	Wicklow Town And Environs	61
8	Transportation Analysis	66
8.1	Introduction	66
8.2	Mobility Survey	66
8.3	Walking and Cycling	67
8.4	Existing Road Infrastructure	68
8.5	Rail	68
8.6	Bus	70
8.7	Additional Transport Provision	73
8.8	Private Transport	73
9	Local Simulation Model	77
9.1	Introduction	77
9.2	The “Saturn” Suite	77
9.3	Highway Network	77
9.4	Demand Matrix	77

9.5	Model Calibration	78
10	The Consultation Process	81
PART C – APPENDICES		83
A	Analysis of Relevant Plans and Studies	84
B	Population and Socio-Economic Information	93
C	Methodology and Results of Scenario Tests	96
D	Summary of Consultation Events	102
E	Accessibility Guidelines	109
F	Plans	113
Plan 1	Zoning Map – Existing Wicklow and Environs Development and Local Area Plans	
Plan 2	Zones - Local Simulation Model Zones	
Plan 3	Proposed Zoning Map for Wicklow and Environs (2016)	
Plan 4	Proposed Phased Development	
Plan 5	Proposed Local Public Transport Network and Improvements required	
Plan 6	Proposed Primary Cycling Network	
Plan 7	Proposed Primary Walking Network	
Plan 8	Proposed Location for Car Parks and Taxi Ranks	
 LIST OF FIGURES		
Figure 1.1	– Regional Planning Guidelines for the Greater Dublin Area	7
Figure 1.2	– Study Area	9
Figure 2.1	– Development Constraints	12
Figure 2.2	– Wicklow and Environs. Existing Development Pressures	17
Figure 2.3	– Wicklow and Environs. Forecast Development Pressures	17
Figure 2.4	– Wicklow and Environs Scenario 1 – Contained Development	18
Figure 2.5	– Wicklow and Environs Scenario 2 – Sprawled Development	18
Figure 3.1	– Development of a Local District Centre in Action Area 6	22
Figure 3.2	– Transfer Employment Creating Development close to Wicklow Town Train Station	23
Figure 3.3	– Reservation and Rezoning of Land at Rathnew for a Transport Interchange and Employment Opportunities	24
Figure 3.4	– Containment of Development to Prevent Urban Sprawl	25
Figure 3.5	– Rezoning in Action Area 8	26
Figure 4.1	– Transport Strategy Schematic Diagram	31
Figure 4.2	– Proposed Local Bus Routes	43
Figure 4.3	– Proposed Bus Éireann Services	44
Figure 4.4	– Proposed Dublin Bus Services	45
Figure 4.5	– Proposed Irish Rail Services	46
Figure 4.6	– Proposed Future Public Transport (2016)	47

Figure 8.1 – Existing Infrastructure	75
Figure 8.2 – Existing Public Transport	76
Figure 11.1 – Movement Framework	110
Figure 11.2 – Existing Cul De Sac at St. Laurence's Road	110

LIST OF TABLES

Table 3.1 – Residential Densities	27
Table 4.1 – Local Public Transport Model Results	35
Table 4.2 – Off Peak Train Service Options to / from Wicklow	38
Table 4.3 – Proposed Phased Upgrading of Rail Services in Co. Wicklow	38
Table 5.1 – Wicklow and Environs Development Priorities and Potential Growth	50
Table 6.1 – Framework Plan Programme (1/6)	54
Table 6.2 – Framework Plan Programme (2/6)	55
Table 6.3 – Framework Plan Programme (3/6)	56
Table 6.4 – Framework Plan Programme (4/6)	57
Table 6.5 – Framework Plan Programme (5/6)	58
Table 6.6 – Framework Plan Programme (6/6)	59
Table 7.1 – Private Households in Wicklow UD and Household Size	62
Table 7.2 – Private Households in Wicklow Environs and Household Size	62
Table 9.1 – Trip Generation by Purpose and Area	78
Table 9.2 – Trip Attraction by Purpose and Area	78
Table 9.3 – Distribution of Leisure Trips by Zone	79
Table 9.4 – Distribution of Work Trips by Zone	79
Table 9.5 – Distribution of Shopping Trips by Zone	79
Table 9.6 – Distribution of School Trips by Zone	79
Table 9.7 – Calibration Results	80
Table A – Population Change	86
Table B – Action Area Residential Capacity	88
Table C – Population Change in Wicklow Town and Environs	93
Table D – Socio Economic Change – Persons Aged 15 +	93
Table E – Students in 15 – 24 Age Group	94
Table F – Classification of Population at Work by Industry	94
Table G – Occupation	95
Table H – Highest Level of Education	95
Table I– Scenario Results	99
Table J– Scenario Results	100
Table K– Scenario Results	101



The Framework Plan

1 Introduction

1.1 Study Background

The Department of the Environment and Local Government’s Regional Planning Guidelines for the Greater Dublin Area have outlined a strategy which seeks to consolidate development within the Metropolitan area, and in designated centres in the surrounding Hinterland (see **Figure 1.1**). The aim is to facilitate the provision of considerably enhanced local and regional public transport, alongside more sustainable settlement development.

The Integrated Framework Plans for Land Use and Transport (IFP) concept was introduced in “A Platform for change 2000 – 2016”(2001), which sets out the Dublin Transportation Office (DTO) Strategy. It recommends that IFPs be prepared for all “development centres” identified in the Metropolitan and Hinterland Areas as defined by the Regional Planning Guidelines (RPG) for the Greater Dublin Area.

Wicklow Town has been identified within Dublin’s Hinterland as a Primary Development Centre. It is intended that such a “development centre” will in the long term develop to become self-sufficient, with only limited commuting to the Metropolitan Area, but enhanced public transport links. The basis for this is to allow Wicklow Town to develop in a sustainable, planned manner, so that it becomes a self-sufficient centre enabling its residents to work and live locally hence reducing the need to commute to other towns.

Despite its proximity to Dublin, Wicklow is not well connected to the Metropolitan Area. An improving road infrastructure and scarce public transport provision limits its potential to develop as a Primary Development Centre within the Dublin Region.

Both Wicklow County Council and Wicklow Town Council have advanced the objectives for the future planning and development of Wicklow Town and its environs through the adoption of statutory plans. These plans provide for future growth and development within the area and identify Wicklow

Town and Environs as a growth centre for residential, employment and retail development with an ultimate target population of some 25,500 persons. The growth and development needs of the area must be carried out in a sustainable manner, as set out in the National Sustainable Development Strategy (1997).

Wicklow County Council (WCC) and the Dublin Transportation Office (DTO) recognise that land use and transportation are inextricably linked together and should, therefore, be studied in tandem. This has led to the decision to jointly commission Colin Buchanan and Partners in association with Cunnane Stratton Reynolds to undertake this IFP, to examine the proposals contained in the relevant Development Plans for the study area; the development likely to take place in the period up to 2016 in the context of the relevant strategic reports; and provide guidance in terms of land use and transportation in order to promote the sustainable development of Wicklow Town and Environs.



Figure 1.1

1.2 Study Aim

The main target of the IFP is to review the current planning, development and transportation context as consolidated in the various plans covering the subject area; and identify and recommend intervention as appropriate. The IFP endeavours to provide detailed land use and transportation proposals for the future growth of the Wicklow development centre, having particular regard to land-use patterns that complement local public transport, walking and cycling.

The need for intervention is not only a matter of meeting statutory or strategic obligations. It is also a response to widespread concern about increasing congestion and the costs it imposes, on accessibility, the environment, safety, the economy, and the general quality of life that can be enjoyed in all our towns for all sections of the community.

Towns have been developing spatially in ways which are convenient for car use, and less convenient for other means of access. As housing, jobs and other activities have moved further away from the town core, so the density and structure of built-up areas has loosened, and use of the car has increased. Wicklow and the other Development Centres in the Dublin Hinterland area are typical of this scenario.

The 'traditional' development plan zoning approach has, rather than encourage the organic integration of urban functions; imposed a segregation of the urban elements of housing, work, shopping, recreation, education and transportation.

Wicklow Town and Environs have experienced a significant growth during the last 10 years. The absolute increase in population was 2,265 people (an average 1.9% per annum). The average growth in the County during the last 6 years has been 1.8%¹. With the continuation of the "traditional" approach in Wicklow and environs, the only constraint in growth would be the 25,500 population, forecast for the area in the year 2016. This would result in a considerable build out of land over time in a generic

suburban sprawl, resulting in longer travel distances, greater travel times and higher car usage.

There is a real risk that the provision of housing would greatly exceed the provision of local employment, resulting in many residents using the place solely as a dormitory without supporting local services and facilities. Therefore, the role of the Integrated Framework Plan is to promote containment, higher densities, economic variation, a mix of uses and a choice of transport modes; and formalise the essential links between land use and movement at a local level.

The principles of sustainable development are at the core of The Integrated Framework Plans. They are intended to be dynamic and flexible plans that build upon the DTO Vision of a living city and region on a human scale, accessible to all and providing a good quality of life for its citizens. The philosophy of the IFP is to put people first, not vehicles, and work towards an urban environment which is attractive to live, work in and visit. The IFP provides a long-term strategic vision for integrated land use and transportation development, supporting the implementation of the RPG and DTO strategy.

1.3 Study Area

The study area of this IFP covers Wicklow Town and Environs. The study area is shown in **Figure 1.2**. The area lies on the coast of County Wicklow, 48 kms south of Dublin. This area has experienced a significant growth during the last two decades from 6,707 in 1981 to 8,592 in 1991, and up to 10, 857 in 2002.

There is currently a hierarchy of Plans that apply to the area (A full summary of these is contained in Appendix A – Analysis of Plans and Studies).

1.4 Study Methodology

In order to review the current planning, development and transportation context, different land use and transportation scenarios have been analysed. The methodology used for this analysis has been defined to suit the SATURN[®] modelling suite. This tool was chosen to model the Wicklow and

Environs area road network so as to be compatible with the original smaller SATURN model produced by Colin Buchanan and Partners in 1998/9 for the Wicklow Town Traffic study and also, this would be compatible with the DTO Saturn model.

Colin Buchanan and Partners extended, and updated, the existing model to cover Wicklow town and Environs, Rathnew and Ashford. The model represents all but the most minor roads in the study area and it represents the most strategic traffic movements from and through the area, rather than detailed traffic movements within Wicklow town.

In spite of the fact that SATURN modelling suite is a car-based tool that doesn't take any account of public transport and non-mechanical modes, it can be used as a comparison tool in order to evaluate different land use scenarios. In addition, a series of linked spreadsheets have been used to assess the transfer to the local public transport service.

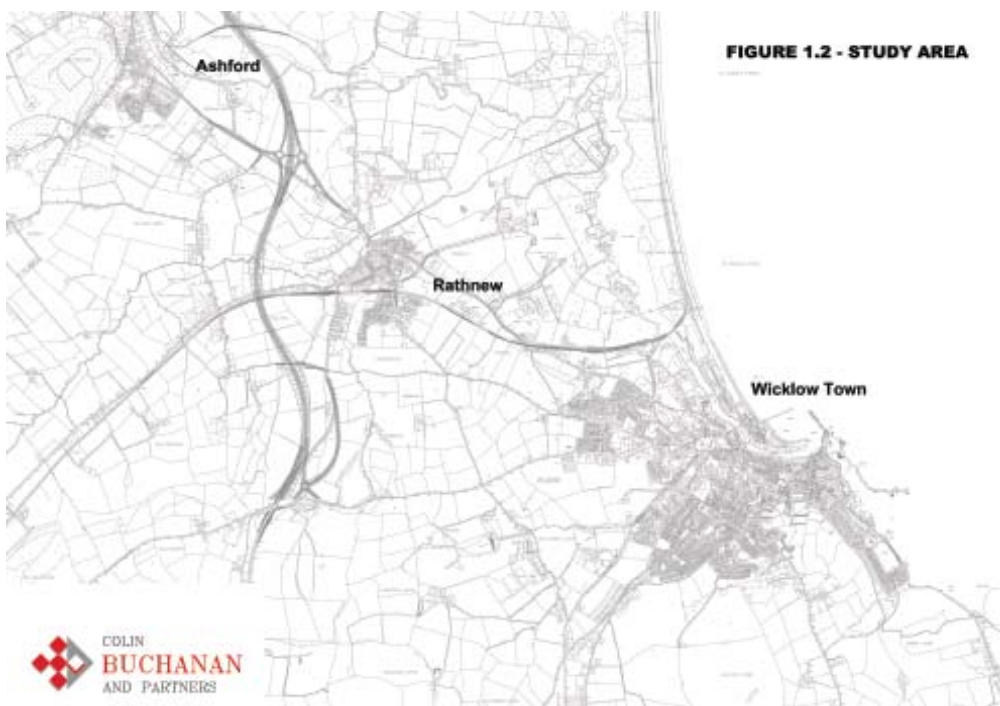
With the aim of comparing the different scenarios three main parameters derived from the SATURN model outputs have been used; TTP (Total Travel Time / Population), TDP (Total Travel Distance / Population) and FCP (Total Fuel Consumption / Population).

Due to the fact that there are numerous combinations of land use and transportation strategies, a sensitivity analysis of those identified as relevant during the client group meetings have been carried out. All the results are compared against those results from the base year (2001) and also against the results of the Do-nothing scenarios from 2007 & 2016.

1.5 Study Output and its Relationship with Other Studies

The main objectives of the Integrated Framework Plan specific to Wicklow and its Environs, under the joint auspices of Wicklow County Council and the Dublin Transportation Office are:

- 1) To analyse the public transport requirements of the study area and Identify distributor level transportation networks, for all modes of transport.
- 2) To make recommendations for future zoning objectives to maintain consistency with the Regional Planning Guidelines and the DTO Strategy (Final Report). This includes the indication of areas suitable for development with higher densities which will minimise the need for private car



transport and maximise the potential for walking, cycling and public transport.

- 3) To Recommend a timescale and phasing for the measures proposed which will take account of the likely pattern of development in the Wicklow Town and Environs Area up to 2016 and the ability of the service providers to deliver the infrastructure requirements.
- 4) And finally, to consult with the major stakeholders to ensure that the Integrated Framework Plan has the widest possible acceptance.

The IFP does not exist as a stand-alone document. It is a strategic document that provides a practical long-term context and vision for statutory documents of a shorter life span. It is literally the framework for land use and transportation in Wicklow in the short and long term, whether it is statutory development plans, retail strategies, or the implementation of bus, rail or road proposals.

It is not intended to be a static plan where change at a certain time is fixed in advance, and depends on certain basic conditions. It is dynamic, as it deals with constant daily movement at all levels. It addresses the challenges of a multi-functional urban area rather than dealing with development as something that takes place in mono-functional zones.

As noted above, the IFP endeavours to identify and recommend intervention as appropriate with regard to the detailed land use and transportation proposals for the future growth of the Wicklow development centre, having particular regard to land-use patterns that complement local public transport, walking and cycling. The 'intervention' represents the IFP's relationship with statutory and strategic documents for the area, and the identification of transportation schemes and development principles that directly affect other proposals or reports.

The following documents are highlighted as of key relevance; the Wicklow County Council Development Plan, Wicklow Town Development Plan, Wicklow Environs Local Area Plan and the Wicklow Retail Strategy.

The IFP strategy breaks this 'intervention' down into two groups of policy; the first group of policies require immediate intervention and should form the subject of a variation of the constituent statutory development plans, while the second group of recommendations form the strategy can be considered within the appropriate review period of the plans.

A note on Ashford

As mentioned, CBP extended and updated the model to cover Wicklow Town, Rathnew and Ashford. While Ashford was included in the modelling scenarios, and development policies for Ashford were considered, it was not included in detailed analysis and recommendations. Ashford was excluded from recommendations as it is identified as a local growth centre in the RPG, catering for local need only, and therefore has a different role and function from the Development Centre.

¹ Census 2002, Preliminary Report.

2. The Framework Plan

2.1 The Basis for the Framework Plan

Wicklow Town and Environs have progressively developed over time from small county towns and villages to significant settlements within the overall county hierarchy and the Dublin region. The area is still largely self sufficient but, because it is located in such close proximity to Dublin (approx. 50 kms to the centre of Dublin), the towns are beginning to be affected by the relative attractiveness of Dublin as a centre of employment and Wicklow as a place of residence.

The opportunities for the development of Wicklow and environs are:

- High population growth (past and expected) in the area mainly due to net migration
- Extensive residential zoning included in the Wicklow Environs Local Area Plan;
- Significant construction of new road infrastructure (N11, Town and Port Relief Roads);

However, the main risks for the development of the area as a Primary Development Centre can be summarised as follows:

- Low employment generation in the area in relation to the population growth;
- Limited range of commercial facilities within the area;
- Deficient public transport provision; and
- Topographical constraints for non-mechanical modes.

Wicklow Town's primary development centre status will result in unprecedented population growth. The target population for Wicklow Town and its Environs when this IFP reaches its expiry in 2016 is around 25,000. Considering that the current population for the same area is around 11,000, this represents more than a doubling of population.

The past few years have seen areas within a commutable distance to Dublin experience a similar rate of growth to what is planned for Wicklow Town. However, the fact that this growth has largely accommodated commuters, the provision of jobs, schools, transport, etc., normally associated with such population growth has been largely neglected and significant traffic problems now ensue.

Wicklow Town does not provide the same range of services of some higher order settlements in the Dublin Sub Region. The town and the general area have a more limited range of commercial facilities than other settlements such as Bray. There is a threat to the long-term development of the town core due to space constraints and car accessibility problems.

The land use and transportation framework should support the goal of maintaining Wicklow town as a vibrant centre. Traffic congestion and parking deficiencies may result in proposals for out of town retail developments as basic accessibility to/from Wicklow town is mainly car-based. It may seem contradictory that car accessibility problems are identified as a threat to the development of the Town core. This sort of developments would be widely accepted by the general public as a pragmatic solution for the traffic and parking problems identified before.

Therefore, it is recommended that out of town developments shall be avoided till the commercial core of Wicklow is able to compete against any out of town commercial development . In the medium-long term and once the commercial core of Wicklow was strengthened, the promotion of public transport, cycling and walking will be an easier task to achieve in order to change the basic accessibility to/from Wicklow town.

The economic development of the area does not reflect the success of Wicklow as a residential location. There are few employment facilities within the area despite the zoning of large areas of industrial and enterprise development in both Development Plan and Local Area Plans.

It will therefore be fundamental to promote employment facilities in the area that complement residential development, amenity / open space and community facilities (such as crèches, schools, health centres etc). The Town Development Plan has acknowledged that Wicklow Town does not adequately provide these facilities at present even though there is a large population (both resident and working) in the area¹.

The results of the mobility survey undertaken for this IFP show that Wicklow Town and Environs works as a self-contained settlement with a high proportion of people working, shopping and going to school within the study area. However, there is a high reliance on private car to go to work and shops. In addition, Wicklow Town and environs are poorly connected to strategic public transport networks. The rail service is minimal and buses mainly serve peak hour commuter demand.

The construction of the new N11, the Port Access and Town Relief roads will encourage the dependency on cars in the area and also open new lands for development. Under these circumstances commercial market pressures will be focused on out of town retail facilities. At the same time, and as a result of the extensive residential zoning covered in The Wicklow Environs Local Area Plan, scattered

residential development with a high reliance on cars is envisaged to happen.

Severe topographical constraints and a lack of adequate infrastructure currently discourage cycling and walking. In terms of local public transport, a private operator already runs a 'demand-response' service from the town centre to the residential areas. However, the emerging urban form of the new housing developments (cul-de-sac-based) is not conducive to being effectively served by bus.

Therefore, the danger of Wicklow being transformed into a commuter settlement is very high in this type of development scenario. High reliance on private car, low level of local public transport and improved medium and long-distance movements (by car) to work and shops will threaten the development of Wicklow as a self-sustained primary development centre.

2.2 The General Principles of the Framework Plan

As stated in the previous chapter, the main target of the IFP endeavours to provide detailed land use and transportation proposals for the future growth of the Wicklow development centre, having particular

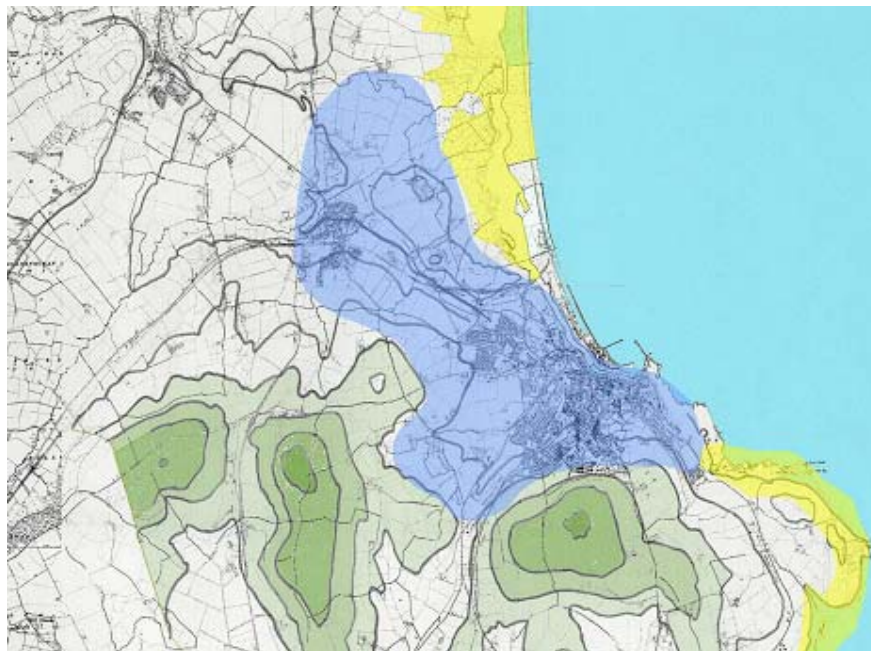


Figure 2.1

regard to land-use patterns that complement local public transport, walking and cycling. It is intended that a “development centre” will develop, in the longer term, as a self-sufficient centre, with only limited commuting to the Metropolitan Area, but with enhanced public transport links. This includes the proportionate development of all land uses, such as strong employment facilities, high order shopping and a full range of social facilities in accessible locations, to complement the substantial residential growth.

The main elements of the strategy can be summarised as follows:

- A comprehensive and efficient transportation network with connections to the metropolitan area, to the hinterland area and to other Development Centres
- Reservation of land at Rathnew for a Transport Interchange
- Location and transfer of employment opportunities in proximity to the proposed Rathnew Interchange and the existing Wicklow Town Railway Station;
- Redevelopment of Wicklow town as a commercial and leisure centre;
- Redevelopment of Wicklow Port area as a mix of uses area that complement the existing Wicklow town Centre;
- Development of a Local Bus network;
- Increase of residential densities and concentration of development along the route of a proposed local bus service;
- Design of comprehensive pedestrian and cyclist networks;
- Development of local district/ neighbourhood centres in Action Areas 6 and 8; and
- Phasing of build-out of development to match implementation of public transport services.

An essential ingredient of the Framework Plan is a spatial strategy that will be determined by factors relating to movement. With regard to spatial strategies, different notions have been experimented with in the past, which can be described as contrary to the current views on land use and transport integration. Low-density car-based urban sprawl is the archetype of these strategies.

A spatial strategy for Wicklow and Environs has been proposed to attempt to reduce car-dependence so that public transport and non-mechanical modes of transport become a realistic alternative. The strategy contained in this IFP evolved from the rigorous testing of a number of different options and their implications for the potential future development of the subject area. The SATURN transport model has been used to check the validity and sensitivity of the different scenarios.

Several parameters such as fuel consumption, travel time and travel distance for alternative spatial scenarios and bus routes have been compared. The scenario and bus route options that performed best have been promoted as the sustainable integrated solution for the Framework Plan.

The access difficulties and challenges presented by the topography in the area are the main constraints that will condition the spatial strategy for the development of Wicklow. These are best illustrated by reference to **Figure 2.1**. This image, in which the blue represents the main development area of zoned lands in the Town Development Plan and the Environs Local Area Plan; the green represents the upland areas and the yellow represents the key environmental (heritage) protection areas to the north and south of the town. This identifies the challenges and the potential natural and environmental restrictions that focus development options into a narrow area of land.

This diagram illustrates that Wicklow Town needs to expand towards Rathnew in order to achieve the status and objectives set up in the Regional Planning Guidelines for the Greater Dublin Area. Such an idea has already been introduced in the Wicklow Environs Local Area Plan (2001). This

concept is envisaged to have many beneficial consequences for both Rathnew and Wicklow Town.

The strategy illustrated in **Figure 2.4** represents the 'preferred scenario' and is the result of the detailed testing of 21 various transportation and land use scenarios of the study area. **Figure 2.5** shows an alternative scenario where development is concentrated around Rathnew Village. **Figures 2.2** and **2.3** show respectively existing and forecast development pressures likely to happen without the influence of the IFP.

Instead of a traditional monocentric development approach, in this case we suggest a bi-polar development centre. In the proposed strategy, Wicklow Town would retain and even improve its commercial and social status, and Rathnew, due to its strategic location to the Southern Transport Corridor (N11 + Railway line) would concentrate employment opportunities around a proposed transport interchange.

The optimum location for employment in the area is another conclusion drawn from the modelling exercise. Employment is one of the largest generators of trips and assurances should be made that employment zones are accessible other than by car. The concentration of industrial, business or office type developments close to the proposed transport interchange (at Rathnew) and the existing train station (at Wicklow Town) would offer potential employees a choice of modes to travel to work, whether they are travelling from within the study area or from further a field.

A comprehensive and efficient transportation network with connections to the metropolitan area, to the hinterland area and to other Development Centres is an essential component in the future development of any urban area. This is particularly so in high growth areas like Wicklow, where increased car travel demand has placed unprecedented pressure on the transport infrastructure.

Therefore, this strategy makes recommendations to enhance all levels of public transport in the area and interconnect these to other mechanical and non-mechanical modes. The

transportation strategy draws a balance between facilitating the private car where appropriate, and promoting alternative means of transport. The car has a rightful, but not dominant role in the urban transport system and constitutes a sustainable approach to the future development of transportation in Wicklow and its environs.

Whilst the land use strategy of this study attempts to reduce the amount of movement, the transport strategy aims to improve the quality of this movement. Both strategies will contribute to better land use and transportation sustainability.

A new train station at Rathnew would in conjunction with park and ride and bus facilities; create a transport interchange and act as an integration node for external and internal public transport services. This transport node will also contain taxi ranks, park & ride and cycle storage facilities. Although this idea was generally encouraged at steering group meetings, it was emphasised that any new station should not be at the expense of the existing Wicklow town station.

Therefore, lands around a proposed transport interchange in Rathnew and around Wicklow station have been designated for this purpose. This may result in some change of use or even reservation of land for employment usages until after the present Plan's lifetime. Employment zones, which are distant from train stations, should be re-located on or near the corridor of the proposed local public transport route.

The reinforcement of Wicklow Town as the commercial and leisure core of the area is an important element of the strategy. Physical restraints determine that the existing town centre can only be expanded in the direction of the port area. The primary use in this area should be commercial to facilitate the expansion of the town centre shopping area. The retail inadequacies of Wicklow town are highlighted above and this area will facilitate expansion of the existing area, without the need for out / edge of town facilities.

Such a valuable location should not however, be rezoned for solely town centre uses as

there are essential existing uses and potential for a further mix of uses. The port area is also an ideal location for high density residential development, which will be close to town centre facilities, as well as being an area for the promotion of leisure activities such as water sports, coastal walks, fishing etc.

The construction of the Port Relief Road will bring with it the opportunity to regenerate the port itself and lands to the east of the Leirtrim River. These lands have had limited success in the past, partly because there is only one vehicular and one pedestrian bridge to access the area.

One of the options for the model to test is whether or not plans for an alternative town centre in Model Zone Area 209 / Action Area 6 should proceed (see Plan 1). This may have the effect of opposing the existing Wicklow town centre. Consequently, it may also have the effect of reducing travel distances and times for proposed and existing residential areas surrounding a new centre. Should the plans for a new shopping centre go ahead, careful thought should be given to the type of shopping facilities, so that they complement what exists in the present town centre.

Within, around and between the two poles of development (Wicklow Town and Rathnew), the completion of existing neighbourhoods and the construction of new ones are also envisaged. Higher residential densities are recommended in order to achieve the critical mass needed for the viable operation of public transport. In order for there to be sufficient numbers of people to support a local bus service it was also agreed that residential densities should be increased along the corridors of proposed local public transport services. This would require a service to initially operate through existing residential areas and finally serve all land zoned for residential as it develops. This would create an established bus service as residential development takes place. Guidelines for residential densities on public transport corridors from The Department of Environment and Local Government are contained in Part B – Supporting Analysis. The phasing of build-out of these neighbourhoods would be conditioned to the provision of local public transport.

Two bus routes have been designed to act as a local public transport system for Wicklow until the years 2007 and 2016. The provision of local public transport is envisaged being one of the fundamental elements of the strategy. Increased bus usage will help to reduce generic travel times by helping to ease congestion.

Finally, comprehensive pedestrian and cyclist networks have been designed to effectively increase the accessibility for all modes of transport and facilitate its interconnection. It is well known that motorcar traffic is responsible for a great part of the energy consumption and air pollution. What is less well known is that urban structures, which provide for a high degree of access and mobility by car, are inherently incompatible with structures served predominantly by other modes of transport. Therefore, it is recommended to increase the connectivity and legibility of the urban network in order to promote walking and cycling.

2.3 Phasing the Framework Plan

The phasing and implementation of development is vital to the sustainable integrated development of the area and it is key that growth is planned, monitored and managed in accordance with the principles set out.

Development should be implemented in an orderly and progressive manner, emanating from the town centre outwards based on the principles of sustainable development.

In outlining the order in which development should occur, the IFP has identified a priority system for the development of the lands to help secure the sustainable integrated development of Wicklow and Environs. This system utilises a sequential approach as one of the principal tools for phasing development, taking into account, the existing constraints to certain development lands, which would include topography and infrastructure requirements along with the priorities for ensuring integrated development, which includes the provision of new public transport routes.

The zoned residential lands have been divided into priority areas in order to achieve the integrated sustainable development of the area. Priority 1 and 2 incorporates brown-field redevelopment and infill; town centre expansion areas; high density residential along the proposed public transport routes and close to the proposed centres. Priority 3 and 4 are lands, which are further away from the existing centres and or have further constraints such as lack of infrastructure and topographical constraints. Their development is expected to be progressed in the longer term (depending on needs and growth requirements), once the Priority 1 and 2 lands have been developed and will require the provision of public transport as a prerequisite.

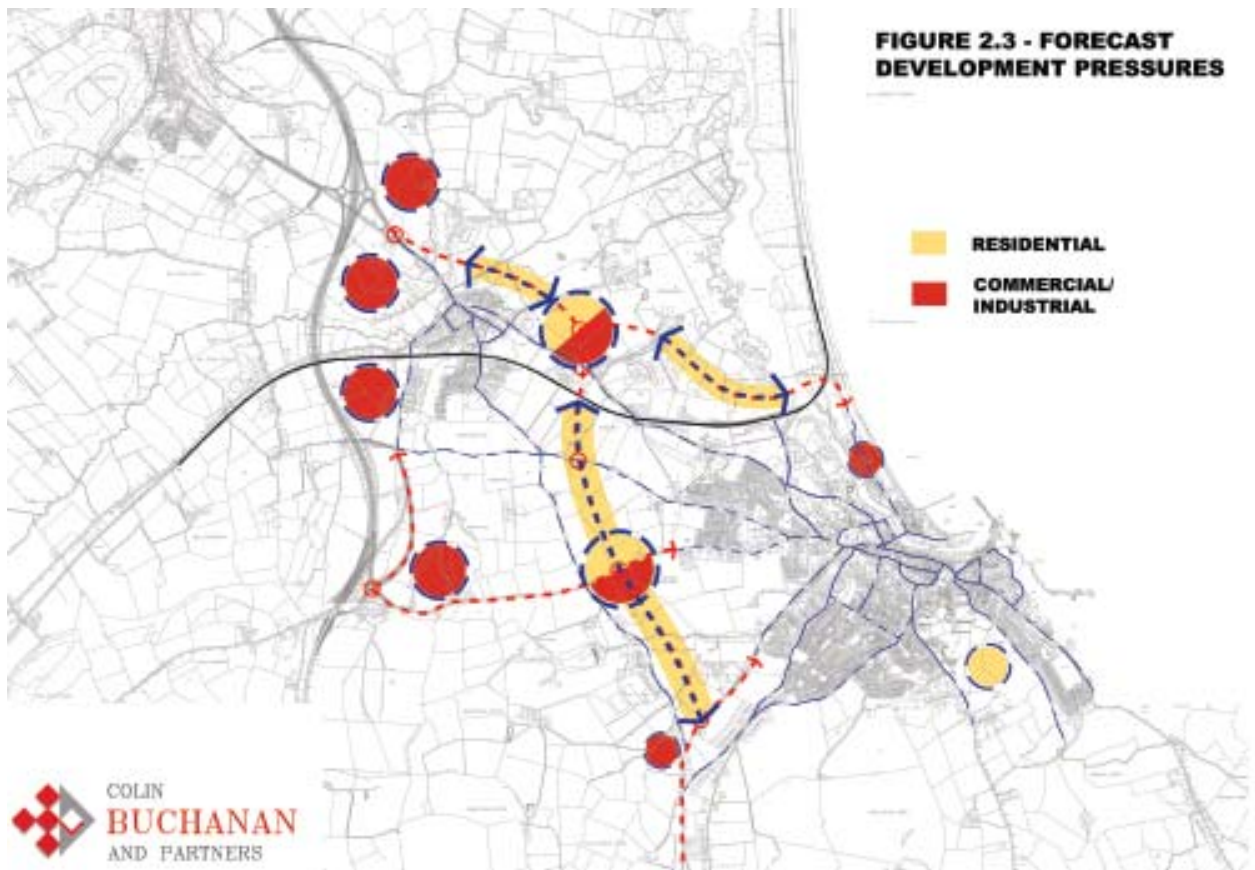
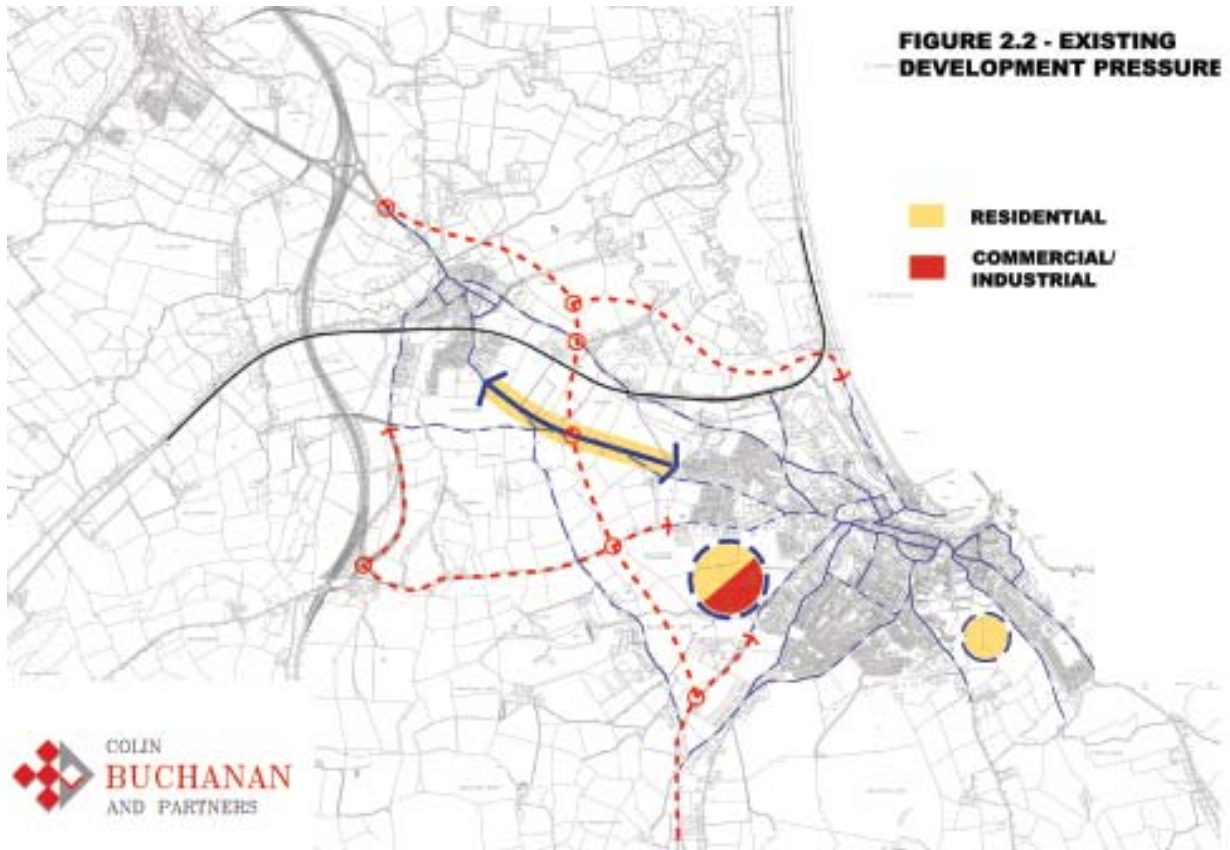
funding projects, adapting plans and coordinating efforts.

