



in association with

McHugh Consultants, Grontmij and O'Connor Sutton Cronin

Land Use, Urban Design and Transportation Framework for Navan



**Navan Town Council
Meath County Council
Dublin Transportation Office**

Final Report

December 2002

LAND USE, URBAN DESIGN AND TRANSPORTATION FRAMEWORK FOR NAVAN

Description:

**Integrated Development Framework for Land Use, Urban Design and
Transportation –Final Report**

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1 INTRODUCTION

1.1 The Study

- 1.1.1 Navan has been identified as a Primary Development Centre in the Strategic Planning Guidelines for the Greater Dublin Area and in the 2001 Development Plan of Meath County Council.
- 1.1.2 The population of Navan is planned to grow from its current level of approximately 22,000 inhabitants to 60,000 by 2020.
- 1.1.3 Meath County Council and Navan Town Council invited consultants to tender for the study.
- 1.1.4 SIAS in association with Grontmij of the Netherlands, McHugh Consultants and O'Connor Sutton Cronin were appointed by Meath County Council to undertake the study in June 2000.
- 1.1.5 The purpose of this report is to present an Integrated Development Framework for Transportation, Land Use and Urban Design for Navan and its Environs.
- 1.1.6 The report intends to set out a framework for the appropriate development of zoned lands in Navan and for the delivery of an improved road and public transport infrastructure which is consistent with the relevant policy guidance documents.
- 1.1.7 This study will identify all these issues and deliver a framework that can be used to determine the implementation and phasing of new development and key transport infrastructure over the development plan horizon.

1.2 Change of National & Regional Context

- 1.2.1 When the Land Use, Urban Design and Transportation Framework for Navan was commenced, it was founded on the basis or assumption that the population of Navan could grow in the long term to 60,000 up to 2020. The Strategic Planning Guidelines for the Greater Dublin Area (SPG's) had been published in 1999 and Navan was designated as a Primary Growth Centre. The SPG's selected Navan as a Primary Growth Centre because of its capacity, in terms of land, water supply and drainage, to accommodate considerable levels of development. The Draft Land Use, Urban Design and Transportation Framework for Navan was developed on this principle.
- 1.2.2 The National Spatial Strategy (NSS) was published in late 2002 and is a 20 year planning framework designed to deliver more balanced social, economic and physical development between regions. The NSS has set a national context for spatial planning to inform regional planning guidelines and strategies including statutory Development Plans. The position of Navan as a 'Primary Growth Centre' in the Greater Dublin Area is reaffirmed in the NSS.
- 1.2.3 However, the NSS places significant emphasis on 'critical mass' or achieving a key threshold of development in terms of scale and function – to further drive development. Primary Growth Centres such as Navan need to aim at a population level that supports self-sustaining growth without undermining the promotion of critical mass in other regions. To this end, an ultimate population horizon of up to 40,000 people is indicated for the Primary Growth Centre in the Greater Dublin Area. This equates to the population horizons indicated for the 'Development Hubs' throughout the State.

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- 1.2.4 The Navan Land Use, Urban Design and Transportation Framework is predicated on the delivery of a rail line from Navan to Dublin at which time, a population of up to 60,000 people can be sustained. The Framework also provides for a 'Interim Scenario' up to 2010 in which there is no rail link to Dublin. In the 'Interim Scenario', the population horizon is approximately 45,000 people. This broadly aligns with the population horizon envisaged in the National Spatial Strategy for Navan.

1.3 Study Background

- 1.3.1 Navan is a town of around 22,000 inhabitants some 30 miles to the north west of Dublin's City centre on the N3 Dublin-Cavan-Donaghal national road. It is County Meath's main urban, commercial and services centre, as well as its County Town.
- 1.3.2 Extreme pressure is being exerted on the Greater Dublin Area for additional housing stock and pressure for development is ever increasing. The availability of land for development and the good water and drainage conditions have determined that Navan was identified in 1999 as a Primary Development Centre in the Strategic Planning Guidelines for the Greater Dublin Area.
- 1.3.3 The Dublin Transportation Office identifies the reinstatement of a Rail connection between Navan and Dublin as one of the measures to be taken under its Strategy document (*Platform for Change*), published in September 2000 and is also an objective of the Strategic Planning Guidelines.

1.4 Report Structure

- 1.4.1 This report is divided into 11 chapters, which include the background information to the study, the concepts taken into account, the objectives set for Navan, the analysis, the specific proposals, as well as the main recommendations.
- 1.4.2 Chapters 1 and 2 present the background to the study and describe the process of consultation carried out. Chapter 3 is a description of the present situation of Navan, in relation to its demographics, economy, traffic conditions, public transport, etc.
- 1.4.3 In Chapter 4, a set of goals for Navan, as well as criteria for its sustainable growth and interconnections with both the national capital and the rural hinterland are presented.
- 1.4.4 The process of assessing and testing the different land use and transportation scenarios for Navan in 2020 is described in Chapter 5.
- 1.4.5 Chapters 6 to 9 describe in detail the preferred scenario. In Chapter 7, the proposals for the road network, public transport, parking and cycle/walking networks are presented. Chapter 8 describes the land use measures proposed as part of the Masterplan. Chapter 9 presents the urban design proposals for Navan, concentrating in areas such as the Town centre, the Rail station area, the areas near the rivers Boyne and Blackwater, and 'gateway' sites for the new Navan.
- 1.4.6 The implementation of the Masterplan is discussed in Chapter 10, as well as its monitoring and review. Key recommendations for all the Masterplan items detailed in Chapters 7, 8 and 9 are listed in Chapter 11.
- 1.4.7 A number of appendices are provided in a separate volume, including the policy framework in which the study was based and a full list of submissions received as part of the Navan Town Council and Navan Environs Development Plan Pre Draft 's review process.
- 1.4.8 The methodology behind the build of the Paramics models, as well as some of its outputs is also included in appendices.

- 1.4.9 Excerpts of a presentation given at an early stage of this study are also in appendices. This outlines the preliminary Transportation, Land Use and Urban Design options put forward by the consultants.

2 STUDY METHODOLOGY

2.1 Overall Study Approach

- 2.1.1 This report adopts an approach in which Land Use, Transportation and Urban Design issues are integrated, forming the guidelines for the future development of Navan in a sustainable manner.
- 2.1.2 Successful Master planning is dependant upon a balanced integration of the above-mentioned issues. The Master Plan should set out clear objectives in the medium and long term, which will inform the shorter-term measures and local planning documents (e.g.: Development Plan, Local Area Plans & Action Area Plans).

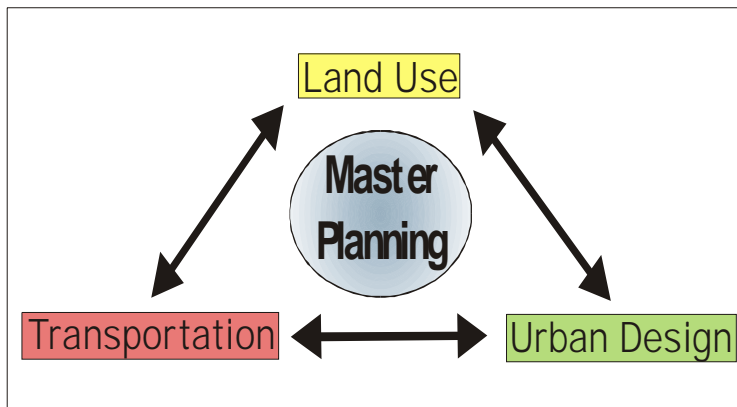


Figure 2.1 : Master Planning Approach

- 2.1.3 In the case of the Navan Masterplan, the agreed horizon year was 2020. The set of measures and major decisions that are proposed in the report take into account a phasing strategy and prioritisation issues, which will enable the Master Plan to be implemented on a phased basis.
- 2.1.4 A Paramics Microsimulation Model of the entire study area was built. In addition to the typical model outputs, Paramics offers state-of-the-art real time visualisation and simulation of specific network improvements.
- 2.1.5 An extensive programme of traffic data collection was undertaken, including origin/destination surveys by roadside interviews. This allowed the development of the base model.
- 2.1.6 A future traffic simulation model for 2020 was then built, including the land use, transportation and infrastructure measures proposed in the Masterplan.
- 2.1.7 Measures to improve the attractiveness of public transport for local and longer distance journeys were an important component of the study.
- 2.1.8 Planning data both current and proposed were analysed, as was the existing zoning in the Development Plan. The urban fabric and structure were also examined to determine how to maximise the attractiveness of Navan as a living environment as it grows to a population of 60,000 inhabitants.
- 2.1.9 The Urban Design principles to be applied both informed and were informed by the Transportation and Land Use elements of the study. Issues such as the diversity and density of the urban structure, as well as the character and opportunity for new development were also addressed as were the environmental and ecological quality of the built environment.

- 2.1.10 The preparation and presentation of the Masterplan was the critical phase of the study, where the focus was put on the development of the preferred land use and transportation strategy that will be required to sustain the development of Navan over the next 15 to 20 years. This involved the pooling of the ideas developed at the workshop, the feedback from the Client and the Steering Group and the quantitative and qualitative analysis work undertaken by the study team.
- 2.1.11 SIAS will also maintain the Paramics Model of the Navan area for a five-year period. This will allow the Client the option of updating the model to reflect the actual developments occurring on the ground or to test any major alterations that are proposed to the Masterplan.

2.2 Consultation

- 2.2.1 The Consultants undertook an extensive programme of consultation, in order to ensure the participation of all the interested parties in the devising of the best strategy for Navan. This process was extremely important in informing the Study Team of the needs and aspirations of different stakeholders, as well as of specific issues and particularities of the town of Navan.
- 2.2.2 A consultation process, which is extended to include public representatives from the community, can be very beneficial to the acceptance of the final Masterplan, for it creates a sense of ownership of the proposals by the different parties involved.
- 2.2.3 During the different phases of this study, the Consultants kept close and frequent contact with different departments within Meath County Council like the Navan Area Planning Department, the Road Design Office and the Total Information System Project Team. Meetings were also held with Farrell Grant Sparks, the consultants commissioned to carry out a study on the Education Strategy for County Meath, the Navan Chamber of Commerce and the Meath Association of An Taisce.

Client Group and Steering Group

- 2.2.4 A number of meetings were held with the Client Group and the Steering Group throughout the whole study, in order to discuss its progress and gauge the acceptability of the broad options for Navan.
- 2.2.5 Meath County Council, Navan Town Council and the Dublin Transportation Office formed the Client Group. The Steering Group included the public transport operators (Bus Eireann and Irish Rail) and the Department of Environment and Local Government, in addition to the Client group.

Elected Representatives of Navan Town Council and County Council (Navan Area)

- 2.2.6 An initial presentation to the elected members of Meath Co. Council was given on Saturday 30th of June 2000 in Bettystown. At this meeting, the consultants presented their views on what this Study should bring to the development of Navan. Some examples of previous studies were given as well as urban planning examples from the UK and the Netherlands. The Paramics model software was briefly introduced, and the output potentials for the study were illustrated.
- 2.2.7 Each of the Councillors expressed their opinions on the strengths and needs of Navan as well as their expectations from such a Study. This was of extreme importance for the study team in order to refine the aims of the Study.
- 2.2.8 A second meeting with the Council members was held at the Navan U.D.C. chamber on the 22nd of November 2000. At this stage, the councillors were already presented with some preliminary land use and transportation options for Navan. The advantages and disadvantages of each one of these were outlined, as well as their implications on the future land use requirements.

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- 2.2.9 These meetings were extremely fruitful and its goals were fully achieved. Many of the key study issues were identified and the councillors' views on the progress of the study and on its desirable results were made clear to the consultants.
- 2.2.10 Further meetings were subsequently held with the local councillors, at which the various strategies were discussed and developed.

Community Groups

- 2.2.11 On the 7th of November 2000, the consultants participated in the Community and Voluntary Groups Forum, held at the Ardboyne Hotel, in Navan. A presentation on the purpose and methodology of this study was given, followed by a session of questions and answers.
- 2.2.12 We believe that these contacts were extremely important in raising awareness for the study, as well as for the study team's own knowledge of the local problems and expectations.

Key Stakeholders

- 2.2.13 Initial contact with the Navan Chamber of Commerce was made on the 26th of September 2000, when the consultants met with the organisation's CEO. Further to this, a formal presentation to members of this organisation was held on the 13th of December 2000, after which the consultants answered a series of questions and learnt about the issues raised by the Navan business community.
- 2.2.14 An advertisement was placed in the local press in June 2001 inviting submissions from all interested parties.
- 2.2.15 Following a further advertisement published by Meath County Council in December in the local press, as part of their preparations for the Navan Town Council and Navan Environs Development Plan review, a large number of submissions were received both by SIAS and by Meath County Council. These were compiled and analysed considering their importance on the devising of the land use and transportation options for Navan.
- 2.2.16 The full list of submissions received as of the 15th of March 2002 is outlined in Appendix C.
- 2.2.17 Some submissions were considered to have a direct influence on the land use, urban design and transportation options for Navan. Meetings were held with the respective submitters to discuss in detail the views on the development of specific areas of Navan, where requested.

2.3 Developing a Shared Vision for Navan

- 2.3.1 For Navan to become a vibrant, attractive and economically successful town with a population of 60,000, it is imperative that the Urban Design structure, Transportation infrastructure and Land Use and Planning are appropriately integrated. It is, therefore not simply a matter of developing the three elements of the study in parallel, but to consciously use transport infrastructure as a positive tool in achieving quality urban design and sustainable urban planning.
- 2.3.2 The study process, therefore, required constant dialogue with the client group, taking on board the views and ideas emanating from the consultation process and sequentially testing various ideas and options until a shared vision for Navan begins to emerge.

3 NAVAN - AN OVERVIEW

3.1 First Impressions

- 3.1.1 The first visits of the study team to Navan resulted in impressions of great development potential. Navan is unique in Ireland in that it can boast excellent ecological and landscape amenities such as the rivers Boyne and Blackwater, alongside the potential to develop a new rail station close to the town centre, linking directly with the Nation's capital.
- 3.1.2 Added to this, Navan is the perfect example of a Market Town, with a thriving commercial core that extends its influence far beyond the Town limits.
- 3.1.3 During the full day workshop, the steering group and study team was asked to describe the present Navan in a couple of key words. The responses clearly identified the challenge in creating a new attractive self-sufficient town with a good quality environment and residential developments, a strong retail character, good employment opportunities and a buoyant local economy.

3.2 Historical Context

- 3.2.1 Navan was one of the first boroughs established by the English in the palatinate of Meath. In the late 12th century, the Nangles, barons of Navan, founded an abbey for Canons Regular of the order of St. Augustine in the town. Navan still maintains some religious buildings from the medieval period, as well as small sections of the medieval defensive wall that surrounded the town centre.
- 3.2.2 However, the most important remnant from that period is the Y-shaped street pattern in the centre (Trimgate Street-Watergate Street-Ludlow Street), which reflects the location of Navan at a crossroads.
- 3.2.3 From its medieval origin, Navan developed as a strong market town. In 1837, Samuel Lewis describes Navan in his *Topographical Dictionary of Ireland* as follows:

"The town is situated in the centre of the county, and at the junction of the rivers Blackwater and Boyne; it consists of three principal streets, from which several smaller branch of in various directions, and contains about 850 houses, many of which are well built; altogether it has a neat, cheerful, and thriving appearance. (...) The chief trade is in provisions, which is extensively carried on with Drogheda. (...) There is also a considerable retail trade with the surrounding districts."



Figure 3.1 : Market Square, Navan, in 1880

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- 3.2.4 During the 1800's and early 1900's, Navan was renowned by its flax, flour and paper mills, which took advantage of the town's location by the confluence of the Boyne and Blackwater rivers. Navan was also an important centre for the manufacturing of sacking and had a considerable sized whiskey distillery.

3.3 Regional Context

- 3.3.1 With a population of 22,000 inhabitants in 2001, Navan is the major urban centre in County Meath. The town is located at the confluence of the rivers Boyne and Blackwater some 40 kilometres from Dublin, on the N3 national primary road.



Figure 3.2 : Location of Navan

- 3.3.2 Another feature of Navan is that, as a provincial town on the edge of Dublin, it has in recent years received housing overspill and population from the Dublin metropolitan area. Much of the new residential development taking place in the town provides housing for people who wish to live in larger or more affordable housing in an area within commuting distance to their places of work within the Dublin metropolitan area.
- 3.3.3 The central location of Navan in County Meath means that its extended hinterland is mainly rural, and includes secondary urban centres like Kells, Athboy, Trim and Dunshauglin. Navan is also located at the edge of the Greater Dublin Area and has the potential to play a role as the gateway to the Northwest of Ireland.
- 3.3.4 Navan is also identified as a Strategic Development Centre in the Strategic Planning Guidelines.

3.4 Study Area Overview

3.4.1 The town is divided in three sectors by the rivers: To the North of the Blackwater are the areas of Silverlawns, Blackcastle, Clonmagadden and Simmonstown; to the East of the Boyne are Athlumney and Johnstown; to the South of the Blackwater and West of the Boyne is the Town centre, the Tara Mines, the Commons, Trim Road and the Dublin Road.

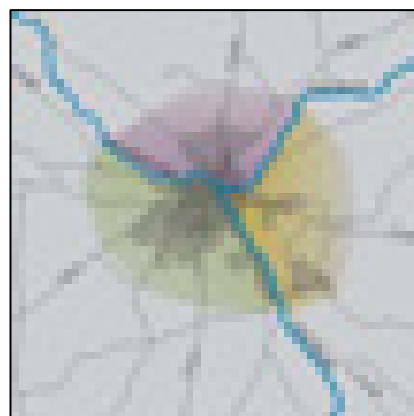


Figure 3.3 : The 3 Sectors of Navan

3.4.2 There are very few connections across these rivers. The N3, running alongside the rivers Boyne and Blackwater, increases the sense of severance between the areas to the North and East and the Town centre.

3.4.3 The river valleys also determine the topography of Navan. In spite of the relatively flat characteristics of most of the area, the deep valleys of the Boyne and the Blackwater at such a short distance from the town centre influence the general perception that Navan is a hilly town.

3.5 Population

3.5.1 The population of County Meath has been growing steadily, as is the national population of Ireland, especially the province of Leinster. These trends can be seen in Table 3.1.

Table 3.1: County, Regional and National Population Trends

	1971	1979	1981	1986	1991	1996	2002
Ireland	2,978,248	3,368,217	3,443,405	3,540,643	3,525,719	3,626,087	3,917,336
Leinster	1,498,140	1,743,861	1,790,521	1,852,649	1,860,949	1,924,702	2,105,449
Meath	71,729	90,715	95,419	103,881	105,370	109,732	133,936

3.5.2 The population of County Meath was recorded as 133,936 persons in 2002. This was a significant 22% increase over the population figure of 109,732 persons recorded in the 1996 census and 86.7% increase over the figure of 71,729 persons recorded in 1971. County Meath was one of the counties that registered the highest rates of population growth over the last 6 years.

3.5.3 An update report of the Strategic Planning Guidelines for the Greater Dublin Area was published in April 2000. This update estimates that a population for the Greater Dublin Area of 1.65 million, originally envisaged for the year 2011 could be reached by 2006.

3.5.4 Population growth in Navan Urban District and Environs has varied over the past 15 years but has showed a marked increase over the last 5 years. From 1986 to 1991 population actually fell from 11,929 to 11,706, a decrease of 2%. This downward trend was reversed by 1996 when the population grew to 12,810, an increase of 9.5% between 1991 and 1996. The current resident population of Navan is estimated at in excess of 22,000.

3.5.5 Based on current patterns and strong demand for housing in the town, Navan, if allowed to, is likely to continue to grow rapidly. Navan has a very high capacity for housing development and for population growth. There is at present significant areas of unused zoned housing land. The ultimate population for Navan considered under this study is 60,000 persons. However, Navan will grow beyond that limit in the future.

3.6 Residential Development

3.6.1 The Town of Navan was, until the mid-nineties, a relatively self-sustaining urban centre, which developed and functioned generally independently of Dublin. Ten years ago, Navan was a market town, which meant that much of the population were employed locally by indigenous retail and industrial employers, as well as by the relatively strong local authority and community services provided.

3.6.2 However, since then, Navan has experienced a substantial growth in resident population due to population overspill from the Greater Dublin Area. Between 1996 and 2002, the population of the town grew from 12,810 to 19,417 inhabitants. However, the 2002 Census figures do not reflect the boundaries of the existing Development Plan envelop. The Planning Authority estimate that the population of Navan is approximately 22,000 people. This level of growth significantly exceeds local natural growth. It has been largely driven by Dublin generated housing demand for which Navan is considered an attractive location due to lower costs compared to Dublin. The town attracts people who wish to live in larger or more affordable housing in an area within commuting distance to their places of work within the Dublin metropolitan area.

3.6.3 The older housing stock in Navan is located relatively close to the town centre with good pedestrian linkages due to the relatively tight street network in the area. As the town grew and areas more remote from the town centre began to be developed, densities became gradually lower as the town developed with more suburban type areas. The recent phases of large-scale residential development, which essentially have been serving Dublin generated demand have been developed at relatively low densities, and are very, much car based. These areas often have poor pedestrian or cycle links to the town centre. Furthermore, these areas have generally been developed with little ancillary services or facilities such as local retail, leisure and child-care and education uses. The lack of such locally available services within the suburban areas often generates unnecessary car-based trips.