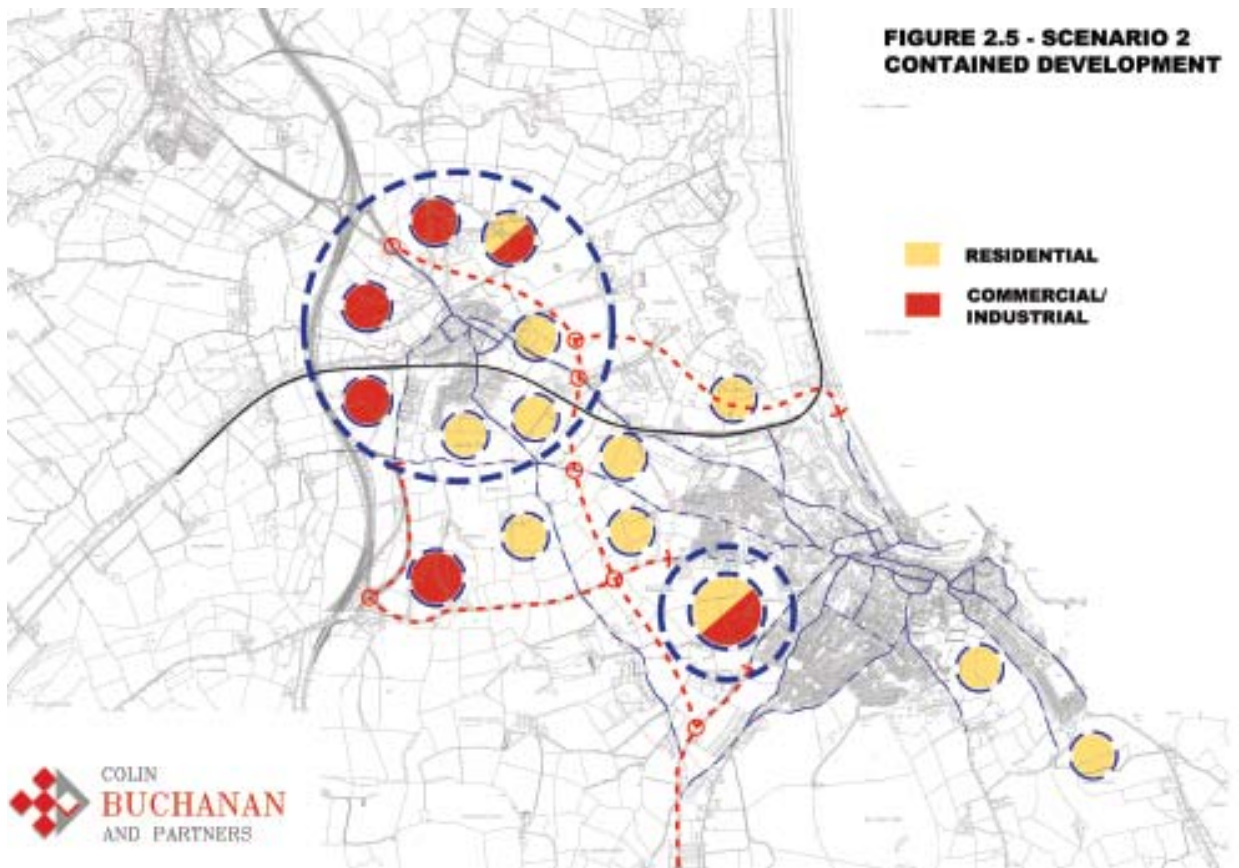
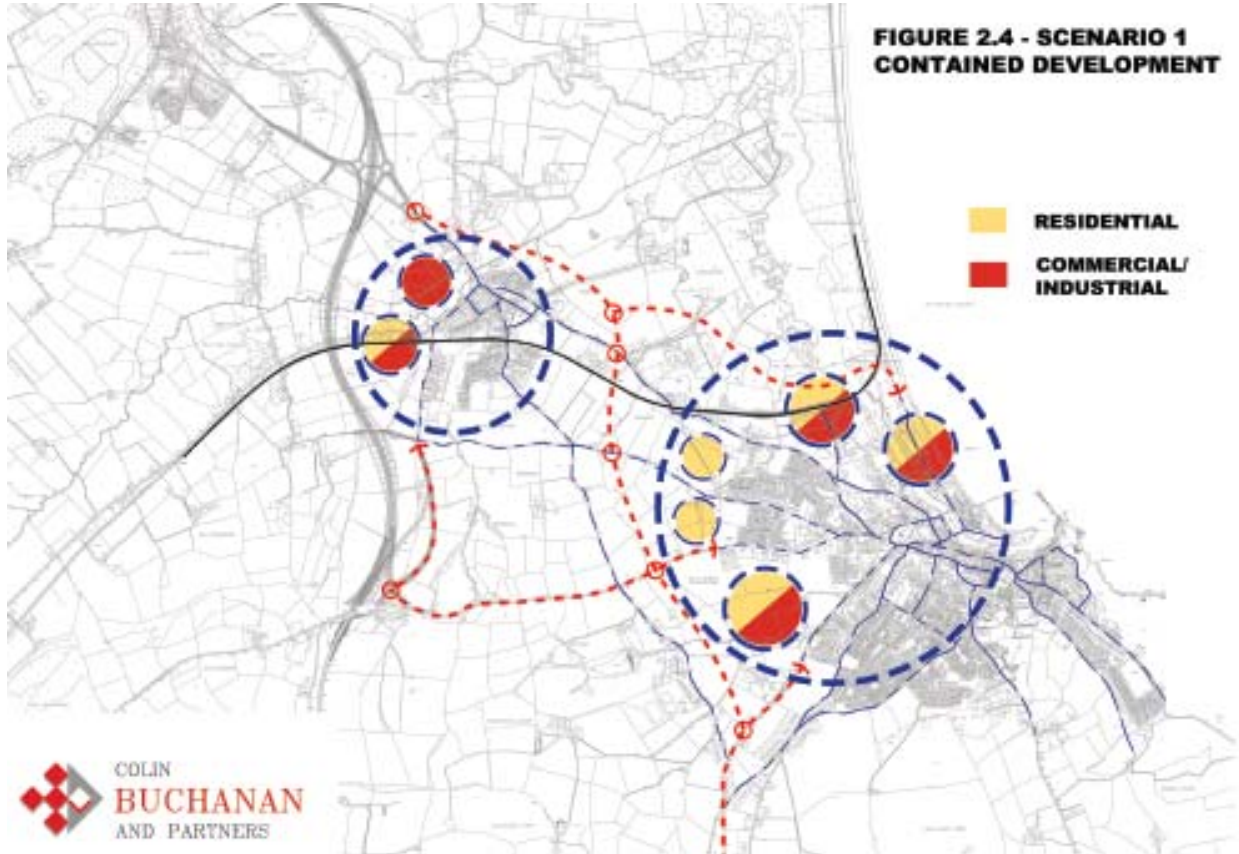
¹ Wicklow Town Council, Wicklow Town Development Plan 2002, p.p 4

2.4 Implementing the Framework Plan

The implementation of an Integrated Land Use and Transportation Framework Plan may not be as straightforward as that of a development or transport plan. The fact that it involves the integration of the ideals of two professions means that it requires the commitment and dedication of both. It may also result in a change in policy by one profession to take more account of the other and vice versa, something which may not have been so common in the past. The remit for an Integrated Framework Plan is to act as an advisory document so it does not have the powers of the statutory documents that must be adhered to by land use and transport planners. There may be further difficulties with implementation because it is only recently that transport and land use plans have been considered in the context of each other and as yet there is no template to follow.

Chapter 11 of Section B and Appendix D of this plan summarises all consultation events that have occurred since the plan's inception. The importance of consultation was stressed at an early stage and will be reaffirmed when considering the plan implementation. Despite the fact that Wicklow County Council and the Dublin Transportation Office are intended to lead the process, the various stakeholders involved in this IFP are also responsible for bringing the plan to fruition. This may include co-





3. The Spatial Strategy

3.1 Introduction

People usually travel because of a necessity to reach a place of employment, education, shopping or leisure. The whereabouts of such destinations are greatly influenced by the application of land use zoning within a local development plan. The local authority prepares local development plans but when doing so, seldom consider reducing the need and desire to travel. In fact, a legacy of the planning system is that it actually encourages travel.

3.2 The Principles of Sustainable Integrated Development

There are certain principles that must be adhered to for the sustainable integration of land use and transportation. Other sections of this study will look at how the local transport system can be improved for all road / street and rail users. This chapter will examine the different land use scenarios that were tested within Wicklow town and environs and how they support the transport system. Policies that may be adopted to integrate land use and transportation in a sustainable manner include:

- Mix of land uses;
- Higher residential densities along public transport routes;
- Careful phasing of development;
- Location of employment uses in proximity to transport nodes;
- Consolidation of existing built up areas;
- Reinforcement of existing commercial core;
- Provision of local centres; and
- Overall concentration of development.

3.3 Land Use and Transport Objectives

As mentioned in an earlier chapter, various land use scenarios were identified which reflect the above principles and a transport modelling exercise

was completed using the SATURN software. The land use scenarios that were considered to be theoretically suitable to reflect sustainable integrated development are as follows:

- Redevelopment of Wicklow town as a commercial and leisure centre;
- Redevelopment of Wicklow Port area;
- Development of local district/ neighbourhood centres in Action Areas 6 and 8;
- Transfer of employment close to Wicklow Town Railway Station;
- Reservation and rezoning of land at Rathnew for a transport interchange and employment opportunities;
- Increase of residential densities and concentration of development along the route of a proposed local bus service; and
- Containment of development to prevent urban sprawl.

Although these scenarios may provide for more sustainability in theory, the model must test that they do so in practise. Before analysing the results that were produced by the SATURN model it is important to explain the thinking behind each scenario in terms of linking land use with transportation. The results analysis that follows in Chapter 9 and Appendix C –Results of Scenario Tests will also prove that there is scientific backing for the promotion of a combination of these scenarios, as they will aid the reduction of future levels of fuel consumption, number of trips and travel distances.

3.4 Reinforcement of Wicklow Town as a Commercial and Leisure Centre

This is the historic core of the town where essential facilities which people travel to are located. It is the financial centre of the area and contains other services that generally attract people to Wicklow, whether they are visiting or residents. Recent planning policy has attempted to protect established town centres by discouraging new out of town

shopping centres, which have detrimental effects on the vitality and viability of historic centres. All types of shopping were provided for under one roof, eliminating the need to travel to the established core. The centres also allow for massive areas of car parking and little regard is ever given to public transport.

In transport terms, established town centres are the logical and optimum locations for car parks, bus route termination points and very often the destination for walkers and cyclists. It is important that Wicklow town centre is carefully managed for it to be accessible for all and for its land use to be reinforced and built upon. In order to strengthen Wicklow Town as a commercial, leisure and tourist centre, it will be necessary to include the provision of sufficient car parking in the short-medium term. This provision will be reduced in the long-term once the public transport system is completed. As important as this measure is the provision of bus shelters containing good information; adequate allocation of street space for pedestrians; and cycle parking / safe routes.

With regard to land use, it is important to locate town centre activities within the town centre. Such activities include all comparison-shopping, most convenience shopping, tourist and community facilities and other services. It is important to avoid out of town centres that will oppose the existing centre. It is essential to breathe new life into a town centre by encouraging people to live there. This results in fewer and shorter trips, which can mostly be made on foot.

The following facts have emerged from research carried out on behalf of Wicklow County Council:

- 40% of comparison shoppers from Wicklow shop out of the town and 4% from outside the study area come into the town for comparison shopping;
- Wicklow is well provided with comparison goods space at present but an increase in population will require additional floor space;
- 1,200 sq.m. of food / convenience retail floor space is required in the Wicklow town core

area to service the surrounding catchment by 2006; and

- As stated in the Retail Strategy, Wicklow has the capacity for two additional supermarkets.

When providing for gaps in the retail sector it is essential that it be done in a sustainable manner. Large out of town shopping centres should be avoided because of the car trips that they generate. It is actually possible to provide retail facilities that will help to reduce the number of retail related journeys. Conveniently located neighbourhood facilities should be created within the overall retail hierarchy to provide the alternative opportunity for all residents to walk to a nearby shop for single or a small number of items, when previously a car journey to the town centre would have been required. Wicklow's existing town centre should then sit at the top of the local retail hierarchy as a destination for multi-purpose shopping trips.

3.5 Redevelopment of the Wicklow Port Area

This scenario is basically designed to complement the above scenario. Physical restraints determine that the existing town centre can only be expanded in the direction of the port area. Such a valuable location should not however, be used for solely town centre activities as there are essential existing uses and potential for a further mix of uses. The construction of the Port Relief Road will bring with it the opportunity to regenerate the port itself and lands to the east of the Leitrim River. These lands have had limited re-development success in the past, partly because there is only one vehicular and one pedestrian bridge to access the area.

The Development Plan proposes that a Local Area Plan be prepared for the Murrough area which is to the north of the port area. According to the Plan the area has the potential to accommodate:

- Civic spaces and community buildings;
- Amenity areas and walks;
- Industrial properties (including the conversion of existing properties to provide for start up businesses);

- Transportation links to the port; and
- Residential development.

It is recommended that a complementary Local Area Plan be carried out for the area to the south of the Murrough proposed Local Area Plan. The primary purpose of this plan is to enhance the character, structure and size of Wicklow town centre. This area should be used for a mix of uses such as:

- Commercial activities;
- High density residential development;
- Leisure activities;
- Employment; and Port activities.

The primary use in this area should be commercial to facilitate the expansion of the town centre shopping area. The retail inadequacies of Wicklow town are highlighted above and this area will facilitate expansion of the existing area, without the need for outer / edge of town facilities.

The port area is also an ideal location for high density residential development, which will be close to town centre facilities, as well as being an area for the promotion of leisure activities such as water sports, coastal walks, fishing etc. The employment opportunities of the port should also be enhanced and built upon as well as the possibility of introducing non-port related employment opportunities to the area. This plan should be carried out in conjunction with the Murrough plan and the construction of the Port Relief Road so as to provide good access to the area for all transport modes.

3.6 Development of a Local District Centre in Action Area 6

The model tested the establishment of a local district centre in Action Area 6 about 1 ½ km to the west of the existing town centre. Surprisingly, it resulted in a reduction of travel times and distances along with fuel consumption output. When looking at Figure 3.1 it is plain to see why, as the land surrounding the proposed centre to the north, east and south is zoned residential, much of which should be developed by the model test year. It is

recommended that the existing medium density zoning around the local district centre be changed to high-density residential zoning, (only if the lands are adequately linked).

The road to the west is the proposed town relief road, which will be completed by the model test year and will be part of the route of a proposed Local Public Transport system. This will be in accordance with the RPG policy of promoting higher densities on public transport corridors. The higher density residential areas will also support the new centre and reduce the number of necessary trips to the existing town centre, which is a greater distance away.

The new centre should be classified as a local district centre so that it is not in competition with Wicklow town centre. It should have a number of small convenience shops, leisure and community facilities, a public meeting area and perhaps a pub, which will complement the existing town centre rather than oppose it. Its location has been chosen because it will be on the proposed local bus and cycle routes and because of the potential to maximise pedestrian access from nearby residential areas. Essential town centre services not contained in the local district centre will still necessitate the need to travel there as well. Other locations for local district/neighbourhood centres should also be encouraged or built upon at Rathnew and around Dunbur Lower as illustrated in Figure 3.5. Each of these centres would be equidistant apart.

It is recommended that the land to the immediate west of town relief road in Action Area 6 be held in strategic reserve for the purposes of providing retail warehousing. The RPPGDA states that Primary Development Centres (PDCs) should incorporate "a number of retail warehousing developments in the PDCs when these grow sufficiently to justify such development" This land should be held in reserve for that purpose because of its location on the new Town Relief Road and the lack of available space closer to the town centre.

Action Area 4, to the west of Action Area 6, has been designated phase 2 development land within the Wicklow Environs Development Plan. It is the policy of the plan to ensure that development on



Figure 3.1

these lands does not commence until development is concluded in the seven phase one Action Areas. This is in accordance within the IFP principles of consolidating the built up area, concentrating development and ensuring that there is careful phasing.

3.7 Transfer of industrial and enterprise development close to Wicklow Railway Station

Figure 3.2 shows sections of the proposed Wicklow Port Relief Road and the existing railway line. The train station is located at the east of the community and educational zoning to the immediate south of the line.

Access to the north of the railway line is at present impossible but it is an intention in the Development Plan to improve this access. These lands will then become freed up for development and have been zoned for medium and high-density residential use (see Plan 1).

As mentioned earlier, it is the intention of the Integrated Framework Plan to encourage employment creating land uses in close proximity to major transport nodes. The location of residential zoning to the north of the station would accommodate, and perhaps increase commuting to Dublin and towns to the north of Wicklow. Employment type zoning would make this area a destination as well as an origin. A wholly residential neighbourhood would also suffer a certain amount of severance from the town because of the railway.

For the above reasons a rezoning is recommended to an employment-creating zone such as General Business Uses. The definition of this zoning is for "Dwelling houses (flats or apartments), offices, hotels, motels, guesthouses, public houses, restaurants, light industry, wholesale warehousing, recreational buildings, car parks, open space". Instead of encouraging commuting away from Wicklow it would have the effect of bringing people into the town as well as increasing

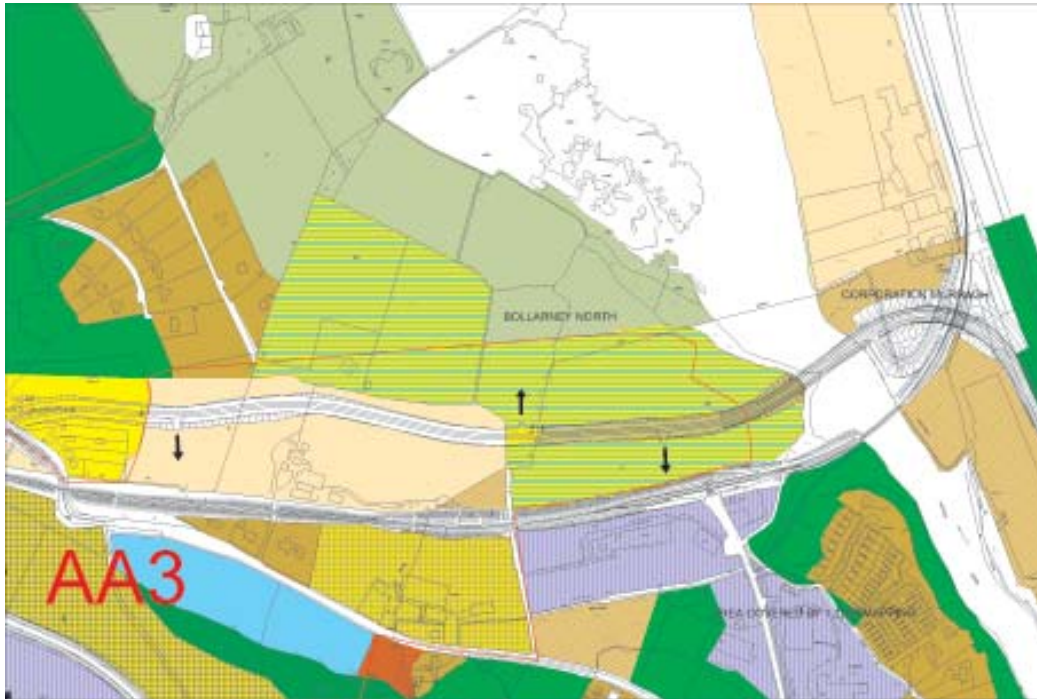


Figure 3.2

employment opportunities for the people of the town. This zone would also make better use of the new Port Relief Road, which would be an attractor of potential business. The General Business Use zoning also gives the potential for continued residential development in this area, in the event that the local council has already received applications because of the current zoning. The area should be subject to a local plan variation or should be kept in reserve to be rezoned in the superseding development plan.

3.8 Reservation and Rezoning of Land at Rathnew for a Transport Interchange and Employment Opportunities

A proposed transport interchange at Rathnew would also require land to be rezoned as illustrated in Figure 3.3. The re-establishment of a train station at Rathnew is a long-term goal but it is possible to create an interchange for cars, coaches and buses in the mean time. The transport interchange zone would be for the construction of a station or depot with waiting areas, park and ride facilities, additional parking for buses and bicycles and taxi ranks. At present the land to the south of the railway line is zoned residential (9.5 ha). It is

recommended that after the allocation of lands for the interchange, the remainder should be zoned for employment creation purposes, preferably for General Business Uses as with the land around Wicklow Station.

The residential zoning to the north of the railway line should also be rezoned for employment creation purposes. It has also been rezoned for General Business Uses in Figure 3.3 to allow for a certain amount of residential development.

The extensive light industrial, stand alone industrial, business / office and general business zonings in this area will then be well accessed by various transport links, courtesy of the transport interchange. There will also be excellent transport links for those who presently reside in Rathnew or who will do so within residential or general business zonings.

3.9 Increase of Density for Residential and Concentration of Development along Local Public Transport Corridors

A more obvious method of integrating land use and transportation is to identify roads that can easily be connected by a local bus service and



Figure 3.3

promote higher residential densities and other development on the corridor of the service. The Integrated Framework Plan actively encourages this policy with the suggested re-zonings from medium to high density residential at Burkeen and in Action Area 6, as well as employment re-zonings near existing and proposed train stations (an illustration of proposed local bus routes and nearby development can be found in Plan 5 – Proposed Local Public Transport Network and Improvements Required and Plan 4 – Proposed Phased Development).

This can act as a development control tool to be used by the local authority when considering planning applications. Applications would be considered more favourably when they are proximate to existing or proposed local public transport routes. It could also have the effect of encouraging developers to submit applications near the local public transport route, which would act as a method of phasing development beyond existing Action Area phasing.

The idea of encouraging increased densities on local public transport routes is the policy of the Regional Planning Guidelines for the Greater Dublin Area and is also promoted by the Department of Environment and Local Government – Guidelines for Residential Development, as mentioned below. For such a policy to be successful it is fundamental to actually provide the local public transport route. Developers should be required to make a contribution to and/or provide and subsidise local bus services at an early stage.

3.10 Containment of Development to Prevent Urban Sprawl

Wicklow town is already contained by natural and physical barriers which limit opportunities for its expansion. The presence of the sea to the east and rail line to the north have resulted in large areas of land being zoned for residential development to the west of the town to accommodate future populations.

The current Development Plan facilitates a population of 22,500 for the town and environs, by applying a 'market factor' of 1.5, i.e., the total amount of zoned land required was multiplied by 1.5 to give an amount of land that should be zoned to accommodate that population in the event that certain landowners decide not to develop their land. In actual fact, if all residentially zoned land within the Development Plan was developed it could accommodate a population of 33,750.

Therefore, other conditions need also to be put in place to ensure that zoned areas closest to the town are developed before those, which are further away. Within the Development Plan this is to be done through a process of phased action areas. A total of nine action areas were identified because of the limited number of landowners in the environs of Wicklow. The Development Plan states that Action Areas 1, 2, 3, 5, 6 and 7 are suitable for development within the 2000 – 2007 plan period. It is possible however, that all residential land required to allow for

a population of 22,500 could be met through the development of phase one lands alone. If this is not the case or if it is decided that Wicklow town should expand even further than the target population of 22,500, phase 2 lands will be developed, i.e. Action Areas 4, 8 and 9 as shown in Figure 3.4.

The Framework Plan recommends a system of phasing loosely based on a combination of the Action Area Plan method, the construction of the town relief road and the height of land above sea level, in an effort to reinforce the containment of urban sprawl and locate populations close to the proposed local public transport network. The four phasing priorities are illustrated in Plan 4 in Appendix F.

It is envisaged that residential development should occur, where possible, as a first priority in brownfield lands or where there are opportunities for infill development in order to increase residential densities close to existing town and village centre facilities. The construction of the Port Access Road

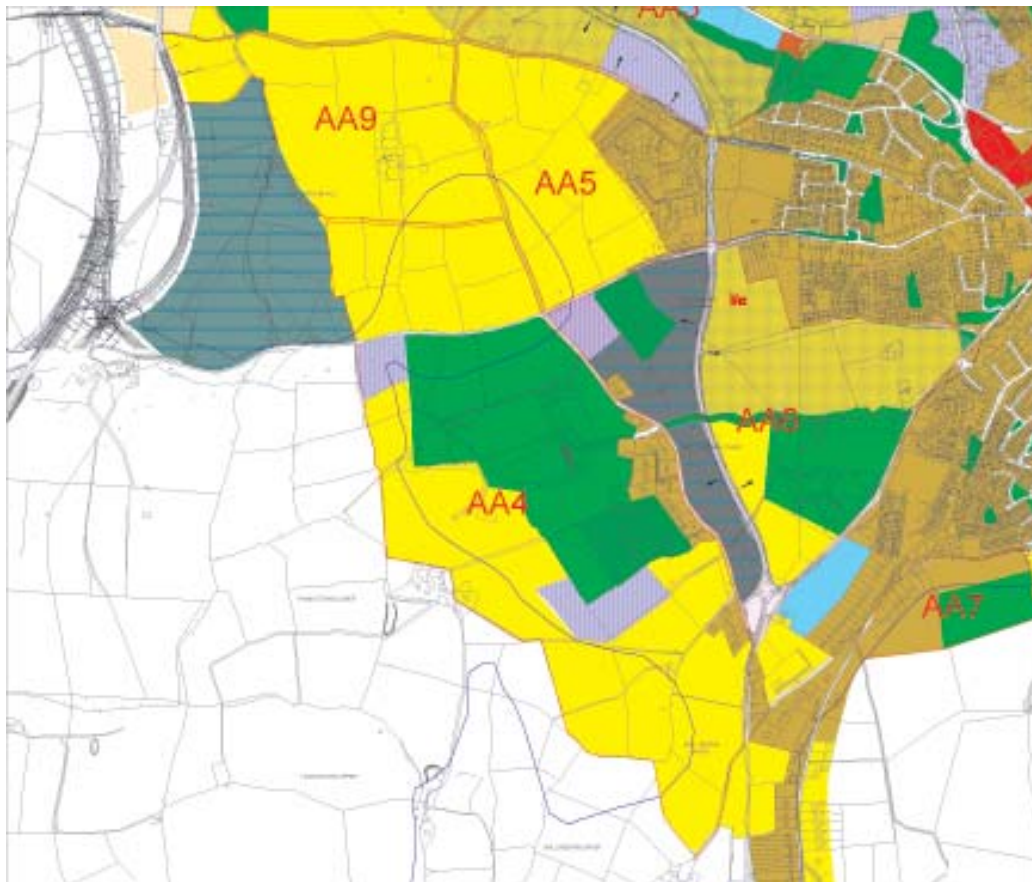


Figure 3.4

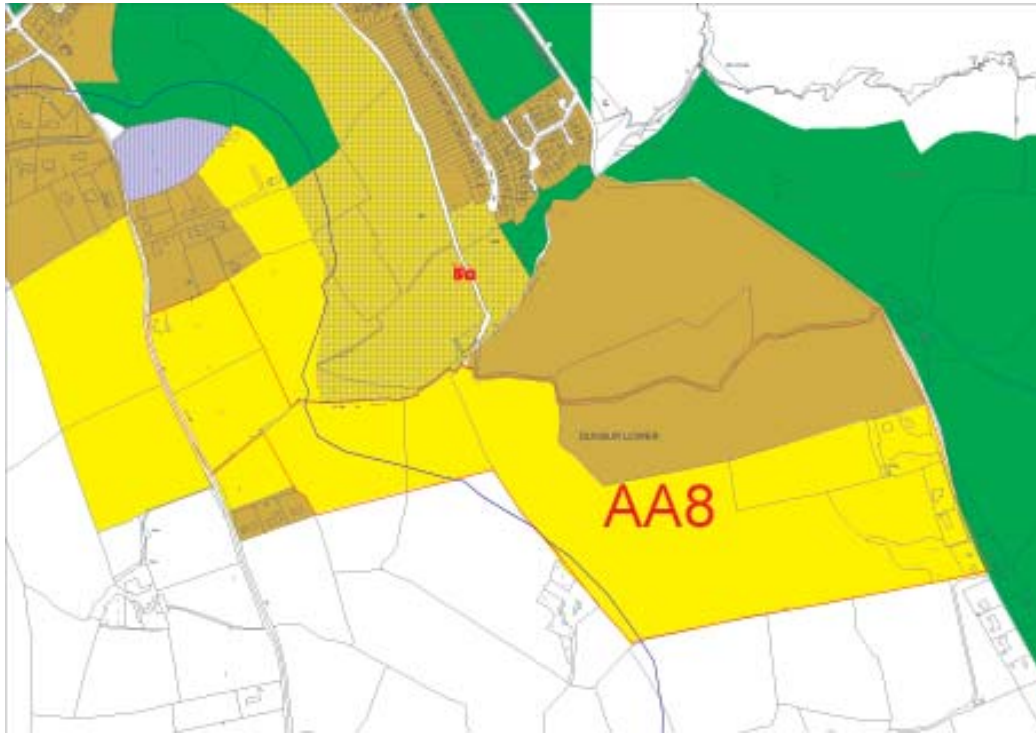


Figure 3.5

is fundamental to the opening up of Phase 1 lands identified for General Business around Wicklow Train Station.

As a second priority it is preferred that land contiguous to the core area of Wicklow and Rathnew be developed or infilled to consolidate the existing centres. This will help to support the proposed first Local Bus Route, which largely follows existing built up areas.

Third priority phasings are closely related to the construction of the town relief road in that higher density residential development in these areas is justified only on the basis that the second public transport service is implemented along the new road. It is important that this bus route is established in time for potential residents of the area to utilise the service before reliance on private transport is established.

Fourth priority lands should develop in the event that insufficient infill, brownfield and land in closer proximity to the existing town/ village centres or public transport routes do not become available to achieve population targets. This land is largely

made up of all undeveloped lands within Action Areas 4, 8 and 9, as well as some adjacent land to the south of Action Area 4 at Ballynerrin Upper and land between Rossana Lower and Newrath. Also included in the fourth priority are residential lands within Action Area 5 and adjacent to and within Action Area 8, which are above the 300 feet contour. These areas are least suitable for development because they are difficult to service due to the need for pumping of water and sewage or the need to provide additional water storage facilities.

The location of a proposed neighbourhood centre is also illustrated above. As with Action Area 6, it is supported by high density residential zoning and will be located on a local bus route in accordance with policy.

It is apparent that lands within later phasings are in the process of being developed or already are. The purpose of these phasings are to encourage development in the order of existing centre first, edge of town centre second, on public transport corridors or more outlying areas third and finally in more remote areas, if needs be. Whilst development may occur out of sequence, the phasings should be flexible to allow for the

increasing of densities in appropriate already established areas through backland or infill development. This is more of a long-term measure to tackle unsustainable suburban living patterns, which are heavily reliant on car usage.

3.11 Ashford

Due to its proximity to the study area, Ashford has been included in the model exercise.

No recommendations have been identified in terms of zoning or densities. However, it is recommended that Ashford should develop as a local growth centre in order to serve local needs.

Ashford has been identified as a Secondary Local Growth Centre in the County Development Plan. Such Centres are designated because they have basic social, community and physical infrastructure or where these can be provided or expanded most economically or where there are specific zones for specific uses within the County.

3.12 General Recommendations

The Framework Plan should encourage the establishment of bus routes in time for new residential development.

- Agreement should be sought with any developer/ potential local bus operator, to establish a service in lands, which are zoned for residential development during the time that development is taking place. This will help to ensure that new residents have a choice of transport mode and do not establish the habit of being reliant on the car only;

The Department of Environment and Local Government document "Residential Density – Guidelines for Planning Authorities", seeks to encourage higher densities in outer suburban / greenfield sites. It states that "the greatest efficiency in land usage on such lands will be achieved by providing net residential densities in the general range of 35-50 dwellings per hectare and such densities should be encouraged generally. Development at densities less than 20 dwellings per

hectare should generally be discouraged in the interests of land efficiency, particularly on sites in excess of 0.5 hectares. On lands proximate to existing or proposed public transport corridors, densities in excess of 50 dwellings per hectare should be permitted, subject to appropriate qualitative safeguards";

- Densities of 50 dwellings per hectare would not be practical in Wicklow as the planning authority, or indeed an applicant, could claim that such densities would not reflect the established character of the area in which any new development is located. These densities could also be extremely difficult to construct on the hilly topography of the area. Densities for different types of residential development are listed in Table 3.1 below. It is unlikely that there will be little occurrences of town houses, unless in centrally located infill sites or local district/ neighbourhood centres;

Table 3.1. Residential Densities:






















Type of Zoning	Density (Units per hectare)
Residential	25
Residential – Infill	25-35
Residential - higher density	35
Town Centre Houses	35-60

- Greater emphasis should be placed on a land use strategy which reduces / prevents the need to travel;
- More facilities and functions within the town to necessitate the need for short distance travel (retail and recreational);
- Promotion of neighbourhood centres to provide for more local needs;
- There should be a greater mix of uses within proposed Action Areas to minimise travel;
- Increase in indigenous industrial set ups. Attraction of industries wishing to locate near the new motorway with good access to

Wicklow Port. Dependence on improved road network. Expansion of port activities;

- Industrial and business development should be encouraged, through a process of fast track planning around train stations and between Wicklow town and Rathnew near existing road infrastructure;
- The council should encourage office-based industries. It should also permit limited home-based industries which do not affect residential amenity;
- Establishment of a third level institution. Higher residential densities around schools. Relocation of schools in centre of town locations to accommodate high density residential or retail development;
- Open space should also be considered in transport strategy (opportunities for increased walking and cycling). Cycling and walking routes should be created from residential areas to open space; and
- Cycle and pedestrian linkages of natural / open space active & passive areas with residential areas (See Plan 6 – Proposed Primary Cycling Network and Plan 7 – Proposed Primary Walking Network).

Legend and Zoning Descriptions for Figures 3.1 to 3.6

	Action Area Boundaries
	To protect, provide and improve residential amenities
	To protect, provide and improve residential amenities while allowing for increased residential densities above 28 houses per hectare on the basis of high quality design, layout and orientation of properties and public spaces.
	To protect, provide and improve residential amenities of adjoining properties and areas while allowing for infill residential development that reflects the established character of the area in which it is located.
	Port Activities
	To promote the development of high quality business and office space subject to high quality design, landscaping, layout and low density development
	Stand Alone Industrial (Strategic Reserve)
	Retail Warehousing (Strategic Reserve)
	Transport Interchange
	General business uses - dwelling houses (including flats or apartments), offices, hotels, motels, guesthouses, public houses, restaurants, light industry, wholesale warehousing, recreational buildings, car parks, open space
	To consolidate and facilitate the development of the central area, and to identify, reinforce, strengthen and promote urban design concepts and linkages between town centre activity areas
	To promote for the protection and creation of industrial and light industrial uses, and facilitate opportunities for employment creation
	Existing industrial
	To provide the necessary community and educational lands to cater for future population increases
	To preserve, provide and improve recreational amenity and open space, enable agricultural activity, support the preservation of amenities and enable the preservation of upland areas and greenbelt areas
	Existing open space
	Greenbelt
	Hotel
	Neighbourhood centre
	100 metres above sea level
	Commercial

4. Transportation Strategy

4.1 Introduction

A comprehensive and efficient transportation infrastructure is an essential component in the future development of any urban area. This is particularly so in high growth areas like Wicklow, where increased car travel demand has placed unprecedented pressure on the transport infrastructure.

Previous development plans placed the provision of infrastructure for the private car as the priority with little mention of basic mobility (non-mechanical mobility). It is now widely recognised that provision of this sort of infrastructure is not the solution for the transportation needs of a community. The provision of basic infrastructure should be accompanied by other transport / mobility conscious planning strategies that encourage the use of alternative means of transport. These planning strategies are included in the land-use strategy.

4.2 General

The DTO "A Platform for Change" document states "Framework Plans for Development Centres will be developed, to ensure that land use and transportation objectives are sufficiently integrated. Within these frameworks, Local Transport Plans should focus on the improvement of bus-based accessibility to local services, minimise car use for local trips and ensure interconnection with strategic public transport networks ...".

At present, Wicklow Town and environs are poorly connected to strategic public transport networks. The rail service is minimal due to the capacity constraint of a single-line section south from Bray, which is not scheduled to be significantly improved during the life of the current transport strategy. Buses mainly serve peak hour commuter demand. Within the urban area, there is an embryonic demand-response shuttle service. During the steering group meetings it was widely accepted that despite the fact that this demand-response service was providing a good service to the area, a fix-route service should form the backbone of the local public transport.

The construction of the new N11, the Port Access and Town Relief Roads will encourage the dependency on cars in the area, resulting in market pressures for commuter-development. It is therefore, the purpose of this strategy to make recommendations in order to enhance all levels of public transport in the area and interconnect these to other mechanical and non-mechanical modes.

The transportation strategy draws a balance between facilitating the private car where appropriate, and promoting alternative means of transport. The car has a rightful, but not dominant role in the urban transport system. A balanced private-public transport strategy constitutes a sustainable approach to the future development of transportation in Wicklow and its environs.

4.3 Concept

A transport strategy for Wicklow Town and Environs must identify each level and type of transport with a view to improving and integrating in a locational and modal sense. It is important to establish how Wicklow is perceived nationally, regionally and locally in terms of transport provision and what opportunities are available to improve connections at each level and between each level. Each transport provision should then be examined in a modal sense and how it is related to movement distances.

The car and train are traditionally used for longer distance journeys; buses for medium to long distance i.e. from one side of a town to another or from town to town; and bicycles for short journeys for between say a one and five miles round trip. There is nothing to stop an able-bodied adult or child from walking distances up to one mile. For those unable to do so, transport should be made easier in terms of accessibility for the disabled. Specific recommendations on mobility-impaired access to public transport are outside the remit of the Framework Plan, but it is something that should be considered when designing networks for the study area.

The need for a study of this type has been necessitated by unprecedented car growth in terms of ownership and usage. Recent traffic congestion

throughout Ireland is in part a result of the difficulties and inadequacies of movement other than by car. A better modal share is required in order to improve overall movement.

Figure 4.1 is an illustration of how CBP perceive movement to, from and within Wicklow and Environs in order for there to be a better modal share and greater ease of switching between sustainable modes in a manner which is easy to understand. It shows that it should be possible to start of a journey on foot and end up at an international destination without the use of a car. The skeleton of the transport strategy is the provision of the Local Public Transport service. This is one of the elements of the overall strategy that is not yet in place. This is required to serve the majority of the mobility needs for the area and also to facilitate the transit to medium-long distance public transport journeys.

Similarly, cycling should also be catered for, although due to topographical constraints, the mode is less likely to appeal universally.

The catchment of the proposed transport networks will be widened by the provision of a set of pedestrian links from residential areas to bus stops; the provision of a transport interchange at Rathnew and at Wicklow train station, served by both local, regional and interurban buses; improvement to regional bus and rail services; and traffic and parking management. Other issues such as the provision of good information to passengers, the marketing of any proposals and ease of ticketing are essential elements and will be examined in this document.

4.4 Walking and Cycling

4.4.1 General

While most development plans identify the road network as the key structural element, a sustainable design should take the circulation of people on foot and bicycle and the effectiveness of public transport as starting points. The objects are to reduce the level of car reliance and to reduce the

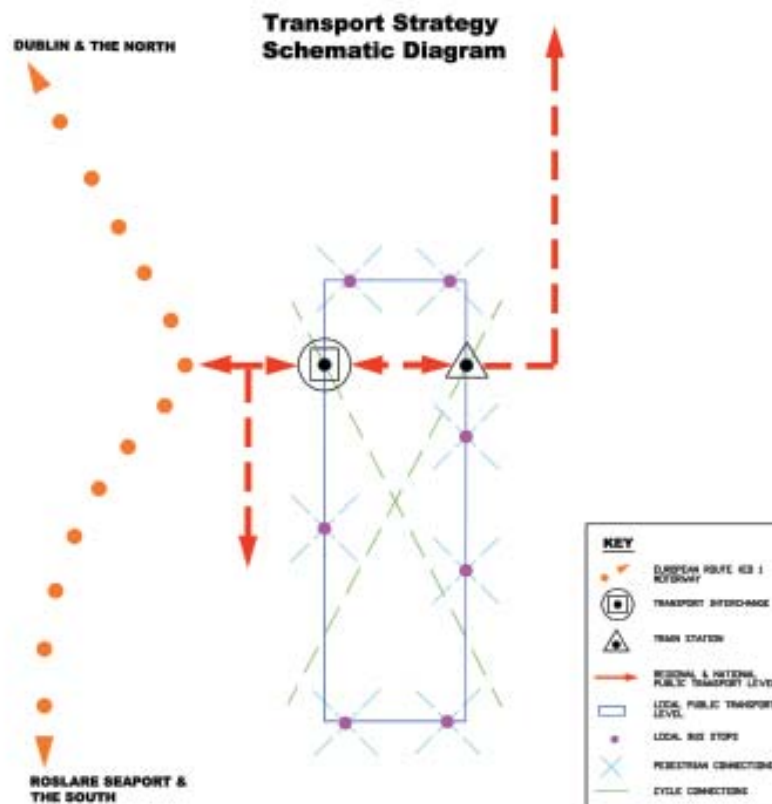


Figure 4.1

need to travel - with the social benefits of increasing transport choice for all groups in the population, and enhancing local security and community.

The allocation of more road space to pedestrians and cyclists should help to deter traffic congestion, particularly in the town centre. This may involve the installation of cycle lanes and pedestrian priority / pedestrian-only schemes onto existing road space. Therefore, this strategy will encourage a shift in emphasis in the allocation of road space in an effort to make Wicklow a town where pedestrians and cyclists can co-exist safely with other modes of transport.

It is well known that car traffic is responsible for a great part of the energy consumption and air pollution. What is less well known is that urban structures, which provide for a high degree of access and mobility by car, are inherently incompatible with structures served predominantly by other modes of transport. Therefore, it is recommended to increase the connectivity and legibility of Wicklow and Environs network in order to promote walking and cycling.

4.4.2 Walking

A well-designed urban structure has a network of connected spaces and routes for all modes of transport. There is a tension between the conventions of cul-de-sac housing layouts, and the need for a dense network of routes giving good 'permeability' and maximum access of any place to any other. Therefore, it is recommended to safeguard the public character of roads and streets within the Town, particularly within housing estates and ensure that, wherever possible, a street leads into another street.

It is necessary to discourage the building of cul-de-sacs, except where there is no practical alternative and it does not involve the interconnection of two or more cul-de-sacs. Consideration should also be given to ways of creating access through existing cul-de-sacs for pedestrians, cyclists and public transport. CBP also recommend that when designing the new residential areas consideration is given to making these areas easy to serve by bus, either by providing direct walking routes to bus stops, or by

allowing bus operations to penetrate the residential development.

It is recommended to create a network of walking routes by improving and preserving existing walk links, and by opening up new footpaths on existing roads, as well as increasing the widths on existing footways where they are currently too narrow. This is particularly evident on Main Street and Abbey Street, where footways are no wider than one metre in places. Plan 7, in Appendix E illustrates primary and secondary walking networks. The primary network is intended to improve connections between, to and from settlements within the study area. The secondary network, although no less important in terms of implementation, illustrates existing routes that are frequently used, which should be protected and enhanced.

Listed views around Wicklow are also highlighted for leisurely walkers. Not only should these improvements be made to encourage people to walk but also to accommodate the significant numbers who already do. The CBP Mobility Survey discovered that around 12% of people walk to work and a similar percentage of children walk to school. Around 81% of respondents said that they would consider walking to the town centre. New walking links or shortcuts, particularly to the LPT route, should also be encouraged throughout. Examples of this are contained in Appendix E – Accessibility Guidelines.

A deterrent to the promotion of walking as a mode of transport is the issue of safety, especially with regards to vulnerable groups. A lot of services and facilities are within walking distance in a town of Wicklow's size. More direct walking routes should be created with the provision of conveniently located pedestrian crossing; appropriate signage; rest benches; and effective lighting with interesting features along the way. The separation of pedestrians and vehicles at different levels should also be discouraged.

Streets, footpaths and public spaces are safer by laying them out so that passers-by and people in nearby buildings overlook them. Buildings should be laid out so as to create continuous frontages around the perimeter of a block, wherever

appropriate. This makes a clear distinction between private space on the one hand, and streets and public spaces on the other, avoiding dead areas of land which no one uses or cares for. Buildings and places should be capable of being used for a range of activities at different times of the day. The occupation of ground floors by uses that relate directly to pedestrians in town and neighbourhood centres, should be also be encouraged.

4.4.3 Cycling

Cycling is a healthy, environmentally friendly and most significantly, an efficient mode of transport. Cycling can become an important means by which to travel to school, work, shops and other facilities, as well as being a popular leisure activity. Safety when cycling and security when bicycles are parked are two issues that should be addressed if cycling is to become a mode of transport popular enough to impact upon car traffic congestion levels. Therefore, it is recommended to promote cycling as a mode of travel.

Although the hilly nature of parts of the study area mitigate against cycling, it is recommended to establish a network of continuous cycle routes as shown in Plan 6, Appendix F. The provision of cycle paths is easier to accomplish when constructing new roads, which is why the town relief and port access roads have been utilised. There are also cycle linkages between Wicklow Town, Rathnew and Ashford, as this route is on relatively flat terrain. The CBP Mobility Surveys discovered that around 38% of respondents said that they would consider cycling to the town centre.

Finally, in order to implement these policies it is recognised the importance of liaising with relevant organisations, including Slí na Sláinte, The Irish Cycling Federation, the Safe Routes to Schools Initiative and disabled representatives, to promote their interests in an overall transport strategy.

4.5 Local Public Transport Service

The expansion of the urban area of Wicklow, Rathnew and Ashford represents a unique opportunity to implement a local public transport service. However, from CBP's experience, the

planned size of the urban area (25,000+ people) is at the fringe of the critical mass needed to commercially run the service. Bus Eireann and Dublin Bus agreed on this subject during the consultation process.

The fact that a private operator already runs a 'demand-response' service from Wicklow town centre to the residential areas cannot be considered as the main backbone of the public transport system for a primary development centre. Frequency and reliability are two important elements of a successful public transport system. A network must be created based on a small number of direct, regular services which are more legible and attractive to passengers than networks based on routes with lots of variations and which operate at irregular headways. The prospective passenger perceives low and irregular frequencies as a detriment to the use of the service.

The CBP Mobility Surveys discovered that 70% of people interviewed would consider using a local public transport service if there was one in place. At present around 70% rely on the car for travelling to work with 79% relying on it for shopping. Therefore, as part of the transport strategy it is recommended to implement a regular local bus service within the study area.

4.5.1 Regular Local Bus Service

The preferred model is for a fixed route, high frequency operation using small vehicles, which can penetrate residential areas more effectively than the larger buses operating on interurban services.

In principle, the service should aim to:

- Give good accessibility to residential areas;
- Operate via shopping, employment, key health and educational facilities; and
- Serve Wicklow train station and a proposed Wicklow and Environs Transport Interchange located at Rathnew once opened, to provide connections with interurban and regional services.

CBP recommends two local bus routes, and these are detailed in Appendix F, Plan 5 –

Proposed Local Public Transport Network and Improvements Required.

4.5.1.1 Route 1:

Ashford – Rathnew – Wicklow Station – Abbey Street – St Patrick’s Road – Mount Carmel Road – Kilmantin Hill – Market Square – Main Street – Abbey Street – Wicklow Station – Rathnew – Ashford

The route is 20 km round trip and we estimate it would take 1 hour to complete the loop. CBP would intend that this route would have a bus every 15 minutes and be operated from 7am to 10 pm six days a week with a half hourly Sunday service.

This service would provide an essential connection to Rathnew as illustrated in **Figure 4.2**. This local service is an integral part of the overall strategy as it provides local access as well as access to the regional bus routes and train. It is recommended that this route be operational as soon as possible, as it utilises existing road infrastructure.

Route 1 should access Wicklow Station when there are connecting trains. This could be done *initially* by turning left past the Council offices and going up and down to the train station. The relatively small lack of benefit caused in worsening through passenger journey times would be more than offset by the benefit to train users of removing a 20 – 25 minute walk to Wicklow Town Centre. Ultimately, a bus only link parallel to the train line to the left of the main road could be provided to serve the train station more directly, resuming the original route past the Council offices.

The operating cost is estimated to be around •575,000 per annum. Assuming an average fare of •1,50 per passenger, then around 384,000 single passengers journeys per year would be required for the service to break even. This would be work out to be around 1050 single journeys per day. This implies a trip-rate of 0.04 single trips per person on the service.

Assuming a 5% potential shift to local public transport from other modes of transport and an implementation of the measures identified in this

Integrated Framework Plan, Route 1 would carry 1750 passengers a day by 2016 (2.1% modal share). This means that route 1 will take a minimum of 7 years to break even with the level of service previously identified. If no changes were introduced to the land use strategy, Route 1 would take a minimum of 12 years to break even.

4.5.1.2 Route 2

Rathnew Interchange – Rathnew – East through Merrymeeting – Town Relief Road – New Link Through AA6 – Marlton Road – Abbey Street Main Street – Summer Hill – Dunbur Road – Dunbur Lower- Main Street – Abbey Street – Parnell Bridge – North along Leitrim Place – West along Port Relief Road – Rathnew Road – Rathnew - Rathnew Interchange.

This route should be implemented circa 2007. It is 15 km long and CBP estimate it would take 45 minutes for a round trip. This would operate with two buses in each direction with an 25 minute service. It would also operate the same hours as route 1.

CBP examined the possibility of implementing a single bus route to service the whole town. It was concluded that the new road infrastructure should be included in any bus routes, as it will be used to access considerable amounts of residentially zoned land, a neighbourhood centre and Wicklow train station. As mentioned earlier, it is hoped to establish a route as soon as possible meaning that the new road infrastructure could not be a part. An operator may decide to alter Local Bus Route 1 to encompass the new infrastructure when constructed, but this is likely to inconvenience patrons who have already become familiar with this route and timetable.

The establishment of Route 2 does not necessary require additional buses and could be facilitated by simply changing the bus display number, as there is a small section of overlap between the two routes. Two routes are therefore recommended to give comprehensive public transport coverage of the study area.

The operating cost of Route 2 is also estimated to be around •575,000 per annum. Likewise with Route 1, assuming an average fare of

•1,50 per passenger, then around 384,000 single passengers journeys per year would be required for the service to break even. This would be likely to work out around 1050 single journeys per day. This implies an extra trip-rate of 0.04 single trips per person on the service.

Assuming a 5% potential shift to local public transport from other modes of transport and an implementation of the measures identified in this framework plan, Routes 1 & 2 would carry 3246 passengers a day by 2016 (3.9% modal share). This means that Routes 1 & 2 will take a minimum of 9 years to break even with the level of service previously identified. If no changes were introduced to the land use strategy Route 1 would take a minimum of 11 years to break even.

The cost recovery period depends on the real transfer to Local Public Transport. A cost recovery period of 5 years for both Routes would be achieved if a net transfer of 6,6% from other modes of transport to local bus service happens. This would imply a trip-rate of 0.21 single trips per person on the service.

Table 4.1 shows effective LPT trips, daily trip-rates, LPT modal shares and cost recovery

periods for Routes 1 & 2 under different Land Use Scenarios and with different transfer to Local Public Transport. These Cost Recovery Periods indicate that some sort of subsidies have to be provided in the sort term to assure the future success of the Local Public Transport Service.

Despite the fact that a fixed route is preferred during an interim period of 5 – 6 years and until the critical mass of Route 2 is achieved, this service could include a demand-responsive element so that the bus can serve on demand streets or areas from which insufficient demand arises to justify the service using that route all the time. The demand-responsive element can be highly sophisticated, with a central computerised booking system. On the other hand it can be very simple with buses booked to pick up via the driver's mobile phone, and set down simply by asking the driver.

4.5.2 Taxi service

CBP also recommend the establishment of a regulated taxi service. There should also be the implementation of taxi ranks around the town at strategic locations. This service would allow the travelling public to hail taxis and remove the need for

Year	2001		2016								
Land Use Changes	No change	No change			Transfer of Employment Opportunities close to both railway stations + Reinforcement of Wicklow town as a Commercial & Leisure Centre + Increase of Density for Residential + concentration of development along Local Public						
LPT Routes	Without Public Transp.	Without Public Transp.	Route 1	Routes 1&2	Route 1	Routes 1&2	Routes 1&2	Routes 1&2	Routes 1&2	Routes 1&2	Routes 1&2
Potential Transfer to LPT	no transfer to LPT	no transfer to LPT	5%	5%	5%	5%	10%	15%	20%	25%	30%
Scenario	A	C1	C2	C3	C9	C92	C92	C92	C92	C92	C92
Population	10,329	25,977	25,977	25,977	25,961	25,961	25,961	25,961	25,961	25,961	25,961
Effective LPT Trips (Daily)	0	0	1,223	2,628	1,752	3,246	5,565	7,884	10,203	12,522	14,840
Daily Trips / population	0.000	0.000	0.047	0.101	0.067	0.125	0.214	0.304	0.393	0.482	0.572
Local Bus Mode Share	0%	0%	1.5%	3.1%	2.1%	3.9%	6.6%	9.4%	12.1%	14.9%	17.6%
Cost Recovery Period (years)	-	-	12	11	7	9	5	3	3	2	2

Table 4.1

them to phone and wait for one to arrive, which is the case with hackney cabs.

A plan showing the possible locations for taxi ranks is shown in **Plan 8** in Appendix E.

- Wicklow Train Station;
- Wicklow and Environs Transport Interchange at Rathnew;
- Fitzwilliam Square;
- Market Square;
- Tesco's;
- Convenience centre in area 209;
- Rathnew Village and Interchange; and
- Ashford

4.6 Regional Public Bus Service

The Regional Public Transport proposals are concerned with connections to the metropolitan area, to the hinterland area and to other Development Centres. The majority of the existing services converge on Ashford and with the introduction of the new M11 motorway these services will all run adjacent to Rathnew.

4.6.1 Bus Eireann Route 2

Bus Eireann Route 2 provides a 60 – 90 minute headway express service to Dublin in one direction, and to Arklow, Wexford and Rosslare in the other. Proposed changes are to:

- Divert from Ashford to Wicklow and Environs Transport Interchange at Rathnew; and
- Make it stop to pick up and set down in both directions.

Route 2 provides the spine of the proposed bus and coach network.

4.6.2 Bus Eireann Route 133

Bus Eireann Route 133 provides a 'semi-fast' link from Wicklow, Rathnew and Ashford to Dublin via Newcastle, Newtownmountkennedy,

Kilpedder and Bray. Two to three journeys run south to Arklow via Rathdrum and Avoca.

The proposed changes are to:

- Augment the service to provide a regular, hourly headway service between Wicklow, Rathnew, Ashford and Dublin;
- Augment the service to provide a regular, two-hourly headway service to Arklow; and to divert the service to the proposed Wicklow and Environs Transport Interchange.

Route 133 provides an important function in giving access to Bray and Dublin direct from Wicklow on the one hand, and in giving local access from Newtownmountkennedy and Kilpedder to Wicklow on the other. Operating costs are estimated to increase by around 50%.

The proposed Bus Eireann services are illustrated in **Figure 4.3**. As can be seen from the drawing, the services together provide a comprehensive coverage of the area and most notably they all connect around Rathnew.

4.6.3 Dublin Bus Route 84

Route 84 currently provides a stopping service between Dublin, Bray, Greystones, Kilcoole and Newcastle. It is proposed to:

- Extend the service to the proposed Transport Interchange at Rathnew; and
- Re-cast the timetable to give a regular, hourly headway throughout its entire length.

The extension to this service is illustrated in **Figure 4.4**.

The service change is broadly cost-neutral. The aim of the service is not so much to give another route to Bray and Dublin, as routes 2 and 133 are much quicker, but rather to give local access to and from Newcastle, Kilcoole and Greystones.

The provision of a direct route between Rathnew, Newcastle and Greystones may obviate the need for Route 133 to divert off its main route to serve Newcastle. This would make Route 133 more

direct and reduce the running time by maybe 5 – 10 minutes

The implications of the proposed service pattern are that 3-4 interurban services per hour in each direction will call at Rathnew, some of them (Routes 84 and alternate services on 133) to terminate and layover. This implies that maybe 3 stands will be required to accommodate them.

There should be adequate park-and-ride facilities provided for people who wish to drive here and catch buses (and trains). There should also be provision for people to 'kiss and ride' and 'meet and greet', particularly in view of the long distance coach services we expect to serve Rathnew.

4.6.4 Urban Layout Considerations

Finally, there is a requirement to consider the needs of bus passengers and of bus operation when planning new developments. Ideally, houses should be not more than 400 metres from a bus route, but as mentioned earlier, the topography of Wicklow will mitigate towards lower walking distances.

Bus routes should have adequate supporting infrastructure; i.e. stops and shelters, which are well connected to the adjoining highway, pedestrian and cycle networks.

4.7 Railway Service

WCC are supportive of IR's short-term proposals for the improvement of rail services in the county, but wish to develop these concepts further. The provision of two high capacity services in each peak period to Wicklow, with one going on to Arklow is probably adequate for the level of commuting that is compatible with Wicklow Town's long term goal of self-sustainability; what is missing is an adequate off-peak service. This is confirmed by the results of the CBP Mobility Survey in which it was discovered that 44% of respondents said they would travel on the train if services were improved.

It is clear that there will be plenty of spare Arrow trains available in the off-peak; the peak trains will each be formed of at least 3 two-car units coupled together to provide adequate capacity. Each of these

will then be available between the morning and evening peak periods to provide the kind of service which the County Council believes is required to give Wicklow the day-long accessibility it needs to Bray and the Dublin area.

There are several ways in which this could be done. The minimum would be a two-car shuttle service between Wicklow and Greystones where through passengers would have to transfer to the DART. This is unsatisfactory because of the infrequent and irregular DART service to Greystones, and because of the fact that at Greystones passengers would need to interchange between trains by means of a footbridge rather than across a platform. A service between Wicklow and Bray would be better.

In addition, the DART service at Bray is much more frequent, Bray itself is a more important destination than Greystones, and there is the opportunity for cross platform interchange between Arrow and DART trains. However, the lack of track capacity between Greystones and Bray means that a section of double track is required north of Greystones. A passing loop at Newcastle, roughly halfway between Greystones and Wicklow, would also be desirable. **Figure 4.5** illustrates this option.

A further option would be to extend the Arrow services to Dublin instead of Bray. This would have the advantage of avoiding a forced interchange at Bray and would also give a shorter journey time. This is because if a northbound through Arrow service departs from Bray just before a DART service, it could omit most station stops and arrive in Dublin just behind the previous DART train. Therefore, the capacity of the South-East Commuter line will not be reduced.

Since these are normally 15 minutes apart in the off-peak, this would allow an acceleration of about 10 minutes by the Arrow trains. Where capacity permits, passengers boarding at Bray would have an additional non-stop service to Dublin. This would allow for increased capacity for passengers boarding the next DART service at Bray as well as passengers waiting to board at remaining stations to the north.

A final option would be to extend the off-peak Arrow service to Arklow. In this case passing loops at Ballymanus and Avoca would also be required. Table 4.2 summarises the various off-peak train service options and their attendant infrastructure and rolling stock requirements.

Option 2 (Wicklow-Dublin) has been identified as the preferred option, being option 4 a future objective in order to connect both Wicklow and Arklow Development Centres to the Dublin Metropolitan Area and to its Hinterland.

In order to achieve this objectives it is recommended that there be a phased series of rail service and infrastructure improvements. At every stage it is assumed that the additional peak period trains proposed by IR, are in operation. The preferred option, Option 2, comprises phases 1 to 2; while Option 4 comprises phases 1 to 4. These are contained in Table 4.3.

N	Service between	Number of 2-car Arrow units required		Passing loops required
		60'	30'	
		60'	30'	
1	Wicklow – Bray	1	2	1, 2
2	Wicklow – Dublin	2	4	1, 2
3	Arklow – Bray	2	4	1, 2, 3, 4
4	Arklow – Dublin	4	8	1, 2, 3, 4

Table 4.2 - (Key 1. North of Greystones 3. Ballymanus
2. Newcastle 4. Avoca)

Phase	Off-peak Arrow services	Off-peak frequency	Additional infrastructure
1	Wicklow – Bray	60'	Passing loop north of Greystones Passing loop at Newcastle
2	Wicklow – Dublin	60'	As phase 1 plus new interchange station at Rathnew
3	Arklow – Bray	60'	As phase 2 plus passing loops at Ballymanus and Avoca
4	Arklow – Dublin Rathnew - Dublin	60'/30'	-

Table 4.3

The culmination of all the various elements to the strategy is illustrated in **Figure 4.6**. This diagram shows the connectivity of all bus routes and the train services.

4.8 Major Transport Nodes

4.8.1 Wicklow Train Station

The most important station development concerns the Wicklow area. The current Wicklow station is somewhat remote from Wicklow town, although it lies at the nearest point that the line goes to the town centre. The major population expansion around the town and towards Rathnew will have the effect of making the train station more central within the entire population. For this reason and for the reason of encouraging transport integration it is recommended to carry out substantial improvement to the station. These may include: Bus operating facilities at the station forecourt;

- Station car parking;
- Access from the north of the station;
- Improved waiting area and passenger information;
- Cycle parking;
- Continuous footways to the station from the town centre;
- Taxi rank; and
- Improved access for the disabled.

4.8.2 Wicklow and Environs Transport Interchange

Wicklow County Council would like to see Rathnew developed as a transport interchange serving the Wicklow and environs area, with a bus terminal and park-and-ride in addition to a new rail station. The re-establishment of the old Rathnew train station at this location is a long-term goal and should not be at the expense of the existing Wicklow Town station. Irish Rail is supportive of this idea but is unable to provide the finance to do so. Therefore, a public-private partnership is needed to bring this objective forward.

CBP propose that all trains serving Wicklow would also eventually serve Rathnew. In the meantime it is recommended that the Wicklow and Environs transport interchange be created in this location to provide integration between regional and local bus services, taxis, cyclist and pedestrians. This location has been chosen because of its proximity to the new N11, which is due for completion soon and will be part of a continuous European standard motorway link serving most of the country's east coast.

4.8.3 Bus Depot

CBP believe that there may be a requirement for a bus layover station in Rathnew to facilitate buses being stored overnight and this could be located adjacent to the Interchange. Four vehicles have been identified on bus Route 133 to be out-stationed at Rathnew, and five for Route 84. Hence there will need for stabling, fuelling and basic cleaning facilities for 9-10 vehicles either at the Interchange or in its vicinity.

4.9 Traffic and Parking Management

4.9.1 Traffic Management

The main objective of any proposed traffic management measures would be to reduce the congestion and impact of the additional traffic predicted for 2016. An essential part of the traffic management strategy would be to provide bus priority measures at locations where traffic is likely to conflict and delay the proposed buses. Measures should be implemented to encourage traffic to use the relief roads to reach their destinations. These measures could include traffic calming in the town centre, one way streets, banned turns and even the banning of cars from certain streets and allowing a shared surface for pedestrians, cyclists and buses only.

The following areas will most certainly require bus priority measures:

- The junction of Rathnew Road and the Town Relief Road;
- The junction of the Rathnew Road and the Port Relief Road;

- Around Port Access and Town Relief Roads;
- Main Street;
- The junction of Marlton Road and Abbey Street;
- At Rathnew; and
- The junction of Kilmantin Hill and Market Street.

Continuous bus lanes would not be required, the provision of a short bus lane leading into the junctions mentioned above or perhaps signal priority for buses would be sufficient. Any bus priority measures to be implemented would need further study and once implemented, would need to be monitored and extended or improved as necessary.

Another important factor in traffic management would be the provision of adequate signage to guide traffic to the car parks and parking areas by the most suitable route.

Pedestrian links to the new car parks should also be enhanced to facilitate the increase in pedestrians in the area, and also on street parking charges should be increased to encourage people to park off street.

4.9.2 Parking Management

Wicklow is a thriving local shopping, commercial and tourist centre. Parking is currently controlled in the centre of the town through the use of a pay and display scheme. The prime objective of the parking control scheme for Wicklow is to provide for the short stay visitor and tourists in the holiday season. At present town centre shops and services depend largely upon the car borne shopper.

As part of the CBP Wicklow Traffic Study 1999, parking surveys and projections were carried out in the town of Wicklow. The indications were that based on the existing provision of parking spaces, capacity shall be reached by 2006. In addition, estimations for the demand for parking in 2016 were in the region of 1060 spaces with this figure

increasing by 25% in the summer months due to tourism.

As per the report Wicklow has a capacity of 637 spaces at present, therefore this figure needs to be increased by 423 spaces in order to cater for the extra parking demand in 2016. All of these spaces will of course have to be provided off street. The distribution of the new spaces amongst the proposed new parking areas around the town, should be based on the expected demand for parking at these locations.

As per the Wicklow Traffic Study report, tourism will increase the requirement for parking spaces in the area by 25% in the summer months, this equates to 106 spaces.

The essential part of the strategy should be to discourage parking within the main shopping area and to allow the new bus services to have priority through the main shopping thoroughfare. A number of parking areas should be developed at the fringes of the main shopping area and motorists should be encouraged to use these perhaps by allowing free parking in these areas and charging higher charges for on street parking in the central area.

CBP recommend seven new designated parking areas. These are to be strategically located around the town to facilitate cars coming from all directions into the town. The proposed locations are:

- The first, (A), would be at the site proposed by in The Wicklow Traffic Study 1999 for tourist parking. This area is to the north of Upper Strand Street and Strand Street. (As many spaces as possible within the confines of the area, preferably 106 spaces).
- The second, (B), would be at the Abbey school site once the school has re-located. This is a very good location and would prove to be the main car park serving the main shopping area. (250 spaces).
- (C) Retention and if possible, expansion of the existing car park at Super Valu.

- The fourth, (D), would be on the Northern side of Marlton Road, west of the entrance to Marlton Court. (110 spaces).
- The fifth, (E), proposed location would be adjacent to the hospital off Glenside Street. (65 spaces).
- The sixth, (F), of these car parks is to be at the proposed Interchange at Rathnew. This car park will be specifically opened to serve the new interchange facility.
- The seventh, (G), is around the existing train station at Wicklow. This new car park will be provided to serve the new commuter services and also the proposed shuttle train to Dublin City.

These locations are highlighted in **Plan 8** in Appendix F.

The proposed new car parks B, C, D and E would be aimed at serving the additional demand for parking around the central shopping area of the town. As mention above, there will be a requirement to provide an additional 423 spaces for shoppers / business users. Car Park A would be specifically aimed at tourists but may however, be used by regular visitors to the town who are aware that the town is difficult to park in.

The Abbey school site is the most critical of the proposed car parks and would be the most attractive option to shoppers due to its proximity to the town and location on the main road leading into the town. The site is rather large and could be used as a car park, perhaps a mini interchange facility. The proper development of this site would need further study and assessment.

4.10 Marketing

Perceptions of travel choices will have been ingrained through years of personal experience and information received from friends, family, colleagues and the media. Attempting to change these perceptions can be a major task. It requires an appreciation of how attitudes and behaviour are

shaped, as well as an understanding of the transport issues themselves.

- Clear Aim: A marketing strategy needs to have a clear aim. This will closely follow the overall aim of the transportation strategy and can be very simply stated, (e.g. to promote measures to reduce single occupancy car-based trips).
- Target Audience. At first glance the target audience will be seen as all people. However, analysis of travel surveys will identify clear groups of individuals who form specific market segments. Using such market segmentation techniques will avoid a 'scattergun' approach and reduce the volume and cost of promotion material required.
- A timetable for promotional activity. The lead-in times to the introduction of a new transport service are important phases in which to undertake promotional activity. If an impending new service is promoted correctly, take up will be significant from day one. Marketing needs to be sustained for significant periods, i.e. years rather than months.
- Identifying communication tools and methods. There are various methods for promotion and the choice of method is highly dependant on the area and situation under consideration. Examples of media and methods would be newsletters, posters and leaflets. Use of the local newspapers and radio would also be recommended. Perhaps the best form of marketing and encouraging take up of any new service is a promotional event such as free travel for a day. The service itself will be a valuable asset; the visible impact of buses overtaking cars at junctions due to bus priority measures and word of mouth will be invaluable in a location such as Wicklow.

4.11 Information

Good passenger information is critical to raising the profile and image of public transport, and to attracting passengers. This is becoming increasingly important as journeys become longer, networks become more complex and passengers increasingly include those who are unfamiliar with the network, e.g. tourists, visitors, and those who normally use a car but find themselves needing to use public transport.

When planning how to improve the provision of passenger information it is necessary to consider what information passengers need, what can be provided both about the services that are scheduled to run and what is actually happening, (real time information). It is also important to consider what technical developments are taking place now and what may develop in the future.

Thinking in terms of the passenger intending to make a journey and being already either on the street or at home or work place, there are several questions to which he / she may wish to have an answer:

1. What is the best bus or rail or combination of both to catch to get to the destination?
2. Do I have to change?
3. How much will it cost?
4. Do I have the right change available?
5. When should it come?
6. When is it coming?
7. Would it be better to get a taxi or take the car?

In practice not all passengers will require answers to all the questions. Many simply seek reassurance that their bus is coming fairly soon and this in itself can be of value.

If services are running closely to their timetables then the answer to Question 6 will be the same as that to Question 5. The expensive technology required to answer Question 6 will not be

needed. To some extent therefore effective bus priority, high frequencies and other measures, which enable buses to adhere to schedules, are an alternative to real time information.

Answering the other questions is important and they are only poorly answered by the existing information even when that is to hand. When the information is unavailable, intending passengers may simply give up.

Some research has indicated that even when reliable, up-to-date route maps and timetables are available, significant percentages of intending passengers cannot understand them. Furthermore, significant percentages of intending passengers wish to be reassured, either by asking an inspector or another passenger, that they have understood them correctly.

4.11.1 Bus stops and shelters

The first requirement for passenger information is to have somewhere suitable to display it. Bus stop poles and shelters are themselves an essential part of the information dissemination passengers need.

4.11.2 Timetables and route maps.

The requirement for timetable information at bus stops depends on the frequency of the service offered. For services with headways of every 15 minutes or less it is probably sufficient to say the service runs about every X minutes and to display the actual times only in the evenings and early mornings when frequencies will be lower.