3.6.4 Given that many of the residents of these areas commute to the Dublin Metropolitan area for work purposes means that their retail, financial and personal services needs are often served by facilities closer to their workplace.

3.6.5 The lack of relation between the new population and Navan has been enhanced by the pattern of residential development adopted for the last 8 to 10 years. Car-based residential estates built in the edge of the town did little to strengthen the social fabric of Navan, which was quite well established previously.

3.6.6 An example of a suburban area in Navan with little connection or interaction with the town centre is the Johnstown area. The location of this area, with access directly to the N3, combined with its poor linkage to the town centre and its lack of local services and facilities has made Johnstown little more than an outlying suburb of Dublin located in the edge of the town of Navan. The failure to deliver essential community services, such as primary education, in a timely manner makes the community more car-dependent and less sustainable overall.



Figure 3.4 : Johnstown

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- 3.6.7 The predominant residential types recently and currently being added to the Navan housing stock are three and four bedroom detached and semi-detached houses. There is a notably low proportion of smaller dwellings such as one or two bedroom apartments, terrace or duplex units. The pre-dominance of standard suburban three and four bedroom units is reflective of the current demands for housing in the town. The sectors of the population that move to Navan are prepared to commute to Dublin for work purposes given the incentive of being able to afford a less expensive house in Navan.
- 3.6.8 The proportion of recently constructed housing in Navan, which is one or two bedroom units, is relatively low. Demand for such type of housing again generally comes from first time buyers and single people, or from retired people trading down. In Ireland, apartment developments are generally developed at higher densities to standard suburban housing. Thus, apartments are generally located in areas suitable for higher densities such as within or close to town centres, transport corridors or employment opportunities. The ability to walk to work and to necessary services and facilities makes apartment living more attractive. The trend for family apartment living is not established in Ireland the way it is in other European countries.
- 3.6.9 Enhanced employment opportunities would encourage a wider population profile to live and work in Navan. Such an expansion in the profile of the population will require a greater mix of housing types. The provision of smaller units in locations with easy access to the town centre and to a range of services and facilities will also be attractive to retired persons. The quality of the built environment combined with the range of leisure, recreation, health, retail and personal services available within an area will also influence demand for housing from retired persons.

3.7 Retail Development

- 3.7.1 Historically, Navan has been an important retail centre catering for a catchment area that includes the whole of northern and central Meath, as well as parts of Cavan. The town has a vibrant and buoyant retail core, which continues to serve this function. The Blanchardstown Town Centre, which opened in 1996 and is a regional scale shopping centre.
- 3.7.2 The main retail core of the town is formed by Trimgate Street, Ludlow Street and Watergate Street along with the purpose built Navan Shopping Centre. Brews Hill, Railway Street and Flower Hill are secondary retail streets forming extensions of the referred core.
- 3.7.3 The Navan Shopping Centre forms the town's major retail focus. The proximity of the centre to the N3 and the new inner relief route ensures easy vehicular access to the centre for residents of Navan and for those within the surrounding retail catchment to the north and west of the town in particular. There are currently four anchor tenants located within the store.
- 3.7.4 The Shopping Centre, which was opened in 1981 currently, comprises of approximately 14,400 sq.m. of space. The centre was extended in the last ten years, including the addition of a multi-storey car park. The extension to the Tesco supermarket and the construction of the multi storey car park on Kennedy Road is now constructed and open for a number of months.



Figure 3.5 : Navan Shopping Centre

- 3.7.5 The range of retail and service functions provided in the 56 units contained in the centre include convenience goods, clothing, specialist goods, household goods, entertainment services and other financial and personal services. Approximately 65% of the lettable space comprises of comparison goods space, 28% convenience space and 6% services space. There are currently no vacant units within the centre.
- 3.7.6 The numbers of visitors to the centre have been increasing in the last couple of years and reached more than 165,000 in the week before Christmas 2001. In a normal Saturday in October 2001, for example, the number of visitors to the Shopping Centre was recorded in excess of 17,000 people. Thus, the successful operation of the centre and the increased demand is borne out not only by demand for increased space in the last number of years and lack of vacancy, but also by the increases in the numbers of shoppers recorded by the shopping centre management.

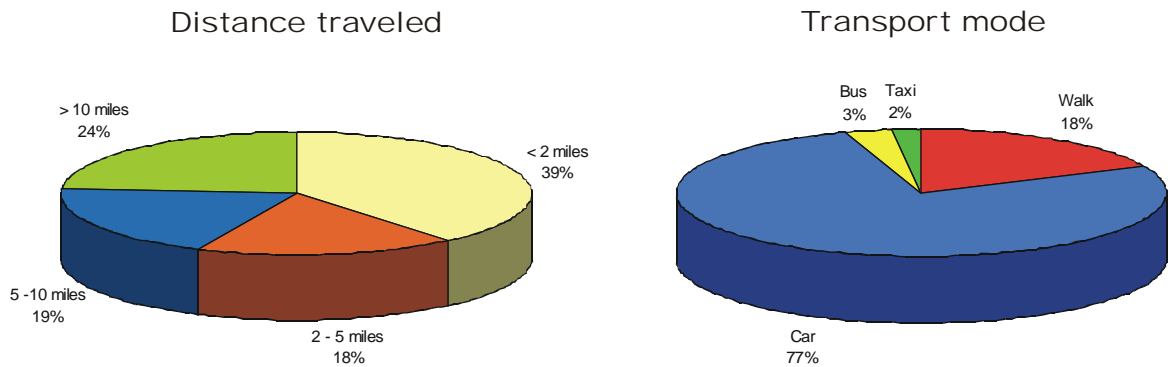


Figure 3.6 : Origin and Transport Mode of Shoppers at Navan Shopping Centre

- 3.7.7 Research carried out by the Navan Shopping Centre management shows its strong regional function. 43% of the visitors come from outside a 5-mile radius from the centre and 24% travel more than 10 miles to get to the Centre. At present, the main transport mode used by shoppers is the private car, at 74%. Less than 6% of the visitors use public transport to access the Shopping Centre, while 18% walk.
- 3.7.8 Although this research was carried out specifically for the Shopping Centre, the pattern will apply to the remaining retail core of Navan.
- 3.7.9 Despite the success of Navan Shopping Centre, Trimgate Street, the main traditional shopping street, hasn't lost any of its commercial strength. On the contrary, Trimgate Street along with Watergate Street and Ludlow Street contain a thriving retail sector that seems to be growing in tandem with the Shopping Centre itself.

Figure 3.7 : Trimgate Street



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- 3.7.10 As would traditionally be the case in old market towns such as Navan, the main streets of the original town centre, Trimgate Street, Ludlow Street and Watergate Street contain a range of commercial uses, including convenience and comparison retail, offices, public houses and restaurants, financial services and personal services. There is limited vacancy or dereliction along these main streets, which indicates the strong demand for town centre commercial and retail space. This vacancy, which does occur, is around Market Square and Ludlow Street.
- 3.7.11 The main shopping streets and indeed the area around the Navan Shopping Centre are dominated by traffic flows and surface parking. Reorganisation and management of traffic and parking in the town centre that is currently underway will further enhance the area's attractiveness for shopping.
- 3.7.12 As mentioned above there are very limited neighbourhood-shopping facilities located in the more suburban residential areas of the town. Essentially, there is one on the south side of the town, Beechmount Shopping Centre located on the Trim Road and there is one on the north side of the town at Blackcastle estate. There is a local/neighbourhood-sized convenience store also located on the Ratholdren Road and another on the Commons Road. Apart from these locations, there are very limited local shops serving the outlying areas of the town. The majority of the local shops serving the outer suburban areas are associated with petrol filling stations. The Johnstown area, a major residential suburb at present, does not have any retail services apart from the very limited services that have traditionally been available in Johnstown village. Meath County Council has addressed this issue, and a significant neighbourhood centre development at Bailis and a smaller local retail development in Johnstown have been granted planning permission.
- 3.7.13 The increased demand for shopping facilities due to the recent and future population increases will provide increased employment opportunities in the sector. In particular, it is noted that there will soon be a need for the provision of a second large supermarket. At the current time a number of potential development sites exist close to the town centre, which could accommodate such an outlet, on both the north and south sides of the town. There will also be pressure to allow out-of-town retailing, particularly when the proposed M3-Navan bypass is complete, which may not be desirable from either a Land Use, Urban Design and Transportation perspective.
- 3.7.14 The Integrated Area Plan for Navan recommends the consolidation of the existing shopping centre, as well as the creation or expansion of 3 neighbourhood centres at Johnstown, Beechmount and Blackcastle.

3.8 Economic Development

A considerable range of activities, including mining, manufacturing, retail and services, provides employment for the Navan population. The relative importance of the manufacturing and mining sectors is shown in Figure 3.8. Irish-owned companies provide most of the employment, being that only 20% of the companies are classified as foreign.

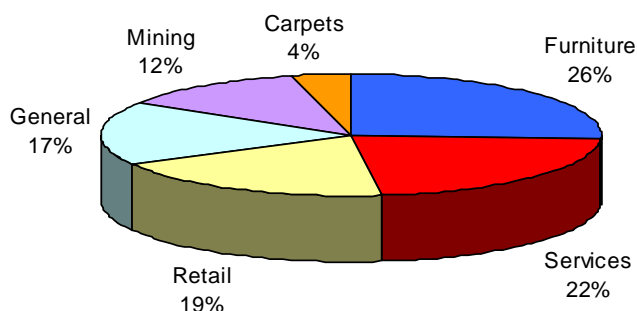


Figure 3.8 Structure of Employment

- 3.8.1 Navan has been experiencing continuing development in the traditional industries such as furniture and carpets. Furniture Manufacturing plays a large part in Navan's economy with approximately 26%, compared to mining with 12%, general manufacturing with 17%, service industry with 22%, carpets 4%, retail and other 19%. The furniture manufacturing sector benefits from Navan's proximity to the large Dublin market and points of export. Up to 80% of all the furniture produced leaves the county mainly for the expanding Dublin market and approximately 10% for the Export Market abroad.
- 3.8.2 The importance of the retail and services sectors to the economy of the town is clear from the fact that over 40% of the actively employed work force is engaged in these sectors.
- 3.8.3 Industry in Navan has been dominated in the last decades by the mining and furniture industries.
- 3.8.4 Tara Mines, employing in the region of 680 people is the single largest private employer in Navan. The zinc mines are the largest in Europe and the totality of its product is exported via Dublin Port. The mines at Navan however do have a finite life and therefore do not present any meaningful opportunity for further employment creation. The large landbank occupied by Tara Mines means that, besides being an important local employer, as the resources become mined out, these lands represent a potentially important development opportunity for the future growth and economic development of Navan.



Figure 3.9 : Tara Mines

- 3.8.5 In relation to foreign direct investment, the I.D.A. has a fully developed 102.5-acre business park at Johnstown. , There is unused capacity of 90 acres for industrial/services development within the Business Park. The Planning Authority estimate that of the 102.5 acres owned by the I.D.A. Ireland, 17 acres are developed including infrastructure and that an additional 16 acres has planning permission for office and light industrial development.

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- 3.8.6 The single biggest gap in the industrial/services sector is office development. Navan has a well-developed town centre, with substantial improvements underway. It has little or no office development, even though land prices are low comparative to Dublin. The advantages of Navan in terms of attracting large-scale office development include its pleasant environment, the short distance from Dublin, the low land prices and existing infrastructural provision. The issues pertaining to accessibility to the national capital is regarded as a factor a factor restraining growth in this sector.
- 3.8.7 The IDA has identified a range of advantages of Navan, which they are promoting in order to attract new businesses to locate within its business park. The advantages of Navan IDA Business Park as identified by the IDA are as follows:
- It is 35 minutes from Dublin Airport
 - It is 40 minutes from Dublin City
 - Navan is designated as a Primary Development Centre
 - Full resources of Dublin within 40 minute commute
 - Attraction of Reverse Commute for Dublin based employees
 - Affordable Housing
 - Road By-Pass of Dunshaughlin/Navan/Kells at Final Planning Stage
 - First Call on 550 graduates from Navan Schools each year (Secondary school population 2,809). Strong education infrastructure in neighbouring towns of Trim, Dunshaughlin, Dunboyne and Kells (approx. 900 combined graduates each year)
 - Universities and 4 Institutes of Technology within 40 minute commute of Navan
 - Administrative Capital of County Meath
 - All of Meath's 131,000 population is within 30 minute commute of Navan (20 mile radius)
 - Major part of Dublin's 1.1 million population is available to Navan
- 3.8.8 In recent years, demand for office space in the Dublin area was high with limited supply compared to demand. Under such circumstances, areas like Navan, which have good links to Dublin, had potential to become attractive alternatives for businesses. However, despite the advantages of the town identified by the IDA above, the low level of office development in Navan to date clearly indicates that there are other factors that have discouraged office development in the town. The office supply situation in Dublin has now changed, and at present there is an existing surplus of office space with further significant developments permitted (but not developed). Thus, attracting office development to Navan will require a range of measures to make Navan a more attractive centre. The proposed rail link to Dublin could be a significant attractor for office development to the town, for example.
- 3.8.9 A draft proposal for the relocation of 10,000 Civil Service jobs outside of Dublin was brought before the Government at the start of 2000. More than 100 towns and their elected representatives lobbied to be chosen as locations for the decentralised Civil Services. However, fewer than 30 towns were likely to be selected. To date, no definite proposals or hard possibilities have been placed before the Government and the decentralisation issue has not progressed since early last year with no sign of any changes in the immediate future.

- 3.8.10 The relocation of Government Departments from Dublin to Navan would bring many benefits to the town. It would allow those Civil Servants anxious to move out of Dublin because of the high rents and house prices to do so, with Navan offering a range of affordable housing in a more relaxed environment. It would help to alleviate traffic congestion within Dublin City, which is almost grinding to a halt and move population out to the town and environs of Navan allowing it to develop as a primary development centre. Decentralisation should be an objective to the town of Navan.
- 3.8.11 There is a range of local employment sources located in Navan including Meath County Council, Navan Shopping Centre and Our Lady's Hospital. General and medical professional services including general medical practitioners and dental surgeons in private practice, accountancy, architectural, legal and recruitment practices are available locally. There are also five banks located within the town. The headquarters of the County Fire Service is located in Navan in addition to the County Library Service, which also houses the Navan Branch providing an excellent service to the town and surrounding areas. The North Eastern Health Board provides a range of health services within Navan also is a notable employer in the town.
- 3.8.12 Whilst the existing service sector employ numerous staff from the Navan area, it is unlikely that that this employment sector will grow significantly other than to meet the needs of the expanding population. This sector will respond to the area's population growth but will not create employment at a level, which will have a significant impact on the strategic role of Navan.
- 3.8.13 In addition to the measures mentioned above, one of the important acknowledged factors that influence the location of business is the quality of the built environment. An improvement in the quality of the physical environment, and thereby the quality of life in a town will make people want to live there (for reasons other than the price of property). The knowledge that employees will want to live in an area will in turn encourage businesses to locate there.
- 3.8.14 Encouragement of a mix of uses in the town centre, in conjunction with physical environmental improvements, will improve the vitality and viability of the town centre, by increasing the level of use at all times – day, evening, weekends. Again, this will further add to the attractiveness of the area as a place to live and work.

- 3.8.15 Despite being located within an extremely rich area, in terms of tourist attractions, Navan doesn't benefit of tourism revenues as one could expect. Within 10 miles in every directions from Navan are visitor attractors such as the 'Bend of the Boyne' and Newgrange, the heritage towns of Kells and Trim, and Tara Hill. These are well frequented by visitors throughout the year.

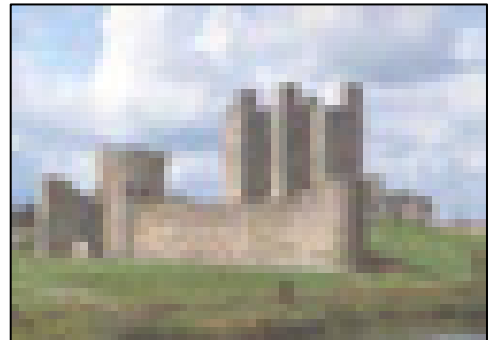


Figure 3.10 : Trim Castle

- 3.8.16 The potential to maximise benefit from the numerous visitors to major attractions in Co. Meath like Newgrange or King John's Castle, Trim hasn't been fulfilled, and income from tourism only accounts for 4% of the Navan economy. Navan is not, at present, operating as a tourist hub, but could be developed to become an important centre in this area.

3.9 Community and Recreational Uses

- 3.9.1 As described above, there are only two neighbourhood centres within Navan town, the Beechmount and Blackcastle centres. The main function of these centres is retail/personal services with very limited additional functions.

3.9.2 Sports and recreational facilities are scattered throughout the town. The main facilities within the built up area of the town are:

- New Leisure Centre with Swimming Pool
- Pairc Tailteann
- Navan O'Mahony's GAA Club
- Navan Rugby Club
- Navan Athletic Club
- Pitch and Putt Grounds

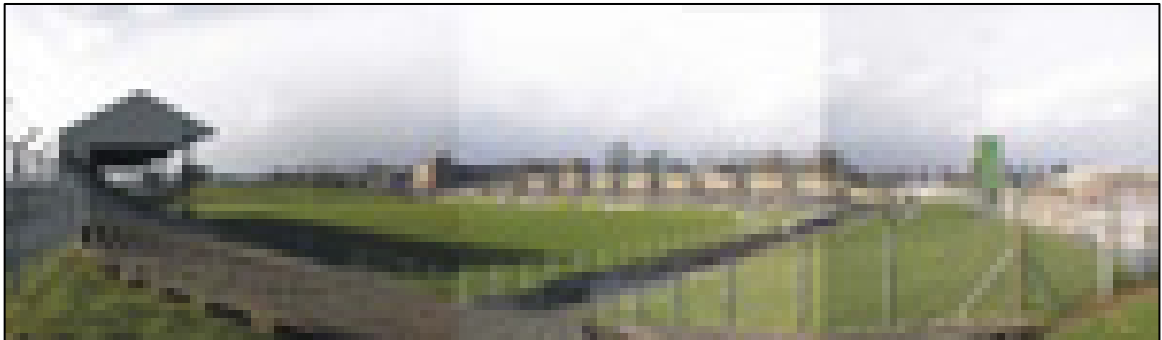


Figure 3.11 : Pairc Tailteann

3.9.3 There are also a number of additional sports/recreational facilities located just outside the development area of Navan. These include:

- Navan Racing Track
- Navan Golf Club
- Royal Tara Golf Course
- Simmonstown Gaels GAA Club
- Walterstown GAA Club
- Bective GAA Club

3.9.4 There is currently a lack of public open space/public parks within the town of Navan. The area of the Ramparts along the Boyne River and canal is an important amenity, which currently is not used to its maximum potential. Meath County Council have also purchased 90 acres of land in the north-western sector of the town to be developed as a town park. The Fair Green area, which is currently used for car-parking purposes, has potential to be developed to incorporate some public open space. This area, as well as the Kennedy Road, has an Architectural Framework Plan undergoing, which is addressing issues related to urban design and quality of the public space.

3.10 Education

3.10.1 There are approximately 22 primary/national schools within Navan and the surrounding areas. Currently, these schools accommodate approximately 3,600 students. Of these, there are 10 national schools located within/adjoining the development boundary of the current Navan Environs Development Plan in which a total of approximately 2,600 students are enrolled. These are as follows:

- St. Oliver Plunkett's, Blackcastle

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- St. Paul's, Ratholdren Road
- St. Anne's, Fairgreen
- Flowerfield National School, Trim Road
- St. Joseph's, Abbey Road
- Scoil Mhuire, Abbey Road
- Scoil Eanna, Abbey Road
- St. Ultan's Special School, Flowerhill
- Cannistown National School, Cannistown
- St. Stephen's Special School, Johnstown & Athlumney

3.10.2 At present there are 5 post-primary schools within Navan. Demand for places within these schools derives from the town itself and the surrounding areas. The schools which currently accommodate approximately 2,600 students are as follows:

- St. Patrick's Classical School, Moatlands, Navan, Co. Meath
- St. Joseph's Secondary School, Mercy Convent, Navan, Co. Meath
- Loreto Secondary School, St. Michaels, Navan, Co. Meath
- The Ability Secondary School, Carriage Road, Navan, Co. Meath
- Beaufort College, Trim Road, Navan, Co. Meath

3.10.3 With the exception of the Loreto Secondary School, all of these schools are located within the southern sector of the town. The Loreto Secondary School is within the eastern sector of the town. There are no secondary schools located on the northern side of the town. Thus, the schools are generally located within the older more established parts of the town. As the residential component of the town expanded and the town became suburbanised, post-primary educational facilities were not provided for within new development areas. This has led to unnecessarily long journeys to school and also leads to an increase in the number of pupils being dropped off and collected at school by private car.