4.12 Ticketing

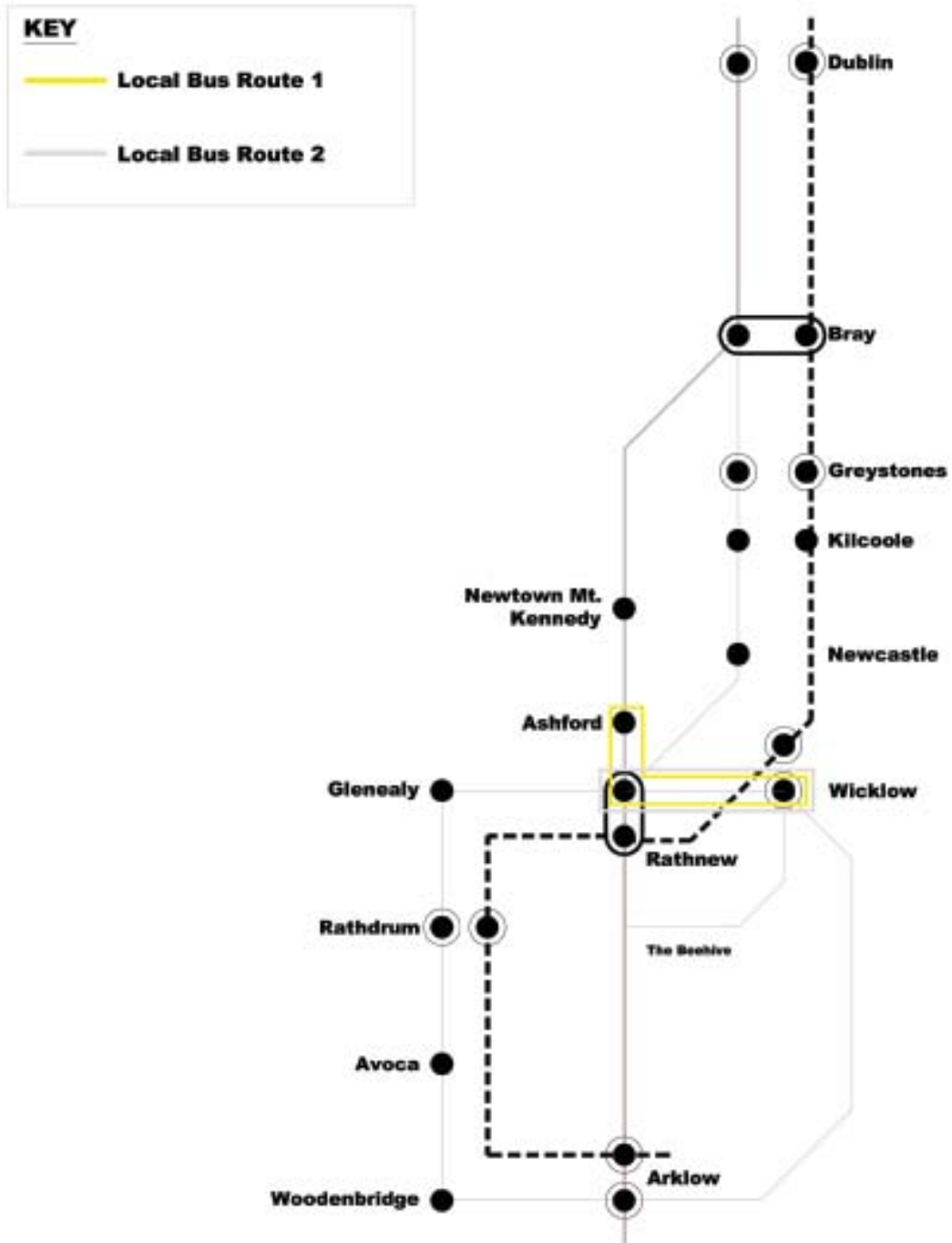
Ticketing directly dictates the boarding speeds of buses and since delays at bus stops may account for up to 30% of bus journeys, efficient ticket issue and use of prepayment are often the most significant single means of increasing bus speeds and improving service reliability.

It is therefore recommended that there are as many pre-payment options as possible, to minimise delays and guarantee timetable reliability. In addition to this, it is recommended that there be a

simple fare structure such as a flat fare of 1 – 2 euros , which will make the bus more attractive and more user friendly.

As the strategy incorporates both bus improvements and rail improvements, it is also recommended that there is the establishment of an Integrated Ticketing system that will facilitate the ease of interchange between the two modes and again provide ease of use to the user. An Integrated Ticketing system for the Dublin area is currently being investigated by the Rail Procurement Agency and this will involve the public transport operators who are present in Wicklow. Developments with the Dublin system should be monitored and applied to the Wicklow area.

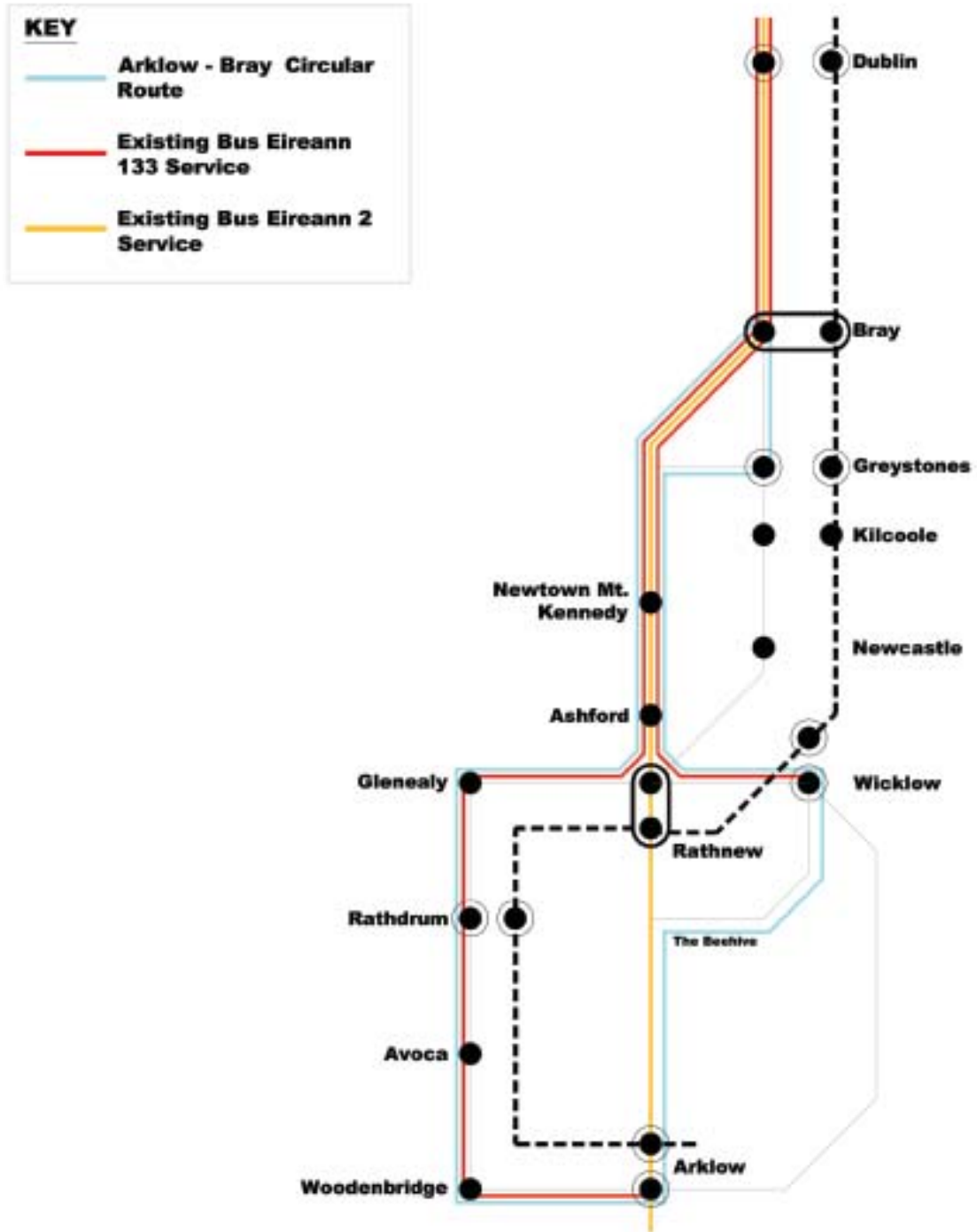
Integrated Ticketing can provide cost savings, time savings and hassle free interchange to intending passengers.



Proposed Local Bus Routes



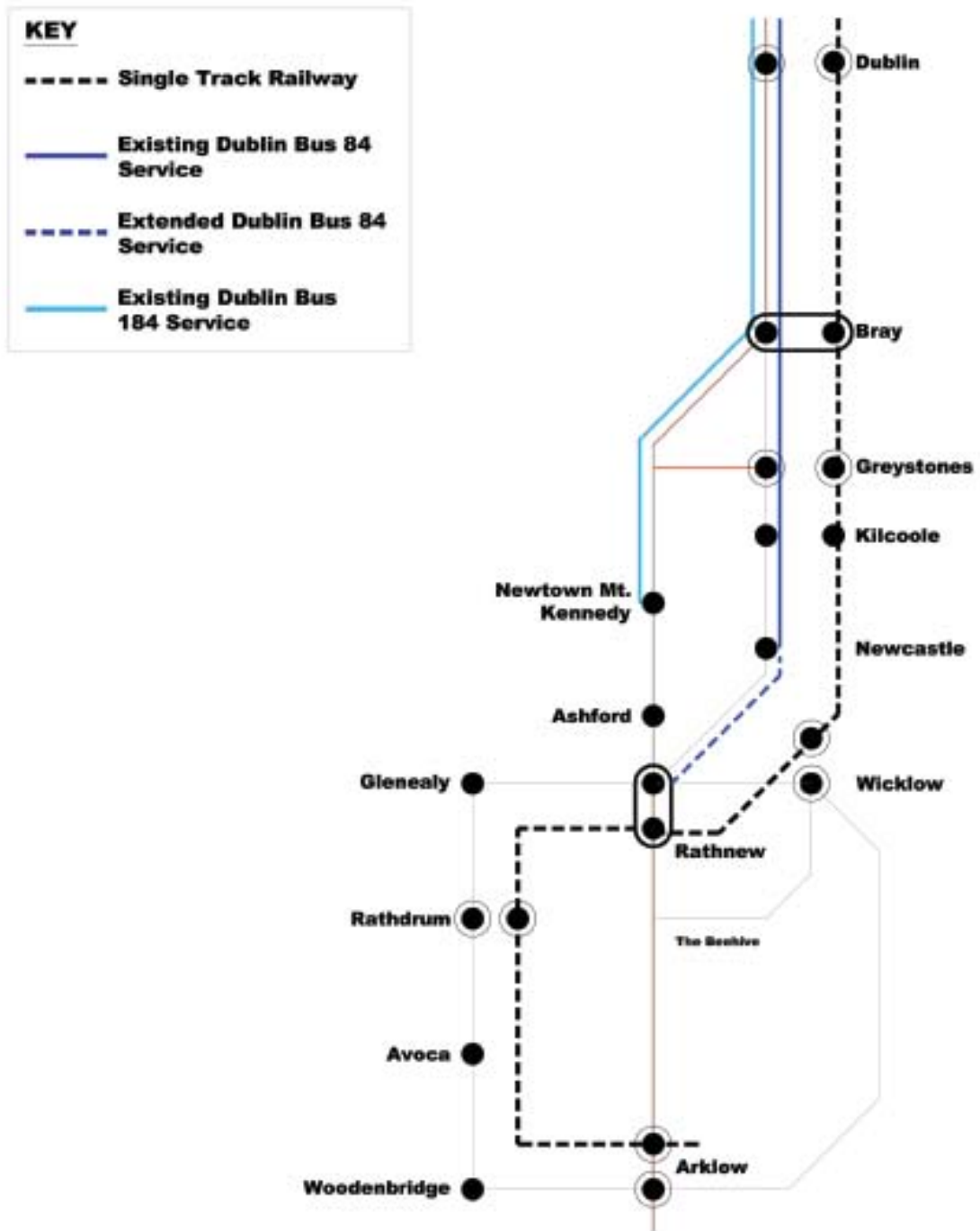
FIGURE 4.2



Proposed Bus Eireann Services



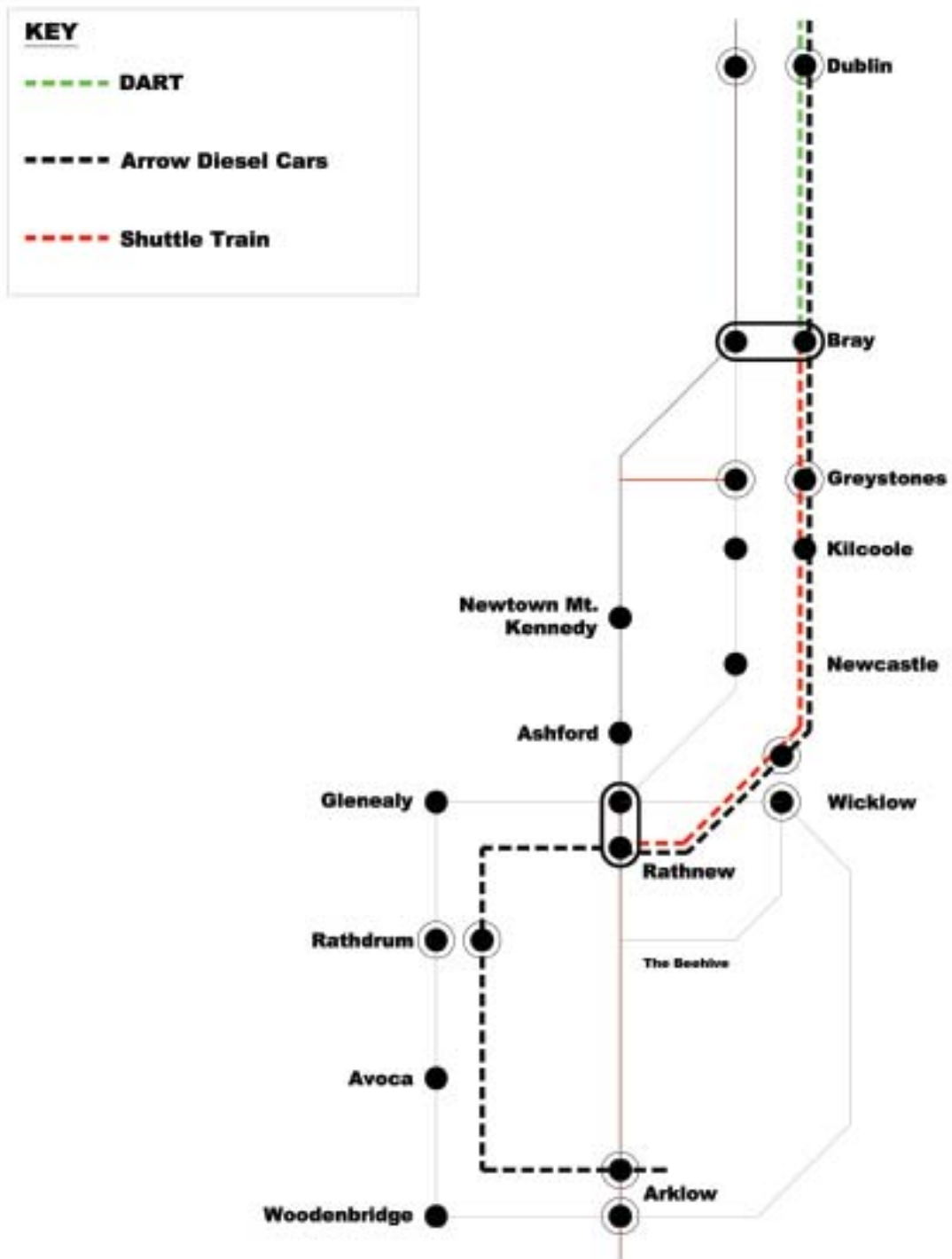
FIGURE 4.3



Proposed Dublin Bus Services



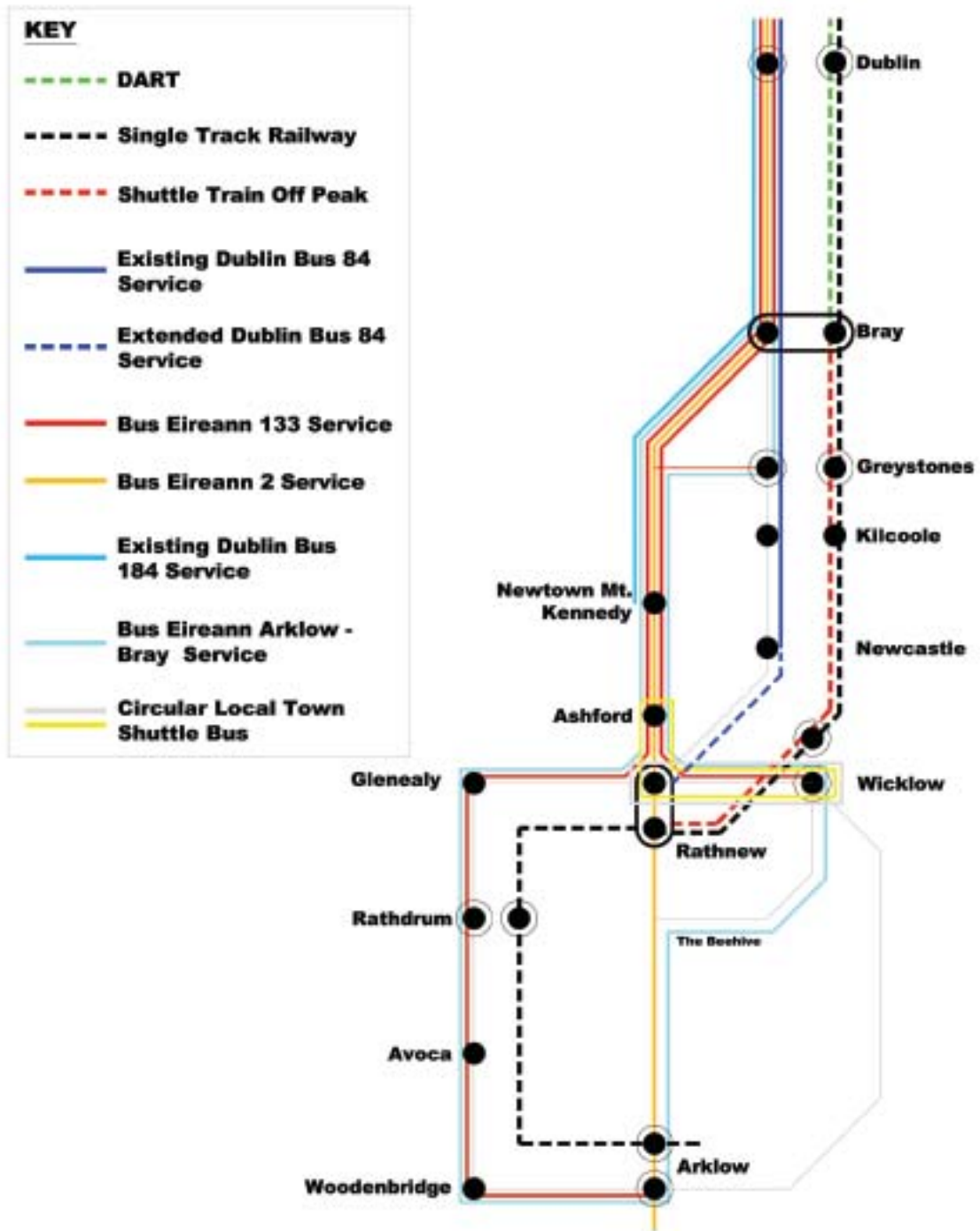
FIGURE 4.4



Proposed Irish Rail Services



FIGURE 4.5



Proposed Future Public Transport (2016)



FIGURE 4.6

5. Phasing the Framework Plan

5.1 General Approach

The phasing of development in accordance with current and projected movement patterns is crucial to the implementation of the Integrated Framework Plan and the future sustainable development of the area. The IFP does not have statutory control of the location of development but rather will guide the pattern of development in accordance with the objectives identified for the future development of Wicklow and Environs.

5.2 Phasing to Achieve Sustainable Integrated Development

The IFP seeks to establish the relationship between land use development and transportation at the local level, identifying the appropriate land use zonings and the linkages between them. It is to be utilised as an essential tool in curbing current patterns of low density dispersed development on the urban edge. The phasing and implementation of development is vital to the sustainable integrated development of the area and it is key that growth is planned, monitored and managed in accordance with the principles set out in this IFP.

In outlining the order in which development should occur, the IFP has identified a priority system for the development of the lands to help secure the sustainable integrated development of Wicklow and Environs. This system utilises a sequential approach as one of the principal tools for phasing development, that takes account of the existing constraints to certain development lands, which include topography and infrastructure, and the provision of new public transport routes.

The zoned residential lands have been divided into priority areas. Priority Areas 1 and 2 incorporate brownfield redevelopment and infill; town centre expansion areas; higher density residential along the proposed public transport

routes and close to the proposed local neighbourhood/ district centres (see Section 3.6).

Priority Area 3 comprises medium-high density residential lands along the proposed public transport routes. Its development is expected once the Priority Areas 1 and 2 lands have been completed and will require the provision of public transport as a prerequisite.

Priority Area 4 covers lands, which are further away from the existing centres, and/or have further constraints such as lack of basic infrastructure, topography and being difficult to serve by public transport. Their development is expected to be progressed in the longer term (depending on needs and growth requirements), and once Priority Areas 1, 2 and 3 have been completed

5.2.1 Priority Area 1. Redevelopment of Brownfield or Infill Development

The first preference for development will be the redevelopment of brownfield or infill development within and around the existing urban area, to help maintain the vitality and viability of the centres to make the most efficient and economic use of land, and to prevent urban sprawl.

In terms of the IFP phasing, this preference corresponds with land, which has been identified as Existing and Infill Residential, and this land should be given first preference for development. There are some 256ha's of existing residential lands within Wicklow and environs, within which there are expected to be options for redevelopment of brownfield land or development of infill sites in accordance with the Development Plan objectives.

In addition, some 9.64ha's of infill residential remains to be developed. New residential units within these areas should be provided at a density to match the existing established residential density, unless the Development Plan specifies otherwise.

In this case, without taking account of the potential to accommodate further development within the urban areas, the identified extent of infill areas of Wicklow and environs could accommodate

between 192 – 212 new units based on a density of between 20 and 22 units per hectare.

5.2.2 Priority Area 2. Primary Urban Extension

After redevelopment of brownfield and infill development, the next preference for development is for the extension of the urban area as permitted by, topography, infrastructure, (including the provision of local public transport) , and existing land use zonings. Development should occur where possible, in a concentric manner following the transport corridors, so as to discourage sporadic development and general growth away from the town core in any one direction. Higher densities and infill development are proposed adjacent to proposed neighbourhood centres and along proposed bus corridors.

It is important that development occurs in a balanced manner, that employment growth as far as possible matches residential growth so that the sustainability of the area is not undermined and that it begins to function less as a dormitory town.

It is of great importance that these areas are prioritised for development prior to the development of areas further afield to ensure the future integrated sustainable development of Wicklow and its environs.

Higher density will help to maintain and enhance the vitality of the local neighbourhood district centres and ensure the viability of new bus routes helping to provide the sustainable integrated development.

5.2.3 Priority Area 3. Secondary Urban Extension. Developing New Communities

Outside of the urban areas, the proposed urban extensions, and the proposed local transport routes to 2007, there are currently additional zoned lands that have the potential for development in the future. This should be conditional upon the Priority 1 & 2 lands having been developed and the requisite infrastructure (including public transport) put in place and employment generating projects commenced.

There are some 60 Ha of land zoned for development as Priority 3 Residential and there are some 48.3 Ha identified for higher density residential development within Priority 3 areas. These areas have the potential to accommodate significant populations: If the areas were to be developed at some 25-35 units per ha, they could accommodate some 2,948 units or some 8,845 persons. Greater consideration must be given to when and how these areas could be developed within the medium to long term to ensure that they are developed in a comprehensive sustainable integrated manner.

5.2.4 Priority Area 4. Land Reserve

There are some 158.4 Ha of land zoned for development as Priority 4 Residential. Much of this land is currently constrained by lack of servicing infrastructure including public transport, and topography, with large sections of the area being over 300 ft., (some of which may be unsuitable for development). Consideration must be given to how this area will develop in a comprehensive manner, related to the urban areas.

Their development is expected to be progressed in the longer term (depending on needs and growth requirements), and once Priority 1, 2 and 3 have been completed.

5.3 Overall Strategy for Phasing to Meet Anticipated Growth

The IFP will attempt to influence development and encourage the provision of necessary transport infrastructure over a 12-year period between 2005 and 2016. The phasing is based on the principles of achieving sustainable integrated development and meeting anticipated growth levels and is not time based or constrained.

The target population in the Wicklow town and environs Local Area Plans is a combined figure of 25,500 persons by 2016. The current population was recorded at 10,857 for 2002, an increase of some 9.5% on 1996 levels.

This growth occurred over a six-year period of unprecedented growth in the County. However, it is important that future growth expectations should be framed within the context that growth is expected to continue. A similar figure over the next 6-year period would enable Wicklow and Environs to continue a strong growth in population.

While the land use zoning would facilitate more than a 100% increase in population growth over a 14 year period, it is important that growth is properly phased to ensure that it is provided in a balanced and integrated manner in accordance with the proper planning and sustainable development of the area. Table 5.1 provide a breakdown in relation to priorities for phasing of development to ensure that land is developed in a sustainable and integrated manner in accordance with the principles of the IFP.

Table 5.1 shows that the development of the Priority 1, 2& 3 lands alone would meet the anticipated target population for Wicklow and environs up to 2016, with the capacity to accommodate a population of some 13,187 persons. While this does not take into account potential growth from brownfield redevelopment, this figure is higher than the target population for this period, which was identified as 10,250.

Overall, Priority 4 lands can help to provide for the future communities in the longer term but the Priority 1, 2& 3 lands as identified can accommodate the anticipated scale of growth to

2016. Based on long term growth rates, it may take even longer for this scale of growth to happen but it is imperative that growth occurs in an orderly and progressive manner in accordance with the guidance and priorities set out. There is potential to accommodate even further growth, if opportunities are explored for providing increased densities close to centres, in infill sites and along public transport corridors within the identified Priority 1 areas.

It is particularly important that the phasing for the development of these lands, to meet anticipated needs, is reviewed over time and planned, monitored and managed to take account of changing circumstances and to meet the requirements for proper planning and sustainable development.

In all cases, development must be linked with public transport provision to ensure integrated development. The provision of the appropriate infrastructure to include public transport should be a prerequisite to the development of the zoned lands.

A population increase to 25,500 represents very high proportionate growth, even when compared to recent high growth areas closer to Dublin in North County Wicklow, County Meath and County Kildare.

It is rather optimistic to assume that it will be reached by that time. Nevertheless, there is the opportunity to accommodate this population increase, and unlike areas where there is large-scale commuting around Dublin, the required

Wicklow Town & Environs Zoning Priority	Areas to be developed	Density	Potential Households	Potential Population (Mean taken and average household of 3)
Priority 1&2 Infill	9.64 Ha	20-25 per Ha	192 - 241	650
Priority 1&2 Residential	20.8 Ha	25 per Ha	520	1,560
Priority 1&2 Higher Density	23.7 Ha	25 – 35per Ha	592 - 829	2,132
Priority 3 Residential	60 Ha	25 per Ha	1500	4,500
Priority 3 Higher Density	48.3 Ha	25 – 35 per Ha	1207 - 1690	4,345
Priority 4 Residential	158.4 Ha	25 per ha	3960	11,880
Total Households/ Population			7,971 – 8,740	25,067

Table 5.1 - Wicklow and Environs Development Priorities and Potential Growth

employment, education, leisure, community and transport facilities should be provided to meet the needs of people living in Wicklow and its Environs. The phasing and prioritisation of lands for development in an integrated and sustainable manner will help to ensure an orderly and progressive form of development that will be sustainable in the long term.

6. Implementation Programme

6.1 Introduction

This section provides recommendations on how the Wicklow IFP can be implemented and influence planning policy to encourage sustainable integration between land use and transportation.

6.2 Framework Plan Programme

The tasks covered in the previous chapters have been gathered in **Tables 6.1, 6.2, 6.3, 6.4, 6.5 and 6.6** at the end of the chapter. This summarises the key tasks identified in both the land use and transportation strategies. It sets out the objectives for each task, lists the agencies who will work with WCC to implement it, the timescale for implementation and the necessary conditions which must be in place to facilitate the implementation of each of the tasks.

The framework plan can be summarised in the following headings

- a. Creation of employment opportunities in the Wicklow Area close to designated transport interchanges.
- b. Improvement of Transport links to the Metropolitan Area.
- c. Reinforcement of Wicklow Town as a commercial and leisure centre.
- d. Containment of Urban Sprawl and increase of densities along public transport corridors.
- e. Provision of Local Public Transport and associated priority measures.
- f. Development of walking and cycling networks.
- g. Interconnection between all modes of transport.

6.3 Implementation of Land Use Zoning Priorities

The Integrated Framework Plan proposes phasing by setting out priorities for the development

of lands. The lands have been divided into Priority 1, 2, 3 and 4 in accordance with a sequential approach to help secure the integrated orderly development of the area over time. It is considered that the Priority 1 lands could accommodate the majority of growth anticipated to 2016, and possibly well beyond this timeframe, if growth were to follow recent trends.

The lands identified as Priority 1 and 2, within the IFP accord with the lands zoned for first priority within the Development and Local Area Plans, apart from a few areas where land becomes difficult to service because of its height above sea level. These difficult to service lands, and lands which have been identified as Priority 2 in the Development Plan, accord with Priority 3 and 4 lands within the IFP. An illustration of suggested prioritisations and change of zoning is contained in Plan 3 and Plan 4, Appendix E.

The review of the Development Plan and Local Area Plan, present an opportunity to review the land use zonings in accordance with the principles and priorities set out in the IFP to ensure consistency between the IFP and these other plans. There are significant amounts of lands zoned for development in the Development Plan and Local Area Plan, more than is required to meet the scale of anticipated growth to 2016. It is important that the amounts and locations of zoned land is reviewed, monitored and managed over time to ensure that the requirements for proper planning and sustainable development are achieved.

6.4 Proposed Land Use Zoning changes

In outlining an integrated land use and transportation strategy for Wicklow and environs, the IFP has not proposed to materially alter any extant land use zonings that have been permitted within the Development and Local Area Plans. The IFP has however, in two instances recommended the rezoning of areas to enable an extension of uses permitted in areas close to the train station in Wicklow and proposed interchange at Rathnew, in order to secure the implementation of its objectives.

These areas were previously zoned for residential use and it is now proposed to change this use to general business use, which would not only enable the provision of residential, but would also allow for uses to include business/ office/ hotel/ motel/ guest house adjacent to the station, to secure a more mixed use area, and to seek to make the most efficient, economic, integrated and sustainable use of these lands. In order to secure the implementation of this objective, it is recommended that this new land use zoning is included as an objective in the review of the Development Plan and Local Area Plan.

Dublin Transportation Office. The Framework Plan Committee should be driven by Wicklow County Council and Wicklow Town Council with Dublin Transportation Office co-operating through the provision of a monitoring role. The assistance of other agencies will be required at various stages of implementation, as identified in the table following.

6.5 Developer Contributions

Sections 48/ 49 of the Planning and Development Act 2000 provides the basis for securing development contributions. Development contributions can be required where public infrastructure and facilities are required which will benefit the proposed development. It is recommended that developer contributions are used to fund the provision of bus priority measures, cycle and pedestrian facilities, and local bus services.

6.6 Management and Monitoring

Wicklow County Council and Wicklow Town Council as the planning authorities for the area, have overall responsibility for implementation of the IFP through the Development Plan framework. It is recommended that the objectives and development priorities set out in the IFP are incorporated into the County Development Plan and the Local Area Plan for Wicklow to facilitate implementation.

To assist WCC and WTC in its role, it is suggested that a Framework Plan Committee is established, which will meet twice in the first year of the IFP, and on a yearly basis thereafter. The Framework Plan Committee will review progress in implementation, and may also vary the strategy in light of changed circumstances within the study area and possible impacts of impending developments.

This committee should consist of Wicklow County Council, Wicklow Town Council, and the

N	Task / Subtasks	Objective	Prior (1-5)	Requires the cooperation of	Timescale	Basic Conditions	Additional Conditions
1	Promotion and creation of employment opportunities within Wicklow and Environs close to the designated transport nodes	To achieve the sustainable self-contained status as a Primary Development Centre outside the Dublin metropolitan area	1	WCC, WTC, IDA & Enterprise Ireland	2005 +	1.1, 1.2, 1.3	1.4, 1.5
1.1	Promotion of the area as an employment centre with upgraded public transport connections to the Metropolitan Area	In order to attract employment to an area traditionally seen as being predominantly residential	1	WCC, DTO, IDA & Enterprise Ireland	2005 +	1.4, 10, 5	6,7,8,9,11
1.2	Transfer of employment zoning close to Wicklow Station & Rathnew Interchange	Improve accessibility to / from employment	1	WCC & WTC	2005+	Requires change in Development Plan	
1.3	Provision of Rathnew Transport Interchange	Location of employment near to transport nodes	2	WCC, DTO & Irish Rail	2006-2008	See 11 below	See 11 below
1.4	Increased indigenous industrial, business and office set ups	Retention of educated population and promotion of local jobs.	3	Enterprise Ireland, WCC & FÁS	2005 +		1.1
2	Redevelopment of Wicklow Town as a commercial and leisure centre	Reinforcement of existing commercial core and increased accessibility for all means of transport	1	WCC, WTC & Chamber of Commerce	2005 +	2.1, 2.2, 2.3	
2.1	Redevelopment of Wicklow Port as a mix of uses area	Consolidation of existing town centre and port area along with the creation of greater diversity through an increased mix of uses.	2	WCC, WTC & Wicklow Port Authority	2005-2006	Port Relief Road should be completed	Masterplan Required
2.2	Increase in town centre facilities, services and functions	Reduce the need for journeys to neighbouring larger towns and the metropolitan area	1	WCC, WTC & Chamber of Commerce	2005+	In conjunction with No. 1 & 2 above	
2.3	Development of neighbourhood centres that do not compete with the established town centre	Reduction of travel distances to convenience stores	2	WCC, WTC & Developers	2005+	Adequate distance and size so as not to detract from existing town centre	
2.4	Improvement of the streetscape around Wicklow Town	To make the town more aesthetically pleasing and more attractive as a tourist destination	2	WCC & WTC	2005 +	6, 7, 12, 13, 14, 15	Applications for Urban Renewal Scheme

Table 6.1 Framework Plan Programme (1/6)

N	Task / Subtasks	Objective	Prior (1-5)	Requires the cooperation of	Timescale	Basic Conditions	Additional Conditions
3	Containment of development to prevent urban sprawl	To sustain local public transport and non-mechanical modes of transport.	1	WCC & WTC	2005 +	Development Plan should be reviewed	
3.1	Establishment of priority development areas	To sustain local public transport and non-mechanical modes of transport	1	WCC & WTC	2005 +	Development Plan should be reviewed	
4	Increase of residential densities and development along public transport corridors	To sustain local public transport and non-mechanical modes of transport.	1	WCC & WTC	2005 +	Development Plan should be reviewed	
4.1	Change of densities in designated areas	To sustain local public transport and non-mechanical modes of transport	1	WCC & WTC	2005 +	Development Plan should be reviewed	
5	Provision of local public transport Route 1	Reduction of private car dependency and increase of accessibility for designated areas	1	DTO, WCC & P.T.Operator	2005	5.3, 5.5	5.1, 5.2, 5.4
5.1	Bus priority measures associated	Increase speed and reliability of LPT	2	DTO, WCC & WTC	2005	See 12.1, 12.2 & 12.3 below	
5.2	New link required at Rathnew Transport Interchange	In order to serve the employment area around the proposed transport interchange at Rathnew	3	DTO & WCC	Once Rathnew T.I. is completed		
5.3	Provision of bus stops	As part of the LPT infrastructure	1	DTO, WTC & WCC	2005	Should be a bus flag, a shelter and information post	
5.4	Improvement of accessibility to bus stops to / from surrounding areas	Increase the catchment of LPT and increase accessibility	2	DTO, WTC & WCC	2005		
5.5	Marketing and promotion	Increase the awareness of the new LPT	2	DTO, WCC & P.T.Operator	2005		
6	Provision of local public transport Route 2	Reduction of private car dependency and increase of accessibility for designated areas	2	DTO, WCC & P.T.Operator	After 2006 depend on degree of developmt	6.3, 6.4, 6.5, 6.7	6.1, 6.2, 6.6
6.1	Bus priority measures associated	To increase speed and reliability of LPT	2	DTO & WCC	2006+	1,2,3,4	
6.2	New link required at Rathnew Transport Interchange	In order to serve the employment area around the proposed transport interchange at Rathnew	3	WCC	Once Rathnew T.I. is completed		
6.3	Construction of Town Relief Road	In order to physically accommodate the route.	2	WCC & Dep. of Environment	2006		
6.4	Construction of Port Relief Road	In order to physically accommodate the route	2	WCC & Dep. of Environment	2006		

Table 6.2. Framework Plan Programme (2/6)

N	Task / Subtasks	Objective	Prior (1-5)	Requires the cooperation of	Timescale	Basic Conditions	Additional Conditions
6.5	Provision of bus stops	As part of the LPT infrastructure	1	DTO, WTC & WCC	2006+	Should be a bus flag, a shelter and an information post	
6.6	Improvement of accessibility to bus stops to / from surrounding areas	Increase the catchment of LPT and increase accessibility	2	DTO, WTC & WCC	2006+		
6.7	Marketing and promotion	Increase the awareness of the new LPT	2	DTO, WTC & WCC	2006+		
7	Improvement of Bus Eireann Route 2	To improve connection from Wicklow to Dublin Metropolitan Area.	4	Bus Eireann	2005		
7.1	Diversion of Bus Eireann Route 2 from Ashford to the proposed transport interchange in Rathnew.	To connect with proposed Rathnew Transport Interchange	4	Bus Eireann	Once Rathnew TI is completed		
7.2	To stop in both directions	To improve quality of service	4	Bus Eireann	2005		
8	Improvement of Bus Eireann Route 133	To improve connection from Wicklow to Dublin Metropolitan Area and other Development Centres	3	Bus Eireann	2005 +		
8.1	To provide a regular hourly headway service between Wicklow, Rathnew, Ashford and Dublin	To improve connection from Wicklow to Dublin Metropolitan Area	3	Bus Eireann	2005		
8.2	To provide a regular two-hourly headway service to Arklow	To improve connection from Wicklow to other Development Centres	5	Bus Eireann	2006		
8.3	To divert the service to the proposed transport interchange at Rathnew	To reduce private car dependency and to increase accessibility for designated employment areas	3	Bus Eireann	Once the Rathnew T.I. is built		
9	Improvement of Dublin Bus Route 84	To improve connection from Wicklow to Dublin Metropolitan Area.	3	Dublin Bus	2006 - 2008		
9.1	Extending the service to the proposed transport interchange at Rathnew	To connect with proposed Rathnew Transport Interchange	3	Dublin Bus	Once the Rathnew T.I. is built	A bus depot should be provided within the Rathnew T.I.	
9.2	Re-casting the timetable	To give a regular, hourly headway throughout its entire length	5	Dublin Bus	Once extended to Rathnew I		
10	Provision of an hourly off-peak Arrow service from Wicklow to Dublin	To improve connection from Wicklow to Dublin Metropolitan Area.	2	Irish Rail & DTO	2005	6.1	
10.1	Construction of passing loops at Newcastle and Greystones North	To facilitate passing and crossing alongside the single track zone	2	Irish Rail & DTO	2005		

Table 6.3 Framework Plan Programme (3/6)

N	Task / Subtasks	Objective	Prior (1-5)	Requires the cooperation of	Timescale	Basic Conditions	Additional Conditions
11	Construction of Rathnew Transport Interchange	To achieve the status as a Primary Development Centre outside the Dublin metropolitan area and to promote and improve inter-modality	2	WCC & DTO	2006-2008	7.1, 7.3, 7.4, 7.5	7.2, 7.6
11.1	Change planning policies for the development of the area	Protect lands designated to be part of the interchange from development	1	WCC	2005	Requires material contravention of existing Plan	
11.2	Construction of a new railway station	To improve connection from Wicklow to Dublin Metropolitan Area and other Development Centres	3	Irish Rail, DTO & WCC	2008		
11.3	Provision of a car park (250 spaces – 5000 m ²)	To accommodate private-car interconnection	2	WCC & DTO	2006		
11.4	Construction of a bus depot /garage, bus parking, bays & associated facilities (5000 m ²)	To accommodate public bus interconnection	2	WCC, DTO, Dublin Bus, Bus Eireann & other public transport providers	2006		
11.5	Provision of cycle parking & associated facilities (50m ²)	To accommodate cycling interconnection	2	WCC & DTO	2006		
11.6	Provision of a taxi rank for 15 spaces (300 m ²)	To accommodate individual public transport connection	3	WCC & DTO	2008		
12	Provision of bus priority measures	To increase speed and reliability of LPT	2	WCC & DTO	2006		
12.1	Main Street	To increase speed and reliability of LPT	1	WCC, WTC & DTO	2005 - 2006	TRR completed	
12.2	Around Port and Town Relief Roads	To increase speed and reliability of LPT	3	WCC, WTC & DTO	2005 - 2006	PRR completed	
12.3	At Rathnew	To increase speed and reliability of LPT	1	WCC, WTC & DTO	2005 - 2006		
12.4	Marlton Road – Abbey Street junction	To increase speed and reliability of LPT	2	WCC, WTC & DTO	2005 - 2006		
12.5	Kilmantin Hill – Market Street junction	To increase speed and reliability of LPT	2	WCC, WTC & DTO	2005 - 2006		
13	Parking management measures	To reinforce existing commercial core by increasing accessibility.	3	WCC & WTC	2006		
13.1	Provision of a 250 spaces car park at the Abbey School site once the school has been re-located	To serve the additional demand for parking around the central shopping area of the town	3	WCC & WTC	2006	Once the Abbey School has been re-located	
13.2	Retention and if possible, expansion of the existing car park at	To serve the existing and additional demand for parking around the	1	WCC & WTC	2005		

Table 6.4 Framework Plan Programme (4/6)

N	Task / Subtasks	Objective	Prior (1-5)	Requires the cooperation of	Timescale	Basic Conditions	Additional Conditions
13.3	Provision of a 110 spaces car park on the northern side of Marlton Road.	To serve the additional demand for parking around the central area of the town	4	WCC & WTC	2005	Development of the surrounding areas	
13.4	Provision of a 65 spaces car park adjacent to the hospital off Glenside Street.	To serve the additional demand for parking around the hospital that eventually can be used to serve the town centre	3	WCC & WTC	2005		
13.5	Provision of a car park (250 spaces – 5000 m2)	To accommodate private-car interconnection at the transport interchange	2	WCC & WTC	2006	See 7.5	
13.6	Provision of a 250 spaces car park around the existing train station at Wicklow	This new car park will be provided to serve the new train services and also the proposed shuttle train to Dublin	1	WCC & WTC	2005	Once the port Relief Road is finished	
14	Development of the cycling primary network	To promote cycling as a primary transport mode	2	WCC & DTO	2005+		
14.1	Inchanappa - Ashford-Rathnew -Wicklow Town – Dunbur Lower cycling lane.	To provide a safe and direct route between the study area's settlements	1	WCC, WTC & DTO	2005+	14.2, 14.3	
14.2	Enhancement at future N11 junction (A).	In order to accommodate pedestrians and cyclists	2	WCC & NRA	2005+		
14.3	Wicklow Town Main Street Enhancement (B)	In order to reduce the impact of cars in the town centre and facilitate other modes of transport (walking, cycling and public trans.	2	WTC & WCC	2005+		
14.4	Port Access Road and Town Relief Road	To provide a safe and direct route on a main access route to the town	2	WCC & Dept of Environment	2006		
14.5	Marlton Road	To provide a safe and direct route on a main route to the town	3	WCC & WTC	2006+		
14.6	Rocky Road and Friars Hill	To provide a safe and direct route on a main route to the town	4	WCC & WTC	2006+		
15	Development of cycling secondary network	To promote cycling as a primary transport mode	1-4	WCC & DTO	2005+		
15.1	Ashford, part of road to Nun's Cross; Rathnew, road to interchange; Station Rd; coastal route; Strand St; Bath St; foot bridge over River Leirim; Wentworth Pl; St Patrick's Rd; St Lawrence's Rd; Mount Carmel Rd; Convent Rd; Bay View Rd; Kilmantin Hill; St Dominic's Rd; and from Dunbur Lwr. to	To provide access to residential areas off the primary cycling network	1-5	WCC, WTC & DTO	2005+		

Table 6.5 Framework Plan Programme (5/6)

N	Task / Subtasks	Objective	Prior (1-5)	Requires the cooperation of	Timescale	Basic Conditions	Additional Conditions
16	Development of the primary walking network	To promote walking as primary transport mode	1	WCC, WTC & DTO	2005+		
16.1	Inchanappa- Ashford-Rathnew-Wicklow Town – Dunbur Lower footway and pedestrian improv	To provide a safe and direct route between the study area's settlements	1	WCC, WTC & DTO	2005+	16.2, 16.3	
16.2	Enhancement at future N11 junction (A).	In order to accommodate pedestrians and cyclists	2	WCC & NRA	2005+		
16.3	Wicklow Town Main Street Enhancement (B)	In order to reduce the impact of cars in the town centre and facilitate other modes of transport (walking, cycling and public trsp)	2	WTC & WCC	2005+		
16.4	Port Access Road and Town Relief Road	To provide a safe and direct route on a main route to the town	2	WCC & Dept of Environment	2006+		
16.5	Marlton Road	To provide a safe and direct route on a main route to the town	3	WCC & WTC	2006+		
16.6	Rocky Road and Friars Hill	To provide a safe and direct route on a main route to the town	4	WCC & WTC	2006+		
17	Devlopmt. of secondary walking network	To promote walking as primary transport mode	1-5	WCC & WTC	2005+		
	Ashford, road to Nun's Cross and side road to the north; Ashford, alternative route; Ashford, access road to Cronroe and Ballinalea; Rathnew, past school; Rathnew, access road to interchange and to M11; Town Relief Road to Friars Hill; to Wicklow train station and shortcut over Leitrim River to coast; along coast; along Leitrim River bank; over Leitrim River foot bridge; Church Hill; Batchelor's Wk; Church St; Wentworth Pl; South Quay; Salt House Lane; Quay Lane; Quarantine Hill; Castle St; Castle Field; Pier; along Wicklow Bay; Seaview Rd; shortcut from Friars Hill to Abbey Rd; Rocky Rd; Lough Arno Crescent; Derreen Dr; Ashtown Lane; St Patrick's Rd; St Lawrence's Rd; Mount Carmel Rd; Rose Hill; TRR to Marlton Rd; Gaol Rd; and Convent Hill.	To provide and enhance 'short cut' type connections between routes within the primary walking network	1-5	WCC & WTC	2005+		

Table 6.6 Framework Plan Programme (6/6)



Supporting Analysis

7 Planning and Land Use Analysis

7.1 General

Wicklow town and Environs have progressively developed over time from small county towns and villages to significant settlements within the overall county hierarchy and the Dublin sub region. The area is still largely self sufficient but because it is located in such close proximity to Dublin (approx. 50 kms to the centre of Dublin), the towns are beginning to be affected by the attractiveness of Dublin as a centre of employment and Wicklow as a place of residence.

7.2 Population

The target population in the Wicklow Town and Environs Local Area Plans is a combined figure of 25,500 persons by 2016. The most recent Census of Population returns for the area are set out in Table 1, Appendix B.

The increase in population levels projected for the forthcoming years in Wicklow Town and Environs will contribute to the increasing attractiveness of the area as a base to access the Dublin region. Development could principally be attributed to market pressures, the attractive environment in Wicklow and the relative ease of access to Dublin given the improved road infrastructure.

7.3 Analysis of Relevant Development Plans

There is currently a hierarchy of development plans that apply to the area. A full summary of these is contained in Appendix A and should be read in conjunction with this chapter. They include at regional level the Regional Planning Guidelines for the Greater Dublin Area, the DTO Platform for Change (2000-2016) and the Wicklow County Development Plan 1999; and at local level the Wicklow Town Development Plan 2001 and the Wicklow Environs Local Area Plan 2001. The primary aim of these plans should be to ensure that the Wicklow and Environs area can accommodate growth in a sustainable manner, ensuring that it

continues to be self sufficient without becoming a dormitory town to Dublin. This includes the proportionate development of all land uses, such as strong employment facilities, high order shopping and a full range of social facilities, to compliment the substantial residential growth.

7.4 Wicklow Town and Environs

7.4.1 General

In recent times Wicklow Town and its environs have developed to fulfil a dual role as both a local and a hinterland service centre providing for a limited range of local and community needs. The town and the surrounding settlements maintain a range of commercial, community, employment and social activities / services. It is not the aim of the area to compete with adjoining settlements such as Bray and Greystones. Recent pressures have emerged, and are likely to increase, for the area to develop as a sub regional commuter settlement. It has been perceived that commuting to Dublin for employment could become an integral part of life in the Wicklow Town area.¹ CBP mobility surveys discovered that 9% of workers in Wicklow commute to the Dublin region.

Within the Wicklow Town Development Plan 2002 (Appendix A), it is stated that Wicklow Town appears to have assumed the role as a “commuter town” despite the area’s disadvantages. The town, whilst acting as a commercial centre, does not provide the same range of services as other higher order settlements in the Dublin Sub Region, only acquiring a limited range of commercial facilities compared to other settlements. An additional constraint is access into the town centre for pedestrians and vehicles, which has proven to be quite difficult. The range of services and amenities within the Plan area also is limited whilst access and commuting to the North Wicklow / South Dublin area is also arduous.

7.4.2 Residential Development

Residential development within Wicklow Town and its environs is the predominant land use. This is evident from the amount of land zoned in the current development plan and the extent and

location of the housing development that has taken place in recent times. Land availability for residential development in the Urban District Area is minimal and is generally limited to potential infill development on small sites in established residential areas or the redevelopment of institutional lands for residential purposes. Much of the land that is now potentially available for residential development is located in the environs area of Wicklow town.

The main locations are situated in model zones 211, 212, 203 and part of 209 as identified in Appendix E, Plan 2. Areas 211 and 212 would be accessible via the Rockey Road and the Friarshill Road. However, the likelihood of Area 211 and parts of 212 being developed is minimal due to their height above sea level and other topographical constraints. Area 209 would be accessible via the Rockey Road also and the Malton Road and the proposed Town Relief Road. Area 203 would be accessible by the Dunbur road. These areas are the most likely to be developed and are located outside the town centre, which may necessitate commuter journeys, when developed. At present there are no scheduled bus routes or public transport servicing these lands.

From household surveys (see below) undertaken in Wicklow Urban District and the Environs it is evident that there has been a significant increase in household formations in the environs of Wicklow with an increase of 150% in the 5-year period from 1991 to 1996. It is expected that this

Year	1986	1991	1996
No. of households	1467	1703	2014
No. of persons	5239	5727	6299
No. of persons/ household	3.57	3.36	3.12

Table 7.1 – Private households in Wicklow UD & Household size¹

Year	1986	1991	1996
No. of households	56	114	287
No. of persons	194	368	874
No. of persons/ household	3.46	3.22	3.045

Table 7.2 - Private households in Wicklow Environs & Household size²

trend will continue due to recent population, household and workforce projections, which predict a substantial increase in the number of households in North Wicklow over the next 20 years. Much of the overall development potential of the area will have to be accommodated within the environs and Rathnew area due to the limited volume of development lands available within the town area.

7.4.3 Economic and Industrial Activity

There are few industrial employment facilities within the environs area apart from the industrial estate at Charvey Lane, Rathnew. This is reflective of the past economic situation and the infrastructural problems existing in the town. This is evident also from the existing undeveloped zoned areas for industrial development. The majority of these lands are situated within the environs at Wicklow Bay, Knockrobin Murragh and Milltown North. Additional land has been zoned for future industrial development between Wicklow town and Rathnew and at Milltown and Ballybeg, as well as at Ballynerin lower.

It has been stated that increasing levels of commuting out of the area for work signify a suppressed demand for various types of industrial space⁴. In addition, the perception that it is difficult to obtain planning permission for this type of use in the area because of infrastructural constraints might also have contributed to this situation.

Anecdotal evidence suggests that the provision of manufacturing / light industrial space and development in the area has been limited⁵ by a lack of available space and by the general population of the area, which appears to be increasingly well educated and employed in service / professional capacities outside of the area.

Other trends have included an increase in the area's population, a decline in direct agricultural employment / activity and a decline in the numbers involved in industry in all areas except Rathnew⁶. This is with regards to the manufacturing industry. The reason for the unchanged number in Rathnew is likely due to the significant provision of industrial space within the area. There has also been an

increase in the numbers of individuals involved in commerce and professional services.

For future employment opportunities lands have been zoned to allow for broad employment generating issues including Industrial Development and Business Development. These lands will have the capacity to meet local employment needs and future demands. Within Wicklow town and environs there has been limited industrial activity and so, land allocated for industrial use has not changed significantly. From past trends and guidance on land requirements, the Wicklow Environs Local Area Plan 2001, has identified a total of 121.5 hectares of land for employment generating lands along with a site proposed as option zoning to allow for stand alone industrial / enterprise activity at the Ballynabarny Interchange. The proposed motorway will easily access this area.

The amount of land provided for this type of development seems to be adequate. However, its location in areas only accessible by car will certainly increase the amount of car-based journeys within the area. Access by public transport would allow for alleviation of this type of commuter journey.

A breakdown of socio-economic statistics for the area, including a classification of population at work by industry, is available in Appendix B.

7.4.4 Retail Activity

Wicklow town is in a central location for retail activities. However the retail space available in the town is not of a similar standard to the newer retail space being developed in the Dublin region. There is a threat to the long-term development of the town core due to traffic congestion and parking availability, which contribute to a poor trading environment. As a result of household surveys carried out, it was realised that the majority of the retail space within the area provides for local needs and tends to lose trade in the non-food sector to centres in nearby Dun Laoghaire and Dublin⁷. This attributes to regular commuting out of town for these services. Within the Town Development Plan Area it is necessary then, to provide additional high quality retail floorspace for

present and future needs in accessible locations within or close to the town centre.

From evaluating County Council data along with surveys within Wicklow town, it appears that in general the volume of space available is adequate for a town of Wicklow's size when compared to other settlements in the area such as Arklow and Greystones.

For future retail requirements it is expected that approximately 1,200 sq.m of additional food / convenience retail floor space is required in the Wicklow town core area to meet the demands of the surrounding catchment area by the year 2006, should the expected levels of population growth develop⁸. With regards comparison goods floor space, the overall catchment area of Wicklow town is well provided for although much of the space is distributed around the retail core of Wicklow town and in the surrounding hinterland. The CBP mobility surveys concluded that 91% of people shop in the Wicklow area, but there is no indication of what type of shopping.

It should be noted that the Retail Strategy for Wicklow was being developed at the time of developing this IFP, and is anticipated to be published in 2003.

7.4.5 Education

Within Wicklow town and environs, including Rathnew there are six primary and four secondary schools. Our Lady's Secondary School in Rathnew is about to be phased out over the next three years. While it was thought that the volume of space provided for educational purposes has not changed significantly over the years, it is expected that future development pressures will require further facilities. Wicklow VEC requires a minimum of 3.5 hectares to provide for the relocation of the Abbey Community College.

For the increase in future population projections, it is believed that the provision of additional educational space and the retention of existing educational lands will be required. With regards to secondary level education increases,

additional lands will be required in the long term. Extra capacity for secondary level education will be catered for through the proposed zoning of additional lands for community and educational purposes. These lands are considered to be of sufficient size and location to meet the future needs.

With regards to development pressure in the primary school sector, additional land has been proposed in the Wicklow Environs Local Area Plan for the development of additional provision or the potential relocation of facilities in the areas where constraints exist. Three sites have been identified in Rathnew / Wicklow environs to cater for the primary school sector. They amount to approximately 17.2 hectares, which is consistent with the volume of space required for three 16-class schools. These sites are quite dispersed throughout the environs, which should serve local communities and the future development of lands at 209, 211 and 212 (Plan 2). They are however, quite a distance from Wicklow town centre with no scheduled bus route throughout these areas at present.

Further education for adult and lifelong learning is provided in the Abbey Community College, which as mentioned above, requires more space.

It has been identified that there is a requirement for childcare provision within Wicklow town and environs, which will be exacerbated by the predicted population growth over the next 15 years. Such facilities for children tend to necessitate car journeys and this should be considered when deciding on their location.

7.4.6 Amenities and Conservation

Ballyguile Hill provides a natural backdrop to Wicklow town and enhances its setting. The main asset to Wicklow town is its coastline and its walkway to the north. In addition there is the public access to Wicklow Head to the south.

To the north of Wicklow town there is a proposed Natural Heritage Area, which also includes a possible contender for Special Area of Conservation status at the Murrough and a Special Protection Area candidate at Broadlough. To the south of Wicklow

Head is a proposed Natural Heritage Area, which is a designated Special Protection Area. These designations are to protect and conserve plants, animals and wildlife habitats of Irish and European importance. Wicklow town has a number of structures and buildings that are of significant conservation value. Wicklow Head possesses a 1770 lighthouse in the form of an octagonal tower, which is the oldest lighthouse in Wicklow and is listed. Other fine examples include the ecclesiastical remains found at Brides Head, Dunbur and the old church site at Knockrobin to the north of the town.

Wicklow town at present has a lack of appropriately located space for recreational needs. Within the Wicklow Environs Local Area Plan 2002, it was identified that there is a requirement for 57 hectares of amenity and open space. Proposed neighbourhood parks are designated for Marlton Reservoir (35.8 ha), primarily for passive recreation and Tinakilly (20 ha) for active recreational purposes. The zoned lands are located within areas where the topography is very steep and sloping. There are further lands considered appropriate for recreational development at central locations on Marlton Road (8.6 ha) and Ballyguile Hill.

Everyone should have equal access to amenity facilities, which will enhance health and personal development. The likely modes of transport to access such amenities would be on foot or bicycle. Amenity facilities are required by everyone as they encourage cohesive, healthy and equal lifestyles, hence an overall better quality of life.

7.4.7 Port Development & The Port Access Route

The port of Wicklow occupies a central position in the town. Cargo is dry bulk and general. On average there are 2.3 ships putting in per week, delivering mainly timber and timber products in consignments of average size 1,260 tonnes. The vessels putting in have an average size 1,830 GRT. Total 2001 cargo throughput is believed to be higher than 2000 throughput - and in the range 170 to 200 thousand tonnes - resulting in 15 to 20,000 truck movements per year (about 50 per day) through the town.

Following a recent consultancy study by KPMG, the port has been launched as a commercial company - this on the grounds that it generates reasonable revenues, is profitable and has good levels of cargo traffic and ship movements. There is also a five-year plan for the port's development.

⁶ Wicklow County Council, Wicklow Environs Local Area Plan 2002, p.p 11

⁷ Wicklow County Council, Wicklow Town Development Plan 2002, p.p 11

⁸Wicklow County Council, Wicklow Town Development Plan 2002, p.p 14

Within the Harbour Commissioners *Plan for the Corporatisation of Wicklow Port (February 2000)* it was reported that there was a likelihood of an increasing expansion in the ports import function and a potential recommencement of the ports export function. This would lead to the increase in volumes of traffic to and from the port. Therefore, the development potential of the port is highly dependent on the future development of the Port Access Route. The reasons identified in the above report are:

- The inadequacy of the current access to the Port, particularly across the River Leirtrim;
- The impact of the traffic volumes on the town centre; and
- The potential to improve the traffic management situation in the area.

The port is also well placed to complement the marina facilities in and around Dun Laoghaire. Pleasure craft can sail between the two ports on a single tide - and, with the development of such facilities, there would be much prospect of the town attracting weekend and other visitors by boat. Road and public transport infrastructure would be necessary to accommodate an increase in traffic and cargo movement around the port area. The Port Relief Route is seen as the main contributor to this.

¹ Wicklow County Council, Wicklow Town Development Plan 2002, p.p 4

² Wicklow County Council, Wicklow Town Development Plan 2002

³ Wicklow County Council, Wicklow Town Development Plan 2002

⁴ Wicklow County Council, Wicklow Environs Local Area Plan 2002

⁵As maintained by the Chamber of Commerce in consultations and representations to the Plan Review Process. The Chamber maintain that in the five year period from 1995 – 2000 that they have had to turn away request for significant amount of business space (understood to be principally light industrial type business operations).

8. Transportation Analysis

8.1 Introduction

Despite its proximity to Dublin (approx. 50 kms), Wicklow is not well connected to the metropolitan area. A deficient road infrastructure and scarce public transport provision limits its potential to develop as a Primary Development Centre within the Dublin Region.

8.2 Mobility Survey

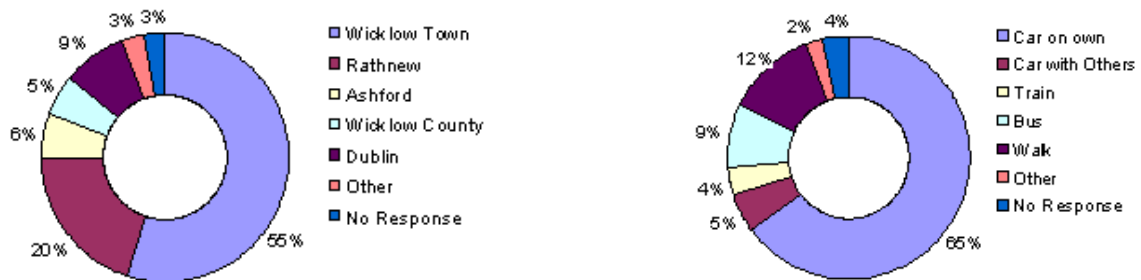
CBP carried out a Mobility Survey throughout Wicklow town and its environs, the results of which are summarised below. One hundred and fifty (150) households covering 500+ people were interviewed during the early stages of the IFP. The area was divided into six different zones and the same questions were asked to equal numbers of people in each zone. The questionnaire was made up of fourteen (14) questions about general mobility and twelve (12) questions about specific transportation issues.

The results of the survey show that Wicklow town and environs works as a self-contained settlement with a high amount of people working, shopping and going to school within the study area (81%, 91% and 91% respectively). However, there is a high reliance on the private car for people travelling to work and shops (70% and 79%). As a number of people live quite close to their workplaces, 12% of those interviewed walk to work. A large number of people still travel to work alone in the car (65%).

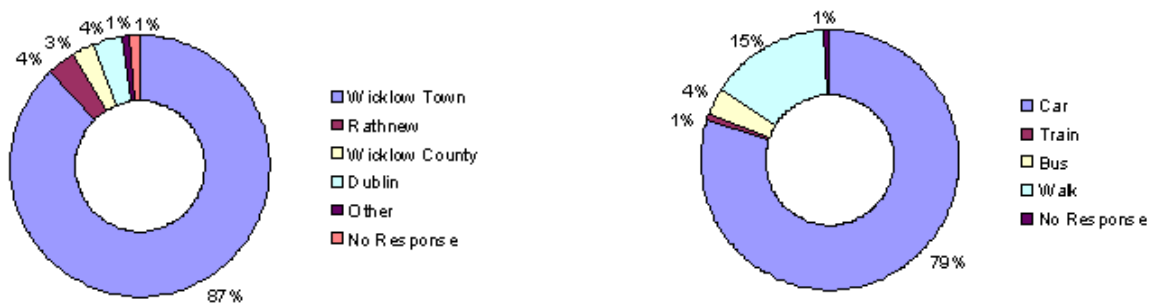
Only 26% of children are brought to school by car and a high 34% of children travel to school by bus. Although most children attend school within the study area, only 12% walk to school, and no one interviewed had a child that cycles to school.

There is a potential high modal shift towards walking and public transport if facilities or services were improved (81% would consider walking to the town centre and 70 % would consider using public transport in the area if services were improved). In addition, there is a potential average-to-low modal shift towards cycling if facilities or services were improved, such as the provision of cycle parking

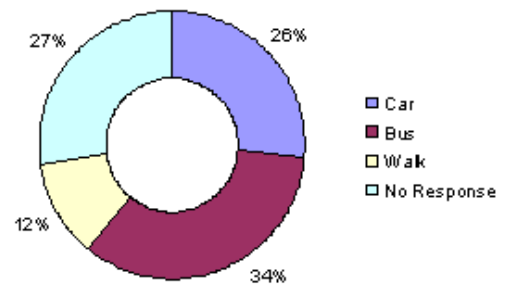
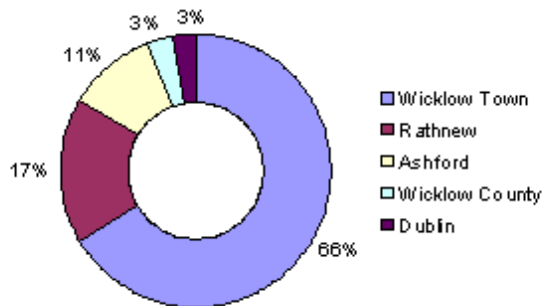
Going to Work Results (Location on the left and modal split on the right).



Shopping Results (Location on the left and modal split on the right).



Going to School Results (Location on the left and modal split on the right).



(38% of interviewees would consider cycling to the town centre).

Only a third of interviewees regularly travel by train, 64% of these people use the train to travel to Dublin. A high proportion of the people who currently do not use the train said they would be more inclined to use it if there were a number of improvements made to the service. 44% of these potential train users said if services were better they would travel to Dublin on the train, with Bray being the next most popular destination.

And finally, the study showed that 64% of people travelling to Wicklow town centre from the surrounding areas, park in the public car parks. The remaining numbers of people tend to park either in disc parking areas or on street. Out of the people interviewed, a significant 76% felt that there is inadequate parking in Wicklow town centre. This may be due to the lack of parking availability in the tourist season, which will be addressed with the construction of new car parks as illustrated in **Plan 8**, Appendix F. It could also be due to the recent implementation of new parking controls, which permit motorists to park on street for one hour only. The inadequacy people are referring to, may be the length of time which they are permitted to park. The controls of course, enforce a time limit to enable more people to park throughout the day, hence increasing availability.

8.3 Walking and Cycling

Severe topographical constraints discourage both modes of transport. Wicklow is relatively compact and even the peripheral housing estates are

only around 1 to 2 kms from the town centre. However, the topography of the coastal location means that most walks from home to town are downhill and that there is a more arduous, uphill walk home. Nevertheless walking remains a reasonable option.

There is very little cycling as would be expected, mainly due to the hilliness of the roads throughout the town. Whilst certain steep routes could be negotiated through walking, it would be impossible for an average cyclist to do so.

The pavements on roads throughout the town are of variable quality, and some notable points within the town are in need of pavements where there are none at present. The main problems occur in the residential areas above the town. In these new developments, the lack of footways makes the walk to the town a dangerous one, especially for school children. In some areas within the town there is a lack of pedestrian crossings.

Despite the town's hilliness there is still potential to encourage cycling in flatter areas adjacent to the coastline and between Wicklow, Rathnew and Ashford. The development of routes would be more for recreational purposes than as an alternative mode for getting from one place to another. At present there are no explicit cycle routes or storage facilities in the town or village centres.

The problem of road safety for pedestrians and vehicles throughout the town and at major junctions has been highlighted by many of those

consulted in the first phase of the 1999 CBP Traffic Study.

Accident analysis shows that the worst points for accidents are at all of the junctions between Abbey Street / Marlton Road and Mortons Lane / Main Street. There is also a cluster of accidents at The Mall / Main Street.

With regard to HGV's in the town and on Church Hill in particular, the lack of adequate pedestrian crossings at the junctions of Rocky Road, St Patrick's Road and Marlton Road have all been mentioned as compromising the safety of pedestrians and cyclists.

One of the most noticeable changes in travel behaviour in recent years is the growth in accompanied school journeys. Many parents now feel that the road system is not safe enough for an unaccompanied journey and they deliver their children to and from school by car. This peak period traffic encourages the downward spiral of greater traffic, leading to less walk / cycle journeys and in turn to greater motor traffic. It is generally accepted by the residents of the town that the traffic is much worse on school days than on school holidays.

As a result of the above, Wicklow town and environs has become an area where there is heavy reliance on the private car. This is probably more so than other equally sized towns in the country because many of the town's residential areas are located on high ground with town centre facilities closer to sea level.

8.4 Existing Road Infrastructure

The main road infrastructure around Wicklow is illustrated schematically in **Figure 8.1** towards the rear of this chapter. The existing infrastructure consists of the N11 to the west of the town, the R750, which passes north to south through the town, the R751 also connects with the R750 in the town from the west. There are various other local roads, which connect into this network and they are shown as narrow red lines on the attached drawing. The rail line is also shown by a black dotted line.

8.5 Rail

Wicklow train station is located towards the northern outskirts of the town, some 2km from the town centre. There are no bus links to the station from its catchment. It is recognised as being small with poor parking facilities, limiting the use of car to access it. Pedestrian access to the north of the train station is also poor and would have to be improved if development was to occur in this area. The road leading to the station does not have a continuous footway and roadside parking occurs on the approach to the station.

There is also a DART electric train service linking Malahide / Howth, Dublin, Bray and Greystones, up to 84 times per day (to Bray) with 17 of these continuing to Greystones (15 kilometres north of Wicklow town). Park and Ride is also possible at the Greystones DART station but is made unattractive by the car park's distance from the platform.

At present, there is a limited service of through diesel trains between Dublin and Arklow via Wicklow. Most of these run through from Dublin to Rosslare, but one train in each direction starts or finishes at Arklow. The latter are specifically aimed at the commuter market, with an arrival at Connolly at 0845, and departure at 1725. All the diesel trains operate on the same track as the DART trains and cannot overtake them, even though the latter call at every station. Consequently average speeds to Wicklow and Arklow are low (20 mph between Connolly and Bray, compared with 35 mph between Bray and Arklow).

The Rosslare – Dublin trains give a limited range of arrival and departure times in Connolly:

Arriving	1023	1800	2125
Departing	0806	1325	1830

Nevertheless, such a frequency does not make rail an attractive proposition for travel between Dublin, Wicklow and Arklow.

The line between Dublin and Arklow is also used by a limited number of freight trains each day. There are currently 3 such trains in each direction per day, carrying ammonia between Shelton Abbey (2 miles north of Arklow) and Marino Point near Cork. Of these, only one in each direction operates during daylight hours. There is in addition one path in each direction per day reserved in the timetable for a fertiliser train, but these are not currently operated.

The current weekday DART service provides some 80 services per day in each direction between Bray and Dublin, of which 22 start from Greystones. The service to and from Greystones is somewhat irregular, averaging one train per hour, except during the morning peak period when it is twice per hour. The main reasons for most of the trains terminating at Bray rather than Greystones is the limitation on capacity caused by the long single track section between these places, together with a shortage of rolling stock, even though some new stock has recently gone into service.

8.5.1 Constraints on Current Railway Operations

The main constraint in the current operation is the limitation of track capacity. The track is single between Bray and Arklow, with passing places only at Greystones, Wicklow and Rathdrum. This obviously reduces the frequency of service that can be operated. The 4.8-mile section between Bray and Greystones is a particular problem because of the presence of the DART service. Occupancy of this section is over 66% of the maximum possible at several times of the day, and these are not confined to the peak periods. To enable more frequent services to operate to and from Wicklow it would be very desirable to provide at least a passing loop, and preferably double track.

There is however a major physical problem, since the railway here operates along a very narrow path cut through precipitous cliffs and involving several tunnels. It would therefore be prohibitively expensive to double the track throughout. Nonetheless, there is an opportunity to do so for some 1.5 miles northwards from Greystones. This would reduce the length of single track from 4.75 to

3.25 miles, which can be traversed in about 6 minutes instead of the current 9 from Bray to Greystones. Route capacity would thus be increased by 50%.

The single-track sections between Greystones and Wicklow, Wicklow and Rathdrum and Rathdrum and Arklow are considerably longer at around 10 miles each, imposing an effective minimum headway of 40 minutes between trains in the same direction. This assumes the alternate passage of trains in opposite directions, and also perfect timekeeping. Such long sections are to be avoided if at all possible, both to improve reliability and to enable higher speeds to be operated: it is no good being able to operate faster between stations if this merely results in having to wait longer at the next passing place for a train in the opposite direction.

8.5.2 Iarnród Éireann's short-term proposals

It is understood that Iarnród Éireann have some short – medium term proposals for this route, following the introduction of new Arrow-type diesel multiple units. These are:

- a) From late 2003 to operate the 0655 Arklow – Dublin and 1725 Dublin – Arklow services as Arrow trains. This will increase the capacity of each service by about 200 passengers, and also reduce journey times because of increased speeds. The latter is possible because there are very few other trains occupying the single-track sections at the relevant times.
- b) From 2004 introduce an additional, earlier Arrow commuter service from Wicklow to Dublin, approximately 30 minutes earlier than the 0655 from Arklow. This would be complemented by a later commuter departure from Dublin to Wicklow at around 1800 hours. The capacity of these trains will be similar to those in (a) above.
- c) With the opening of a new maintenance depot at Drogheda for Arrow cars, these peak period services are likely to operate through between Drogheda and Wicklow /

Arklow. This will avoid using unnecessary paths in central Dublin.

- d) Use of Arrow trains during the off-peak period to provide a regular service between Wicklow and Bray. This concept is discussed further in Section 7.9.
- e) Provision of additional car parking and bus interchange facilities at Wicklow train station.

8.5.3 Electrification of the Line from Bray - Wicklow

An alternative to the operation of Arrow services between Wicklow / Arklow and Dublin would be to extend electrification from Greystones to at least Wicklow. This would have the advantage of avoiding an interchange at Bray, but would require considerable capital expenditure on electrification and additional electric rolling stock.

It would also mean that Wicklow would tend to be regarded as part of the Dublin suburban area, which is not part of the County's strategy. Furthermore, the train service would always be slow because of the large number of intermediate stops, and the standard of comfort of the DART rolling stock would not be adequate for the longer distances involved.