3.11 Health

3.11.1 There is a range of health services provided by the North Eastern Health Board within the Navan Area. Services available at Our Lady's Hospital, Athboy Road are medical, surgical, orthopaedic, intensive care, out patients, casualty, diagnostic services (radiology, pathology) and psychiatric. Mental Health services are also provided at the Tain Day Centre at the County Infirmary located at the Fair Green, and at Clonard House, which offers out-patient psychiatric services, family therapy, alcohol counselling and behavioural therapy.

3.11.2 Community Services available within the Navan area include respite and convalescent services for elderly at the County Infirmary, a day centre for the elderly at Athlumney and an Alzheimer day centre at Liscartan, Kells Road. Community Clinics available within the grounds of Our lady's Hospital include speech and language therapy, occupational therapy, physiotherapy, psychology, public health nursing, area medical service and nutrition/dietetics.

3.11.3 Health services for persons with disabilities include a respite unit at Commons Road for people with physically disabilities, a residential unit at Commons Road for people with learning disabilities, a child special care unit at Athlumney, an Adult day unit at Commons Road and the County Meath Sheltered Workshop at the Beechmount Industrial Estate.

3.11.4 Orthodontic and Dental services are available at Our Lady's Hospital. There are approximately 11 General Medical Practitioners located throughout the town.

3.11.5 The North Eastern Health Board is currently planning to replace the existing County Infirmary and Tain Day Centre at the Fair Green with a new purpose built facility located at Our Lady’s Hospital, Athboy Road. The health board also has long-term plans to develop a new health centre in the Johnstown/Athlumney area.

3.12 Traffic Conditions and Travel Patterns

3.12.1 As most of the towns in the Greater Dublin Area, Navan has a strong element of commuter traffic to Dublin. However, due to its strong retail character, Navan has an evenly spread traffic profile. As we can see in Figure 3.12, there is a midday peak, which is related to internal shopping trips, in opposition to the two normal peaks in the AM and PM.

3.12.2 In terms of traffic volumes, the surveys undertaken by SIAS in October 2001 show considerable figures for some of the links within Navan. The Dublin Road (N3) is the busiest of the links, with almost 20,000 vehicles registered on a 12-hour count.

3.12.3 Somewhat surprising are the added traffic volumes on Flower Hill and the Inner Relief Road (both one-way links), which account for more than 20,000 vehicles. This reveals the importance of the traffic from the northern sector of Navan, and as a consequence, of the junctions between these roads and the N3.

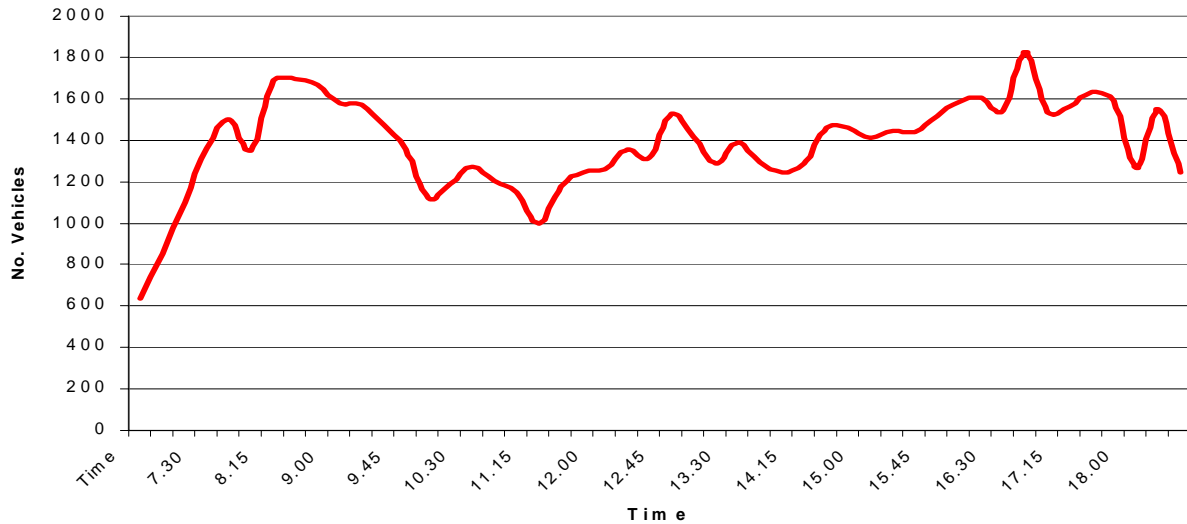


Figure 3.12 : Present Traffic Profile of Navan (midweek in October 2001)

3.12.4 Figure 3.13 shows the 12-hour traffic volumes at some key links in Navan. The figures are from midweek surveys undertaken by SIAS in October 2001.

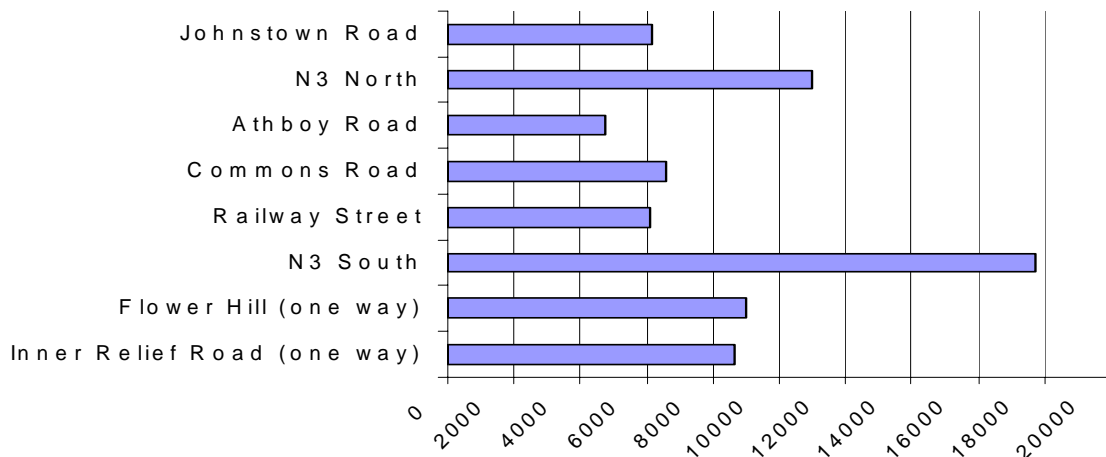


Figure 3.13 : 12-hour Traffic Flows

- 3.12.5 Navan is bisected by the N3, which is a national primary route. This means that national and regional traffic play an important part in the definition of the traffic patterns in Navan, as well as in creating the existing congestion problems.
- 3.12.6 In fact, Origin and Destination surveys done by roadside interviews revealed that around one third of the traffic on the N3 is actually through traffic, as can be seen in Figure 3.14.

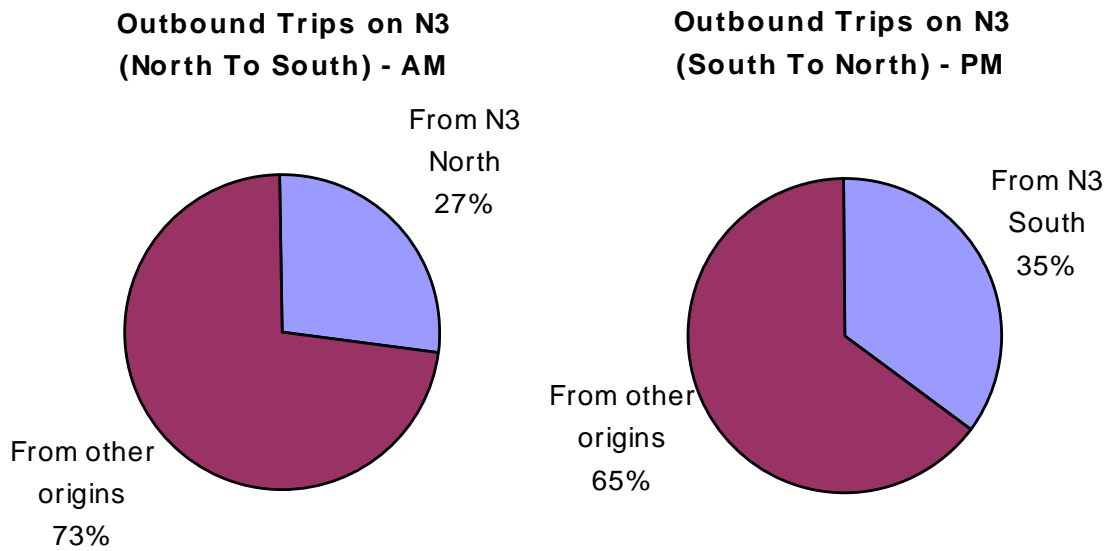


Figure 3.14 : Through-Traffic on N3

- 3.12.7 The Origin and Destination surveys also give an indication of the journey purposes related to the travel patterns in Navan. The most relevant journey purposes in the AM peak in Navan are shown in Figure 3.15.

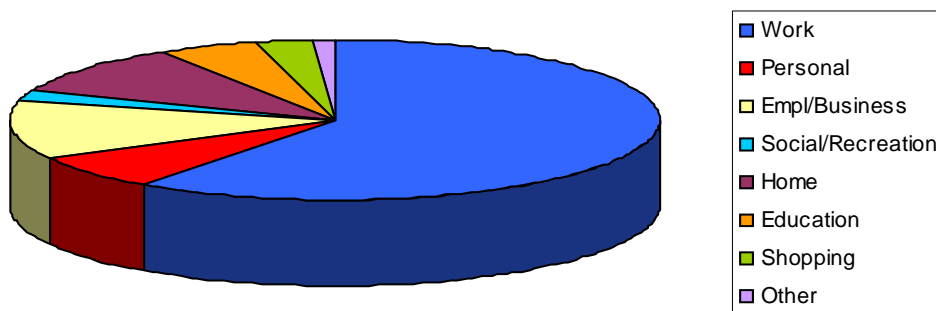


Figure 3.15 : Journey Purposes (AM peak)

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- 3.12.8 In the morning peak, the majority of the trips have work as their destination. Considerable amount of trips while working can be related to school runs.
- 3.12.9 The share of recreational, shopping and personal trips increases throughout the morning and afternoon as trips to work decrease.
- 3.12.10 The evening peak pattern is quite similar to the one of the morning period, but the work bound trips are replaced by homebound trips.

3.13 Public Transport

- 3.13.1 The main public transport services in Navan are related to the demand for commuter trips towards Dublin. Bus Eireann operates a quite intensive service with 15 buses in the AM peak, transporting 900 passengers in the Kells-Navan-Dunshauglin route. Although there is no breakdown available for trips from Navan only, Bus Eireann estimates that Navan accounts for around 2/3 of the overall passengers in this route. Further to these direct services, 2 Bus Eireann buses per day link Navan to Dublin, via Kentstown and Ashbourne.
- 3.13.2 Private companies also operate commuter services to Dublin and, although there are no available figures for these, we estimate that the total number of public transport trips between Navan and Dublin is in excess of 1,200 in the morning at present.
- 3.13.3 Other destinations with services operated by Bus Eireann, include Drogheda (7 services/day both ways), Trim (2 services on Fridays) and the rural hinterland, with each of 3 destinations (Dorey's Forge, Kiltale and Ross's Cross) being served by a return service on Thursdays. Navan is also part of the bus route that links Dundalk to Galway, via Navan, Mullingar, Athlone and Ballinasloe, twice a day in each direction.

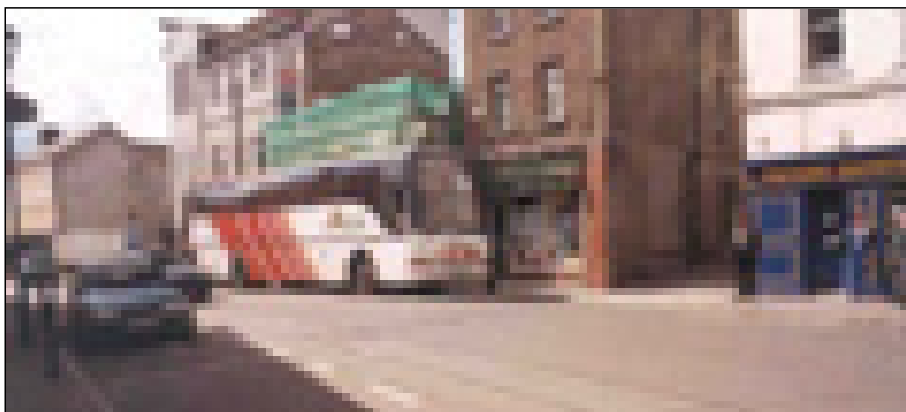


Figure 3.16 : Regional Bus Service

- 3.13.4 At present Bus Eireann runs a local service of four different routes that link the residential periphery with the Shopping Centre. The usage of the local service is very low and doesn't have an impact on the overall travel patterns of Navan. Bus Eireann estimates that only 100 passengers are carried by this service during the AM peak.



Figure 3.17 : Local Bus Service

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- 3.13.5 This is a relatively new service (started operating in the end of 1999) and is expected to grow and develop as Navan expands over time. Compared to similar sized towns, only Athlone and Sligo, benefit from a local bus service. However, these towns have Third Level Education Institutions, which in itself is an important generator of bus trips.
- 3.13.6 The service is used mainly by elderly passengers in their trips to the centre of Navan throughout the day. The infrequent services and the inexistence of pre-determined bus stops are pointed out by the community as the main flaws of the Navan local bus service. These factors also contribute to the low levels of patronage among new residents and average internal commuters.
- 3.13.7 The existence of even a 'skeleton' local bus service is crucial, as this can form the basis for the ongoing development of services that answer the demands of an increasingly large population.

3.14 Water and Drainage

- 3.14.1 One of the reasons why Navan was identified as a Primary Development Centre was the ability to deliver adequate water and drainage conditions to sustain a population expansion up to 60,000 people.
- 3.14.2 The earliest water infrastructure development to serve Navan was instigated by the then local Bishop in the 1890's with the purpose of supplying the church and convent. The scheme abstracted water from the river Boyne and incorporated a water tower to achieve consistent pressures. From this origin the current system has been developed. Meath County Council is responsible for the provision of water to the area although Navan Town Council, formerly Urban District Council, holds the responsibility for the town network.
- 3.14.3 Although the water network serves Navan it also distributes flows to outlying rural areas, much of which were originally managed as group water schemes but have since been linked into the Navan and Mid Meath water network.
- 3.14.4 The distribution input into the Navan and Mid Meath water scheme was assessed in July 1999 (National Water Study, WS Atkins) at 7.9ML/day. When reviewed by the Water Conservation Project team (M.C. O'Sullivan, November 2000) this was calculated at 9.8ML/day. The figure has since been revisited in January 2002 and increased to 10.8ML/day. These figure are inclusive of all demands and unaccounted for water.
- 3.14.5 The water supplied to the Navan and Mid Meath network is abstracted directly from the two major rivers that run through Navan, the Blackwater and the Boyne. Although a Water Treatment Works at Kilcarn had provided a direct abstraction from the Boyne River the current network demand is provided through a Water Treatment Works at Liscartan with a direct abstraction from thr River Blackwater.
- 3.14.6 The Liscartan Water Treatment Works is capable of producing up to 13ML/day. The site currently provides around 10.5 to 11.5ML/day just sufficient to supply current demand.
- 3.14.7 P.H. McCarthy & Partners are currently undertaking a Preliminary Report for the water supply to Navan and Mid Meath and their preliminary assessment for the demand to the year 2023 allows for a population of 56,500 with a demand of 15.6 MI per day with losses.
- 3.14.8 Meath County Council has applied for an Abstraction Order for 44ML/day from the Boyne at Dowdstown to the south of Navan. They also have an existing abstraction of 8MI/day at Liscartan. It is proposed that Navan, Mid Meath and South Meath will be supplied by these sources.

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- 3.14.9 15MI/day of the projected 44MI/day Dowdstown abstraction has been allocated to supply Navan and this together with the 8 MI/day from the Liscartan source would be sufficient to supply a population of 60,000. It may be possible to allocate a higher proportion of the Dowdstown abstraction to Navan if required.
- 3.14.10 It is also envisaged that the additional supply from the abstraction at Dowdstown will be supported by a reduction in unaccounted for water through the implementation of the Navan and Mid Meath Water Conservation Project (M.C. O'Sullivan's 2002). Current water loss is estimated at 5.8ML/day (50% of network input) the aim of the conservation team is to reduce this to 16% however it is accepted that figures of less than 20% have yet to be achieved in any existing network.
- 3.14.11 Within the estimates for future supply P.H. McCarthy's have allowed 4.13MI/day (26%). Should a reduction to 20% be achieved this would add a further 1.2ML/day would be available to the network. The total available water to the Navan region is then estimated at 24.2ML/day against a revised projected 2020 demand of 14.4ML/day.
- 3.14.12 Nicholas O'Dwyer was appointed by Meath County Council in 1984 to examine the existing sewerage system and to prepare a Preliminary Report on the then existing and future foul and storm water system demands. Nicholas O'Dwyer has continued to be involved in the review and development of the Navan Sewerage Scheme.
- 3.14.13 The Navan Sewerage Augmentation Scheme was proposed in 1993 and further developed in 1997 to incorporate the requirements of the Development Plan for Navan and its environs. The report incorporated an ultimate design population of 60,000 P.E.
- 3.14.14 The current collection network operating within Navan town borders is a combined surface and foul water system. The system has a main pumping station in the centre of Navan from which effluent is pumped to the old treatment works in Blackcastle and then transferred to a new treatment plant constructed in Ferganstown.
- 3.14.15 In addition to facilitate future development a new sewer collector main was provided in the Clonmagadden area, which is connected by gravity to Ferganstown.
- 3.14.16 The new treatment works has a current capacity of 40,000 P.E. but can be expanded to 60,000 P.E. It is envisaged that all future development would be expected to provide separate collection of surface and foul water.
- 3.14.17 Further to the 1997 report in March 2001 Nicholas O'Dwyer carried out an Emergency Works Report on the Kilcarn and Johnston sewer network as a result of localised flooding. This was followed in September 2001 by a detailed report relating to the Kilcarn and Johnston areas. It recommended that the existing system be updated to accommodate the growth.

4 ACHIEVING GREATER SUSTAINABILITY FOR NAVAN

4.1 The Strategic Role of Navan

- 4.1.1 This Land Use, Urban Design and Transportation Study for Navan has been developed with an assumed target population of 60,000 residents for the town for 2020. In turn, this assumed target is sourced from the principles outlined in the Strategic Planning Guidelines (SPG's) strategic recommendations for Navan as a designated Development Centre, as well as from the present County Development Plan. It is accepted that the SPG's does not allocate population to the various growth centres within each Constituent County. The SPG's indicated the allocation of population to Co. Meath as a whole. Other urban centres within Co. Meath would accommodate a proportion of the overall population growth.
- 4.1.2 The key objective of the SPG's for the Hinterland Area is the creation of self-sufficient centres. The SPG's fully acknowledge that it is intended for centres such as Navan to develop in the longer term, as self-sufficient towns, with only limited commuting to the Metropolitan Area. It is stated that this will involve the development of a strong employment and service base in each of the development centres.
- 4.1.3 Navan has a history of relative self-sufficiency. The growth in the commuter related population is relatively recent. The more important question now, is how can the future resident growth of Navan be balanced with local based employment, to avoid a fundamental alteration of the town's population categorisation.
- 4.1.4 One of the supporting arguments in favour of Navan's designation as a primary 'development centre' is its capacity, in terms of land, water supply and drainage, to accommodate substantial additional of development.
- 4.1.5 For the purposes of land use planning strategy, it is imperative to understand the relationship between the proposed transport framework for the Metropolitan Area, and the associated development consolidation of that area (in terms of residential, employment and commercial development).
- 4.1.6 If delivered as proposed, the Preferred Strategy of the DTO will vastly increase accessibility and mobility throughout the Metropolitan Area. In this scenario, there will be an associated increase in the density of residential and employment populations along public transport corridors. No quantification on this densification has been (or reasonably can at this stage) being given, particularly for the employment population.
- 4.1.7 However it is possible that Dublin derived employment, may well be properly accommodated in the Metropolitan Area and that centres such as Navan, will need to look more logically at the growth of local/indigenous activities, at associated services related employment (such as retail or tourism), or at specific site opportunities. In addition, but not driven by land use policy, Navan can benefit from specific intervention to bring employment there. The relocation of a Government Department as part of the decentralisation process is one example.
- 4.1.8 In short, the relationship between employment throughout the SPG area and how the spread can be best allocated to reflect utilisation of current and emerging transportation networks, and to reflect demand for location has not yet been fully analysed by the strategic guidance prepared to date. This is where the importance of the National Spatial Strategy becomes obvious.

- 4.1.9 On the basis of the above, particular importance must be attached to the SPG commentary on the basis for growth within development centres. This state that, "*the basis for the growth of the 'development centres' is that they do not become primarily dormitory towns for the Metropolitan Area. For this reason it may be desirable to monitor constantly their development and seek to co-ordinate the release of residentially zoned land to reflect broadly the establishment of employment in these centres*".
- 4.1.10 This statement goes to the heart of a Land Use Strategy for future development in Navan. Such a Strategy must ensure an effective relationship between actual levels and form of new growth, and the objectives of the Local Authority for the new role of Navan.
- 4.1.11 It is also important to restate the relationship of Navan to County Meath as expressed in the County Development Plan.
- 4.1.12 The 2001 Plan confirms that Navan is the administrative, retail/commercial hub of the county. It is proposed that Navan continues in this role with a particular emphasis on expanding its employment base. The Development Plan asserts that whatever final settlement structure is pursued, "*that this is founded in upon strong sustainable development objectives*". The Plan goes on to record that, "*if the premise of balanced settlement creation is accepted, having regard to the principles of sustainability, Navan and to a lesser extent Trim and Kells, are naturally selected for future industrial expansion.*" All these point to a strategy of direct support for the development of Navan.
- 4.1.13 The current zoned residential landbank could allow for an overall resident Navan population of some 45,000 persons. There are considerable zoned employment lands (the IDA site for example could accommodate at least several thousand further jobs). However there is no linkage relationship between these two potential development streams. The risks are clear. Over the past few years the strong growth in the resident population of Navan appears to have been largely derived from residential capacity (and price) constraints in the Greater Dublin Area. This has created an increased commuter population. The intensity of demand for housing of this type exceeds the generation of employment in Navan. There are two separate streams of development for residential and employment, and the balance between these is skewed.

4.2 Development of Navan as a Balanced Regional Capital

- 4.2.1 In order to achieve this long-term aim, there is a range of requirements for the town. The key requirements include the successful attraction of employment, the improvement in the environmental quality of the town centre district to be perceived as an attractive destination in itself, an improvement of internal transport movements and links within the town, and the provision of good transport linkage between Navan and Dublin, Dublin Airport, ports and other regional towns.
- 4.2.2 A key relationship to be established, namely that of securing a proportionate amount of the Dublin derived employment growth to match the Dublin derived housing demand, is less certain. This is evidenced by the difficulty of the IDA in committing its employment park in Navan to full occupation.
- 4.2.3 Many of the areas of responsibility for the objective of securing new employment, are outside the parameters of land use planning. For example the IDA has a clear function to attract employment to certain locations. However land use planning must contribute to the establishment of an environment, which makes the task of IDA (and others) easier.
- 4.2.4 The planning policies and objectives for Navan, now set out in this report, seek to maximise the co-ordination of resident and employment based uses.

4.2.5 Navan does have a sound traditional employment base. For example, the town is well known for the strength of the furniture industry, both in making of the product and in retail sales. The retailing sector in the town is also strong. The recent Retailing Strategy for the Greater Dublin Area anticipates considerable growth in convenience, comparison and retail warehousing within Navan.

4.2.6 Key strategic actions by key State agencies including employment and taxation incentives need to be put in place to ensure that appropriate employment is secured for Navan as a Primary Development Centre.

4.3 The Imperative of Good Public Transport Links between Dublin and Navan

4.3.1 The SPG's confirm that a critical component in the future success of the development centres is the delivery of reliable transportation corridors. The land use planning strategy and detailing now set out in this report, have been formulated on the assumption that Navan secures a rail connection to Dublin. This is a key assumption of the report, based on SPG and DTO policies.

4.3.2 The introduction of a rail connection linking Navan with Dublin is recommended in the SPG's. It is given further policy support in the DTO Strategy, A Platform for Change, November 2001. Under the Preferred Strategy the report states that, "*as Navan is the only primary development centre without a rail link to Dublin, the rail link from Navan to the Maynooth line (as recommended in the Strategic Planning Guidelines) is included in the Preferred Strategy.*"

4.3.3 The provision or otherwise of a rail link between Dublin and Navan is obviously a strategic decision for Iarnród Éireann, Meath County Council and Central Government, and is one which will be influenced by the availability of central finance attracting private funding and the priority attached in a national spatial context to other strategic transport proposals.

4.3.4 A rail link between Dublin and Navan would significantly increase the size and range of the labour market available to existing and prospective employment uses in Navan and also along the rail corridor. Obviously the end objective of achieving as self-sustaining a community as possible requires a close match with employment opportunities and skills available within the local population. The rail link delivers a more sustainable means of accommodating the commuter movements necessary between Navan and Dublin in any case. It also delivers a real and perceived improvement to the locational proximity of Navan to Dublin and thereby contributes to the overview factors, which attract employers and new residents to the area.

4.3.5 A rail link alone will not ensure delivery of sustainable new economic development in Navan. Various land use and urban design measures should be undertaken to catalyse the development of employment in the town.

4.3.6 In planning terms it is useful to consider the typical factors that may influence the locational decision of an employer. These include:

- The availability of a workforce with relevant skills.
- The ability to control or minimise overall operating costs.
- Flexibility in employment space (for example an ease of expansion if needed; the ability to make changes on foot of technological or procedural updates).
- The presence of location attractors for employees. These include:
 - (a) Good quality and affordable housing
 - (b) Good transport links between home and work
 - (c) Availability locally of community and commercial facilities,
 - (d) A good quality of town identity, including visual appearance, the extent of open and civic areas.

4.3.7 The land use planning process can provide objectives and policies, which assist the delivery of these factors. This is set out in detail later in the report. The Preferred Strategy encourage the development of a self-sustaining community more in line with the objectives of the Strategic Planning Guidelines for Primary Development Centres. There would be less reliance on commuting to Dublin for employment, which in turn would increase demand for local services/facilities/retail activity, etc. The increase in demand for services along with a greater mix of development uses in the town would further encourage the provision of a greater range of services and facilities and a wider distribution of local services to serve local residential areas.

4.4 Relationship between Navan and the National Capital

4.4.1 It is inevitable that towns within 50 km of a major Metropolitan Area, and in this case a National Capital will, to a greater or lesser degree, act as dormitory towns. The SPG set down a very specific and reasonable target for development centres such as Navan, which is that “they do not become primarily dormitory towns of the Dublin Metropolitan Area”.

4.4.2 There are certainly examples throughout the UK and Europe, where towns within 50 km of large Metropolitan Areas are largely commuter towns. In these cases, local employment tends to be low and the towns suffer significant economic leakage. There are also many examples of towns in similar proximity to larger cities that have vibrant centres, high levels of local employment and much higher levels of local spend, which further boosts the local economy. Indeed, with the same levels of commuting to the Metropolitan Area, the vibrancy and economic success of these towns can vary considerably.

4.4.3 The economic success of a town is as much determined by where its residents actually spend their money on goods and services, rather than where they earn it. Most of the new residential developments in Navan, mainly to the South and East of town, have a large commuter population, mostly employed in the Dublin Metropolitan Area. As most of the commuters drive to work on a daily basis, they are much more likely to spend their wages in the City centre, Blanchardstown or other retail centres that they might pass on their way to and from Navan.

4.4.4 The strengthening of Navan as a primary retail and commercial centre with attractive streetscapes, quality environment and good linkages to the residential areas, would encourage a higher local spend rate from those who are going to commute to the Metropolitan Area, thus boosting the local economy and hence generating more local employment, which in turn will add to the economic vibrancy of the town.

4.4.5 The provision of a new rail link to Dublin with a terminus close to the town centre would thus add significantly to the development of the town centre by becoming the focal point, from where commuters would arrive and depart on a daily basis. Rail based commuters are far more likely to do their weekly shopping and comparison shopping in Navan than would be the case if the commuting was car-based. The provision of a Rail line with a central station will, therefore act not just as a means of transporting people between Navan and the Metropolitan Area, but also, if appropriately integrated into the town centre, as the engine that will help promote Navan as a self-sustaining primary development centre.

4.5 Relationship between Navan and its Hinterland

4.5.1 From medieval times, Navan has been affirming its role as a major market town, with a catchment that includes much of County Meath as well as parts of Cavan. The importance of the relationship between Navan and its rural hinterland must, not only be maintained, but also improved and increased. In fact, the Rail link to Dublin will make clear the status of Navan as the ‘gateway’ to the Northwest, and will help to enhance its market town character.

4.5.2 The hinterland area will also benefit from the spin off economic benefits of being located close to a Primary Development Centre. The future extension of the Rail service to the Northwest of the country is also a possibility.

5 LAND USE, URBAN DESIGN AND TRANSPORTATION STRATEGY DEVELOPMENT

5.1 Introduction

5.1.1 To test the future and infrastructural needs of Navan with a target population of 60,000 it was necessary to develop a base model of Navan as it is today. Having established a reliable base model it would then be possible to test future urban design patterns and land use patterns against particular infrastructural provisions. To undertake this task the Paramics microsimulation model, developed by SIAS was used.

5.2 General Methodology

5.2.1 From the outset of this study, three different patterns of urban growth were considered for Navan:

- Concentric Development – This pattern implies the densification of the Town core and concentric rings of decreasing densities around the centre. It allows for the consolidation of the retail core, and for the increase of the share of walking trips. On the other hand, it increases the number of radial trips to the centre and hinders the public transport services in the low-density periphery.
- Polycentric Development – New high-order centres to act as subsidiaries of the existing Town centre. This would reduce the number and lengths of trips to the existing centre. It also creates problems to the public transports services and it may affect the desired sustainability of the existing centre.
- Sectoral Development – Growth along ‘wedges’, which can be defined by public transport corridors. In this case, the public transport services would benefit from higher densities throughout their catchments. However, the longer distances to the centre may discourage walking and cycling trips. As for the concentric development case, the number of radial trips might cause congestion in the central area.

5.2.2 Different land use and transportation infrastructure provisions were also considered to best accommodate the different urban growth patterns considered. These included a central rail hub, a loop light rail or guided bus system and an extended rail corridor with a number of rail stations to serve developments along the rail corridor.

5.2.3 Following an evaluation of the options and consideration of the most appropriate urban design, land use and transportation options it was decided to proceed with a concentric development pattern around a central rail hub. This option was selected on the basis that this form of urban structure was most appropriate to developing Navan as a Primary Development Centre.

5.2.4 It was felt that this type of urban structure would best deliver a strong commercial core, capable of providing the necessary range of goods and services for the town and surrounding hinterland area. The associated infrastructure costs for Navan for this urban structure were also considered to be the most cost efficient and in keeping with the Strategic Planning Guidelines. As well as assessing the 2020 requirements for Navan it was also decided to evaluate the 2010 interim situation as this broadly corresponded to the lifetime of the next Development Plan for Navan and Environs.

5.2.5 Having agreed on the most appropriate growth form for Navan it was agreed to test three different scenarios. These were:

- Scenario 1: Navan 2020 with rail connection to Dublin (Preferred Strategy)
- Scenario 2: Navan 2020 without a rail connection to Dublin
- Scenario 3: Navan 2010 without a rail link to Dublin (Interim Strategy)

5.3 Developing the Base Model

- 5.3.1 The starting point in the evaluation was to first construct a base model for Navan. To do this a detailed Paramics model of Navan was built, which included all the existing infrastructure and land use patterns within the town. The Paramics model is a fully scaleable microsimulation model that can simulate existing movements patterns on a simulated urban network. Network changes and new growth and development patterns can then be added and the network extended and modified to meet with the new demands. Specific urban design, land use and transport infrastructure layouts can also be sequentially tested to develop an optimum structure to cope with the projected growth in the town.
- 5.3.2 The building of the physical network was done by taking the existing base model, and adding to it, the proposed new by-pass (taken from an AutoCAD drawing provided by Meath County Council), and a distributor road, re-opening the existing rail link to Dublin (only for Scenario 1) and providing a bus service for the expanded town.
- 5.3.3 In addition to this, a new zoning layout had to be applied to cater for the new lands that would come into use and the proposed new train and bus stations, as well as the new roads. This led to the two 2020 models (Scenarios 1 and 2) increasing in size from 55 zones to 70, thus ensuring an extensive coverage of the whole of Navan. For Scenario 3 (2010) the same 70 zone plan was adopted.
- 5.3.4 A 'furnessing' process was carried on the matrices. This was done to ensure that there was minimum bias in the assumptions regarding the new zones, and their origin and destination distribution patterns.
- 5.3.5 As the model creates real time simulation, it was possible to iteratively test the overall network efficiency of both the proposed land use densities and transport network, and to adjust these to provide a working model for Navan with a population of 60,000 by 2020. Attached to each of these zones is a transport demand. With regard to the demands matrices, there were several considerations that had to be taken into account in order for a best estimate to be calculated for so far into the future.
- 5.3.6 The Demands for the Outer Zones, on the periphery of the model, were factored up by varying amounts, depending on whether the road was National or Regional to arrive at best estimates for the year 2020.
- 5.3.7 The demands for the Inner Zones were increased depending on the projected increases in densities for each one in addition to assessing the type of land use (e.g. residential or industrial). A factor was then applied to each zone, again depending on its projected density increase, to ascertain an estimate for future trips generated. Each of the zones was therefore assessed on an individual basis to reflect the different development patterns in each zone.

5.4 Base Year Traffic Forecasts

- 5.4.1 The demands from external zones were factored using the NRA growth figures for similar roads. These figures can be seen in Table 5.1.

Table 5.1: Growth Factors Applied 2020

Main Roads		Secondary Roads	
LGV's	HGV's	LGV's	HGV's
1.66 (66%)	1.47 (47%)	1.39 (39%)	1.38 (38%)

- 5.4.2 The factoring took into account the split between LGV's and HGV's, which is an output from the O/D surveys.
- 5.4.3 For new zones or zones that didn't register any traffic, a split of 75% LGV and 25% HGV was applied, with the exception of new industrial/warehousing zones, to which the split of an existing zone with similar characteristics was applied.
- 5.4.4 An assessment of the potential development (house units, employment, local centres, densities, etc) for each of the internal zones was carried out, taking into account the committed development figures provided by Meath County Council.
- 5.4.5 A factor of 1.1 trips per dwelling during the morning peak was applied to the new developments.
- 5.4.6 The trip distribution for these new demands was derived from the existing zone demands where applicable. For new zones, the trip distribution applied was that of existing zones with similar relative location and characteristics.
- 5.4.7 Forecast trip generation estimates to new employment and/or retail activities was then applied to each zone. Figures for existing employment obtained from the DTO and the future potential employment was derived based on the availability of zoned employment land. The general rates applied were as follows:
 - 100 per ha: Light Industry/distribution (e.g. Mullaghboy)
 - 200 per ha: Office development as part of overall mixed use development
 - 250 per ha: Town centre area
 - 300 per ha: Business Park (IDA lands)
 - 10 per ha: Residential lands where policies are proposed to encourage some employment uses/ancillary services alongside residential

5.5 Public Transport Assessment (2001)

- 5.5.1 Public Transport figures for 2001 were collected from Bus Eireann. Bus Eireann estimate that no more than 100 people currently use the local bus service during the morning peak (note that the service only starts at 8.30am). In terms of external bus, Bus Eireann estimates that, including services operated by privates, there are around 1,250 passengers carried in the morning peak, mainly towards Dublin.
- 5.5.2 Table 5.2 represents the trip pattern in Navan in the AM peak in October 2001. The figures were derived from the analysis and application of the O/D data and from the information collected from Bus Eireann.

Table 5.2: Trip Assessment for Navan in 2001 (AM peak)

Trip Type	Vehicle Trips	Person Trips*	% of Total Person Trips
Through Trips	2700	3510	16.7%
Internal	4870	6331	30.1%
Internal Bus		100	0.5%
External Inbound	3905	5077	24.1%
External Outbound	3657	4754	22.6%
External Bus		1250	5.9%
TOTALS	15132	21022	100.0%

* Person/Vehicle Conversion Factor = 1.3

5.6 2020 Travel Demand Forecasts

5.6.1 The 2020 future year trips were then derived for Navan by applying the relevant growth factors. This created a total movement demand for a future year town with a population of 60,000. Estimates were then derived for each of the different travel moded based on the following assumptions regarding the ransport infrastructure:

- An attractive local Bus service connecting all the residential areas of Navan with the Central station, including a bus-only crossing of the Boyne using the existing rail bridge
- A Park&Ride facility at the Central Rail station
- A Rail link to Dublin with a Central station in Navan
- A strongly enhanced Town centre, including the area surrounding the new Central station
- The M3 Navan By-pass
- A distributor road connecting all the radial routes


5.7 Development of a Local Bus Network

5.7.1 An efficient local bus service, with routes connecting all the residential neighbourhoods with the Town centre and the proposed Central Rail station was assessed. The proposed bus network also serves directly, the hospital, schools and the various local centres.

5.7.2 A detailed assessment of each of the routes catchment areas was carried out. The catchment considered was 400-500 metres from the route, and an assumption on the amount of population and employment within each of the catchment areas was made zone by zone. Trips between zones that are within walking distance from each other were not considered. This was translated into individual line flows for each of the routes for the AM peak, as can be seen in Table 5.3. A shift to the local bus services of 20% was then considered, which accounts for 1037 person trips.

Table 5.3: Bus Route Catchments and Schematic Diagram

		<i>Total catchment</i>	<i>20% shift</i>
Route 1	(Clonmagadden-Johnstown)	900	180
Route 2	(Clonmagadden-Commons)	855	171
Route 3	(Windtown-Balreask)	971	194
Route 4	(City Park-Kilcarn)	1582	316
Route 5	(Athboy Rd.-Boyne Rd.)	379	76
Route 6	(Mullaghboy-Johnstown)	498	100
TOTALS		5185	1037
<i>Average</i>		<i>864</i>	<i>173</i>



5.7.3 Due to the relatively small size of the network, the considerably low level of trips between peripheral zones and the associated costs of interchanging, no figure for bus-to-bus transfers was added. The amount of people that would actually transfer from one bus route to another was considered insignificant particularly if appropriate cross town route were introduced. The target viability level for a local bus service is 200 passengers in the morning peak, suggesting that a local bus service is both desirable and viable in the future as a stand alone service.

5.8 Park and Ride Potential

5.8.1 It was considered that the Central station should be equipped with a certain amount of car parking, which could work as Park&Ride for car based commuters from areas outside Navan and consolidated residential neighbourhoods, where quality public transport services will be difficult to retrofit.

5.8.2 An assumption was then made that an average of 10% of potential rail users from any zone other than those within walking distance from the station would use P&R and take the train. This accounts for 796 person/trips in the AM peak, which corresponds to 613 vehicle trips.

5.9 Rail Patronage Estimates

5.9.1 In deriving figures for potential rail use, an analysis of the existing the trip generation towards zone 12 (N3 southbound) was undertaken. Not all of the trips going to this zone have Dublin or other location served by the rail corridor (e.g. Dunshauglin or Dunboyne), as their destination. Therefore, only 90% of the trips to zone 12 were considered as the potential rail catchment figure (10,658 person/trips in the AM peak).

5.9.2 The zones that are within walking distance of the Central station were then identified and it was determined that 50% of the potential rail users in this area would use the rail in the AM peak (1,347 person/trips in the AM peak).

5.9.3 For zones that are not within walking distance from the Central station, it was assumed that they would be directly served by at least one local bus route with direct connection to the Rail. In this case, it was assumed that 30% of the potential rail users in these areas would access the Rail using the local bus services (2,181 person/trips in the AM peak).

5.9.4 For trips into Navan, a similar assessment was made to know what was the number of potential rail users. It was assumed that 90% of the trips from zone 12 would have their origin in Dublin or in other location potentially served by the Rail. This accounted for 930 person trips in the AM peak.

5.9.5 It was assumed then that 50% of these people were likely to transfer to the Rail, which meant 465 persons switching to rail for their trip to Navan.

5.9.6 The demand for local bus in connection with the rail trips to Dublin was then added to the internal trip demand. This was calculated as 30% of the potential rail users (90% of the trips to zone 12) that are within the catchment of any bus route, and not within walking distance from the station (5464 person trips). This accounted for a total of 1639 person trips, which added to the 1037 internal trips, gives a total internal bus patronage in the AM peak of 2676 person trips.

5.9.7 The external bus services to and from Dublin are expected to suffer a significant decrease in patronage due to the competition of the Rail. As Rail will be able to deliver people to the Dublin area, a decrease of 50% from the present figures was assumed, which means that these services will transport in the region of 500 passengers in the morning peak (both directions).

5.9.8 On the other hand, other regional services are expected to gain importance due to the development of Navan as a regional urban centre. The existing strong relation between Navan and its hinterland will also be enhanced, creating the conditions for the increase in patronage of bus routes other than those serving Dublin and the rail corridor. In this case a 200% increase from 250 to 750 passengers in the morning peak was considered.

5.9.9 Taking into account the above assessments, the overall demand for the rail towards Dublin in the morning peak is 4,325 persons. These results can be seen in Table 5.4.

Table 5.4: Rail Outbound AM peak Usage Breakdown (Scenario 1)

Potential Rail Users	Transfer to Rail (Walking/Cycle)	Transfer to Rail (Local Bus)	Transfer to Rail (Park&Ride)	Total Rail Users from Navan (outbound)
10,658	1,347	2,181	796	4,325

5.10 Future Year Travel Demand Forecasts By Mode

5.10.1 Following detailed analysis of existing travel patterns if was possible to estimate future travel demand both within and through Navan. Having established the total demands an analysis of the various travel mode catchments were undertaken to assess the numbers that would travel by different modes. These are summarised in table 5.5.