8.6 Bus

The existing urban form of Wicklow is not conducive to being served by bus. Trying to achieve comprehensive coverage would involve buses wasting a lot of time accessing cul-de-sacs, when there may only be a couple of times a day when there is any need to serve a particular cul-de-sac.

The hilly topography means that comfortable walk distances to bus stops or the line of bus route are less than would otherwise be the case for flat terrain. This is normally around 400 metres, but in parts of Wicklow it could be almost halved. But with the housing densities (and the total size of the development) it will not be practical to have a bus route every 500 metres.

A Bus Éireann service linking Arklow, Wicklow and Dublin runs 11 times a day (7 times on Sundays) with a travel time from Wicklow to Dublin of approximately 90 minutes.

The level of bus service decreases away from the Dublin urban area. Smaller settlements north of Wicklow town, such as Kilpedder and Newcastle, have a better service due to the fact that Dublin Bus services them. Wicklow Town is just outside the catchment of Dublin Bus. The services nearby (i.e. within 15 minutes or 15 kilometres) are:

- Dublin Bus service 84, which provides journeys between Dublin Eden Quay and Kilcoole (10 times per day) or between Dublin and Newcastle 11 times per day (combined service 22 trips per day). On Saturdays there are 7 Kilcoole and 8 Newcastle journeys and on Sundays 8 Kilcoole and 5 Newcastle trips. Running time to Newcastle is approximately 95 minutes.
- Dublin Bus 84X which offers three fast trips each way at peak times between Kilcoole and Dublin or vice-versa.
- Dublin Bus 184 offering local links between Bray, Greystones, Kilpedder and Newtonmountkennedy (45 minutes) up to 15 times per day.

8.6.1 Dublin Bus Route 84 Dublin (Eden Quay) – Newcastle

Route 84 runs between Dublin, Bray, Greystones, Kilcoole and Newcastle, and is operated from Donnybrook depot. The timetable is somewhat irregular, with generally around one bus per hour as far as Kilcoole but with gaps of up to 2.5 hours to Newcastle.

The weekday Peak Vehicle Requirement (PVR) has been calculated from the timetable to be six vehicles (ignoring one vehicle required for a journey during school term-time). However, of these only three are required for the off-peak service (until around 15:00). It is not known whether the remaining

vehicles are then spare, or whether they operate on other services during the off-peak.

Based on an average speed of 30 kph between Newcastle and Rathnew (which is probably slow, based on the timed average of 54 kph between Kilcoole and Newcastle), CBP have calculated that running time between Newcastle and Rathnew is 19 minutes. At 20 kph between Rathnew and Wicklow (a reasonable assumption for urban conditions), this would be extended to 29 minutes for a journey between Newcastle and Wicklow.

This gives an end-to-end journey time of 1 hour 54 minutes between Eden Quay and Rathnew. Allowing 6 minutes to lay over at each end, this means that a regular interval, hourly service could be provided by 4 buses. With one extra bus, a peak hour extra could be provided from Kilcoole to Eden Quay and back. This gives a PVR of 5 buses, which is a saving of 1 bus over the existing situation.

The value of route 84 is less than it gives a service to Dublin – route 2 does that in almost half the time – but rather that it gives a good level of local accessibility between Rathnew and Newcastle, Kilcoole, Greystones and Bray.

It would be possible to extend the route to Wicklow but this would certainly result in a need for at least one extra bus, calling into some doubt the viability of the exercise unless the service could attract sufficient local patronage between Rathnew and Wicklow. This could have the effect of removing patronage from a proposed local service for Wicklow Town and Environs.

8.6.2 Dublin Bus Route 184 Bray – Newtownmountkennedy

Route 184, also operated by Dublin Bus from Donnybrook depot provides a link between Newtownmountkennedy, Kilpedder, Greystones and Bray. Like route 84, it also provides a rather irregular service, with two buses per hour at least as far as Kilpedder. Late mornings it provides a similar level of service from Newtownmountkennedy, but for most of the day only one bus per hour gets this far. On Sundays it runs between Kilpedder and Bray only.

The weekday PVR has been calculated from timetables to be 4 vehicles, with the possible exception for around half an hour between 13:00 and 14:00 when 5 vehicles appear to be in service.

Based on an average speed of 30 kph, CBP estimate that the running time of an extension from Newtownmountkennedy to Rathnew via Ashford would be 27 minutes. This compares to a scheduled running time between Newtownmountkennedy and Kilpedder of 27 kph, or between Kilpedder and Greystones of 25 kph. Given that the route is more sparsely populated between Newtownmountkennedy and Ashford (and quicker via the duelled N11), CBP think this assumption is not unreasonable and possibly conservative. However, CBP apply the same assumption of 20 kph between Rathnew and Wicklow to give an overall journey time of 37 minutes between Newtownmountkennedy and Wicklow.

Added to the 45 minutes journey time between Bray and Newtownmountkennedy, this gives an overall journey time of 82 minutes between Bray and Wicklow, or 72 minutes between Bray and Rathnew. A 180-minute operating cycle allows an even hourly headway to be provided by 3 vehicles. There is therefore little to be saved by terminating the service at Rathnew and the buses may as well continue to serve Wicklow.

However, at this stage we should be seeking to provide an equivalent level of capacity to Kilpedder or Newtownmountkennedy. A thorough review of demand on the route might reveal that this is not necessary. Two buses could provide an hourly service between Bray and Newtownmountkennedy, interlaced between the Bray – Wicklow journeys to give a regular 30-minute headway between Bray and Newtownmountkennedy.

The total vehicle requirement is therefore 5 vehicles. This is an increase of one over the existing four. Furthermore, the number of bus hours increases by around a third, and weekday bus mileage by nearly 60%. This assumes that two buses are stationed at Rathnew, two at a new outstation at Newtownmountkennedy with one remaining at

Donnybrook. One bus diagram starts at Wicklow and finishes at Bray, and one vice versa.

The service would need to generate a substantial amount of revenue to justify this increase in operating cost. Revenue would be generated from:

- New local journeys between Ashford, Rathnew and Wicklow;
- New local journeys between locations on the existing route and Ashford, Rathnew and Wicklow; and
- Journeys generated by the higher frequency and more regular service between Bray, Kilpedder and Newtownmountkennedy.

Against this, there are a number of factors:

- The operation between Ashford, Rathnew and Wicklow may threaten the vitality of the dedicated town shuttle service;
- The route to some extent duplicates Bus Eireann route 133, which also serves Newtownmountkennedy and Kilpedder; and
- The route also duplicates the proposed extension of route 84, which also provides a regular, hourly link to Greystones and Bray.

8.6.3 Bus Eireann Service 2. Rosslare – Dublin

This service operates on a 60 – 90 minute headway throughout the day. Although only 2-3 journeys in each direction are due to call at Wicklow (Grand Hotel), all services stop at Ashford (Ashford House). They call at Ashford to pick up only when travelling towards Rosslare, and set down only when travelling towards Dublin.

It would be desirable for these services to stop to pick up and set down in both directions in order to provide an express link to Dublin. The reason for not doing so may be a concern that there is insufficient capacity to accommodate large volumes of Dublin-bound passengers. In which case, it may be possible to replace the existing vehicles with high-capacity double-deck coaches rather than single-deck vehicles as part of planned fleet renewal.

Presumably, the services only call at Ashford because it is a convenient location on the primary road network (N11) from which to serve the wider area. The efficiency of this service will improve with the completion of the motorway, which will then bypass Ashford. CBP propose that this service should instead stop at Rathnew where a transport interchange will provide various modal links to Wicklow town and Ashford. In broad terms, such a move should be time and mileage neutral, and so it should be cost neutral.

Given sufficient linkages between a transport interchange at Rathnew and the rest of the urban area, it should be possible to divert journeys currently serving Wicklow away from Wicklow. This would make the routeing consistent for all times of the day.

8.6.4 Bus Eireann Service 6. Waterford – Dublin

Service 6 operates only three times a day in each direction, but also serves Ashford. Like service 2, it too sets down only towards Dublin and picks up only towards Waterford. Again, we see no reason why in principle it should not pick up and set down in both directions, and call at the Rathnew Transport Interchange rather than at Ashford.

8.6.5 Bus Eireann Service 133 Arklow – Dublin

Route 133 provides a local service between Wicklow, Ashford, Rathnew, Newcastle, Newtownmountkennedy, Bray and Dublin on a more-or-less hourly headway. Two or three journeys each day run south from Wicklow to Arklow via Rathdrum and Avoca.

CBP estimate that the current vehicle requirement to operate the core Dublin – Wicklow service is three. It is not known where vehicles, which start their day's work at Wicklow are stabled.

Given that expansion is planned in Arklow, it may make sense to augment the entire service. With five buses, a regular hourly headway service could be operated between Dublin and Wicklow, with alternate buses (i.e. one every two hours) extended to Arklow. It would be desirable to provide another bus to give an extra morning peak working to Dublin and return in the evening, thus making a PVR of six.

This option increases operating costs by around 50% when compared to the existing service. Four of the buses would start and finish their day's work at Wicklow and two at Arklow.

The revised route 133 would call at Rathnew Transport Interchange en-route.

This option can be expected to generate revenue from existing sources of patronage by providing a more regular service than that which operates at present, particularly between Arklow and Wicklow. Although it is slower than route 2, it serves directly a wider catchment area, so CBP expect that the route will benefit considerably from the planned growth in population.

At present there is no bus station in Wicklow Town. It has been suggested before that a suitable location would be at the railway station. Although this would help to integrate both modes, the station is located at the northern outskirts of the town and there is little pedestrian activity except around train departure / arrival times. Other possible locations will be investigated.

Figure 8.2 is a schematic illustration of the existing public transport services available within the study area at present.

8.7 Additional Transport Provision

A private operator already runs an 'on demand' service from Wicklow town centre to the residential areas. This service is geared towards people with shopping who walk downhill into town but who appreciate motorised transport to get them home in an up hill direction. We understand that the same operator has applied for a licence to operate a fixed route around Wicklow on an hourly headway.

Taxis are an essential part of both rural and urban transport and are often ignored with regards to transport policy. At present the county council's metered taxi licences only cover the northern part of the county. There are only pre-booked hackneys in operation in Wicklow Town, many of which chase fares illegally off the street. It has been suggested that the Council should establish the infrastructure for

metered taxis. This would include the extension of licence coverage and the installation of taxi ranks and shelters at areas of activity.

Certain groups in rural areas were becoming more marginalized and isolated. There are no wheelchair accessible taxis or buses in / around Wicklow town. Wheelchair users wishing to travel by train must pre-book because of the lack of space. People in most need of rural transport (disabled, elderly and children), are priced out of using taxis and rely on an infrequent bus service.

8.8 Private Transport

Recent rapid growth in car ownership and usage has resulted in considerable congestion on the road network, with junctions operating to almost capacity. The network has to accommodate the burden of school traffic in the winter months and holiday traffic during the summer time.

To improve the capacity of the road network it was proposed in the 1999 CBP Traffic Study to provide a linked signalisation system between the junctions of Marlton Road and St Patrick's Road with Abbey Street. It was decided to propose a roundabout at the junction of Rockey Road with Abbey Street, to reduce speeds and enable the provision of a zebra crossing without having a significant impact upon the available capacity.

A disc-parking scheme has recently been implemented in Wicklow town. Motorists can park in designated spaces in town centre between the hours of 08:30 and 18:00 by displaying a prepaid parking disc. The parking controls also make accommodation for residents parking, servicing facilities and disabled parking. There was also a proposal in the 1999 CBP Traffic Study to make provision for tourist parking.

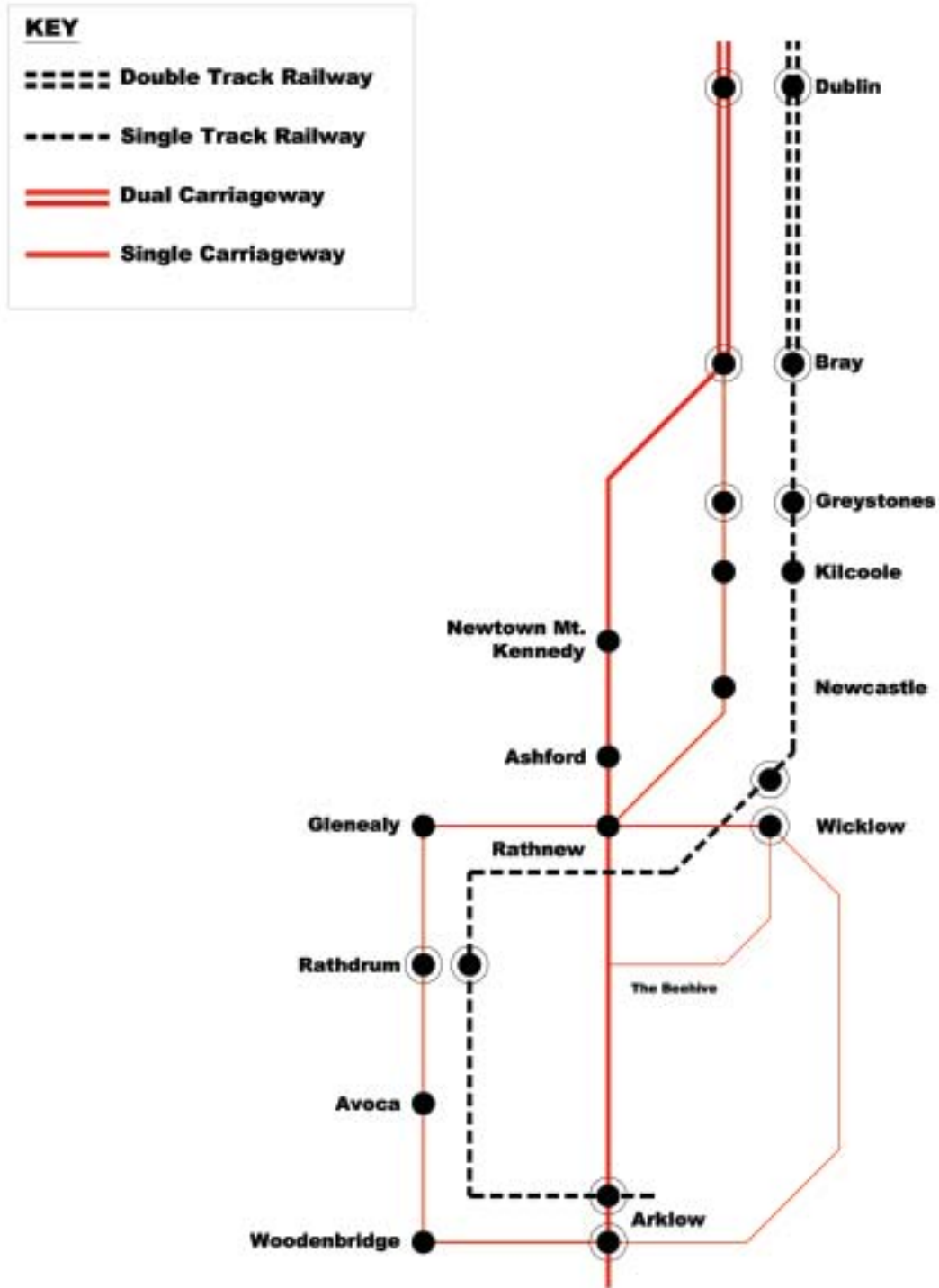
On a longer-term basis it has been concluded in the 1999 CBP traffic Study that by allowing for the general growth of traffic in Wicklow town and that created by new developments, the existing road network would have severe difficulty in coping. It was also noted from a site visit that all recent residential development is of a cul de sac

nature, which promotes car usage and is difficult for public transport to serve.

It was considered in the 1999 CBP Traffic Study that a Port Relief Route would be effective in increasing capacity. Currently all traffic generated by Wicklow Port (18,000 HGV's / annum) uses Bridge Street and Abbey Street and therefore removal of this traffic would be highly desirable in terms of reducing the vehicle / pedestrian conflict, improving the shopping environment and naturally the reduction in congestion.

The completion of the N11 western by-pass will help to relieve traffic congestion in Wicklow town and environs. This will result in particular benefit for both Ashford and Rathnew, as the existing N11 national primary route passes through both villages. The new by-pass will pass between both villages.

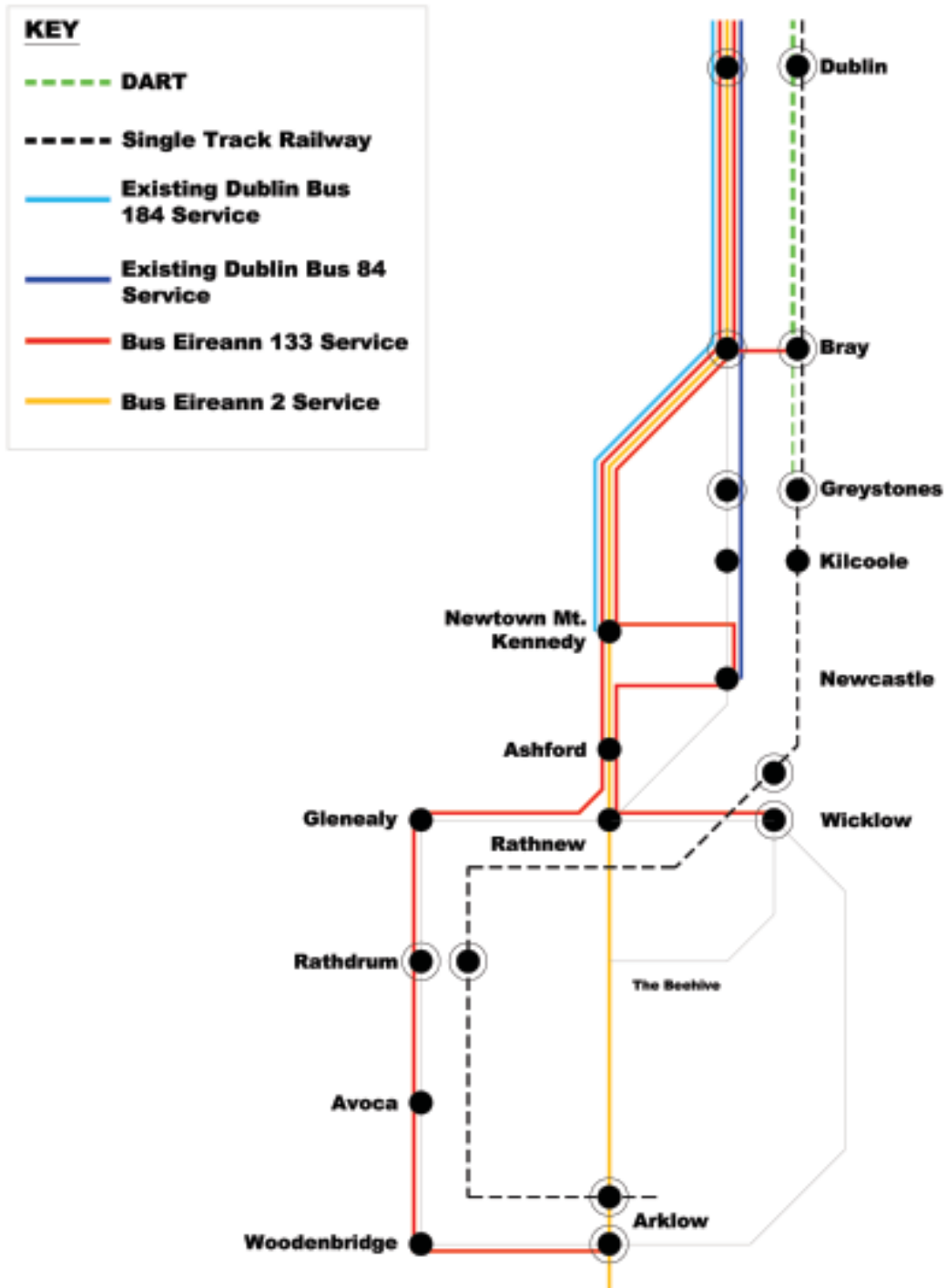
Wicklow Town is presently accessed off the N11 by the R750 and R751 regional routes, so the town is unlikely to see a significant reduction of through traffic as a result of the new by-pass. Other road infrastructure planned for the town itself will help to increase connectivity and capacity. This in turn should reduce congestion but will only succeed through the encouragement of alternative modes, such as a comprehensive town bus service. Mistakes have been made in the past by building new roads, predominantly to be used by the private car.



Existing Infrastructure



FIGURE 8.1



Existing Public Transport



FIGURE 8.2

9. Local Simulation Model

9.1 Introduction

Transport modelling can be split into two main elements, transport supply and transport demand. Transport supply is a representation of the transport infrastructure, in this case the highway network, while the demand side of the equation, or trip matrix, is an estimation of the number of trips travelling between each area, or zone, throughout the network. Once the demand matrices are assigned to the network, that is each trip is assigned a route between its origin and destination, it is possible to determine the effects of various land use and highway options in terms of network wide traffic volumes, journey times and speeds.

The substantial amount of new development proposed for Wicklow, and its impact on travel demand, indicated from the outset that the trip generation (an estimate of the number of trips generated by a particular area) and the trip distribution (determination of the origin and destination of each trip) elements of the model would be critical in order to test the impacts of the various land use and transport options.

This note describes the process adopted to build the Wicklow Traffic Model used for the purposes of the Wicklow Integrated Framework Plan and the traffic-forecasting element of the Wicklow Town and Wicklow Port Relief Roads.

9.2 The SATURN Suite

The SATURN modelling suite was chosen to model the Wicklow and Environs area road network so as to be compatible with the original smaller SATURN model produced by Colin Buchanan and Partners in 1998/9 for the Wicklow Town Traffic study and also, this would be compatible with the DTO Saturn model.

Colin Buchanan and Partners extended, and updated, the existing model to cover Wicklow town and Environs, Rathnew and Ashford. The model represents all but the most minor roads in the study area and it represents the most strategic traffic

movements from and through the area, rather than detailed traffic movements within Wicklow town.

9.3 Highway Network

9.3.1 Network

A SATURN network file covering principal roads in the study area was prepared. The Study Area was modelled as simulation, or detailed, network which involves explicit modelling of all junctions based on parameters obtained from mapping and site visits.

9.3.2 Zone Layout

To enable SATURN to assign each vehicle trip to an origin and destination, the Study Area was divided up into manageable areas of land, known as zones. The zone system is based on natural watersheds and changes in land-use as specified in the development plan. The model zone system is shown in Appendix F, Plan 2.

9.4 Demand Matrix

9.4.1 General

The matrix building process consists of the following sub-models:-

- Trip Generation;
- Trip Distribution;
- Mode Split

9.4.2 Trip Generation

Trip generation is the estimation of the number of trips generated by and attracted to each zone in the Study Area. Trips can be classified by trip purpose, by time of day and by person type.

The number of trips generated by a particular household is largely dependant on the number of people in the household and the number of persons employed. For the purposes of the Wicklow model, trip rates were sourced from a comprehensive data set assembled for over 1000 household trip diary surveys undertaken in Galway in 1998 as part of the Galway Transportation and Planning Study. Trip generation data in this database was aggregated to

	Internal	External
	100's+200's+300's	400's
Work	30%	70%
School	95%	5%
Shopping	85%	15%
Leisure	90%	10%

Table 9.1

produce all day trip rates by purpose for an average household. This was then converted to trip rates for the PM peak hour using observed trips profiles.

The proportion of trips by purpose was obtained from the Wicklow Roadside Interview Surveys whilst the proportions by origin and destination (that is with regards home based work trips, the proportion originating at the home rather than work during the PM peak hour) were obtained from the Galway data. Trips were generated individually for the following trip purposes:

- Home based work
- Home based shop
- Home based other
- Non-home based

Table 9.1 shows the percentage generation by purpose and area.

Trip attractions were calculated by considering the following variables, household numbers, education enrolment, employment and trip totals to the various retail developments. Table 9.2 shows the percentage of trip attraction by purpose and area.

9.4.3 Trip Distribution

Trip distribution is the allocation of a trip destination to each trip generated in a particular zone. For the purpose of this study it was decided to allocate each trip destination based on the relative attractiveness of each zone.

Given the size of the Study Area, it was decided that the trip distance, or generalised cost, was not relevant in determining the trip destination.

	Internal	External
	100's+200's+300's	400's
Work	54%	46%
School	85%	15%
Shopping	85%	15%
Leisure	90%	10%

Table 9.2

The trip distribution was undertaken individually for each trip purpose with the number of trips arriving at each zone constrained by development content. Tables 9.3 – 9.6 show the distribution of trips by purpose and by zone.

9.4.2 Mode split

The total person trip matrix was divided by the observed average occupancy, (1.35), in order to estimate the total number of car trips generated in the study area. For future year tests an estimate of the number of trips that may transfer to public transport was made by determining the proportion of developed land in each zone existing within a 400m radius of a bus stop and a conservative assumption that 5% of these trips would transfer to public transport.

9.5 Model Calibration

9.5.1 Calibration/ Validation

Model calibration is the fine-tuning of various model parameters in order to better represent conditions on the ground and therefore improve its fit to observed data. The standard method of comparison of observed and modelled data is by way of the GEH statistic. The GEH is a form of Chi-Squared statistic that incorporates both relative and absolute errors. This reflects the greater relative importance of the goodness of fit for links with high flows compared to those with low flows.

Calibration/validation was achieved with alterations to the network characteristics. First junctions were assessed by considering where it was apparent that significant modelled delays occurred which were not present in observed data. Parameters, which control the capacity of the individual junctions, were assessed and adjusted if

		Destination				Total
		100s	200s	300s	400s	
Origin	100s	5%	3%	2%	1%	11%
	200s	33%	18%	11%	7%	69%
	300s	5%	3%	2%	1%	11%
	400s	5%	3%	2%	0%	9%
	Total	48%	27%	16%	9%	100%

Table 9.3 Distribution of Leisure Trips by Zone

		Destination				Total
		100s	200s	300s	400s	
Origin	100s	1%	2%	0%	7%	10%
	200s	5%	13%	2%	46%	65%
	300s	1%	2%	0%	7%	10%
	400s	3%	9%	2%	0%	14%
	Total	10%	26%	4%	60%	100%

Table 9.4 Distribution of Work Trips by Zone

		Destination				Total
		100s	200s	300s	400s	
Origin	100s	5%	2%	2%	2%	10%
	200s	33%	12%	11%	10%	66%
	300s	5%	2%	2%	2%	10%
	400s	8%	3%	3%	0%	13%
	Total	51%	19%	18%	13%	100%

Table 9.5 Distribution of Shopping Trips by Zone

		Destination				Total
		100s	200s	300s	400s	
Origin	100s	6%	3%	0%	1%	10%
	200s	39%	21%	2%	3%	65%
	300s	6%	3%	0%	1%	10%
	400s	9%	5%	0%	0%	14%
	Total	60%	33%	3%	4%	100%

Table 9.6 Distribution of School Trips by Zone

necessary to enable the junction to operate as observed.

In addition, adjustments to the positioning of zone connectors and link attributes were made to enable further convergence with observed data.

Link flow data was obtained from turning counts and compared with modelled flows extracted from SATURN, the results of which are presented in

Table 9.7. These results show that 33 of the 55 links included in the comparison are within the required margin $GEH < 5$, as required by DMRB. As the DMRB relates to observed growth factor models and this model is based on a synthetic matrix, it is concluded that an acceptable fit is achieved and that the same method may be used to model the future situation.

NO.	A Node	B Node	Count	Modelled Flow	Diff	% Diff.	GEH	Acceptable
1	109	101	223	247	24	10.58	1.54	Yes
2	115	104	431	452	21	4.82	0.99	Yes
3	109	108	238	64	-173	-72.95	14.12	
4	101	109	335	288	-46	-14.05	2.67	Yes
5	108	109	113	65	-47	-42.59	5.1	
6	132	109	296	312	16	5.33	0.9	Yes
7	109	110	32	15	-16	-51.59	3.39	Yes
8	114	113	174	87	-86	-49.93	7.6	
9	114	125	103	50	-52	-51.29	6.04	
10	113	114	241	248	7	2.82	0.44	Yes
11	115	114	65	22	-42	-66.17	6.52	
12	116	114	119	78	-40	-34.55	4.14	Yes
13	125	114	136	110	-25	-19.45	2.39	Yes
14	104	115	427	464	37	8.74	1.77	Yes
15	114	115	112	236	124	110.39	9.38	
16	116	115	320	251	-68	-21.51	4.07	Yes
17	114	116	149	84	-64	-43.44	5.99	
18	115	116	362	477	115	31.87	5.63	
19	117	116	439	329	-109	-25.05	5.61	
20	116	117	563	562	0	-0.24	0.06	Yes
21	118	117	131	193	62	47	4.84	Yes
22	119	117	780	653	-126	-16.31	4.75	Yes
23	117	118	342	332	-9	-2.79	0.52	Yes
24	146	118	131	193	62	47	4.84	Yes
25	117	119	575	746	171	29.65	6.64	
26	120	119	810	814	4	0.46	0.13	Yes
27	150	119	223	116	-106	-48.04	8.23	
28	119	120	562	756	194	34.54	7.56	
29	120	121	604	750	146	24.2	5.62	
30	450	121	689	948	259	37.65	9.07	
31	151	121	108	110	2	1.85	0.19	Yes
32	123	122	715	864	149	20.78	5.29	
33	122	123	418	563	145	34.74	6.56	
34	155	123	642	742	100	15.55	3.8	Yes
35	157	123	290	188	-101	-35.06	6.58	
36	132	135	234	331	97	41.26	5.75	
37	109	132	249	338	89	35.79	5.2	
38	133	132	101	61	-39	-39.17	4.39	Yes
39	135	132	153	196	43	28.16	3.26	Yes
40	137	132	83	84	1	1.2	0.11	Yes
41	132	133	40	0	-39	-99.17	0	Yes
42	132	137	41	37	-3	-9.76	0.64	Yes
43	105	139	127	107	-19	-15.84	1.86	Yes
44	138	139	197	163	-33	-17.05	2.5	Yes
45	140	139	169	164	-4	-3.07	0.4	Yes
46	119	150	263	266	3	1.2	0.19	Yes
47	121	151	168	164	-3	-2.38	0.31	Yes
48	123	155	504	557	53	10.52	2.3	Yes
49	157	156	84	58	-25	-30.95	3.09	Yes
50	123	157	131	73	-57	-44.41	5.76	
51	124	157	170	75	-94	-55.98	8.6	
52	156	157	157	184	27	17.2	2.07	Yes
53	121	450	519	747	228	43.95	9.07	
54	128	127	202	203	1	0.5	0.07	Yes
55	127	128	134	106	-27	-20.9	2.56	Yes

Table 9.7 Calibration Results

10. Consultation Process.

It was agreed in the Brief for the Framework Plan that consultation would form an essential element throughout the process of the study. The involvement of all relevant parties would make it easier to identify inadequacies, decide on what should be built upon, form and agree new ideas, and guide the direction of the plan in terms of land use and transportation to find solutions to what problems were identified before and during the process.

Throughout the plan preparation process regular client group meetings took place between DTO, WCC, CSR and CBP, which usually began with work updates and presentations of collected data. Issues were discussed and decisions were taken on the plan direction, what further information should be collected, the direction to follow and what the expected outcomes would be.

At strategic periods throughout the plan process, steering group meetings were held with relevant stakeholders, as many of the areas of concern and ideas mooted involved their organisations. These meetings offered invaluable experience and advice to the clients and the consultants for the analysis of work to date and the agreement of the next stage.

Organisations represented at Steering Group Meetings included:

- Wicklow County Council (Roads and Planning Department);
- Dublin Transportation Office (DTO);
- Wicklow Town Council;
- Regional Planning Guidelines;
- Bus Éireann;
- Iarnród Éireann;
- Dublin Bus; and
- Consultants.

Individual Stakeholder meetings were also held regarding issues which were of direct relevance only to them. There were also occurrences of two or more stakeholders participating in a meeting, which concerned each of them, e.g. public transport.

Seven Client Group Meetings, five Steering Group Meetings, various individual Stakeholder Meetings and the Final Stakeholders Group meetings occurred throughout the study. CBP also attended an event organised by the Wicklow County Development Board on rural transport and a meeting with an existing mini-bus operator with a Public Service Vehicle licence in Wicklow Town.

It was initially agreed by the stakeholders that the organisation of meetings was successful in bringing relevant parties together. Public transport operators admitted that there was lack of liaison in the past and that the Framework Plan provided them with the opportunity to work together. It also provided CBP with the opportunity to find out what the intentions of stakeholder were with regards to Wicklow.

Iarnród Éireann reported that they had a short term (3-4 year) programme for the Wicklow to Dublin line with a long term intention to improve the service south of Greystones. Dublin Bus stated their interest in becoming involved in a local service and for the extension of their existing services in Wicklow Town. They would require necessary figures to help develop a business case. Bus Éireann also mentioned the fact that they are investigating the possibility of providing hourly services between Wicklow, Bray and Arklow.

This provided CBP the opportunity of putting their proposals to each operator and to the other stakeholders. In the interests of sustainable land use and transportation integration it was unanimously agreed that there should be a promotion of higher densities, a mix of uses and permeable urban form. The Framework Plan would provide guidance on layout, densities, mobility and scales. CBP also presented their ideas for a local bus network, which would be tested using the SATURN traffic model and their proposal for a transport interchange at Rathnew. The SATURN model would be used to compare

various land use and transportation scenarios, which was to form the core of the Framework Plan after agreement at subsequent client group meetings.

The main points from each meeting which had an influence on the Plan outcome are contained in Appendix D. Meetings with other relevant parties will also be mentioned along with any advice obtained throughout the process.



Appendices

Appendix A

Analysis of Relevant Plans and Studies

A.1 Regional Planning Guidelines for the Greater Dublin Area

At a regional level the Regional Planning Guidelines for the Greater Dublin Area (RPGGDA) provide a broad planning strategy for the area to 2011. The Strategy distinguishes between the metropolitan area and the Hinterland Area. In the metropolitan area development will be consolidated in line with the principles of sustainable development. In the Hinterland Area development will be concentrated into development centres. In the long-term these development centres should become self-sufficient, which involves the development of a strong employment and service base in each centre, thereby facilitating the provision of considerably enhanced local and regional public transport.

Wicklow Town has been identified within the Hinterland as a Primary Development Centre (PDC). It is one of five PDC's, the others being Navan, Drogheda and Balbriggan to the north of the metropolitan area, and the Newbridge / Naas / Kilcullen PDC to the southwest.

Wicklow Town is the only designated PDC in County Wicklow. Bray and Greystones are considered to be located within the metropolitan area and Arklow is designated a Secondary Growth Centre (SGC). The Guidelines do not designate a target population for SGC's.

Central to the rationale for the town's designation, is its location relative to the metropolitan area on an "existing transportation corridor". This is defined as an area served by a road link of dual carriageway or motorway standard, and a passenger rail link (RPGGDA).

There are a number of immediate implications for Wicklow Town under this designation. The long-term objective for Development Centres is to achieve self-sufficient towns, with little or no

commuting to the metropolitan area, completed with a high level of employment facilities, high-order shopping, and a full range of social facilities. In the short to medium term, it is an objective to establish the conditions to allow for that.

The spread of development intended primarily to serve the metropolitan area, and the potential generation of significant commuting, is stated to be neither environmentally sustainable nor economic and should be restricted using demand management techniques (RPGGDA). The primary planning issue in the Hinterland Area is to deal with spill over development pressures coming from the Dublin built-up area, and concentrate them into the designated Development Centres.

A.1.1 Employment

A fundamental aspect of the strategy for the Hinterland Area is the establishment of significant levels of employment in the 'development centres', particularly the primary towns. This is essential to ensure that each town becomes a balanced community with a range of employment and service activities to supplement residential use. It is noted that sufficient land, together with the infrastructure requirements for industry and other employment activities will be required in each 'development centre' (p.93).

A.1.2 Retail/Commercial

The RPGGDA Report states that Primary Development Centres such as Wicklow, will require a significant level of retail provision and other commercial activities consistent with their role as 'stand-alone' settlements.

Pertinent considerations for assessing additional potential retailing capacity, shall have regard to the role as service centres for the wider rural hinterland incorporating:

- The provision of a good range of comparison goods outlets at town centre sites in the PDC's; and

- A number of retail warehouse developments in the PDC's when these grow sufficiently to justify such development.

The implementation of the RPGGDA strategy is envisaged to take place through the Development Plan process, and the provision of major transportation, sanitary services and other infrastructure.

A.2 The Dublin Transportation Initiative (1995) and the DTO Platform for Change (2001)

The Dublin Transportation Initiative (DTI) was published in 1995 and recommends a transport strategy for the Greater Dublin Area up until 2016. This strategy provides the planning framework for the future development of the transport network in the Greater Dublin Area, which includes County Wicklow.