Table 5.5: Trip Assessment for Navan 2020 AM Peak (Scenario 1 Preferred Strategy)

Trip Type	Vehicle Trips	Person Trips*	% of Total Person Trips
Through (Car)	3313	4307	8%
Internal (Car)	12943	16826	32%
Internal (Bus)		3168	6%
External Inbound (Car)	6330	8229	15%
External Outbound (Car)	11351	14756	28%
External (Bus)		1250	2%
External (Rail)		4791	9%
TOTALS	33937	53327	100%

* Person/Vehicle Conversion Factor = 1.3

5.11 Scenario 1 Preferred Strategy Model Assessment

5.11.1 To accurately model the correct number of vehicular trips in the Paramics Model, the number of persons which it was calculated would switch to public transport, had to be removed from the matrix where necessary.

5.11.2 With regard to numbers transferring to the outbound train service, there were three types of category that had to be catered for to represent those who would:

- walk to the train;
- get a bus to the train;
- use the park and ride facilities;

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- 5.11.3 Commuters who would walk to the train had their vehicular trips removed from the matrix.
- 5.11.4 Commuters who would take a bus to connect with the train also had their vehicular trips removed from the matrix.
- 5.11.5 Commuters who it was deemed would use the park and ride facilities to access the train service, had the destination of their vehicular trips changed from Zone 12 (which represented Dublin and other locations along the projected railway line) to Zone 77, which contains the P&R facilities.
- 5.11.6 These travel demands were then input to the model and a complimentary road infrastructure was developed in parallel. Rather than just assess the physical capacity of the road network, traffic management and bus and pedestrian priority routes were also input to the model so that through traffic would be removed from the central area to enable the appropriate levels of civic amenity to be accommodated in the town centre of the future. The location of future car parking provision was also taken into consideration in the overall modelling process. A separate appendix sets out the modelling methodology and results in detail.
- 5.11.7 The transport infrastructure was modified and adjusted until sufficient capacity was provided to accommodate the future growth of Navan in accordance with the overall land use and urban design objectives developed for the town during the study process. The details of the Master Plan for Navan are described in detail in the following chapters.

5.12 Scenario 2 – Navan 2020 (No Rail)

- 5.12.1 For this scenario, the original 2020 model predictions were adjusted to reflect the different travel demands and patterns that would result if the rail link to Dublin did not materialise. This scenario included the following:
- No Rail link to Dublin
 - A local Bus service connecting all the residential areas of Navan with the Town centre and with each other
 - A bus terminus in the centre to cater for the external bus demand
 - The M3 Navan By-pass
 - A distributor road connecting all the radial routes
- 5.12.2 To ensure like for like comparison of the infrastructure the same population and employment figures were used each of the zones.
- 5.12.3 The absence of a rail link to Navan determine that the demands for external Dublin bound trips are only catered by the Bus. An assumption was made that a Central Bus terminus would be in the same location as the Rail station in scenario1.
- 5.12.4 The zones that are within walking distance of the Central Bus terminus were identified and it was determined that 25% (half of what the Rail services would attract) of the potential users in this area would use the Bus to Dublin in the AM peak. This accounts for 921 person/trips in the AM peak.
- 5.12.5 As for scenario 1, it was assumed that 25% of the potential inbound users of the bus would use the Dublin to Navan service (233 person/trips).
- 5.12.6 Adding to these figures the existing demand for External Bus (1,250 person/trips) in the morning peak, we reach 2,724 person/trips.

5.12.7 This scenario also includes a local bus service, connecting all the residential neighbourhoods with the Town centre. However, the existing rail bridge will still be used by the freight trains from Tara Mines. This means that it won't be possible to connect the eastern side of the Boyne with the Town centre with a quality direct bus link. Therefore, the bus network in this case is only constituted by 5 routes.

5.12.8 To assess the bus patronage in this scenario, a similar exercise as the one carried out for scenario 1 was applied. The differences were the absence of one of the bus routes and of the element of bus patronage that was related to the Rail. Due to the poorer quality of the network, the assumed shift to bus was only 15% of the population within the catchment area of the bus network. A summary of the assessment done for scenario 2 can be seen in Table 5.6:

Table 5.6: Trip Assessment for Navan 2020 (no Rail) AM peak (Scenario 2)

Trip Type	Vehicle Trips	Person Trips*	% of Total Person Trips
Through (Car)	3397	4416	9%
Internal (Car)	12415	16140	32%
Internal (Bus)		721	1%
External Inbound (Car)	6245	8119	16%
External Outbound (Car)	14594	18972	37%
External (Bus)		2724	5%
TOTALS	36651	51091	100%

* Person/Vehicle Conversion Factor = 1.3

5.12.9 These new travel demands were then applied to the same Paramics model. The model showed that higher levels of traffic congestion occurred in 2020, particularly in the central area. Overall the local bus network may be just about viable and the town will continue to be essentially car dependant. While it would be possible to increase the road capacity further to cope with the anticipated 10% increase in traffic the wider urban design and planning implications must also be taken into consideration.

5.13 Scenario 3 – Navan 2010 (Interim with no Rail)

5.13.1 For this modelled scenario, the existing land use zoning objectives applicable in 2001 were changed in order to reflect this Land Use and Transportation Scenario where the population of Navan would have grown to approximately 45,000 by 2010 This included the following:

- No Rail link to Dublin
- An improved local Bus service connecting all the residential areas of Navan with the Town centre and with each other
- A public transport hub (bus) on the location of the future Central station
- The M3 Navan By-pass
- A distributor road connecting all the radial routes

5.13.2 This Scenario intends to assess an interim situation in which Navan is developing towards a sustainable 60,000 population urban centre based on a rail link to Dublin and a local bus network, but in which the rail infrastructure and services are not yet in operation.

5.13.3 The population and employment figures for each of the zones were reviewed, taking into account the expected growth and land use patterns during the lifetime of the 2003-2009 Navan Town Council and Environs Development Plan

- 5.13.4 Therefore, different rates of growth were applied (0%, 20%, 50%, 60%, 70% and 100% of the potential identified for 2020) to each of the zones, dependant on the amount of development expected to be in place by 2010.
- 5.13.5 5 of the 6 proposed local bus routes are expected to be operational by 2010. As for scenario 2, the rail bridge across the Boyne is not available, hindering substantially the performance of one of the routes, which wasn't considered.
- 5.13.6 In terms of public transport provision to Dublin, a Bus terminal located where the future Central rail station is to be built in this case, assuring the public transport link to Dublin.
- 5.13.7 To assess the levels of patronage of this bus service, a similar exercise as for Scenarios 1 and 2 was carried out, where the levels of usage of the Rail/Bus link to Dublin were assessed. The lesser attractiveness of the Bus services to Dublin, when compared with the Rail, determine lower percentages of users, as described below.

Table 5.7: Trip Assessment for Navan 2010 (no Rail) AM peak (Scenario 3)

Trip Type	Vehicle Trips	Person Trips*	% of Total Person Trips
Through (Car)	3036	3947	10%
Internal (Car)	9425	12253	32%
Internal (Bus)		561	1%
External Inbound (Car)	5632	7322	19%
External Outbound (Car)	9727	12645	33%
External (Bus)		2124	5%
TOTALS	27820	38851	100%

* Person/Vehicle Conversion Factor = 1.3

- 5.13.8 In the interim scenario, there are 561 person/trips by local bus and 2,124 person/trips on the external bus services in the AM peak. This is derived from an assumed 15% shift to only 5 of the 6 bus routes proposed for 2020.
- 5.13.9 To accurately model the correct number of vehicular trips in the Paramics Model, the number of persons which it was calculated would switch to public transport, had to be removed from the matrix where necessary.
- 5.13.10 With regard to numbers transferring to the Bus service to Dublin, there were two types of category that had to be catered for to represent those who would:
 - walk to the Bus terminus;
 - get a bus to the Bus terminus
- 5.13.11 Commuters who would walk to the Bus terminus had their vehicular trips removed from the matrix.
- 5.13.12 Commuters who would take a bus to connect with the Bus terminus also had their vehicular trips removed from the matrix.

- 5.13.13 As all the main infrastructural elements, with the exception of the rail are in place the 2010 model was seen to perform well. The model did however demonstrate that for Navan to successfully accommodate a population of 45,000 by 2010 then the vast majority of the total infrastructure with the exception of the rail link would have to be in place by then. This means that most of the infrastructural improvements proposed in the Master plan would need to be put in place within the lifetime of the next development plan.

5.14 Sensitivity Testing

- 5.14.1 In order to test each model's susceptibility to an increase in demand, a sensitivity test with a 20% increase was carried out on each model.
- 5.14.2 These tests showed that the 2020 model with no rail experienced major levels of congestion with gridlock occurring during the morning peak.
- 5.14.3 The 2010 interim model, and 2020 model with the rail line, showed some congestion mainly in the town centre.
- 5.14.4 The models are now at the stage where they can be further developed to test the operational and strategic effects of other measures or propositions, and help develop an appropriate phasing of the key infrastructure elements of the plan.

6 MASTER PLAN FOR NAVAN – THE PREFERRED STRATEGY

6.1 Introduction

6.1.1 Following an intensive process of consultation and evaluation of the different land use, urban design and infrastructural options, a Master Plan that could accommodate the future growth and foster the economic development of Navan evolved. The main element of the plan are described below while a detailed description of the Transport, Land Use and Urban Design elements are set out in the proceeding chapters.

6.2 The Master Plan

6.2.1 The overall master plan seeks to make Navan a more accessible and attractive town that can accommodate a predicted population of 60,000 and to enable it to fulfil its role as a Primary Development Centre as set out in the Strategic Planning Guidelines. Central to the overall strategy is the objective of making Navan a self sustaining community in both economic and environmental terms and to provide a quality urban environment for the citizens.

6.2.2 As much of the growth in Navan will take place during the early years of the plan, much of the infrastructure will be required within the lifetime of the next development plan.

6.2.3 The overall Master Plan structure illustrated in Figure 6.1 shows the overall consolidation of development largely within the existing zoned lands. The more intensive redevelopment is focused around the proposed new central rail station.

6.2.4 Major improvements to the public realm particularly within the central area are also proposed, which is made possible by the removal of much of the existing car traffic from the central area. Table 6.1 shows that despite additional densification of the town centre the total number of cars on the streets within the town centre has greatly reduced.

Table 6.1: AM Peak Hour Volumes (08:00-09:00) Town Centre

Town Centre	No. Vehicles 2001	No. Vehicles 2020	Variation 2001-2020	Variation %
Brews Hill at Railway Street	481	248	-233	-48%
Abbey Road (Garda Station)	289	327	38	13%
Watergate Street	542	202	-340	-63%
Bridge Street	347	100	-247	-71%
Circular Road (Fair Green)	925	829	-96	-10%
Railway Street (MCC)	693	153	-540	-78%
Total	3277	1859	-1418	-43%

6.2.5 This will facilitate the introduction of pedestrianisation, bus priority and the creation of civic spaces within the town centre and help make a more attractive place to shop and live in.

6.2.6 The proposed new town park and ecological corridors along the Boyne and Blackwater will significantly add to the attractiveness of Navan.

6.2.7 The residential development is largely accommodated within the existing zoned lands, with additional residential areas proposed to the south of the town adjacent rail corridor. Were Navan to grow beyond the target population of 60,000 then it is possible that additional residential development could be accommodated to the south of the town possibly centred on a new rail station.

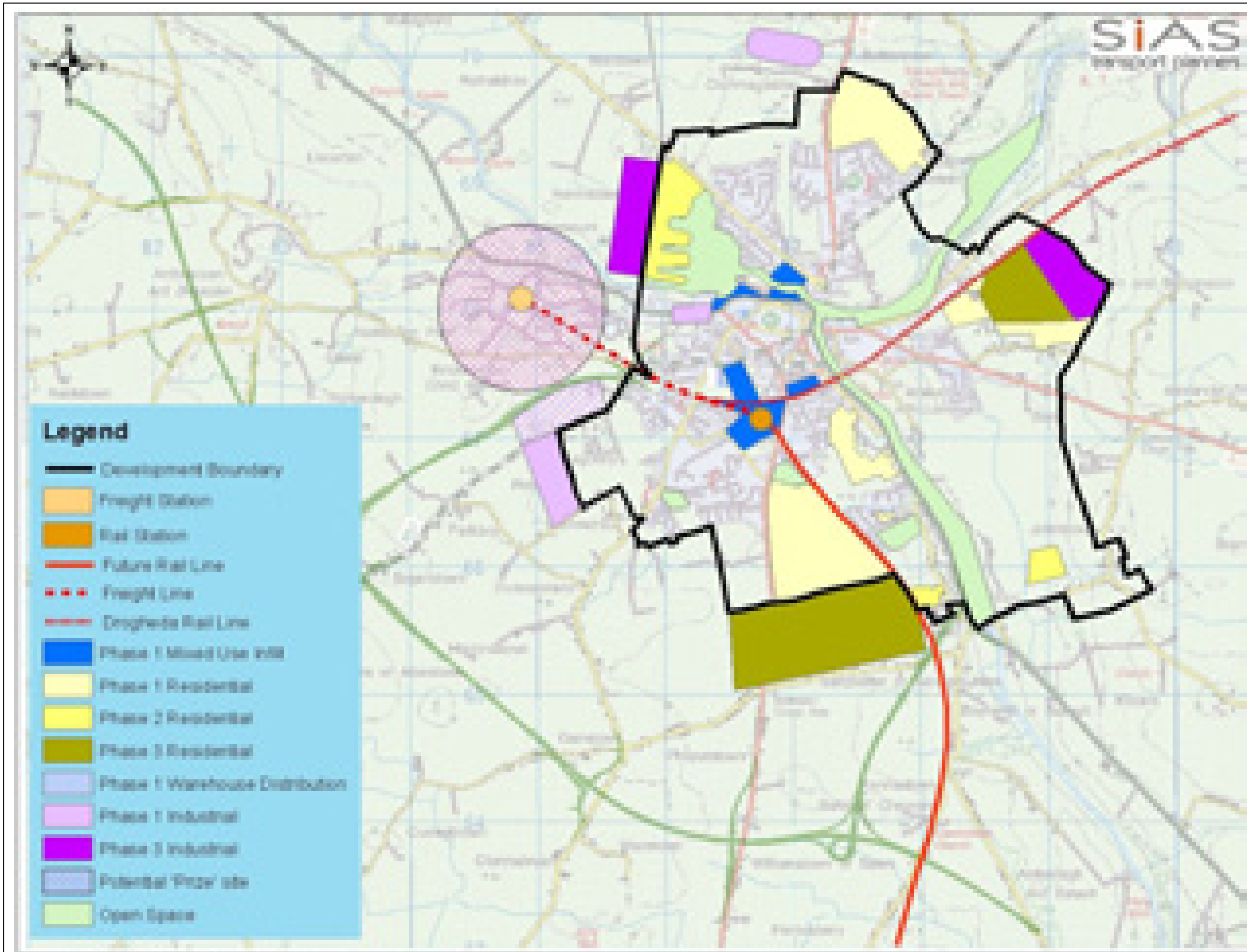


Figure 8.1 : Navan 2020 Master Plan

6.2.8 In the event of the reinstatement of the Rail line to Dublin, the existing rail line to Drogheda should be replaced by a new bus, cycle and pedestrian connecting the residential areas to the east with the enlarged town centre.

6.2.9 New warehousing/industrial development is proposed to the west of the town. The Tara Mines site is also identified as a future potential prize site. The site size coupled with a direct rail link to Dublin City and the Port could attract a major industrial and employment use.

6.3 The Proposed Road Infrastructure

6.3.1 The timely development of the road infrastructure is not just to provide the necessary capacity that will result as the town grows, but equally important to enable the appropriate enhancement of the public realm to occur. The road infrastructure involves the construction of a C-ring around Navan as illustrated in Figure 6.2. The majority of the road infrastructure will be required within the lifetime of the next development if the town centre regeneration and development is to succeed.

6.3.2 Tables 6.2 and 6.3 show the changes in traffic flows on all the major arterial routes by 2020. The most noticeable reductions are to the south and east of the town, which benefits most from the construction of the M3 motorway.

Table 6.2: AM Peak Hour Volumes (08:00 – 09:00) - Approaches to Town Centre from the North and East of Navan

River Crossings	No. Vehicles 2001	No. Vehicles 2020	Variation 2001-2020	Variation %
Athlumney Road (Bridge)	864	1518	654	76%
Flowerhill (Bridge)	1634	1439	-195	-12%
Inner Relief Road (Bridge)	1084	774	-310	-29%
N3 North (Navan Carpets)	1746	1155	-591	-34%
N3 South (South of Academy St)	1746	1155	-591	-34%
Total	5328	4886	-442	-8%

Table 6.3: AM Peak Hour Volumes (08:00 –09:00) - Approaches from South and West of Navan

Athboy/Commons/Trim Roads (Inside Proposed Distributor Road)	No. Vehicles 2001	No. Vehicles 2020	Variation 2001-2020	Variation %
Athboy Road (St. Patrick's)	530	955	425	80%
Commons Road (Level Crossing)	582	545	-37	-6%
Trim Road (North of Beechmount)	604	222	-382	-63%
Total	1716	1722	6	0%

6.3.3 The downgrading of the current N3 to create a new *Boulevard* between the existing town centre and the rivers will dramatically alter the central area of the town by removing the severance that currently exists due to the very large volumes of traffic using the route.

6.3.4 Much of the road network is required by 2010 in order for the Master Plan to succeed. The predicted traffic volumes on different section of the proposed C ring as set out in table 6.4 amply demonstrates the importance of providing the distributor road to dual carriageway standard.

Table 6.4: Traffic Volumes on the Distributor Road – Preferred Option

Location	Northbound Flows	Southbound Flows
Between Ratholdren Road and N3	830	1495
Between N51 and Commons Road	1152	710
Between N3 and Railway line	918	1135

6.4 Summary

- 6.4.1 The foregoing sets out in broad terms the main elements of the master plan for Navan for the year 2020. The detail of the strategy are set out in the next chapters and further details contained in a series of separate technical appendices.
- 6.4.2 In order to achieve the desired Land Use Urban Design and Transportation layout for Navan, that is both economically and environmentally sustainable significant and timely infrastructural improvements are required. The provision of a new Central Rail Station, which is to be the focus of an expanded town centre, is key to the development of Navan as a Primary Development Centre as envisaged in the Strategic planning Guidelines.

7 THE PREFERRED STRATEGY - TRANSPORTATION

7.1 Road Network Hierarchy

7.1.1 The Land Use, Urban Design and Transportation strategy proposed in this report recommends the establishment of a clear road hierarchy, in which each of the road links has a function and where the mixing of national, regional and local traffic is reduced to the minimum possible.

7.1.2 An effective hierarchy of roads is required to segregate local and regional traffic and to divert traffic away from inappropriate routes where residential amenities are adversely affected by it and where it undermines a sustainable transport strategy.

7.1.3 Therefore, four categories are shown in Figure 7.1 and can be described as follows:

- M3 (Navan by-pass) with its two direct accesses
- Distributor Ring Road, interconnecting all the radial roads and providing access to the by-pass
- Radial Roads connecting the Town centre with the Distributor Ring (Slane Road, Proudstown Road, Ratholdren Road, Kells Road (N3), Athboy Road, Commons Road, Trim Road, Dublin Road (N3), Kentstown Road and Boyne Road
- Local Road Network

7.1.4 The ideal road network for any development area is a distributor road configuration to minimise severance, which allows direct access to cells or parcels of development. Direct access between cells is not possible for vehicular traffic. Cell to cell movements by car must be undertaken via the distributor road, but cells are permeable to bus and non-motorised modes. Such areas where permeability is allowed only for sustainable modes and car access is limited to a single or small number of accesses to a distributor road are known as traffic cells. Such a structure allows for residential and other areas to be free of through traffic and for traffic to be directed and assigned to appropriate roads where amenity will not be significantly affected.

7.1.5 In the case of Navan, an important consideration in the recommended alignment of the distributor was the location of the proposed by-pass, which will be part of the motorway that will link Dublin to Kells (M3). Another influencing factor on the suggested route for the distributor road was the existence and planned construction of sections of road on the northern and eastern sides of Navan, of similar standard to that normally required for a distributor road.

7.1.6 The study recommends that this road links all the major radial routes of Navan without crossing the river Boyne between the Slane Road and the Boyne Road. This will provide vehicular access from/to the M3 motorway to all the radial routes, connecting all the residential areas without the need to pass through the centre of Navan.



Figure 7.1 - Proposed Road Hierarchy

This will avoid the construction of a major road bridge over a very sensitive ecological area, at this section of the Boyne Valley. Such an infrastructural development could potentially have detrimental consequences in the ecological and landscape balance of the valley.

- 7.1.7 Another advantage of this layout is that the traffic originated in the northern section of Navan will be channelled towards the southwest in the direction of the Athboy Road link to the by-pass, while the traffic originated in the Athlumney and Johnstown areas will access the by-pass via the Kilcarn access. The future demand for internal trips across the Boyne in this area is forecasted to be low, which can be accommodated via Athlumney Bridge and Flower Hill.
- 7.1.8 The removal of traffic from a section of the N3 will allow for a new street to be developed providing a permeable link between the historic town centre and the river frontage.
- 7.1.9 The Master Plan also proposes a significant degree of traffic calming, bus-only links and pedestrianisation for the core of Navan. These measures will reinforce the attractiveness of the retail centre by removing car traffic from this zone. Most of the traffic that nowadays passes through the centre of Navan is expected to voluntarily transfer towards the Distributor and the Motorway. Traffic management measures can be taken in order to achieve higher levels of transference.

7.2 Major Road Improvements

7.2.1 For the above road hierarchy to be implemented, several new road schemes are required, as listed below:

- Construction of the Navan by-pass (M3) and its accesses into Navan
- Completion of the Distributor Road section between the Slane Road and the Ratholdren Road
- Construction of the Distributor Road between the Ratholdren Road and the Kells Road (N3), including new bridge over the Blackwater
- Construction of the Distributor Road between the Kells Road and the rail alignment (east of the Trim Road), intersecting the Athboy Road, the Commons Road and the Trim Road
- Construction of a new bridge over the Boyne connecting the Distributor Road with the existing distributor road in Johnstown
- Construction of a link road between the Trim Road/Distributor Road junction and the Kilcarn access to the motorway
- Improvements in some sections of the Radial Roads
- Downgrading of the N3 section that is located nearer to the Town centre, mainly between the Inner Relief Road and the Athlumney Road

7.2.2 The several junctions where the radial routes intersect the Distributor road have to be designed to a standard that doesn't hinder the capacity of the distributor. The junctions between the Distributor and the Dublin Road, Athboy Road and Kells Road are examples of key locations that will determine the overall performance of the network.

7.3 Dublin Outer Orbital Route Strategic Study

7.3.1 In July 2001 a Strategic Study for a Dublin Outer Orbital Route was prepared by Oscar Faber for the National Roads Authority.

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- 7.3.2 In this study, analysis was carried out on 4 potential route options in order to investigate the feasibility of a route 'conceived as both a by-pass of Dublin and as a vital intra-hinterland transportation link' (NRA briefing document).
- 7.3.3 The overall purpose of this study was to determine which Dublin Outer Orbital Route (DOOR) would best facilitate the growth of primary and secondary development centres and aids the diversion of growth from Dublin to other towns in the hinterland area.
- 7.3.4 In conclusion, and having assessed 4 options, the recommendation was to construct a route which linked the proposed M1 extension (west of Drogheda) to the M7 (south-west of Naas), with further interchanges with the proposed M3 and M4 in between. There were also sub-options for the route, the most pertinent one for the Navan study being the proposal that the route should pass either east or west of Navan.

7.4 Public Transport Network

- 7.4.1 The train and bus networks will compose the proposed public transport network for Navan. The complementarity of these two networks is the key for the success of the overall public transport in Navan.
- 7.4.2 While the rail will cater mainly for the external trip demand between Navan and Dublin, the bus will have an extremely important role in making sure that the development of Navan happens in a sustainable way, with the expected and desired growth in internal trips being catered for by public transport.
- 7.4.3 It is the interrelation between these two modes that will determine the success of the overall public transport network. The existence of a properly designed multi-modal interchange close to the centre of Navan is therefore, crucial.

7.5 Rail Proposals

- 7.5.1 The Strategic Planning Guidelines and the DTO Platform for Change, both see a need to develop a heavy rail link to Navan in order for Navan to achieve its status a Primary Development Centre within the region.
- 7.5.2 From the work to date on the study and mindful of the need to create new sustainable growth centres, the inclusion of a central rail station close to the town centre is both desirable and necessary. Navan is fortunate that it can accommodate such a facility by the reopening of a disbanded rail line and the creation of a new central rail station surrounded by high density development to the west of the existing town centre. This will enable a substantial increase in town centre development to occur and enable an enlarged town centre to be developed to meet the future requirements of Navan, with a population of up to 60,000.
- 7.5.3 The new rail line with a central station will make Navan almost unique in Irish terms, that of having a rail station located in the heart of the town centre, with a direct link to Dublin City Centre, Dublin Port and Dublin Airport through an interchange with the proposed Metro at Blanchardstown.
- 7.5.4 The rail link will significantly strengthen the attractiveness of Navan as an investment and employment centre. The rail link will also provide a quality commuter service for those that will choose to live in Navan and commute to Dublin.

7.5.5 The presence of commuting between satellite towns and the nation’s capital is something which occurs in other countries and which must also be accommodated for in the case of Navan. As Navan develops its own employment base and diversity of retailing and service facilities, the strategy is for Navan to become more self-sufficient over time. The presence of a rail link to Dublin will see many commuters transfer from car to rail, as it will be faster and more reliable. This will also have a very beneficial economic benefit as rail commuters are much more likely to spend their money on food retailing, comparison goods and services in Navan than car based commuters as they will depart and arrive home on a daily basis to the centre of Navan. Economic leakage for the region will also be reduced.

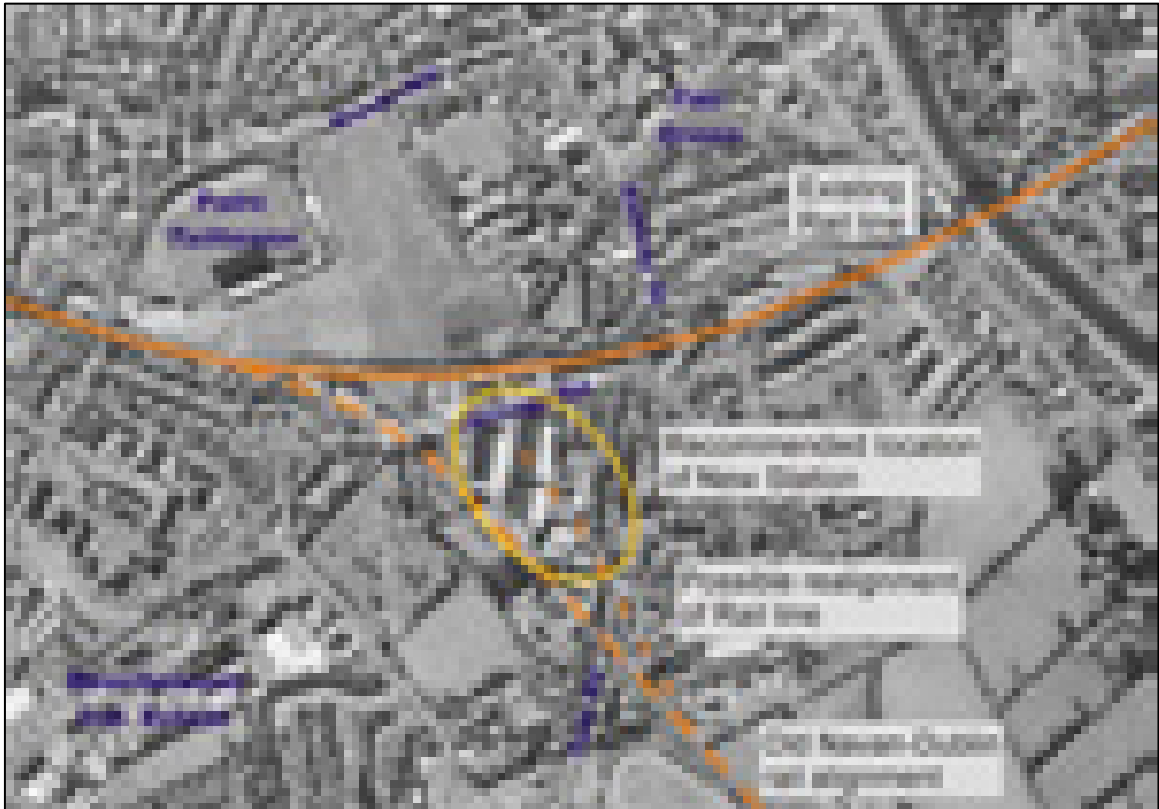


Figure 7.2: Recommended Location of New Central Rail Station

7.5.6 It is anticipated that the ore from Tara mines currently transported by rail will divert on to the new rail line once this is in place. This will provide a faster rail connection to Dublin Port and reduce the number of rail movements on the congested Belfast line. It will also enable a bus and cycle/pedestrian only link to be provided across the river Boyne via the existing rail viaduct, thereby providing a high quality link to the town centre for the Athlumney/Johnstown areas.

7.5.7 The Tara Mines site extends to over 1600 acres, with a direct rail link to Dublin Port via Drogheda. This makes it an attractive opportunity for redevelopment at some point in the future once the ore reserves are exhausted. While these lands are not required for the development of Navan to accommodate a population of 60,000, it should however be regarded as a “Prize Site”, that could attract a major multi-national company with high employment potential and requiring direct access to Dublin port. The rail corridor from the central station Northwest to the Tara Mines site should be preserved as a future rail corridor.

7.5.8 Indeed an aspiration that the rail corridor might be extended further north-west at some future point to provide a possible cross border rail corridor should also be recognised.

- 7.5.9 There is not likely to be a justification for a rail station to the south of the central station within the time horizon of the study to 2020. However were Navan to grow to beyond the target population of 60,000 then it is possible that another rail station could be necessary to the south of Navan to accommodate high density sustainable development in the future.
- 7.5.10 The old Dublin rail alignment runs broadly in parallel with the N3 (Dublin Road) and joins the existing Navan-Drogheda line in the Carriage Road area, south of Pairc Tailtean. However, depending on a detailed rail study that should be carried out in the near future, the alignment of the future Dublin-Navan may slightly differ from the existing, in order to maximise the possibilities of development as well as the proximity of the Central Station to the centre of Navan.

7.6 Prioritisation of Rail Link to Dublin

- 7.6.1 Establishing new viable rail corridors serving high-density sites is often difficult to achieve and costs can often prove prohibitive. Due to the design limitations imposed by the vertical and horizontal alignment required for rail, coupled with the need to serve large population centres and high-density developments, the retrofitting of rail into developed areas often can further add to the cost. For example the cost of tunnelling or bridging over structures can be up to 10 times more expensive than building on a green field site and this does not take into account land values.
- 7.6.2 Therefore, if a rail corridor between Navan and Clonsilla is not secured in the immediate future the cost of providing a rail corridor to Navan will significantly increase in real terms as new developments and associated infrastructure will add to the cost of providing the rail connection at a later stage.
- 7.6.3 The early provision of rail is also important in that the existence of a rail will encourage more of the new population who will choose to live in Navan to do so on the basis that a rail link is in existence. Similarly for employees considering Navan as an employment location the presence of a rail link to Dublin would greatly increase the potential labour market catchment. This is of particular importance in respect to hi-tech or specialist industries that require a large population catchment workforce to source the necessary skills.
- 7.6.4 In addition, opportunities to integrate the rail into new development and the opportunity to secure development financial contributions towards the cost of providing this infrastructure may be lost further reducing the potential to deliver the rail line.
- 7.6.5 Few rail projects in Ireland have the potential that the Navan corridor has to influence the quantum and density of development that can take place along a rail corridor itself. As the rail corridor is largely through green field or sites prime for redevelopment, the opportunity for using development as a lever for delivering a cost effective rail line to Navan are significant. There is however only a limited window of opportunity available to secure a cost effective rail alignment to Navan and the rail alignment study should progress as a matter of priority.

7.7 Bus

- 7.7.1 The layout of the bus network and its service frequencies are extremely important to the success of the proposed strategy for Navan. In order to achieve sustainable modal splits, the new developments of Navan should be served by public transport from the outset.
- 7.7.2 There will be a demand for both internal and external bus trips, although the main external link (Dublin) will be partially catered for by the rail service. Other external links will include connections with towns like Kells, Athboy, Trim, Drogheda, as well as the regional bus services towards the northwest of Ireland (Cavan, Monaghan, Donegal, Derry).

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- 7.7.3 The integration of the main bus station with the central rail station in the Town centre means that both the demand for internal Navan trips and the demand for linkages between the residential areas and the rail to Dublin can be satisfied by one single bus network.
- 7.7.4 By catering for both types of demands, the frequencies can be higher and therefore the quality of the service will be enhanced.



Figure 7.3 | Proposed Local Bus Network

- 7.7.5 Local public transport linkages in Navan must also be greatly improved in order to tackle car use for short local trips. In conjunction with the rail services to Dublin, it is therefore also recommended that local services should be developed. These services would be phased in and extended over time as development in the zoned areas is realised and the level of internal trips increases.
- 7.7.5 A network of 6 routes is proposed, taking into consideration the linkages between the Town centre, the central rail station and the various residential neighbourhoods in the periphery. This network is shown in Figure 7.3.
- 7.7.6 The proposed bus network provides intensive service to the proposed Central Rail station with all the six routes serving it. Many of the suggested routes also pass through or near the existing Town centre, thereby ensuring a quality service to all the extended centre of Navan.
- 7.7.7 Mini-buses at regular frequencies of between 15 and 20 minutes throughout the day will initially operate the proposed services. These services will also act as important feeder services from outlying areas to the Rail station.
- 7.7.8 The total expected patronage of this network was derived from two sources: The internal trip demands and the demands for trips into Dublin, which can be catered by the Rail. As explained in chapter 5, a detailed assessment was carried out to achieve line flows for each of the Bus routes considered.
- 7.7.9 A target figure of 20% shift to bus over the total line flows accounts for 1037 person trips in the AM peak. An assumption that 30% of the potential Rail users that are inside the bus catchment, would get the bus to travel to the rail station, and excluding those who are within walking distance from it, resulted in a figure of 546 person trips in the AM peak. Therefore, the total internal bus patronage in the AM peak is 1583 person trips.
- 7.7.10 This figure represents an average of 263 passengers per route during the AM peak, which is higher than the notional threshold provided by Bus Eireann of 200 passengers, over which a route is justifiable.
- 7.7.11 The average speeds achieved by each of the bus routes, including stops, were checked using Paramics. The results are as seen in table 7.1:

Table 7.1: Average Bus Speeds

Average Bus Journey Speeds (07:00 - 10:00)	
2020 Preferred Option	
Route1	17 mph
Route1b	17 mph
Route2	16 mph
Route2b	22 mph
Route3	17 mph
Route3b	18 mph
Route4	18 mph
Route4b	19 mph
Route5	21 mph
Route5b	21 mph
Route6	20 mph
Route6b	20 mph

- 7.7.12 The regional bus service to Dublin may be substantially reduced by the shift of passengers to rail. However, the position of Navan as a regional hub and a gateway to the Northwest will ensure an increase in the relative importance of other regional services, such as Drogheda, Dundalk, Cavan, Kells, Mullingar, Athboy and Naas. In national terms, Navan will be an important node in the National Expressway Network, being an integral part of important routes like Dublin-Fermanagh-Donnegal/Derry and Dundalk/Drogheda-Westmeath-West of Ireland (Sligo, Mayo, Galway, Clare).
- 7.7.13 The impact of the traffic congestion problems throughout Navan on the performance of the bus services can be minimised or even eradicated by the implementation of bus priority measures on key links of the road network.

7.7.14 The existing rail bridge over the Boyne is a key link in the bus network. This infrastructure can be used as a bus, cycling and pedestrian link between the East of Navan (Athlumney and Johnstown) and the Centre. The main advantage of using the rail bridge is directness of the connection between the Athlumney Castle area and Railway Street avoiding the gradients of the river valley, as well as the congestion problems at Athlumney Bridge.

7.7.15 This specific link should be implemented between the Rail station area street and the Kentstown Road. However, the availability of the corridor can be optimised by the extension of the bus-only link towards the Athboy Road and Tara Mines, to the West, and the Distributor Road, to the East.

Figure 7.4 : Shared Use of a Bridge in Germany by Public Transport, Cyclists and Pedestrians



7.7.16 Depending on the future of the freight rail traffic, this link can be used only by buses, cycles and pedestrians (if freight trains start using the new Dublin rail line), or it can have a shared usage, considering that the freight trains run mainly during the night and with very few movements per day.

7.7.17 The future road network in the vicinity of the new Rail station should also include an element of segregated bus links. Here, car access to the station (parking and set down area) and surrounding area should be maintained separate from the public transport access. This is the area of Navan where the bus services will concentrate and interchange with the rail and possibly with the regional buses, and therefore it is crucial that impacts in their performance are reduced to the minimum.

7.7.18 The considerable reduction of vehicle traffic expected in the existing N3, when both the Navan bypass and the Distributor Road are in operation, will allow for a radical transformation of its character from a national road into a town centre street. The availability of road space will enable the implementation of bus lanes. In the section between the Inner Relief Road and Watergate Street, a bus-only link can coexist with a quality pedestrianised area.

7.7.19 Due to the high concentration of bus services, a bus priority link should be provided across the town centre, more specifically along the New Road-Circular Road-Railway Street axis. This main axis should be continued towards Flower Hill to the North, and Carriage Road and Dan Shaw Road to the Southwest.

7.7.20 To the South, bus priority should be included in the development located to the East of Trim Road, as a continuation of priority measures in the northern section of Trim Road. The section of the Distributor Road across the Boyne should also include a bus lane, for this is one of the few connections between the East and West of the river and is expected to see some traffic congestion in the future.

7.8 Future Public Transport Demands



Figure 7.5 : Public Transport Share in 2001 and 2020 (AM peak)

- 7.8.1 The increase in population from approximately 22,000 to 60,000 will inevitably lead to an increase of the overall vehicular trip generation. However, the set of proposals which are described in this report, specifically those related to public transport and non-motorised transport, will help to ensure that the vehicular trip growth will not be directly proportional to population growth.
- 7.8.2 The provision of high-quality public transport, catering for both internal and external demands, the increased attraction of sustainable modes like walking and cycling for short and medium trips and careful design of new development, including mix of uses, are factors that contribute to reduce the share of the private car on the modal spectrum, as can be seen in Figure 7.5.

Table 7.2: Present and Future Modal Split (7.00 – 10.00)

	2001	2020	% change
POPULATION	22,000	60,000	173%
TOTAL MECHANIZED TRIPS (persons)	21,022	52,835	151%
TOTAL CAR TRIPS (persons)	19,672	44,118	124%
INTERNAL BUS (persons)	100	2,676	2576%
EXTERNAL BUS TO/FROM DUBLIN (persons)	1,000	500	-50%
EXTERNAL BUS TO/FROM OTHER TOWNS (persons)	250	750	200%
RAIL (persons)	0	4,791	n/a

- 7.8.3 Table 7.2 shows the projected modal split for the target year 2020 in comparison with the present situation. The 2001 figures are based upon the Paramics base model and the most recent public transport patronage data, whereas the future projections were derived from assumptions on quantity and type of future development and provision of public transport services. A car occupancy rate of 1.3 occupants per car was adopted, in order to derive person trips out of vehicular trips. This allows a better comparison with the public transport figures.

7.9 Public Transport Interchanges

- 7.9.1 The quality of the public transport interchange facilities is key to the success of any transportation strategy. Their attractiveness in terms of accessibility, internal layout, and information, together with proper frequencies of service can determine higher levels of shift towards public transport.
- 7.9.2 The Rail station will be the main public transport interchange in the town of Navan, integrating rail with regional and local buses, park&ride and pedestrian/cycling access. However, importance should be given to all types of interchanges, including bus stops, which are walking/bus interchanges.
- 7.9.3 The considerably increased mobility permutations created at major public transport interchanges make them important points of land use development. Specific objectives for increased density and for mix of land use should be applied to these individual locations. These would include:
- Priority allocation of land use for people intensive uses (e.g. offices, educational institutions, higher value retailing and leisure uses)
 - A mix of urban centre residential accommodation.
 - A distinctive identity for each of the interchanges, providing an important reference for those travelling to/from or through the interchange.



Figure 7.6 : Examples of Public Transport Interchanges

- 7.9.4 Navan has the opportunity, not only to provide its population with a quality public transport service, but also use the building of a new interchange as a statement of maturity, progress and development. The town of Navan will require new landmarks, and the Rail station can easily be one of those landmarks, improving at the same time the attractiveness of public transport.

7.10 Parking

- 7.10.1 During September 1997, a parking survey was carried out in Navan as part of a traffic study which had as its brief, to analyse the traffic and parking situation as it then pertained, and to identify those factors which contributed most to it and recommend short and medium term solutions to mitigate or eradicate it. Cognisance has been taken of this study's results and recommendations.

- 7.10.2 It was highlighted in the analysis that the numbers of vehicles observed parking for 3 hours or more were excessive, and that much of these were business owners and employees using up valuable parking spaces that could otherwise be used by paying customers.
- 7.10.3 At the time these surveys were conducted, there was little or no on-street pay parking enforcement. A recommendation of the study was that payments for parking should be introduced in the vicinity of the town centre preferably through the use of discs, and that those who wanted to park long-term should be accommodated through the provision of new car parks on the outskirts of the central area with only nominal charges for all day parking.
- 7.10.4 These recommended control measures were subsequently enforced by Navan Urban and County Councils, and are still in place today.
- 7.10.5 When tackling the parking issues that will affect Navan in the proposed integrated 2020 scenario, strong regard was given to recommendations provided for in the Navan Traffic Study.
- 7.10.6 The parking strategy for Navan should consist of a three-tiered parking network, based on parking cells accessible from the Distributor Road. The proposed strategy is represented in Figure 7.7.