Much of what is proposed in the DTI is for the metropolitan area with major investment proposed for public transport systems. The DTI recognises that public transport infrastructure should be a prime consideration in the location, land use type and density of new development.

The DTO "A Platform for Change" document states "Framework Plans for Development Centres will be developed to ensure that land use and transportation objectives are sufficiently integrated. Within these frameworks, Local Transport Plans should focus on the improvement of bus-based accessibility to local services, minimise car use for local trips and ensure interconnection with strategic public transport networks. Further to this, Retail / Service Development Centre catchment areas should be identified in the Framework Plans to assist in the identification of local public transport needs".

A.3 Wicklow County Development Plan (1999)

The County Development Plan establishes the general development framework and settlement strategy for the entire County.

The Wicklow County Council Development Plan, 1999 was unable to take cognisance of the

foregoing Regional Planning Guidance. However, it is notable that under the County Settlement Strategy, Wicklow Town is again highlighted as a Primary Growth Centre.

This reflects the significant level of growth that is projected for North County Wicklow (under Dublin influence). The total population of this area was projected to increase by 50% up to 104,000 persons between 1991 and 2016. The number of households was projected to increase by over 88%, over 17,000 new households. The workforce was projected to increase by over 90% between 1991 and 2016.

The Plan supports the development of public transport services, links with Dublin City and within the County. It is policy to improve road links to growth centres in co-operation with urban authorities. The Council will seek to bring national, primary & secondary roads up to the standards set out in "Planning Framework for Roads" as well as continuing to improve regional roads and develop local roads in line with the Council's road programme and expected traffic flow. In addition, the Plan will preserve free from development all road improvement lines and route corridors. It is a stated objective at section 4.4.6 to provide a Wicklow Town outer relief road.

It is also stated that the council will protect greenbelt areas between expanding those urban areas that are in close proximity (e.g. Rathnew and Wicklow).

A.4 Wicklow Town Development Plan (2001)

The local development objectives are provided for through a series of local plans. The Wicklow Environs Local Area Plan 2001 and the Ashford Town Local Area Plan 2001 are the key local plans for the Environs area, while the Wicklow Town Plan 2002 establishes development objectives for the already well established town area, administered by Wicklow Town Council.

Wicklow Town performs the primary role of a residential settlement containing a local service centre for the town itself and its hinterland. It also acts

as a sub-regional commuter settlement but to a much lesser extent than Bray or Greystones.

A.4.1 Demographic Context

A review of population trends over the last 30 years shows that Wicklow Urban District and Environs has experienced steady and sustained population growth, developing from 3,919 in 1971 up to 7,961 in 2002. While growth was more pronounced over the interim period from 1991 to 2002, it merely reflects the strengthening of a consistent trend.

Year	Wicklow UD	Environs	UD & Environs
1971	3,786	133	3,919
1979	4,981	137	5,118
1981	5,178	163	5,341
1986	5,304	213	5,517
1991	5,847	368	6,215
1996	6,416	874	7,290
2002	7,007	954	7,961

Table A

Trends show that the population of Wicklow Urban District and Environs increased by 28% in the period between 1991 and 2002. It is recorded that Rathnew has also experienced consistent growth from a population of 1,366 in 1981 to 1,437 in 1996. The population of Ashford has grown from 881 persons in 1991 to 1,215 in 1996.

The Development Plan assumes (p.5) that recent development growth can “principally be attributed to market pressures, the attractive environment in Wicklow and the relative ease of access to Dublin given the improved road infrastructure”.

The Population Targets and Strategic Development Options Report for Wicklow Environs identified a potential increase in the area’s population (including Ashford) to circa 25,000 persons by 2016.

A.4.2 Development Strategy

The overall development strategy of the town is summarised in section 3.0 of the Wicklow Development Plan as follows;

- Allow for the orderly development of Wicklow Town and its integration with the development areas available in the environs;
- Promote the town as a focus for development, enabling it to expand and fulfil its role as a Primary Development Centre;
- Provide for the development of lands that may be developed with the least infrastructural expenditure and which provide good access to the range of social, educational and economic facilities available in the town;
- Provide for the protection of areas of high visual amenity, special interest and scientific interest from development.

Controlled infrastructural investment must be a key element in bringing development areas forward in the interest of the proper planning and development. In particular, the development of the Murrough Treatment Works, the Port Relief Route and Town Relief Route are identified as vital infrastructural items. The Planning Authority will provide for such development in a phased and balanced manner.

It is a stated objective of the Plan that the town centre of Wicklow should continue to serve the demands of the surrounding catchment area and that sufficient retail space to meet the town and hinterland requirements should be developed in town centre areas and proposed town centre zoned areas in the first instance.

A.4.3 Main Development Areas

The Development Plan has identified the convent lands to the south of the town centre for the preparation of an Action Area Plan. The Murrough to the north of the town centre is also identified for the purpose of preparing a Local Area Plan. Transportation links to the port are identified as an important consideration in the future development of this area.

Action Area Plan 3 (Burkeen and Bollarney North) and Action Plan Area 8 (Dunbur Lower) of the proposed Wicklow Environs Local Area Plan, 2001 extend into the Urban District area, and these objectives are noted.

A.4.4 Port Development

Section 2.9 of the Development Plan notes that there is likely to be an increasing expansion of the port's import function and a potential recommencement of the port's export function. In this respect, it is argued that the potential of the port is highly dependent on the future development of the Port Access Route.

The port occupies a central position in the town and trucks moving to and from it must currently pass through the town centre. This will however change with the construction of the proposed new Port Relief Road.

A.4.5 Transport Infrastructure

The Development Plan has identified a clear need for an improved transport system within the area. It has acknowledged that the train service is inadequate and more trains are recommended throughout the day and at weekends. In addition, the train station is regarded as being sub-standard with poor availability of car parking, a limited station size and a single railway track, which limits its potential to develop as a Primary Development Centre within the Dublin Region. It is a Development Plan objective to ensure that a new car park is provided to serve the station as part of any development proposals on lands to the north of the station.

The bus service also, according to a recent report, is inadequate as it is not frequent enough for commuters' needs and there is a requirement for a shuttle mini-bus service within the town. Overall, there is a limited choice of alternatives to the car as is evident at peak commuter times where the most recent available Census of Population figures suggested that there are increasing levels of commuting over longer distances.

The Town experiences high levels of congestion from through traffic, traffic accessing the

port and high levels of on-street parking which causes constraints to the development of the town. As a result, the growth of the town, as well as potential investment, is being affected by the accommodation of traffic.

The objectives of the Council within this Plan are to:

- Ensure safe operation and capacity of roads whilst minimizing congestion in the town centre;
- Ensure that all new roads in residential areas are traffic calmed;
- Ensure that developers provide the part of the road network that traverses their new development site;
- Ensure the development of public transport linkages in the area and the development of an improved range of modal choice;
- Implement the provisions of the Wicklow Traffic Study (1998) as they apply to the Wicklow Town area;
- Support the development of the Port Access Route and the Town Relief Route as soon as possible (and to secure lands in the vicinity of the Murrough to provide for access to the Port Relief Route) and to assist all necessary projects without delay given the available funding;
- Provide for bridge over the railway line at Bollarney Murrough to provide access to zoned lands when finances permit;
- Promote the provision of cycleways linking commercial, residential and employment centres within the area and specifically from Wicklow Town to Rathnew.

The Plan has indicated that there is real need for a radical change with regards to transportation within the Town. Reliance on the private car will have to be shifted to public transport.

However, this will not be achieved by implementing only the objectives mentioned above.

The objectives are mainly based on allowing more convenience for the car user. They are advocating the building of new roads, which will inevitably be of benefit to the Town; however, stronger and more specific objectives are required for the development of public transport networks.

Typical transport conscious planning strategies include compact urban fabrics with rich mixtures of uses so that living, working, schooling and leisure can all take place within walking or cycling distance and public transport supportive densities.

A.5 Wicklow Environs, Local Area Plan, 2001

The Wicklow Environs Local Area Plan 2001 was prepared under the provisions of the Planning and Development Act 2000, to provide for the long-term development of Wicklow Town as required by its designation as a Primary Development Centre in the RPPGDA.

The Wicklow Environs Local Area Plan (LAP) notes in Section 1.3 that cognisance has been taken of this Primary Development Centre designation under the RPPGDA, with associated

implications for residential, community, recreational and employment lands.

Population projections contained within the plan are based on the Population Targets and Strategic Development Options Report for Wicklow Environs prepared by CSR. A potential target population in the region of 25,000 + persons, is identified for the area by the year 2016 (22,500 in Wicklow Town, Environs, and Rathnew). It is important to note that this area includes Wicklow Urban District, Wicklow Environs, Rathnew and Ashford, which had a combined population under the 1996 Census of Population of 9,940 persons.

Future housing requirements are identified in the Plan on the following basis. To provide sufficient housing land for the target population of 22,500 (approx. 8,181 dwellings) in the Town, Environs area and Rathnew, it will be necessary to provide approximately 5,700 additional units to the existing housing of some 2,300 units, and allowing for the construction of 200 units since 1996, it is stated that 5,680 units will be required in the future. Taking into account a potential gross density of 20 units per hectare (285 ha.), and a 'market factor' of 1.5, it is stated that 428 ha. of residential land are required to meet the target population.

Action Area	Name	Phase	Vol. Of Res. Land (Acres)	Population Potential ¹	Population Potential ²	Population Potential ³
1	Tinakilly	1	47.5	1567	1829	2613
2	Tinakilly, Merrymeeting, Broomhall	1	57.6	1900	2218	3168
3	Burkeen & Bollarney North	1	40.3	1329	1552	2217
4	Broomhall, Ashtown, Hawkstown Lower	2	135.9	4484	5232	7475
5	Broomhall	1	79.5	2623	3061	4373
6	Ballynerrin, Ballynerrin Lwr, Marlton	1	43.5	1332	1671	2387
7	Ballyguile	1	13.5	445	520	743
8	Dunbur Lower	1	58	1914	2233	3190
9	Tinakilly, Merrymeeting, Broomhall	2	91.5	3019	3523	5033
Lands East of N11		2	27.85	919	1072	1532
Misc. Lands		1	54.3	1719	2091	2987
Total			649.35	21,251	24,500	35,714
Phase 1			394.1	12,829	15,173	21,676
Phase 2			255.25	8,422	9,827	14,039

Table B

The Plan envisages that the majority of this population growth will be accommodated within the Environs area. In this regard, eight areas have been identified for the preparation of Action Area Plans to provide for the expansion of the town in an orderly manner. It is envisaged that only 'Phase 1' lands will be developed within the life of the Development Plan.

With the postponement of the 2001 Census of Population, population growth has been estimated using preliminary figures from the re-arranged 2002 Census, along with the consideration of around 200 house completions, to be about 670 persons since 1996.

In this context, it is also pertinent to refer to section 3.12 of the Development Plan which states that "the precise locations of each land use zone in this Action Area is illustrative only, and subject to a proper planning study, and conformance with proper planning and development. The location of any land use may be shifted within an Action Plan (or enter another Action Area)".

A fundamental element of the plan that departs markedly from previous statutory plans applying to the area is the proposed coalescence of Wicklow and Rathnew.

A.5.1 Employment

The sustainable development of Wicklow Town cannot be met purely through its function as a residential centre. The identification of employment and enterprise lands is fundamental to the potential future diversity and wealth of Wicklow. 121.5 hectares of employment generating lands have been identified in total. An additional site is also proposed as an option zoning to allow for the development of stand alone industrial / enterprise activity at the proposed Ballynabarney Interchange.

A.5.2 Retail

Having regard to the provision of the Greater Dublin Area Retail Planning Strategy (GDARPS) and the expenditure figures contained therein, it is argued that retail convenience facilities in Wicklow Town are over trading and that additional space is necessary.

Therefore it is suggested that there is an immediate shortfall of 1,400 sq.m., and that by 2006, should population growth and development within the plan area continue with associated retail development, that an additional 3,000 sq.m. of floor space will be required.

It is submitted that this level of retail floor space of over 5,000 sq.m., is in accordance with the designation of Wicklow as a PDC. However, the decisions over the location of this space will be fundamental to the development of the town over the long term, particularly in the context of a land use and transportation study, and movement patterns within the town. A very small area of the town centre has been zoned for commercial purposes. This is unsupportive of the objective to maintain retail in this location.

It is also noted in section 4.3 that while referring to a need for local shops to service lands where new residential areas are being developed, the stated policy is to restrict their size to 100 sq.m. This is in order to discourage the construction of large out of town centres which would be detrimental to the vitality and viability of the existing town centre. The vitality and viability of new neighbourhoods is likely to require facilitation of as diverse a range of local services as possible.

A.5.6 Transport Infrastructure

This existing Plan is very similar to the Wicklow Town Development Plan 2001 with regards to the analysis of transportation issues. It also has regarded the existing transportation system within the Town as inadequate. The train service is acknowledged as being generally inadequate and more trains are required throughout the day and at weekends. The train station itself is regarded as being of sub-standard with poor availability of car parking and a limited station size.

The bus service is also identified as being inadequate, as it is not frequent enough for commuters' needs and there is also a requirement for a shuttle mini-bus service. Additional bus services are provided within the town as provision for schools buses. An objective of the Plan is for the Council to

establish a local bus service and identify a bus station. Likewise, the upgrading of the existing train station will be necessary with the provision of new car parking and pedestrian access to the north of the rail line.

The Plan also realises that there is a limited choice in alternatives to the car as is evident at peak time commuter traffic. It is foreseen that for the future of the Plan area, it is of immediate importance to develop the Port Access Route and Town Relief Route. The development of the Port Relief Route is seen as essential for providing access to the port area and in relieving pressures on the town centre due to the poor movement of traffic through it. The Town Relief Route will help to relieve traffic pressures and facilitate the development of lands.

As part of the Wicklow Traffic Study the following proposals were recommended:

- Town gateway at the northern entry to Wicklow Town;
- A pedestrian crossing on the Rockey Road;
- New footpaths to Friarshill and Rockey Road;
- A shuttle bus service;
- Port Relief Road;
- Town Relief Road;

The Plan Objectives include:

- Traffic calm all residential roads;
- Developers to provide for roads that traverse their site;
- Council will facilitate the development of public transport linkages, particularly for rail passengers;
- Implement provisions of 1999 Wicklow Traffic Study;
- Complete road schemes;

- Reserve lands for road schemes;
- Provide for a bridge over the railway line at Bollarney Murrough;
- Promote the development of cycleway provisions linking commercial, residential and employment centres within the area and specifically from Wicklow Town to Rathnew.

The above objectives are very similar to those proposed in the Wicklow Town Development Plan 2001. This area is inherently associated with Wicklow Town and should be planned for in accordance with this.

(The objective in the Plan proposing that the Council establish a local bus service and identify a bus station is a proactive stance in the promotion of public transport). The promotion of pedestrian and cycle facilities as recommended in the Wicklow Traffic Study and again in this Plan will be a positive step forward in contributing to the encouragement of more specific alternatives to private car usage. The development of the Port Access Route and Town Relief Route will contribute to the reduction of traffic pressures in the town centre. These new roads should also be constructed with future public transport developments, park and ride facilities, major transport nodes and pedestrian and cycle routes in mind.

A.6 Development Principles

Section 28 of the Planning and Development Act, 2000, requires that planning authorities shall have regard to Ministerial Guidelines in the performance of their functions. It is therefore pertinent to refer to relevant government guidance, with implications for this study.

A.7 Regional Planning Guidelines for the Greater Dublin Area

The preparation of the RPPGDA was seen as a sustainable development initiative in itself. The following sustainable development principles are held to be of particular importance:

- Land-use and transportation planning are to be more closely co-ordinated;
- The zoning of land will not necessarily imply the servicing of these lands;
- Planning strategies and policies will be expected to achieve a reduction in the growth demand for transport;
- Planning Strategies and policies will be expected to achieve a clearer demarcation between urban and rural land uses than at present;
- There will be increasing emphasis in the future on the transportation alternatives to the private car, with particular attention given to the rail network.

The following are the Primary Development Principles;

- To plan for the greatest level of reasonable predicted growth; and
- To include sufficient flexibility in the strategy to permit adjustment to lower levels.

With regard to residential density, the Guidelines highlight:

- The aim to reduce the need to develop green field sites, urban sprawl and ribbon development;
- Reduced need for investment in new infrastructure;
- Better access to existing services and facilities; and
- More sustainable commuting patterns.

A.8 Residential Density Guidelines for Planning Authorities, 1999

In general, Development Plans should give specific recognition to the importance of achieving higher residential density in appropriate areas such as 'brownfield' sites, sites in proximity to town centres or public transport corridors in the interest of

providing a more sustainable residential pattern. Planning authorities should also review their policies in relation to densities permitted in 'greenfield' developments.

It is stated that the most efficient use should be made of zoned and serviced lands by the avoidance of inefficient low density development in order to prevent urban sprawl and promote efficiency in the use of energy, transport and natural resources. Efficiency in land usage will be achieved by providing net residential densities in the general range of 35-50 dwellings per hectare (14-20 per acre). This departs somewhat from the Wicklow County Council Development Plan, 1999, which refers to a maximum gross density 20 house per hectare (8 per acre), and a maximum gross density for terraced housing of 25 per hectare (10 per acre). The Plan was subsequently varied on September 2001 to allow for densities of no greater than the equivalent of 28 houses of 125m² per hectare for new residential developments in Wicklow Environs.

The variation also states that "In certain circumstances, (such as brown field sites in urban areas, sites in proximity to town centres adjacent to public transport nodes and access nodes), the maximum density standard may be relaxed, at the discretion of the planning authority, in the interests of good urban design and the proper planning and sustainable infilling within urban areas".

A.9 Wicklow Traffic Study (1999)

A traffic study of Wicklow Town was undertaken by CBP in September 1998. The main intention of this study was to examine the existing situation within Wicklow Town and its surrounding area and look at the possibilities for transport development to ease existing problems and plan for the future. The final report builds upon the work done in the earlier stages of the study and develops highway / traffic proposals plus other traffic management, traffic calming, urban design and traffic engineering proposals.

The study concludes that speed control measures, such as town gateways, should be

introduced as well as school access safety improvements. The report stresses the fact that new footways and pedestrian crossings should be created and junction improvements should be made. It also suggested the implementation of a one-way street system, a parking strategy, the construction of a tourist car park and the associated environmental improvements and finally the enhancement of Market Square, Quayside and The Mall / Main Street. The report also recommends the introduction of a shuttle bus service and the construction of both Town and Port Relief Roads.

A.10 Wicklow and Environs Traffic Study (2001)

A traffic study of the area around Wicklow Town, Rathnew and Ashford was carried out as part of the preparation of draft development plans for Wicklow Town Environs and Rathnew, and Ashford. The principal purpose of the study was to examine the adequacy of the road network to accommodate expected increases in traffic resulting from new development and other growth factors.

The main conclusions of the study were as follows:

- Due to predicted increase of population, it was anticipated that a traffic growth, over and above the level projected in the 1996 N11 Route Option Appraisal Report, in the study area through the period to 2016;
- The additional traffic generated by such expansion would necessitate a combined access strategy for Wicklow Town, involving the existing N11 / R750 corridor and the Rockey Road corridor, with a lesser contribution from the Marlton Road;
- The level of residential development to the west of Wicklow Town would require protection of the movement function on the Town Relief Route;
- The precise arrangement of the R750, Port Access Route and Town Relief Route in the Knockrobin area would require further

investigation to develop a suitable option for subsequent design and implementation;

- The proposed industrial use east of the existing N11 would have relatively direct access to the upgraded N11 via the Ballynabarny Interchange. It does, however, have the potential to lead to significant volumes of east-west movement to Wicklow Town Centre. Depending on the nature and scale of that development, some public transport link may be appropriate;
- The proposed expansion of Wicklow Town presents some opportunities to encourage and facilitate non-car modes. The potential for a single large industrial user on the western edge may offer scope to achieve this together with the development of improved facilities at the station including park and ride. A review of these opportunities should be considered to form a coherent transport plan for all modes.

¹ At 2.75 persons per household and 12 units per acre (as per requirements of the County Council)

² 14 units per acre (as per minimum recommendations of Residential Density Guidelines)

³ 20 units per acre (as per maximum recommendations of Residential Density Guidelines)

Appendix B

Population and Socio Economic Information

Table C: Population Change in Wicklow Town and Environs

Year	Wicklow UD	Environs	Rathnew	Ashford	Total	Growth	% Growth
1981	5,178	163	1,366	N/a	6,707	-	-
1986	5,304	213	1,389	N/a	6,906	-	-
1991	5,847	368	1,496	881 ¹	8,592	-	-
1996	6,416	874	1,437	1,215	9,942	1,350	15,71%
2002	7,007 ²	954 ³	1,569 ⁴	1,327 ⁵	10,857	915	9,2%

Table D: Socio Economic Change - Persons Aged 15 +

Wicklow Town

	1996		1986	
	No.	No. (Male / Female)	No.	No. (Male / Female)
At work	2198	-	1575	-
First Job	67	40 / 27	77	55 / 22
Unemployed	360	248 / 112	250	189 / 61
Student	556	254 / 302	316	155 / 161

Wicklow Rural (Incl. Environs)

	1996		1986	
	No.	No. (Male / Female)	No.	No. (Male / Female)
At work	1070	-	647	-
First Job	47	29 / 18	72	44 / 28
Unemployed	218	162 / 56	142	118 / 24
Student	232	103 / 129	145	62 / 83

Rathnew

	1996		1986	
	No.	No. (Male / Female)	No.	No. (Male / Female)
At work	391	-	317	-
First Job	26	16 / 10	59	36 / 23
Unemployed	161	124 / 37	107	93 / 14
Student	100	47 / 53	59	21 / 38

Ashford

	1996		1986	
	No.	No. (Male / Female)	No.	No. (Male / Female)
At work	381	-	N/a	N/a
First Job	10	4 / 6	N/a	N/a
Unemployed	79	59 / 20	N/a	N/a
Student	99	51 / 48	N/a	N/a

Table E: Students in 15 – 24 Age Group

	1996	1986	% Increase
Wicklow Town	533	314	69 %
Wicklow Rural	223	145	53 %
Rathnew	98	59	66 %
Ashford	98	N/a	N/a

Table F: Classification of Population at Work by Industry

Census of Population 1996

		Agriculture	Mining	Manufacturing	Build. & Cons.	Elec. & Gas	Commerce	Transport	Public Admin.	Prof. Services	Other
Wicklow Town	Total	34	5	351	196	27	531	152	187	442	274
	(M/F Split)	33/1	5/0	266/85	184/12	22/5	295/236	128/24	120/67	144/298	127/147
Wicklow Rural	Total	62	6	204	90	5	249	46	52	191	164
	(M/F Split)	57/5	6/0	135/69	84/6	5/0	157/92	31/15	36/16	69/122	63/101
Rathnew	Total	10	5	121	50	0	70	12	9	45	66
	(M/F Split)	9/1	5/0	75/46	48/2	0/0	44/26	9/3	6/3	12/33	15/51
Ashford	Total	11	1	76	24	6	87	15	21	64	66
	(M/F Split)	8/3	1/0	58/18	23/1	4/2	47/40	13/2	12/9	28/36	26/40

Census of Population 1986

		Agriculture	Mining	Manufacturing	Build. & Cons.	Elec. & Gas	Commerce	Transport	Public Admin.	Prof. Services	Other
Wicklow Town	Total	17	3	372	160	22	337	112	179	275	95
	(M/F Split)	17/0	3/0	299/73	159/1	20/2	214/123	79/33	117/62	99/176	44/51
Wicklow Rural	Total	81	3	166	100	4	120	29	17	65	62
	(M/F Split)	75/6	2/1	105/61	94/6	4/0	84/36	23/6	14/3	27/38	21/41
Rathnew	Total	14	0	119	60	4	51	9	3	21	36
	(M/F Split)	14/0	0/0	70/49	59/1	4/0	31/20	8/1	2/1	3/18	12/24
Ashford	Total	N/a	-	-	-	-	-	-	-	-	-
	(M/F Split)	-	-	-	-	-	-	-	-	-	-

Table G: Occupation

	<i>Census of Population 1986</i>				<i>Census of Population 1996</i>			
	Wickl w Town	Wickl w Rural	Rathnew	Ashford	Wickl w Town	Wickl w Rural	Rathnew	Ashford
Farmers < 30 acres	1	4	0	1	1	4	1	N/a
Farmers 30 - 49 acres	0	0	0	0	0	3	0	N/a
Farmers 50 + acres	1	26	0	0	0	18	0	N/a
Other Agri.	33	45	20	16	16	63	17	N/a
Manufacturing	353	175	109	58	480	232	174	N/a
Building	241	149	98	39	158	101	76	N/a
Clerical	294	107	29	45	279	57	23	N/a
Admin. + Gov. Exec.	227	105	20	44	N/a	N/a	N/a	N/a
Trans.	162	61	28	25	157	54	32	N/a
Sales	369	174	45	58	251	86	36	N/a
Prof.	363	149	21	67	297	63	13	N/a
Services	317	142	80	54	167	74	46	N/a
Other	197	151	102	53	59	34	6	N/a

Table H: Highest Level of Education (Age 15 + who have ceased Full Time Education – 1996 Census of Population Figures available only)

		Upper Secondary	Third Level	Total
Wicklow Town	Male	628	487	1115
	Female	765	475	1240
Wicklow Rural	Male	266	218	484
	Female	312	219	531
Rathnew	Male	79	24	103
	Female	109	30	139
Ashford	Male	106	84	190
	Female	122	82	204
Total		2387	1619	4006

Appendix C

Methodology

The methodology used for the analysis of the land use scenarios has been defined to suit the SATURN[®] modelling suite. This tool was chosen to model the Wicklow and Environs area road network so as to be compatible with the original smaller SATURN model produced by Colin Buchanan and Partners in 1998/9 for the Wicklow Town Traffic study and also, this would be compatible with the DTO Saturn model.

Colin Buchanan and Partners extended, and updated, the existing model to cover Wicklow town and Environs, Rathnew and Ashford. The model represents all but the most minor roads in the study area and it represents the most strategic traffic movements from and through the area, rather than detailed traffic movements within Wicklow town.

The study area was divided into 59 zones based upon the existing development plan for the area. Zones 101 – 117 cover the original 1999 Wicklow Traffic Study area, zones 201 – 228 cover the Wicklow Town environs and Rathnew and zones 301 – 306 cover the town of Ashford. Zones 401 – 408 are external zones, with 408 being in the north towards Dublin City.

The distribution of forecast trips is based on a gravity model. The purpose of the gravity model is to produce future year demand matrices based on forecast land use patterns and transportation strategies. The gravity model consists of a series of linked spreadsheets which produce a demand matrix based on size and density of use of zones, not on the distance from/to them. The model considers the existing make up of each zone, the capacity for growth of particular land uses, and car and non-car mode linkage. The spreadsheets contain detailed demographic and socio-economic data, which are used to determine and control growth within each zone. The model also relies on household interview and roadside interview data.

In spite of the fact that SATURN modelling suite is a car-based tool that doesn't take any account of public transport and non-mechanical modes, it can be used as a comparison tool in order to evaluate different landuse scenarios with several local public transport services.

An additional series of linked spreadsheets have been used to assess the transfer to the local public transport service. This module takes into account the catchment area of each proposed Local Public Transport service. Based on a target transfer of 5% from cars to LPT, the system accommodates only those trips that are possible without change of mode of transport. The LPT module identifies both daily and peak local public transport trips. The peak hour LPT trips are automatically translated into peak hour Saturn trips and then subtracted from those included in the Saturn matrix.

Due to the fact that there are numerous combinations of land use and transportation strategies we carried out a sensitivity analysis of those identified as relevant during the client group meetings. All the results are compared against those results from the base year (2001) and also against the results of the Do-nothing scenarios from 2007 & 2016.

A total of 21 scenarios have been modelled.

- Scenario A (2001): This scenario represents the base year against which the rest of the scenarios will be compared. The based population is around 10,300 people.
- Scenario B1 (2007): This scenario shows the situation in 2007 with a base population of approx. 14,800 people and without provision of local public transport (LPT). No landuse changes have been introduced.
- Scenario B2 (2007): This represents a similar scenario to B1, but with the provision of LPT route A.
- Scenario B3 (2007): Similar as B1, but with the provision of LPT Routes A&B

- Scenario B4 (2007): This scenario is similar to Scenario B3 but concentrates new development alongside LPT routes.
- Scenario C1 (2016): This scenario shows the situation in 2016 with a base population of approx. 26,000 people and without provision of local public transport (LPT). No landuse changes have been introduced.
- Scenario C2 (2016): This represents a similar scenario to C1, but with the provision of LPT route 1.
- Scenario C3 (2016): Similar to C1, but with the provision of LPT Routes A&B.
- Scenario C4 (2016): This scenario represents the situation in 2016 with a transfer of Industrial and Enterprise Development zoning to areas close to both existing and proposed railway stations. The area is served with LPT Routes A&B.
- Scenario C42 (2016): Similar to C4, but with the provision of LPT Routes A & C.
- Scenario C43 (2016): Similar to C4, but with the provision of LPT Routes A & C and transfer of employment trips (10%) in areas close to stations from car to train mode.
- Scenario C5 (2016): This scenario represents the situation in 2016 with the reinforcement of Wicklow Town Centre as a commercial and leisure centre. For that reason the Port Area is developed as a mix of uses zone with 1/3 for high density residential, 1/3 for enterprise development and finally 1/3 for commercial and leisure. The area is served with LPT Routes A&B.
- Scenario C52 (2016): Similar to C5, but with the provision of LPT Routes A & C.
- Scenario C6 (2016): This scenario represents the situation in 2016 with increased density for residential from 20 to 25 units per Ha in low-medium density areas and from 28 to 35 units per Ha in high density areas. Due to the fact that our base population for 2016 is approx. 26,000 people, residential zoning has been concentrated alongside LPT corridors. Areas such as Zone 210 remain undeveloped to compensate for the increase in density. The area is served with LPT Routes A&B.
- Scenario C62 (2016): Similar to C6, but with the provision of LPT Routes A & C.
- Scenario C7 (2016): This scenario represents the situation in 2016 with the creation of a new commercial and leisure area in Zone 209. The area is served with LPT Routes A&B.
- Scenario C72 (2016): Similar to C7, but with the provision of LPT Routes A & C.
- Scenario C8 (2016): This scenario represents the situation in 2016 with a transfer of Industrial and Enterprise Development zoning to areas close to both existing and proposed railway stations. The area is served with LPT Routes A & C and there is a transfer of employment trips (10%) in areas close to stations from car to train mode. Residential density has been changed from 20 to 25 units per Ha in low-medium density areas and from 28 to 35 units per Ha in high density areas. Due to fact that our base population for 2016 is approx. 26,000 people, residential zoning has been concentrated alongside LPT corridors. Areas such as Zone 210 remain undeveloped to compensate for the increase in density. This scenario also includes the creation of a new commercial and leisure area in Zone 209. The area is served with LPT Routes A&B.
- Scenario C82 (2016): Similar to C8, but with the provision of LPT Routes A & C.
- Scenario C9 (2016): This scenario represents the situation in 2016 with a transfer of Industrial and Enterprise Development zoning to areas close to both

existing and proposed railway stations. The area is served with LPT Routes A & C and there is a transfer of employment trips (10%) in areas close to stations from car to train mode. Residential density has been changed from 20 to 25 units per Ha in low-medium density areas and from 28 to 35 units per Ha in high density areas. Due to the fact that our base population for 2016 is approx. 26,000 people, residential zoning has been concentrated alongside LPT corridors. Areas such as Area 210 remain undeveloped to compensate for the increase in density. This scenario also includes the reinforcement of Wicklow Town Centre as a commercial and leisure centre. For this reason the Port Area is developed as a mix of uses zone with 1/3 for high density residential, 1/3 for enterprise development and finally 1/3 for commercial and leisure. The area is served with LPT Routes A&B.

- Scenario C92 (2016): Similar as C9, but with the provision of LPT Routes A & C.

In order to compare the different scenarios three main parameters derived from the SATURN model outputs have been used.

- TTP (Travel Time / Population): This parameter is the result of dividing the total travel time by the forecast population.
- TDP (Travel Distance / Population): This parameter is the result of dividing the total travel distance by the forecast population.
- FCP (Fuel Consumption / Population): This parameter is the result of dividing the total fuel consumption by the forecast population.

All these parameters are compared to the base-year ones and to those of the do-nothing scenarios for the years 2007 and 2016.

Scenario Results

(See tables I, J and K on the following pages)

Year	2001	2007				2016					
Land Use Changes						No change	No Change	No Change	Transfer of Industrial & ED close to both railway stations		
LPT Routes						Without Public transport	Route 1	Routes 1&2	Route 1	Routes 1&2	Routes 1&2 + 10% transfer to train
Scenario	A	B1	B2	B3	B4	C1	C2	C3	C4	C42	C43
Population	10329	14780	14780	14780	14812	25977	25977	25977	25979	25979	25979
Transient Queues (pcu hrs)	3	51	49	49	51	126	124	123	131	129	125
Over-capacity queues (pcu hrs)	0	82	64	70	82	378	365	351	525	495	472
Link cruise time (pcu hrs)	124	352	351	349	352	522	517	512	531	527	513
Free Flow (pcu hrs)	124	351	350	348	351	513	508	503	524	520	508
Delays (pcu hrs)	0	1	1	1	1	9	9	9	7	7	4
Total Travel Time (pcu hrs)	127	485	464	468	485	1027	1006	986	1188	1151	1110
Travel Distance Kms (pcu kms)	4750	16884	16844	16755	16894	24226	23968	23717	24878	24647	24174
Overall Average Speed (km/h)	37.4	34.8	36.3	35.8	34.9	23.6	23.8	24.1	20.9	21.4	21.8
Fuel Consumption (litres)	340	1471	1444	1443	1471	2647	2602	2561	2884	2822	2752
TTP (Travel Time / Population)	0.012	0.033	0.031	0.032	0.033	0.040	0.039	0.038	0.046	0.044	0.043
TTP(year) / TTP (2001)	1	2.7	2.5	2.6	2.7	3.2	3.1	3.1	3.7	3.6	3.5
TTP(year) / TTP (2007 or 2016))			-4%	-4%	0%		-2%	-4%	16%	12%	8%
TDP (Travel Dist. / Population)	0.460	1.142	1.140	1.134	1.141	0.933	0.923	0.913	0.958	0.949	0.931
TDP(year) / TDP (2001)	1	2.5	2.5	2.5	2.5	2.0	2.0	2.0	2.1	2.1	2.0
TDP(year) / TDP (2007 or 2016))		0%	0%	-1%	0%		-1%	-2%	3%	2%	0%
FCP (Fuel Cons. / Population)	0.080	0.100	0.098	0.098	0.099	0.102	0.100	0.099	0.111	0.109	0.106
FCP(year) / FCP (2001)	1	1.2	1.2	1.2	1.2	1.3	1.3	1.2	1.4	1.4	1.3
FCP(year) / FCP (2007 or 2016))		0%	-2%	-2%	0%		-2%	-3%	9%	7%	4%
Effective LPT Trips (Daily)	0	0	953	1628	1729	0	1223	2628	1470	2901	2901
Effective Peak LPT Trips	0	0	90	157	171	0	120	258	141	295	295
Daily Trips / population	0.000	0.000	0.064	0.110	0.117	0.000	0.047	0.101	0.057	0.112	0.112
LPT mode share	0%	0%	2.0%	3.4%	3.6%	0%	1.5%	3.1%	1.7%	3.4%	3.4%
Coverage (Total)	0	0%	55%	59%	60%	0%	48%	69%	54%	70%	70%
Coverage (Peak)	0	0%	33%	37%	39	0%	31%	44%	34%	46%	46%
Travel Time	1	2.7	2.5	2.6	2.7	3.2	3.1	3.1	3.7	3.6	3.5
Distance	1	2.5	2.5	2.5	2.5	2.0	2.0	2.0	2.1	2.1	2.0
Fuel Consumption	1	1.2	1.2	1.2	1.2	1.3	1.3	1.2	1.4	1.4	1.3
Local Bus Trips (daily)	0	0	953	1628	1729	0	1223	2628	1470	2901	2901
Local Bus Mode Share	0.0%	0.0%	2.0%	3.4%	3.6%	0.0%	1.5%	3.1%	1.7%	3.4%	3.4%

Table I. Scenario Results (1/3)

Year	20			
Land Use Changes	Reinforcement of Wicklow town as a Commercial & Leisure Centre		Increase of Density for Residential + concentration of development along LPT	
LPT Routes	Route 1	Routes 1&2	Route 1	Routes 1&2
Scenario	C5	C52	C6	C62

Table J. Scenario Results (2/3)

Year	2001	2007				2016					
Land Use Changes						No change	No Change	No Change	Transfer of Industrial & ED close to both railway stations		
LPT Routes						Without Public transport	Route 1	Routes 1&2	Route 1	Routes 1&2	Routes 1&2 + 10% transfer to train
Scenario	A	B1	B2	B3	B4	C1	C2	C3	C4	C42	C43
Population	10329	14780	14780	14780	14812	25977	25977	25977	25979	25979	25979
Transient Queues (pcu hrs)	3	51	49	49	51	126	124	123	131	129	125
Over-capacity queues (pcu hrs)	0	82	64	70	82	378	365	351	525	495	472
Link cruise time (pcu hrs)	124	352	351	349	352	522	517	512	531	527	513
Free Flow (pcu hrs)	124	351	350	348	351	513	508	503	524	520	508
Delays (pcu hrs)	0	1	1	1	1	9	9	9	7	7	4
Total Travel Time (pcu hrs)	127	485	464	468	485	1027	1006	986	1188	1151	1110
Travel Distance Kms (pcu kms)	4750	16884	16844	16755	16894	24226	23968	23717	24878	24647	24174
Overall Average Speed (km/h)	37.4	34.8	36.3	35.8	34.9	23.6	23.8	24.1	20.9	21.4	21.8
Fuel Consumption (litres)	340	1471	1444	1443	1471	2647	2602	2561	2884	2822	2752
TTP (Travel Time / Population)	0.012	0.033	0.031	0.032	0.033	0.040	0.039	0.038	0.046	0.044	0.043
TTP(year) / TTP (2001)	1	2.7	2.5	2.6	2.7	3.2	3.1	3.1	3.7	3.6	3.5
TTP(year) / TTP (2007 or 2016))			-4%	-4%	0%		-2%	-4%	16%	12%	8%
TDP (Travel Dist. / Population)	0.460	1.142	1.140	1.134	1.141	0.933	0.923	0.913	0.958	0.949	0.931
TDP(year) / TDP (2001)	1	2.5	2.5	2.5	2.5	2.0	2.0	2.0	2.1	2.1	2.0
TDP(year) / TDP (2007 or 2016))		0%	0%	-1%	0%		-1%	-2%	3%	2%	0%
FCP (Fuel Cons. / Population)	0.080	0.100	0.098	0.098	0.099	0.102	0.100	0.099	0.111	0.109	0.106
FCP(year) / FCP (2001)	1	1.2	1.2	1.2	1.2	1.3	1.3	1.2	1.4	1.4	1.3
FCP(year) / FCP (2007 or 2016))		0%	-2%	-2%	0%		-2%	-3%	9%	7%	4%
Effective LPT Trips (Daily)	0	0	953	1628	1729	0	1223	2628	1470	2901	2901
Effective Peak LPT Trips	0	0	90	157	171	0	120	258	141	295	295
Daily Trips / population	0.000	0.000	0.064	0.110	0.117	0.000	0.047	0.101	0.057	0.112	0.112
LPT mode share	0%	0%	2.0%	3.4%	3.6%	0%	1.5%	3.1%	1.7%	3.4%	3.4%
Coverage (Total)	0	0%	55%	59%	60%	0%	48%	69%	54%	70%	70%
Coverage (Peak)	0	0%	33%	37%	39	0%	31%	44%	34%	46%	46%
Travel Time	1	2.7	2.5	2.6	2.7	3.2	3.1	3.1	3.7	3.6	3.5
Distance	1	2.5	2.5	2.5	2.5	2.0	2.0	2.0	2.1	2.1	2.0
Fuel Consumption	1	1.2	1.2	1.2	1.2	1.3	1.3	1.2	1.4	1.4	1.3
Local Bus Trips (daily)	0	0	953	1628	1729	0	1223	2628	1470	2901	2901
Local Bus Mode Share	0.0%	0.0%	2.0%	3.4%	3.6%	0.0%	1.5%	3.1%	1.7%	3.4%	3.4%

Table I. Scenario Results (1/3)

Year	2016								
Land Use Changes	Reinforcement of Wicklow town as a Commercial & Leisure Centre		Increase of Density for Residential + concentration of development along LPT		Additional new Town Centre in area 209		Convenience Centre in area 209	C4 + C6 + C7	
LPT Routes	Route 1	Routes 1&2	Route 1	Routes 1&2	Route 1	Routes 1&2	Routes 1&2	Route 1	Routes 1&2
Scenario	C5	C52	C6	C62	C7	C72	C72 B	C8	C82
Population	25976	25976	25975	25975	25977	25977	25969	25933	25933
Transient Queues (pcu hrs)	129	126	120	114	118	115	114	115	114
Over-capacity queues (pcu hrs)	369	357	396	387	324	320	324	360	347
Link cruise time (pcu hrs)	524	520	522	516	495	492	495	492	486
Free Flow (pcu hrs)	515	510	513	508	485	481	489	490	483
Delays (pcu hrs)	10	10	8	8	11	11	63	3	3
Total Travel Time (pcu hrs)	1022	1002	1037	1017	937	927	933	967	946
Travel Distance Kms (pcu kms)	24272	24040	24301	24027	23197	23013	23059	23419	23135
Overall Average Speed (km/h)	23.7	24.0	23.4	23.6	24.8	24.8	24.7	24.2	24.4
Fuel Consumption (litres)	2646	2605	2652	2607	2479	2451	2455	2541	2501
TTP (Travel Time / Population)	0.039	0.039	0.040	0.039	0.036	0.036	0.036	0.037	0.036
TTP(year) / TTP (2001)	3.2	3.1	3.2	3.2	2.9	2.9	2.9	3.0	3.0
TTP(year) / TTP (2007 or 2016))	0%	-2%	1%	-1%	-9%	-10%	-9%	-6%	-8%
TDP (Travel Dist. / Population)	0.934	0.925	0.936	0.925	0.893	0.886	0.888	0.903	0.892
TDP(year) / TDP (2001)	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	1.9
TDP(year) / TDP (2007 or 2016))	0%	-1%	0%	-1%	-4%	-5%	-5%	-3%	-4%
FCP (Fuel Cons. / Population)	0.102	0.100	0.102	0.100	0.095	0.094	0.095	0.098	0.096
FCP(year) / FCP (2001)	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2
FCP(year) / FCP (2007 or 2016))	0%	-2%	0%	-1%	-6%	-7%	-7%	-4%	-5%
Effective LPT Trips (Daily)	1225	2629	1730	3235	1266	2684	2685	1785	3283
Effective Peak LPT Trips	120	258	172	330	124	264	263	174	334
Daily Trips / population	0.047	0.101	0.067	0.125	0.049	0.103	0.103	0.069	0.127
LPT mode share	1.5%	3.1%	2.1%	3.8%	1.5%	3.2%	3.2%	2.1%	3.9%
Coverage (Total)	48%	69%	54%	71%	50%	70%	69%	55%	71%
Coverage (Peak)	31%	44%	35%	47%	32%	45%	44%	35%	47%
Travel Time	3.2	3.1	3.2	3.2	2.9	2.9	2.9	3.0	3.0
Distance	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	1.9
Fuel Consumption	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2
Local Bus Trips (daily)	1225	2629	1730	3235	1266	2684	2685	1855	3283
Local Bus Mode Share	1.5%	3.1%	2.1%	3.8%	1.5%	3.2%	3.2%	2.1%	3.9%

Table J. Scenario Results (2/3)

Year	2016								
Land Use Changes	C4+ C5 + C6								
LPT Routes	Route 1	Routes 1&2	10% transfer to LPT	15% transfer to LPT	20% transfer to LPT	25% transfer to LPT	30% transfer to LPT	35% transfer to LPT	40% transfer to LPT
Scenario	C9	C92	C92	C92	C92	C92	C92	C92	C92
Population	25961	25961	25961	25961	25961	25961	25961	25961	25961
Transient Queues (pcu hrs)	118	115	107	107	101	97	96	95	94
Over-capacity queues (pcu hrs)	383	350	344	329	317	300	310	310	301
Link cruise time (pcu hrs)	496	489	483	479	459	453	449	446	442
Free Flow (pcu hrs)	494	487	481	476	456	450	446	444	439
Delays (pcu hrs)	3	3	3	3	3	3	3	3	3
Total Travel Time (pcu hrs)	997	954	934	915	877	850	855	851	836
Travel Distance Kms (pcu kms)	23617	23279	22913	22685	22003	21704	21504	21377	21149
Overall Average Speed (km/h)	23.7	24.4	24.5	24.8	25.1	25.5	25.2	25.1	25.3
Fuel Consumption (litres)	2591	2518	2461	2423	2343	2292	2285	2273	2241
TTP (Travel Time / Population)	0.038	0.037	0.036	0.035	0.034	0.033	0.033	0.033	0.032
TTP(year) / TTP (2001)	3.1	3.0	2.9	2.9	2.7	2.7	2.7	2.7	2.6
TTP(year) / TTP (2007 or 2016))	-3%	-7%	-9%	-11%	-15%	-17%	-17%	-17%	-18%
TDP (Travel Dist. / Population)	0.910	0.897	0.883	0.874	0.848	0.836	0.828	0.823	0.815
TDP(year) / TDP (2001)	2.0	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8
TDP(year) / TDP (2007 or 2016))	-2%	-4%	-5%	-6%	-9%	-10%	-11%	-12%	-13%
FCP (Fuel Cons. / Population)	0.100	0.097	0.095	0.093	0.090	0.088	0.088	0.088	0.086
FCP(year) / FCP (2001)	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1
FCP(year) / FCP (2007 or 2016))	-2%	-5%	-7%	-8%	-11%	-13%	-14%	-14%	-15%
Effective LPT Trips (Daily)	1752	3246	5565	7884	10203	12522	14840	17159	19478
Effective Peak LPT Trips	171	331	567	803	1039	1275	1511	1747	1983
Daily Trips / population	0.067	0.125	0.214	0.304	0.393	0.482	0.572	0.661	0.750
LPT mode share	2.1%	3.9%	6.6%	9.4%	12.1%	14.9%	17.6%	20.4%	23.2%
Coverage (Total)	55%	71%	71%	71%	71%	71%	71%	71%	71%
Coverage (Peak)	35%	47%	47%	47%	47%	47%	47%	47%	47%
Travel Time	3.1	3.0	2.9	2.9	2.7	2.7	2.7	2.7	2.6
Distance	2.0	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8
Fuel Consumption	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1
Local Bus Trips (daily)	1820	3246	5565	7884	10203	12522	14840	17159	19478
Local Bus Mode Share	2.1%	3.9%	6.6%	9.4%	12.1%	14.9%	17.6%	20.4%	23.2%

Table K. Scenario Results (3/3)

Appendix D

Summary Of Consultation Events

D.1 Inception Meeting

An inception meeting provided the opportunity for the consultant and client teams to meet; to agree methodology and timetable refinements; to establish key contacts and liaison procedures and to finalise logistical and financial arrangements. Arup Consulting Engineers were present because they were responsible for the design of the Wicklow Town Relief Road and the Port Access Road. Their attendance was agreed at an earlier meeting to discuss the co-ordination of activities of consultants working for WCC on schemes / projects in the Wicklow area. It was also agreed at this meeting that CBP, as framework planners, would carry out the necessary traffic modelling for the Town Relief and the Port Access Roads. Arup Consulting Engineers agreed at the inception meeting to attend the first Framework Plan Steering Group Meeting, to help coordinate efforts.

D.2 Steering Group Meeting (1)

The first steering group meeting began with the consultants making a presentation of their findings since their appointment. This largely consisted of what background information had already been gathered in terms of planning and transportation. The power point presentation began by highlighting the objectives of the study, namely to:

- Examine the Local Area Plans and make recommendations for future zoning objectives;
- Develop a local simulation model, consistent with the DTO model;
- Examine local and county statutory plans with regard to the DTO strategy and the development of local and regional transport models;
- Review existing road proposals;

- Indicate areas suitable for developments with higher densities;
- Indicate distributor level transportation networks for all modes of transport;
- Analyse the internal public transport requirements;
- Identify principles to be applied to the infrastructure below distributor level;
- Identify the key measures required to provide for best traffic management practice;
- Prepare a set of criteria and parameters for mobility management plans;
- Include proposals which inter alia would facilitate rural transport initiatives;
- Recommend a timescale and phasing for the measures proposed; and
- Consult with the major stakeholders.

The information to date was presented under a land use background by CSR and covered such items as population, socio-economic issues, community and access. The content of the relevant development plans to be considered within the Framework Plan were also highlighted.

Following on from the above, CBP then made a presentation on existing transportation background information. This included existing difficulties being experienced by pedestrians and cyclists, public and private transport operators. CBP also presented the findings of a recently completed mobility survey. The main conclusions of the survey being as follows:

- Wicklow Town appeared to be a self contained settlement;
- There is a high reliance on the private car for going to work and shopping;
- Low reliance on private car for going to school;

- Indications of a potentially high modal shift towards walking and public transport if facilities or services were improved; and
- Indications of a potential average / low modal shift towards cycling if facilities or services were improved.

The presentation then went on to explain the relationship between land use and transportation both generally and in the context of Wicklow itself. The interaction between transport infrastructure and the development process was demonstrated with mobility sustainable examples from Curitiba (Brazil), Communications Hill – San Jose (USA) and Mountain View (USA). Locally, the examples of the M11 and the town / port relief routes were considered with potential development pressures as a result of these improvements.

CBP then introduced the possibility of different land use and transportation scenarios, which could be tested through a proven transport modelling process. The model would test different development scenarios with their potential transport implications. These scenarios would see either:

- More development taking place towards Rathnew; or
- More development continuing around Wicklow Town.

After the presentation a discussion took place amongst the attendees. As well as commenting on issues within the presentation, other relevant points were raised. Iarnród Éireann commented that their short-term objective is to provide new rolling stock between Dublin and Wicklow and long term to improve the train service south of Greystones. There were differing views with regards to this with some parties welcoming it by stating that a better service is needed to retain people in the area and that links are required for business and third level education purposes. On the other hand, it was mentioned that better road and rail links will increase commuting to Dublin. It was estimated that a third of employees in Wicklow would commute to Dublin, as higher paid financial jobs are located there.

Higher densities, a mix of uses and permeability were stated as being the essential ingredients for Wicklow to grow in a sustainable manner. Wicklow's hilly topography is suited to lower densities, which is reflected in the development plan policy of determining densities through plot ratio instead of number of households per hectare. Travel requirements could also be reduced through better mix of uses and the provision of new services in tandem with residential provision.

It was also cited that the impermeable nature of the many cul de sac developments in Wicklow is something that should be discouraged. Culs de sac should only be permitted where there is permeability for pedestrians, cyclists and public transport and where long walking distances to bus routes are avoided.

D.3 Dublin Bus Meeting (1)

It was decided that Dublin Bus should be introduced to the Framework Plan process because presently they operate in County Wicklow, north of Wicklow Town, and potentially they could become a major stakeholder in the town itself following bus deregulation. A meeting was arranged between Dublin Bus, the clients and the consultants.

Dublin Bus stated that an off peak service around Wicklow Town and environs could be profitable with the right population levels. For them to operate such a service they would require figures to help develop an argument / business case for the extension of their services to Wicklow Town. CBP need to provide a plan showing the local bus route and to prove that it is economically viable.

CBP then mentioned a proposal for a transport interchange in Rathnew. Rathnew could be a bus interchange initially with the possibility of a train station and park & ride in the future. Dublin Bus are very open to the idea of integration of services with Bus Éireann and both companies already work together elsewhere.

D.4 Client Group Meeting (2)

A meeting was arranged to discuss general progress (including the relief roads), issues and material to be presented to the next Steering Group meeting and progress with how and what should be modelled. CBP's modelling experts have previously run the SATURN model for Wicklow Town for a previous study and were presently updating it for the next steering group meeting. It was also agreed that there should also be a spreadsheet analysis carried out.

Information to be considered for the above exercises included figures on persons employed internally and externally; estimation of transport modes for internally employed; primary school numbers; school bus runs; number of households and average household size.

D.5 Steering Group Meeting (2)

Bus Éireann and Iarnród Éireann said they would forward information on future plans, criteria for investment and requirements for the improvement of services. Bus Éireann also said they would inform CBP about the criteria required to implement a local bus service in Wicklow Town.

CBP were to check the household surveys in relation to areas / housing estates surveyed, to get an indication of ratio of trips originating in old or new developments in relation to Dublin destinations. It was suspected that newer housing would contain greater numbers of commuters.

Wicklow County Council said that they expected a flood of planning application over the next three months and that they would require the Framework Plan advice and guidelines for these applications.

D.6 Client Group Meeting (3)

CBP were to establish local bus options for the next meeting after consultation with their public transport expert. Bus routes would be designed to work in 2002 / 3 and be extendable for the 2016 situation. It was stated that congestion will affect the

local bus service unless measures are put in place for bus priority.

It was agreed that CBP would present their transport interchange strategy at the next Steering Group Meeting. This interchange would satisfy the need to promote intermodality between rail, bus and cars. The reasons for its situation and a schematic plan of services would be presented for comments to the major stakeholders.

Wicklow County Council said that they would provide a list of areas in Wicklow Town, which are under pressure for development, such as Action Areas 2, 3 and 6. It was agreed that the Framework Plan would provide guidance on layout, densities, mobility and scales. The scale of land uses within each zone must be considered to promote a neighbourhood concept.

D.7 Client Group Meeting (Wicklow County Council) (4)

This meeting focused mainly on traffic engineering issues around Wicklow Town, some of which were proposed in the CBP traffic study of 1999. WCC said that they were planning to implement the three gateways on the approach to the town and the redesigning of Market Square, as suggested in the 1999 study.

Some issues were discussed relating to junctions with the proposed town relief road. WCC thought that the Marlton Road junction will be the most attractive to traffic coming into the town off the relief road. They would prefer to see Marlton Road as a traffic route with Rocky Road being used for more local traffic purposes. CBP were to look at the layout and condition of these junctions as well as making an overall assessment of the 1999 Study to see how it relates to the Framework Plan.

D.8 Client Meeting (Wicklow County Council and Arup Consulting Engineers) (5)

This meeting was arranged to discuss the modelling exercises to be completed by CBP for the town and port relief routes. Average Annual Daily

Traffic and generation / assignment figures for certain links and nodes/junctions were discussed.

CBP were also to model the pedestrianisation of the main street and the closing off of Rocky Road from the Town Relief Road.

D.9 Iarnród Éireann Meeting (1)

Meetings were staged between public transport operators, the clients and the CBP's public transport expert. This gave the clients the opportunity to outline what they would like to see happen with regard to public transport in Wicklow and for the consultants to offer advice and extract information for the purpose of the Framework Plan.

Iarnród Éireann stated that they recently had a group meeting with the view to developing a 3 – 4 year programme for the Wicklow line. The current service to Arklow is to be replaced by rail cars (Arrow Service) by Summer 2003. These cars will have a higher capacity of 900 and will be faster than the current service. They are also planning a new service from Wicklow Town, which will leave at around 7am, serve all stations to Bray and then 'skip hop' at major stations to Connolly Station. This would increase capacity by a further 900. The possibility of a shuttle service between Bray and Wicklow Town is also being investigated along with enhanced park and ride facilities at Wicklow Station.

There is an old station at Rathnew about 3 km from Wicklow but the building is now in private ownership. CBP floated the idea of re-opening this station. Iarnród Éireann stated that they no longer build stations but would be willing to work with private developers to construct one. This is a possible option for Rathnew and is to be a presentation topic at the next steering group meeting.

CBP and their public transport expert are to outline the advantages and disadvantages of the various proposals and prepare a presentation sheet highlighting rail options, which are rated from unattractive through to attractive for the next steering group meeting.

D.10 Bus Éireann Meeting (1)

Bus Éireann operate the 133 service to Wicklow Town at present and are investigating the provision of hourly circular services between Wicklow, Bray and Arklow.

CBP presented their proposed round trip bus service, which would be 19km long, would contain 21 / 22 bus stops and would take around one hour to complete the circuit. With a catchment of 400m from each bus stop, the service would cover approximately 80% of the town area. Also included in the proposals is a bus station and preferably, high quality bus stops / shelters with good information. Bus Éireann remarked that a new service would be influenced by "meaty spots" to keep it viable in the short term. Much of the proposed CBP route 2 is in residentially zoned land, which has not yet been built. It was agreed that public transport should be in place in advance of development in order to gain the critical mass required, before the car takes over and new people to the area develop unsustainable habits.

Bus Éireann would be keen to operate around Wicklow if the necessary funding was available for a pilot bus service. They would also welcome input from private operators to feed their services.

D.11 Client Group Meeting (6)

This meeting was arranged to discuss progress to date and items to be included in the forthcoming steering group meeting.

The issue of bus services was the first to be brought up when it was mentioned that there should be a strategy for a local service, a rural service and stronger links to Dublin. There should also be due consideration for both commuter and off peak hours. This could result in the extension of Dublin Bus services as far as Wicklow Town and the introduction of small "Imp" type buses to operate the local service. Again it was agreed that a business case should be prepared for any new bus routes.

The other main issue to be discussed was the idea of a transport interchange in Rathnew. It may

include a strategic park and ride site, the re-establishment of the train station and act as a major bus interchange. CBP agreed to consult with CSR regarding the land use impacts of having such an interchange in Rathnew and produce a brief “pros and cons” report on three different interchange options for the next steering group meeting. One of these options would be having the interchange in Wicklow Town itself.

D.12 Steering Group Meeting (3)

After descriptions of previous meetings with public transport operators to non-attendees, CBP began to explain their proposed transport strategy for the area. It would include:

- An hourly train from Rathnew to connect with the DART at Bray;
- Bus connections between Arklow, Wicklow and Bray and a local bus service for Wicklow Town;
- Transport Interchange at Rathnew.

This information was illustrated in a schematic map produced by CBP to show all present and proposed transport services. Rathnew was chosen for the interchange because of the shortage of land in Wicklow Town, Rathnew's proximity to the M11, park and ride possibilities and the long-term possibility of having a train station. The interchange would also have the advantage of being located near employment and enterprise development zoning in Rathnew. Concern was, however expressed by attendees who thought that the re-establishment of Rathnew station could be at the expense of Wicklow Town station. The interchange would change the relationship between Rathnew and Wicklow Town and any proposals should be in accordance with Forward Planning. A meeting was suggested between WCC and WTC planners, CSR and CBP.

D.13 Planning Meeting (1)

This meeting was intended to review land use issues in Wicklow Town and environs. It was considered important to discuss Action Area 6, which

has been proposed as an alternative retail centre to Wicklow Town centre. The town has the capacity for two more supermarkets but there is little available land within the existing town centre. There is flexibility of zoning within Action Areas and base figures on retail are due which will decide on Action Area 6. This new retail centre will have implications on local public transport as well as its ability to draw traffic from the town relief route. It could result in the creation of a transport triangle between the new centre, Wicklow and Rathnew and is something that should be considered when modelling land use and transportation scenarios.

These scenarios were to be agreed by the clients. This would include an existing development scenario tested to 2007, which would be what the planning authority and CSR expect to be developed within the plan period. A second optimum scenario to 2016 would be tested which would be supportive of a local public transport service. It would see higher development densities and less uptake of land. When developing scenarios to be modelled, access from residential zoning to employment, retail and open space zonings should be considered. The SATURN model would be used to compare the various scenarios.

D.14 Client Group Meeting (7)

The purpose of this meeting was to agree two scenarios to be tested by the Saturn Model. The two scenarios could be called the traditional approach and the high-density approach.

With the traditional approach there will be the assumption that there will be 12-14 houses built per hectare. The constraint in growth will be 22,500, which is the forecasted population for the area in 2016. The idea is to question the build out of land over time with the aforementioned density, until the 22,500 figure is achieved. The phasing of development will be dependent largely on market forces, with the most sought after areas being developed first. The population growth figures will also reflect the growth of employment, retail and schools. Types of employment zoning will then be subdivided depending on what is envisaged in the

plan, i.e. amount of office, warehousing, heavy industry etc. This scenario is the traditional car-based approach, which would be the likely form of development without the Framework Plan.

The high-density approach will test the build out of land with higher densities, to limit the sprawl of the town so as to be supportive of a local public transport system. The phasing of development, on the other hand, will be located around public transport corridors. This will result in the build out of less land and will be the basis of the optimum solution, which the Framework Plan will encourage.

D.15 Final Steering Group Meeting (4)

At this meeting, CBP presented their findings from the different scenarios. Before presenting the findings CBP stressed the need for an adequate review and monitoring process to ensure the success of the framework plan.

The findings were presented and handouts were given out to all attendees. It was explained that for the 2007 scenarios the findings are not of much significance as there is a major bottleneck on the network at Rathnew and within the four different scenarios this bottleneck is the same and basically controls the rest of the network in terms of traffic flow, as it only lets so many vehicles in and out of the area in the peak hour.

The availability of land around the existing station at Wicklow town, was tabled as a possible restriction to the development of this area as an interchange but CBP proposed that the land to the north of the station be used to develop the area.

Two bus routes were proposed with the first having a major impact and the second provides for a better service and larger area but the passenger numbers are not as good as with the first route. CBP pointed out that the first route would serve the 'meaty areas' such as the main street and therefore will get the best rider-ship.

It was highlighted that the various scenarios regarding land uses and transportation options modelled by CBP did not allow for transfers onto

cycling and walking, and the benefits of this change would be additional to the switch to public transport. CBP allowed for an agreed modest estimate of 5% transfer onto public transport.

CBP highlighted that a critical part of the success of the framework plan is that jobs are created in the area before housing. Wicklow town is very self-sustaining at present and there is a need to build on this if the area is to stay self-sustaining in the future.

The issue of a complimentary shopping area in action area 6 was seen to be beneficial to the area in terms of transportation and relieving the town of congestion.

CBP proposed two bus routes with four buses on each route operating from 7am to 10pm six days a week and a skeleton service on Sundays. Bus Eireann consider the predicted bus patronage figures for 2016 as being low and they indicated that the numbers would not sustain a local transport service without outside funding. CBP agreed to meet with Bus Eireann separately and discuss various options and routes.

D.16 Bus Eireann Meeting (2)

CBP met with Bus Eireann again and discussed the routes propose for Wicklow. Bus Eireann indicated that they would prefer to see a pilot bus route tried initially which had a 'demand responsive' element, and this service could be monitored to see how it develops over time. The service could then grow with the town.

Bus Eireann highlighted the need for bus priority measures around the town to aid the bus and also to provide a more reliable service. Bus Eireann believe that it is necessary to monitor a new service in the early days and to develop it and modify it to suit the demands and future development of the relevant areas.

D.17 Other Consultation

CBP met with the private operator of the local service vehicles in Wicklow Town on behalf of local supermarkets, school bus services and disabled

services. The operator has also applied for a licence to run a fixed route around the town and is awaiting the outcome of the application. There would be an hourly services between 7am and 8pm and the whole route would take approximately 50 minutes. It was envisaged that a more regular service would be unviable in the short term. The main deterrent for an efficient bus service is traffic congestion on the main street and the incompatible layout of many housing developments.

CBP also attended a Rural Transport Workshop organised by Fitzpatrick Associates for their clients the Wicklow County Development Board. Quite a lot of attention at this meeting was given to the plight of taxi drivers in the region. At present the county council's metered taxi licences only cover the northern part of the county. There are only pre-booked hackneys in operation in Wicklow Town, many of which chase fares illegally off the street. It was suggested that the council should establish the infrastructure for metered taxis. This would include the extension of licence coverage and the installation of taxi ranks and shelters at areas of high activity.

It was highlighted that certain groups in rural areas were becoming more marginalized and isolated. There are no wheel chair accessible taxis or buses in / around Wicklow Town. Wheelchair users wishing to travel by train must pre-book because of the lack of space. It was also stated that people in most need of rural transport (disabled, elderly and children), would be priced out of using taxis and would have to rely on an infrequent bus service.

The ambulance minibus service was forced to take people from rural areas to hospitals in Dublin because they had no access to transport. Ambulance services are already stretched and the problems are likely to increase with an aging population.

Rural bus pilot schemes have been tried and tested but out of the three schemes only one has survived. It was suggested that lack of information might have forced the other schemes to cease. Bus Éireann claim that they analyse requests from the public but rarely engage in surveys about preferred routes. There are dedicated Department of Education

services for schools only but these buses are rarely utilised between school runs, despite their availability.

Possible Solutions:

- Taxi infrastructure improvements;
- Government subsidised taxis for disabled;
- Public Service Vehicles Officer and consultative group needed;
- Business ventures for transport provision;
- Community initiative for community groups to design optimum routes;
- School bus services used all day;
- Knowledge base of local partnerships should be tapped into;
- Provision of a large database for people to phone in info about their transportation needs;
- Employees' minibus services;
- Regular transport spine that is known about;
- Services for periphery of towns;
- Integrated ticketing policy (including taxis);
- Internet shopping & delivery;
- Mobile libraries, cinemas etc.;
- Local Government co-ordination with Central Government.

Appendix E

Accessibility Guidelines

E.1 General

The concern here is how to design developments that offer people travel choices that are widely accessible and meet the needs of everyone.

Layout is a major influence on how people choose to travel. Over the last 50 years or more the planning of development has been dictated primarily by the geometry of road design, and this has had the effect of encouraging car use, even for journeys which would be much better made by walking or cycling.

To reverse this tendency means designing with all forms of movement in mind, not just the geometry of road layouts. What matters is that, wherever possible, movement on foot, by bicycle or by public transport should be as easy and convenient as using the car. This doesn't mean excluding the car: what is needed is an appropriate balance between traffic and other uses to create attractive, lively, safe and interesting places.

Whether planned or not, all places rely on movement as their lifeblood. This is true for the ordinary back street as it is for the crossroads in a major transport hub. At the most basic level housing cannot function without access and servicing, but the road or street is also a place where people meet and pass the time of day.

Connections

Do good pedestrian routes connect the places where people want to go?

Convenience

Are routes direct, and are crossings easy to use? Do pedestrians have to wait more than 10 seconds to cross roads?

Convivial

Are routes attractive, well lit and safe, and is there variety along the street?

Comfortable

What is the quality and width of the footway, and what obstructions are there?

Conspicuousness

How easy is it to find and follow a route? Are there surface treatments and signs to guide pedestrians?

E.2 Guidelines

This chapter will outline various recommended guidelines, which are intended to improve the pattern of movement and create a more permeable urban form for all modes of transport. Accessibility is something which is quite difficult in Wicklow Town at present. The cul-de-sac nature of many recent housing developments results in an absence in continuity of movement. A journey must always be made to or from the entrance of the cul-de-sac before continuing on to a destination. Cul-de-sacs are also difficult to service by public transport and rarely provide short cut opportunities for pedestrians and cyclists. Not much can be done about the mistakes of the past, but the following accessibility guidelines will result in better movement, permeability and accessibility for pedestrians, cyclists, buses and cars.

In the creation of housing areas the priority should be to establish a sense of place and community, with movement networks used to enhance those qualities. Density, building form and enclosure are the main ingredients in creating developments, which have a clear sense of local identity.

How movement relates to any new development:

- To ensure that the key characteristics of the local context are taken into account from the outset.

- To establish the overall form of the development, based on the density and layout of buildings and spaces
- To show how the layout of roads and streets will contribute to the spatial hierarchy, as well as linking the development to the rest of the locality

In comparison to older development in Wicklow Town, where many commercial facilities are dominated by the vehicle, with parking facilities and delivery requirements receiving priority over the pedestrian/ customer, new commercial development should favour the pedestrian. Commercial and public buildings should have a building line at the back edge of the pavement: it is they rather than the roads, which define the different spaces.

Relationship between roads / streets and spaces – the requirements for the use of cars need not be inimical to the creation of good places, but with care and commitment the requirements can be fitted to suit each particular locality.

The integration of pedestrian and cycle routes into the building fabric is as vital as the relationship between roads and buildings. It is particularly important to ensure that roads are safe, secure and convenient: if they are not, people will feel forced back onto the roads resulting in conflict over the use of road space.



Figure 11.1

Occasionally the appropriate route for a footpath or a cycle track is not the same as for a road. Positive discrimination in favour of direct routes for pedestrians or cyclists has to be built into the plan from the outset because fitting them in later will be difficult if not impossible.

An orthodox cul-de-sac solution should be rejected from the outset, due to being inappropriate to the area. By combining development sites it should be possible to create a through street. (see fig. 11.1)

Lampposts and bollards prevent encroachment of cars over footway.

Pavements with kerbs parallel to the building line help define the urban space.

E.3 Design for ease of walking and cycling

Local facilities bring residents together, reinforce community and discourage car use. So the first component of a movement framework should be the walking distances from the facilities. The quality of the routes is important, especially where there are obstructions such as busy roads or railway lines.

A public realm, which is safe and well cared for, is a good reason to walk. In providing for people on foot the key considerations are:

- The provision of good quality footways



Figure 11.2

- People prefer to walk along streets where they can be seen by drivers, residents and other pedestrians (fig 11.2)
- Footpaths should lead where people want to go, rather than follow a preconceived geometry
- If segregated footpaths are provided, they need to be well connected and overlooked by houses and other buildings
- All measures that slow down traffic help pedestrians feel safer. At junctions the use of raised surfaces and tight radii make it easier for pedestrians to cross
- Footpaths in new development should be positive, direct and barrier free
- Well-designed shared surfaces avoid conflicts of movement yet encourage other activities to take place. To achieve this, subtle variations of material or bold changes of detail are appropriate, depending upon the location;

Successful development depends on good access and connections. The connections between a site and its surroundings are important for even the smallest developments. A site that comes up for development will have existing points of access, but they may not be of the right kind or in the right place.

The contextual analysis that will provide the basis of a movement framework will need to establish:

- How routes from the new site will knit in with the existing infrastructure;
- The provision made for all forms of movement, with positive discrimination in favour of walking, cycling and public transport;
- How the development can benefit the area as a whole, for instance by the extension of a bus route, or a more direct footpath to the neighbouring centre;

- How movement will be provided for at all stages in the development

How people move, particularly on foot, is not just a matter of the simplest and most obvious route, but will be influenced by, for example: variety and interest; safety; light and shade; commercial activity; landscape; noise and pollution. Movement analysis will suggest how these considerations can be added to and improved.

E.4 Better traffic management

Design the layout of buildings and spaces to help control the flow and density of traffic. Signs and add-on traffic calming features should only be relied on as additional measures.

Circulation	Considerations
	Access and mobility
	Walking
	Cycling
	Public transport
	Private vehicles
	Interchanges
	Permeability
	Barriers
	Rights of way

Getting the movement right affects uses and activities, density, security and the impact of the development on neighbouring places. The movement framework concerns the structural aspects of movement

E.5 Connect with the existing network

Direct, attractive connections between key facilities, avoiding dead ends, help create more convenient and comfortable places. An assessment of how best the site can plug into the wider movement networks should aim to provide the maximum number of direct connections to main streets

The more direct the links between main streets, the greater the potential for mixed use (the links do not have to be vehicular)

Towns exist for interaction. They depend upon movement systems – roads, streets, footpaths and public transport routes; the success of a town or new development depends on how well the connections work. The measure of their success is not just their functional performance, but how they contribute to the quality and character of the urban area.

Linking up

New developments need to be clearly linked to existing routes. The more direct links are, the more successful will be the integration of the old and new.

Movement choices

Connections should give people the maximum choice in how to make their journeys, with a presumption in favour of walking, cycling and public transport

A sense of place

Making connections is an essential part of creating a sense of place. This means that roads, streets and the routes for utilities should be designed in response to the local context.

Safe routes for all

Maximising choice in how people move around means creating routes all of which are felt to be safe. Segregated routes for people on foot and cycles are not always the best solution.

The parking problem

Parking needs as much thought as connections. Indeed a poor parking strategy can wreck a scheme.

Appendix F

Plans

Plan 1 – Zoning Map (Wicklow Town Development Plan and Wicklow Environs Local Area Plan).

Plan 2 – Local Simulation Model Zones

Plan 3 – Proposed Zoning Map for Wicklow and Environs (2016)

Plan 4 – Proposed Phased Development

Plan 5 – Proposed Local Public Transport Network and Improvements Required

Plan 6 – Proposed Primary Cycle Network

Plan 7 – Proposed Primary Walking Network

Plan 8 – Proposed Locations for Car Parks and Taxi Ranks