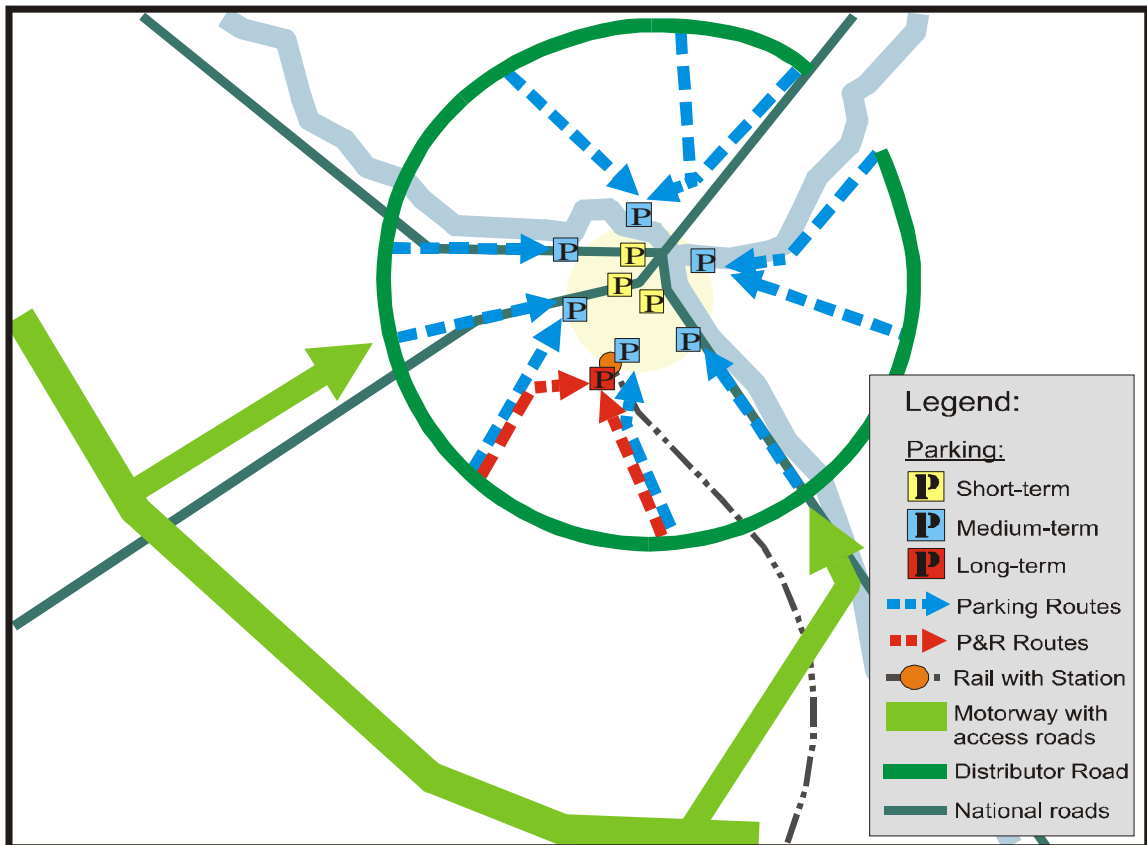


Figure 7.7 : Proposed Parking Strategy

- 7.10.7 This strategy intends, at the same time, to enable proper accessibility to the Town centre and avoid excessive traffic through it. Therefore, three levels of car parking facilities should be in place as follows:

- An element of car parking should be located within the Town centre perimeter (e.g. Shopping Centre, Kennedy Road and Fair Green), enabling the necessary short-term trips into the centre. The fare policy for these car parks should discourage medium and long-term stay. It is crucial to keep a balance between the 3 car parks, in what number of spaces and fares are concerned.
- 6 car parks should be located in the immediate periphery of the Town centre, at the end of each of the radial routes. The following locations could be considered for example:
 - On the Inner Relief Road, north of the Blackwater
 - On the Kells Road
 - On Brews Hill (near GAA grounds)
 - At new Central Station (Trim Road approach)
 - On Academy Street
 - On Athlumney Road, east of the Boyne

Their location at an average of 500 meters from the Fair Green/Trimgate Street area allows proper accessibility to all areas within the centre. These facilities will cater for medium duration trips to the centre, and its cheaper fares should discourage trips into the heart of Navan. Each of the car parks will be accessible by a set of radial roads (e.g. Car park on Brews Hill will only be accessible via Athboy Road and Commons Road), and these can be accessible from other sectors of Navan by the Distributor Road.

- An element of station parking at the Central station to cater for commuters from the rural hinterland of Navan and from the N3 corridor (Kells, Virginia, Cavan).

7.10.8 The provision of parking in new non-residential developments within the centre of Navan will have to comply with the strategy described above.

7.10.9 Car parks, mainly within or near the centre of Navan, should be used by a variety of activities rather than having one single purpose. In order to maximise the potential usage of the car parking facilities, local policy on parking standards should address issues like public/private ownership or the possibilities of using the same facility for both special events and day-to-day parking.

7.11 Non-Motorised Transport Network

7.11.1 An integrated and coherent non-motorised transport network that is multi-functional and safe for all users of all ages is proposed for Navan. This network should be integrated with local activity centres such as the town centre, railway stations, residential areas, green areas, recreational and employment centres.

7.11.2 It is also important to integrate the Navan network into the regional and national cycling networks. Cycle tourism is one of the fastest growing types of tourism in Ireland, and the Boyne region, with its numerous tourist attractions, has the potential to become one of its main areas. Therefore, Navan can be in the future the main hub for the cycling tours of the Boyne Valley, providing that the cycling network adopted for the Town is coherent at a broader scale.

7.11.3 An example of these considerations is the possibility of linking Trim, Navan, Slane, Newgrange and Drogheda with a cycle route along the valley of the Boyne, which will become part of the Navan internal cycle and pedestrian network.

NAVAN

- 7.11.4 Navan presently has little dedicated pedestrian and cycle network. Despite this, there is great potential for the development of such a network. There is currently one cycle track in Navan located along the Inner Relief Road. This links the residential areas of Blackcastle to the Navan shopping centre.
- 7.11.5 There is a perception that Navan's topography is somewhat irregular, which is not ideal for cycle and walking networks. This is exaggerated by the existing centre being located at a summit. Largely flat terrain however exists west and south west of the town. The hilly terrain is more prevalent crossing the valley of the two rivers.
- 7.11.6 The proposed Central station will be a major attraction point and cycle and pedestrian routes will terminate at this node. The design of the Central station area must take into account the provision of quality facilities for these modes, including routes, open areas and cycle parking.
- 7.11.7 The proposed pedestrianisation of Trimgate Street would increase the attractiveness of Navan town centre with safer movement of pedestrians, reduction of exhaust emissions and reduction of ambient noise levels and reduced congestion in narrow streets. This in turn would encourage the uptake of environmental sustainable modes of transport with quick access to the central station and pedestrian/cycle routes to local residential and employment centres.
- 7.11.8 The non-motorised network must also incorporate all the education centres within Navan. Navan school traffic currently has a considerable impact on traffic flows particularly during AM peak. Efforts must be made to reduce this by encouraging more students to use the proposed healthy and safe pedestrian and cycle way routes to school.
- 7.11.9 There is a need for increased non-motorised crossings of the River Blackwater and River Boyne. There are 3 main river crossing points that are currently used by the general traffic. Combined pedestrian and cycle routes could be designed along both sides of the rivers incorporating attractive river crossings giving quick and easy access into Navan town centre, thereby encouraging people to walk or cycle and leave the car at home. The railway viaduct in particular could be utilised to link east and west Navan in the future. Figure 7.8 shows examples that could be developed in Navan.

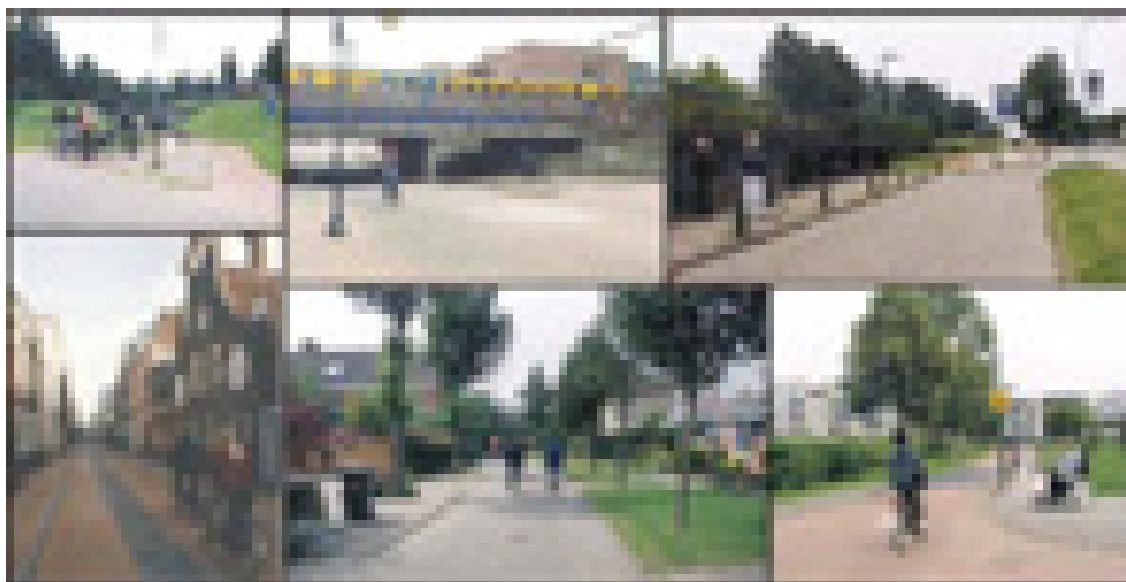


Figure 7.8 : Examples of Quality Cycling Facilities

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- 7.11.10 The ramparts of the River Blackwater and the River Boyne could be developed as the central spine to the pedestrian/cycle network within and around Navan. The ramparts are currently under utilised. There are two canal crossing points along this 4.5 mile stretch with access to the Athlumney Road and Boyne Road. At present this area is regularly used at the weekends particularly during the long summer evenings but outside these times this area is not often used and not deemed safe to walk alone.
- 7.11.11 A variety of different activities occurring at different times of the day with more crossing points linking with residential and retail areas would encourage more people to use this route on a regular basis thus increasing the overall security of the area.
- 7.11.12 The canal locks along the River Boyne and potential river crossings over the River Blackwater could be redeveloped as potential crossings and links to major trip attraction areas such as residential areas, schools, Town Park, Leisure Centre and retail centres in Navan.
- 7.11.13 Figure 7.9 shows a proposed cycle and pedestrian network for Navan. These short pedestrian and cycle routes incorporate town and rural features including river, mottes, castles and churches with sporting and leisure facilities out as far as Claremount Stadium.

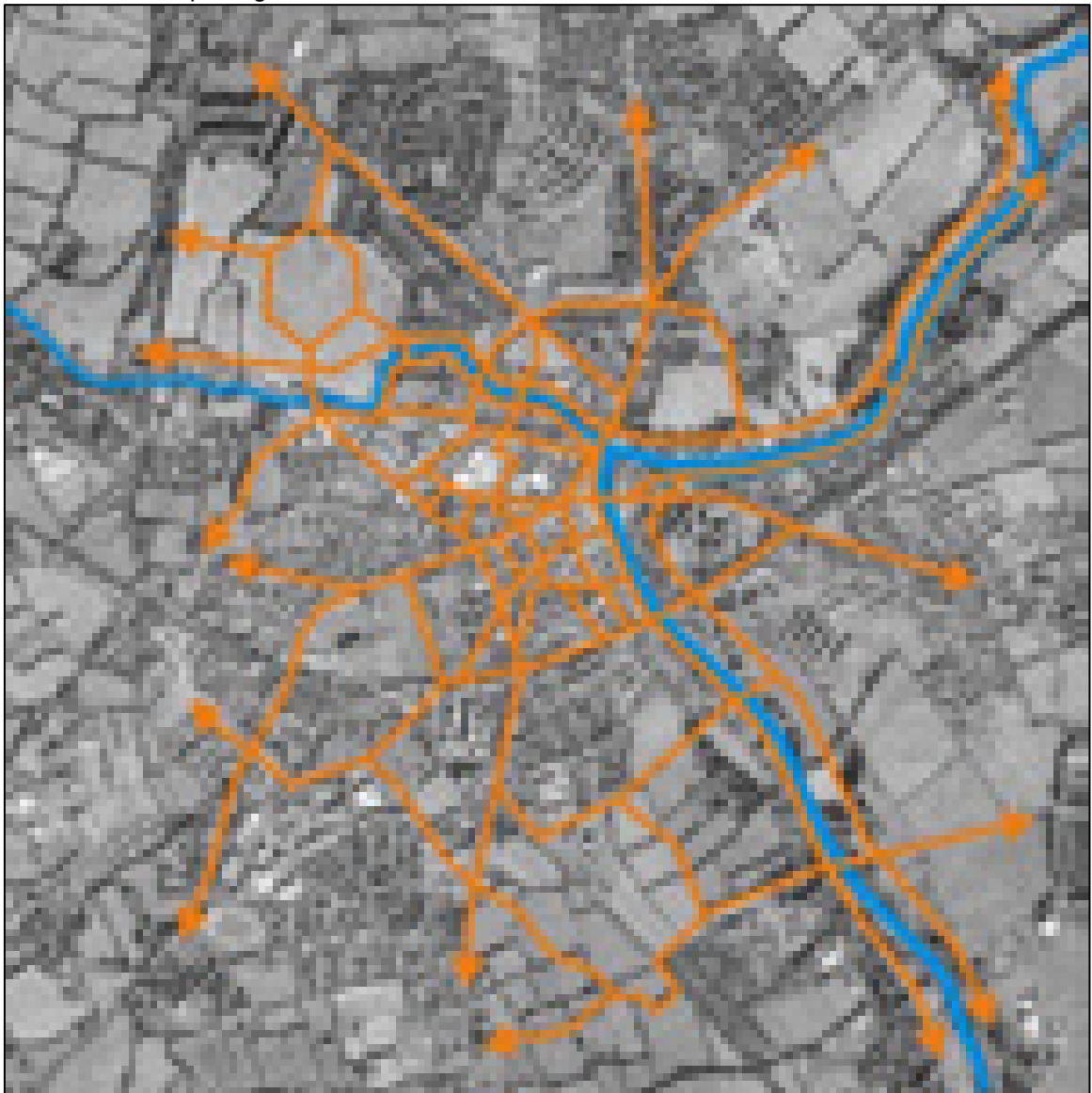


Figure 7.9 : Proposed Pedestrian and Cycle Network

NAVAN

- 7.11.14 It is important to make non-motorised transport links multi-functional with a variety of different activities to ensure that these routes are used to their full potential.
- 7.11.15 The pedestrian links between the River Blackwater and Navan town centre are quite unpopular and unattractive as the existing N3 is a noisy dirty and unpleasant atmosphere due to the large number of vehicles using this road. The River Blackwater currently cannot be seen from the existing N3 as trees and high artificial road embankments hide it. However, with the introduction of the Navan Bypass and distributor road (in 2020) traffic levels would be considerably reduced thus allowing this area to be opened up as a “Boulevard of Navan”, creating a quiet traffic calmed area between Navan town centre and the River Blackwater creating an attractive public place.

8 THE PREFERRED STRATEGY – LAND USE

8.1 General

- 8.1.1 The assumed growth of Navan to a resident population of 60,000, as set out in the study brief, will require additional residential, commercial, employment, open space/leisure and recreation uses to be inserted within the area of the town. This will in turn require development on current zoned landbanks, consideration of redevelopment within established areas and the possibility of a further town landbank. The functioning of the town will have to change fundamentally. For example the modal choices for travel around and within the town will be revised. New forms of development scale, use mix, density and layout will be introduced to deliver the critical resident and employment population levels, at the correct locations.
- 8.1.2 In order for Navan to successfully meet the challenge of self-sufficiency at this assumed new population level, it must offer a high quality of life for the existing and prospective residents and employees. By making an area more attractive for people it will encourage them to live, work, shop, socialise and spend their leisure time within the area. This in turn will create local demand for services and facilities and will increase the attractiveness of an area as a location for businesses.
- 8.1.3 We have considered general development guidelines and principles for the two core activities that will drive the success (or otherwise) of pursuing a Strategy for a 60,000 resident population in Navan, namely residential and employment use. We have also considered the relevant principles for the town centre area; suburban areas; transport corridors; transport access point catchments; and recreational and amenity areas, amongst other.

8.2 Residential Accommodation

- 8.2.1 The current zoned landbank at Navan could allow for the accommodation of an overall resident population of around 45,000 persons. In this regard it is important to emphasise that the potential for growth based solely on available zoned lands, is considerable. The purpose of this land use strategy is to apply control and direction to the best use of this land resource, within the requirements of the client's brief to assume a rail based resident population of 60,000 persons. A series of general policies are outlined below, for the residential sector. These are then distilled into specific location objectives and criteria, which will allow for effective implementation.
- 8.2.2 Land use objectives should endeavour to achieve a mixed balance of dwelling units. A strong mix of housing type allows for a greater diversity in the population profile of the town. In turn this provides an improved vitality to housing areas and creates the opportunity for a greater spread of transportation movements
- 8.2.3 In contrast large single house type districts tend to experience vulnerability in the land use transportation relationship. For example, districts of conventional and single type suburban housing often experience peak period traffic congestion getting out of and into these areas. On the other hand there is a sense of emptiness in these areas during the working day. Allied to this, historically low densities and layout patterns predicated on quantitative policies (such as simple percentage allocation of open space, public and private, parking etc.) make these areas reliant on road space for cars. Even that is unduly focused onto the peak periods, as the road space as designed, is often far more than adequate for non-peak periods. The road carriageway then tends to dominate the landscape and form of the district.
- 8.2.4 Equally it should be emphasised that not all residential schemes can be expected to incorporate the full spectrum of housing types. The development of more sustainable residential mix must therefore be applied at district level via the plan making procedures downwards to individual applications.

8.2.5 Recent housing development in Navan appears to have been focussed on car based movements and with a similar housing type, namely car based family home. There is of course a clear need for this type of housing in all towns. However this now needs to be matched by an emphasis on other types of housing, (such as apartments) which will be needed to sustain a 60,000 person population and with separate but interlinked household demands.

8.2.6 An increase in the housing mix must be applied throughout Navan. This includes the objective to consider change within established areas (though this does not mean that change must always occur).

8.3 Residential Density

8.3.1 There is a clear linkage between residential density levels and the proximity to the points of access to public transport. In transportation terms, locating greater population levels on zoned land areas close to public transport will secure the better use of the public transport services. It will also contribute to thresholds of patronage, which can enable greater service frequency. In turn this can provide residents with the sense of public transport *reliability*, which is essential to reducing car reliance. Higher densities at appropriate locations, optimises the use of the zoned land resource and also of the associated services and utilities necessary to serve residential areas. Thus, it is an important factor in delivering a cohesive settlement and transportation pattern for Navan.

8.3.2 The application of higher residential densities on the zoned land resource should therefore be encouraged in the vicinity of the public transport network with highest densities at the proposed rail station catchment. The zoning objectives for this area should include a minimum density and an associated range thereafter. The transportation network for Navan also includes a functional internal bus service linking with the proposed rail station and reaching into all suburban areas. In practice the footprint of Navan, as proposed under the 60,000-person assumption, is still relatively modest. In this regard the bus network can be exploited to deliver a reliable and usable service, providing short travel times from the outer areas to the town centre. Higher densities should be supported along these identified bus routes.

8.4 Residential Layout

8.4.1 The objectives recorded above for an improved housing mix and for higher densities in proximity to points of access to the public transport network, will be strongly assisted by making the correct choices in relation to layout and form of residential areas.

8.4.2 Good residential layouts can deliver increased accessibility to public transport. In relation to accessibility on foot, this means ensuring the greatest permeability for pedestrians into and through residential areas. Routes of *least effort* to public transport are a requirement. In typical suburban locations, this entails pedestrian access through the end of cul-de-sacs for example and the provision of regular pedestrian through points at boundary walls separating residential areas from adjoining public transport corridors (such as distributor roads).

8.4.3 These pedestrian only routings will work best if they are short and if they have passive overlooking from adjoining residences. In this regard land use policy both at development plan level and in the course of application assessment, must secure the orientation of new residential schemes, to focus on the pedestrian (and cyclist) network as well as the road network.

8.4.4 Residential layout is also important in creating successful residential communities. There is a clear linkage between this and the provision of a wide range of housing types (see above).

8.4.5 In making decisions on applications for residential (including mixed-use) schemes, key planning criteria to be applied include the maximisation of residential frontage along all new roads (especially at corner locations) should be emphasised. This creates improved passive security and delivers an improved visual environment (corners for example can often accommodate slightly higher structures such as apartment blocks).

8.5 Residential Amenity

8.5.1 Higher residential densities above established norms mean quite simply more units on the same landbank. To achieve this land use policies must make clear what are the defined criteria for residential amenity. This in turn depends on the housing type. For example, conventional understanding of residential amenity has historically concentrated on a family type house. Quantitative objectives (such as garden depth etc.) have been applied to this standard to create the parameters for scheme acceptability (or otherwise). This of course has its benefits and has ensured many high quality schemes for that type of housing. However there are several different categories of housing type and there are varying locational criteria. To deliver an effective public transportation service to residents, land use policy must be able to reflect these varying factors.

8.5.2 A sample of dwelling types includes:

- Suburban family housing,
- Central area apartments (often with a rental tenure)
- Sheltered accommodation for older persons.

8.5.3 These three types alone have different ratings applicable to residential amenity criteria. In the case of suburban family housing, a good sized garden may be important. Those living in central area apartments will not place the same level of importance on external private space. In this regard the form of internal room space and direct proximity to local neighbourhood facilities may be more important. In sheltered dwellings, the amenity of open space may be gauged by reference to the perceived safety of communal areas.

8.5.4 It is clear from the above that the land use policies for new housing layouts must be flexible to enable a more rational application of amenity criteria, all with a view to creating the best residential form for the specific user of the property.

8.6 Education

8.6.1 Excluding the special needs schools, there are only two schools located on the northern side of the town and none on the southeastern sector of the town. The remainder of the national schools are located within the southwestern section of Navan, most within or adjacent to the town centre. Thus, in general the town is not well served by national schools, with their locations relative to residential areas requiring relatively long trips, and in many cases generate cross-river trips. Essentially, there is a national school within walking distance of most of the older more established housing/residential areas within the town. The more outlying, newer residential areas however are often not served by a local school, thereby necessitating car trips. One area that generates a significant amount of car trips in order to access primary schools is the Athlumney area, which is not served by a local national school. This adds to car trips across the river. The adjacent area of Johnstown is also set to generate similar patterns, as there is at present no general national school in the southeastern sector of the town.

- 8.6.2 In order to address this problem, additional schools are needed to serve recently developed/developing areas. As these areas become established in the short to medium term, the proportion of school-going population will increase thereby increasing demand for educational services. Areas where greatest demand for a local national school has emerged/ is likely to emerge are Athlumney, Johnstown, Blackcastle Demesne/Clonmagadden and Balreask. In areas where there are still large uncommitted development lands available, the planning authority may use the development control process in order to ensure that provision is made in future development for school land requirements.
- 8.6.3 At present there is a demand for post-primary facilities on the northern side of the town and for additional post primary facilities on the eastern side of the town. This demand will exacerbate in the future as the recently constructed residential areas begin to mature and as the population further expands by additional development.
- 8.6.4 The provision of national schools is particularly important within new residential areas, as parents are often reluctant to change schools or send their new siblings to different schools.

8.7 Employment

- 8.7.1 To draw the benefits of the improved public transportation network described in this report, there must also be associated changes to land use policy and objectives for industrial/employment zoned areas.
- 8.7.2 Land use policies will exploit the different transport implications for:
- Employee intensive operations
 - Product intensive operations
- 8.7.3 Employee intensive operations (e.g. office based activities) throughout Navan could sustain a large working population. These are the types of employment, which the IDA seeks for its business park. Often, the physical manifestation of similar business parks tends to be as stand alone sites, each attempting to meet its own car transportation needs and with little contribution to areas of public domain. This makes it difficult for public transport services, as there is often no design and layout rationale based on making the route from workplace to point of access to public transport service, as easy as possible. The delivery of transport accessibility to the IDA lands has been a key component in the rail/bus modal interchange policies of this Study. The IDA lands will be proximate to the rail service. In addition bus linkage will be swift and direct to the IDA lands. This creates a genuinely viable employment district with clear accessibility from Navan itself and from the Dublin Area, by public transport. In order to optimise this potential access capacity, the land use policy for this employment zone therefore needs to assert the relevance of; building orientation towards public transport corridors (bus routing) and of creating areas of public domain, in order to bring the benefits of improved public transportation to the prospective population here.
- 8.7.4 Employee intensive activities have the potential to accommodate large working populations within relatively modest land areas. This is critical to delivering the level of public transport service, which achieves the *reliability* test applied by the general public. In this context employment land use policy must seek to prioritise development along the areas identified as readily accessible to public transport network, bus and rail as shown in this Study. Outside the IDA landbank the principal locations for higher value office type employment, will be the inner core of the town and within a walking catchment of the proposed rail station. These central locations will also incorporate a range of other uses, such as retail and residential etc. In this regard the specific land use policies in relation to use mix also apply (see below).

8.7.5 Parking provision is also important for these types of employment development. In physical design terms it is considered that all parking should be removed from primary public frontage areas of new employment sites. This means that the prominence attached to a new scheme should relate to the building form and to the pedestrian and cyclist routings from it to the public domain. This will deliver a clear land use planning benefit in terms of the visual quality of these districts and also the transportation benefits of placing the needs of the pedestrian at the heart of design solutions.

8.7.6 Consideration of restriction on parking at employee intensive operations is desirable for reasons of sustainability, where car reliance can be meaningfully reduced (e.g. new Rail station). However it is acknowledged that even in circumstances of improved accessibility (how easy or otherwise it is to get to the public transport service) and mobility (where that public transport service can take you/including interchange options) for some movements, there will be an inevitable reliance on car-based movements. The objective is to minimise this whilst acknowledging that it is unlikely to be removed entirely. Further details of parking strategy are set out elsewhere in this report.

8.7.7 For product intensive operations, such as distribution or manufacturing facilities, locations close to the strategic road network (or good links to it) should be promoted. A substantial proportion of this type of employment-based activity in Navan, including the sizeable furniture sector, is sited in locations where road access to the national network is available, or will be considerably enhanced upon completion of the Navan By-pass and associated link roads. A key planning policy for these locations relates to the control on visual incoherence. Strong landscaped boundaries and a clear buffer between the outer edge of these locations and neighbouring activities should be ensured.

8.7.8 In the case of Navan allocation of future development quantum will be met by the following:

Town Centre Districts

- Brownfield Redevelopment Sites
- Undeveloped Sites and Infill Development

Other Town Districts

- Already Zoned Lands
- Additional Zoning of Lands

8.8 Town Centre Districts

8.8.1 Within town centres, a strong mix of uses brings a sense of vitality and vibrancy by virtue of increased use of the area by different streams of people. New development within town centres must be built at sufficiently high densities to ensure that the necessary critical mass is achieved so that each function is attractive for users and viable for investors. These levels of density also support a *reliable* public transport service.

8.8.2 The success of the town centre will be strongly influenced by the ability to maximise people access, as opposed simply to vehicle access. This requires a reliable public transport service. Given the relatively small land area of Navan, there are many residential districts within reasonable distance of the town centre by means other than motorised vehicle. Targeted recreational and movement corridor objectives will make it more likely for these trips to be made. For example the quickest route from A to B is not necessarily a straight line but is the route of least effort. A fifteen-minute walk along a heavily trafficked road or through a defensively designed industrial area can be viewed as stressful and tiresome. A walk of the same time and distance along amenity corridor, with overlooking and a critical level of usage, or through a pedestrian orientated central district of a town, is much more pleasurable. A considerable percentage of Navan's resident and employment populations are potentially located within fifteen minutes walk of Market Square.

- 8.8.3 The quality of the planned environment impacts on the perception of how time is spent and thus how we appreciate the forms of transport that take us from A to B and equally those forms which enable us to experience the places between A and B. In this regard the effect of putting emphasis on space for non-car based movement, will substantially improve the built environment and indeed provides opportunities for associated new land uses (street side cafes, etc.).
- 8.8.4 There are land use planning costs/benefits associated with different forms of transportation. Bearing in mind that private car traffic collectively is a form of mass transit that also has an aggregated impact way beyond that of the individual. The objectives for town centre access therefore, must focus on street viability, secured by making the town more accessible for modes other than the car. The parking proposals for this Study are set out elsewhere in this report.
- 8.8.5 A final aspect of town centre planning which can significantly add to the attractiveness of an area relates to the provision of distinctive areas within the town centres. While Navan at present contains a quite confined town centre, it will be necessary to increase the footprint of the central area if the assumption of a 60,000 resident population is to be met.
- 8.8.6 Navan has a strong Regional retailing tradition and this is reflected in the buoyant trading conditions experienced at the main shopping centre. Recent traffic analysis of the shopping district confirms that the catchment population extends considerably beyond the town itself.
- 8.8.7 Applying planning objectives to a successful retailing environment means a number of items. These include:
- Ensuring accessibility to the district and mobility within it,
 - Delivering a critical threshold of retailing outlets and sub-sectors to create a centre of attraction.
 - Creating the optimum enlivenment of the district for pedestrians,
 - Providing for parking and servicing movements, whilst controlling their visual and practical impacts (such as the effect of severance of pedestrian routings)
 - Expanding the use mix to create vibrancy for as long a period as possible, day and evening
- 8.8.8 There is opportunity to consolidate and expand Navan's town centre retail sector. Demand for shopping will increase in Navan as the population continues to grow. A number of suitable vacant sites exist close to the town centre for further retail development and or urban space improvement (see Navan IAP Plan).
- 8.8.9 Trimgate Street, Watergate Street and Ludlow Street provide the traditional shopping area in Navan. These streets make up Navan's historic centre and the town's main shopping area has developed there. Cannon Row and New Bridge are more recent additions to the central area.
- 8.8.10 Navan shopping centre is located off Kennedy Road and Abbey Road, just north of Trimgate Street. The shopping centre provides a wide variety of shops providing both convenience and comparison goods. While the shopping centre provides a reasonable choice of shopping facilities and reported business is strong, the overall district is quite poor in visual design quality and is not an attractive environment in which to linger. The appearance of this area is dominated by surface car parking on either side of the functionally designed shopping centre. The shops surrounding the main shopping centre building are discordant in design terms. There is a lack of coherence in the area.
- 8.8.11 Overall, the shopping centre area is a rather unattractive and uninviting environment. A design solution is required to improve the areas visual appearance and to consolidate the strong actual retailing trade, which takes place there. The existing plans for the new civic space at Kennedy Road are set to address these issues.

- 8.8.12 Applying the sequential approach to future retailing floorspace of town centre scale concludes that space availability is to the south of the current town centre. There is a modest area available at Fair Green. Beyond this the potential available landbanks are alongside the GAA County Grounds and adjacent to the proposed Central Rail Station. This area comprises redundant and low intensity industrial complexes and operations, and would be a logical location for a new town centre use district, all focused on the proposed rail service.

8.9 Suburban Districts

- 8.9.1 Under the current Navan Environs Development Plan 1997 there is a significant amount of land zoned for residential and employment uses which is undeveloped and which will accommodate a significant amount of future residential and employment land use requirements, should Navan grow to 60,000 population. Limited additional suburban lands will also be required for such a long-term population.
- 8.9.2 With regard to the established pattern of suburban residential development in Navan, it is recommended that a wider variety of house types are introduced in future developments. In addition, local services and facilities should be provided in line with development and new residential areas should be linked to other residential areas and to the town centre. The permeability of existing and proposed residential areas for both pedestrian and vehicular purposes must be addressed in this regard.
- 8.9.3 A key requirement of this report as recorded in the brief is to make broad recommendations as appropriate for possible future zoning objectives and land uses, to maintain consistency with the SPG's and assuming the implementation of the rail connection to Navan as indicated in the SPG's. To deliver on this requirement it is recommended that land use policy for Navan must incorporate a philosophy of continual consideration of change throughout all established districts. It should be emphasised that this is different to a policy advocating continual change. The purpose of this is to maximise the use of and the ongoing viability of, public transport services existing and proposed which will run through these established areas. There are many recent residential areas in Navan where opportunities for further consolidation may exist. It is imperative that all viable opportunities are articulated and that the presumed policy in the development plan is that consideration for future development will be considered, subject to strict amenity criteria.
- 8.9.4 Likely areas where change is identified as desirable will include, the redevelopment of local centres where additional commercial uses may be warranted or where an increase in residential accommodation can be effectively applied to these locations. There is also a clear design benefit to be accrued from reconsidering the current form and layout of many of the local centres. This ranges from a removal of the car parking prominence in the landscape (though not necessarily removal of parking quantum), to inserting pedestrian and cyclist permeability measures at and to these locations.
- 8.9.5 Another way of understanding this point is locating new residential development where there is already spare capacity in terms of existing or planned services and facilities (e.g. shops, schools, health services, leisure facilities) creates benefits from reaching critical thresholds for public transport, commercial services and also matters such as a sufficiency of use of amenity areas to generate security and purpose. This will limit the demand for non-residential land generally associated with new residential development. This approach will also benefit the existing/planned services, as it will increase the number of people within their catchment.

8.10 Public Transport Corridors

- 8.10.1 The future development of suburban areas in Navan, and indeed town centre and adjoining areas, have to be sensitive to the proposal to provide a public transport corridor to and through Navan. An important aspect of this approach is to predesignate a public transport corridor for both the transport infrastructure and land uses within the corridor catchment. The early designation of such a corridor is essential so that subsequent land use decisions can be made with a commitment to future public transport services. This will allow car dependent land uses to be separated from land uses that can benefit from proximity to public transport. The failure to identify future public transport corridors at an early date could lead to inappropriate land uses and densities and poor pedestrian access to future transport services which would reduce the future success of public transport. The future success of a public transport corridor will be affected by the ability to integrate a pattern of land uses that are compatible with public transport within an identified corridor and also to ensure that the internal design of individual sites will encourage use of future public transport services.
- 8.10.2 The designation of a public transport corridor in Navan would clearly involve areas already containing development. Efforts should be made to incorporate existing land uses into the development of a public transport corridor and to encourage use of the public transport for such uses. Such efforts could range from simple urban design solutions to a reorganisation of a road network. In certain instances, uses, which are not compatible with public transport, but are more reliant on roads infrastructure, may be located within the ideal public transport corridor. The planning system can encourage the redevelopment of such areas for more appropriate uses, through measures such as the introduction of zoning for higher value uses and the provision of alternative sites well served by roads infrastructure, so that inappropriate uses are encouraged to relocate. In this regard future uses of already developed parcels within the public transport corridor should also be considered as land use demands change over time, particularly with the introduction of a public transport service. An example of this within the context of Navan would be the redundant and low intensity warehouse/industrial buildings close to the proposed rail station. Higher value use zoning in this area will encourage such uses to move to alternative locations thereby facilitating the clustering of higher density, employee intensive commercial uses and residential uses around the rail station. At the same time the warehouse/industrial uses could move to areas more accessible to roads infrastructure such as lands in the vicinity of the Mullaghboy Industrial Estate and which this strategy proposes to expand, and which also will have easy access to the proposed by-pass.

8.11 Key Public Transport Nodes

- 8.11.1 There is a mutually beneficial relationship between public transport and business activity. Public transport services provide quick easy access to commercial activities and customers. Business activities and private developments generate trips on a public transport system and help to support the viability of the system. Public transport nodes/stops therefore present opportunities for development to more sustainable scales and mixes of development. This is necessary if Navan is to succeed in creating a 60,000 resident population town in a coherent and transport accessible format.
- 8.11.2 Depending on location, service frequency and function, rail stations will attract different levels of private commercial development. At terminal and town centre nodes that have greater numbers of passengers, a higher order of activity can be achieved. In the case of the proposed strategy, the rail terminal in Navan would be located just outside the current town centre area, and could become part of the expanded town centre to serve an expanded population.
- 8.11.3 In the case of Navan, the provision of a public transport rail service, as assumed in the presented option, incorporates a station location for Navan to the south of, but proximate to, the town centre. A location along the existing railway line to the south of Navan O'Mahony's GAA pitch has been identified as a suitable location. The current vacant and under-utilised land resource here makes it especially appropriate for delivering the desired mix of new transport access capacity along with increased residential, commercial and employment floorspace.

8.11.4 The considerably increased mobility permutations created at major public transport interchanges make them important points of land use development. Specific objectives for increased density and for mix of land use should be applied to these individual locations. These would include:

- Priority allocation of land use for population intensive activities (such as offices, educational institutions, higher value retailing and leisure uses)
- A requirement for a percentage mix of urban centre residential accommodation within new schemes.

8.11.5 A legible urban design that creates a distinctive identity for each interchange district and which therefore provides an important reference for those travelling to/from or through the interchange.

8.12 Mixed Use Development

8.12.1 Another important consideration for future development of undeveloped land is the identification of areas suitable of mixed-use development. Mixed-use development can promote sustainable development by reducing the need for both vehicular and public transport. In this regard, the location of residential, office, retail and educational facilities within close proximity of one another would encourage walking and cycling.

8.12.2 While in certain circumstances it may not be appropriate, or in the case of already developed areas be possible, to provide for mixed uses within a specific development area, consideration may be given to the location of compatible employment uses (e.g. offices, science and technology) close to established residential areas for example, or for local redevelopment of an area to provide retail or educational facilities.

8.12.3 The promotion of mixed-use development has potential to encourage local economic development. It is possible for a development plan to specify 90:10, 10:90, 75:25, 50:50 or 25:75 ratio for commercial/residential mix within a given area. Developers could be encouraged to provide and market the commercial element of generally suburban residential development for example, by virtue of the Planning Authority permitting higher residential densities where certain levels of commercial development are implemented. Conversely, higher commercial densities could be permitted in appropriate town centre areas where a residential component was also provided.

8.12.4 Considerable single use suburban residential development has occurred in Navan in recent years. In many cases these areas are not served even by a local shop, thereby creating unnecessary vehicular trips for a service, which could be provided locally. In this regard, there is potential for the identification of sites for development/redevelopment within local areas for the provision of local services such as shops, crèches, doctors' surgeries etc., where such needs are identified. This is an issue that is already addressed in the Integrated Area Plan for Navan.

8.13 Densities

8.13.1 Increasing densities for residential and commercial development can promote sustainable development in urban areas in the following ways:

- Reducing the overall land take for development, and thus minimising the loss of open countryside to development;
- Exploiting more fully locations which have high public transport services;
- Increasing the range of local services that can be supported, thereby reducing the need to travel, and hence the use of transport, energy use and emissions;
- Providing greater potential patronage for public transport services and sustainable freight operations, thus, improving potential viability and use;

- Increasing the opportunity for providing a range of housing types, including affordable housing;
- Giving opportunities to improve development in terms of design for energy use and supply;
- Providing the opportunity to design developments in terms of design for energy use and supply; and
- Providing the opportunity for more pedestrian friendly environments by reducing the space given over to roads and car parking.

- 8.13.2 In order for increased densities to help reduce the need to travel by car, it must be matched by improvements in public transport system. While higher densities within a given area can increase the viability of public transport, it must be matched by increased provision of public transport facilities. If both are put in place this should result in a decrease in the need to travel by car.
- 8.13.3 The implementation of higher densities for both residential and commercial development can also reduce the demand for additional undeveloped land to be zoned. It has been estimated that a 20% increase in density would reduce the standard land requirement for residential development by 8%. The greatest savings in terms of land requirements come from raising densities from low to medium density, (i.e. from 20 dwellings per hectare to 40 dwellings per hectare). In Britain the Local Government Management Board and the University of West of England having carried out research on sustainable settlements recommends that an average net density for new development of 40 to 50 dwellings per hectare will help to support public transport services and allow economic provision of infrastructure.
- 8.13.4 The recommendations of the Department of the Environment and Local Government Residential Density Guidelines for Local Authorities, discussed in more detail in Appendix B, are consistent with these British findings. In this regard, the Residential Density Guidelines recommend for outer suburban and greenfield sites, that development take place at net densities in the range of 35-50 dwellings per hectare (14 – 20 per acre) to encourage the greatest efficiency in land usage. This compares with average net densities of 15 to 20 dwellings per hectare, which have been typical of large-scale suburban development in Ireland in the last 20 years.
- 8.13.5 Due to the gains to be achieved, in terms of development land demand, from avoiding low-density development, minimum density standards should be set by the Planning Authority. A typical minimum limit for a non-metropolitan local authority in Britain is 25 dwellings per hectare. Typical maximum density standards for a non-metropolitan local authority in Britain are 50 dwellings per hectare. It is noted however that seeking to set maximum densities is not always appropriate. Rather, the maximum scale and density of a development should be determined on individual cases having regard to various environmental considerations and constraints, such as height of buildings, surrounding land use, visual amenities etc. Such an approach would allow for maximum appropriate densities to be achieved on each site while ensuring the protection of existing amenities. It would be appropriate in a development plan to identify the various environmental considerations and constraints, which should be considered with regard to development proposals in different areas.
- 8.13.6 The Residential Density Guidelines for Local Authorities in general recommend a range of appropriate densities as mentioned above. While they do not suggest any maximum densities they do refer to minimum densities, which should be allowed. They state that in outer suburban/greenfield developments densities less than 20 dwellings per hectare should generally be discouraged, particularly on sites in excess of 0.5 hectares. Furthermore, while a density range of 35 – 50 dwellings per hectare is recommended for such sites in general, the Density Guidelines also recognise that there are occasions when higher densities are appropriate. In this regard they recommend that on lands proximate to existing or proposed public transport corridors, densities in excess of 50 dwellings per could be permitted.

- 8.13.7 Higher density non-residential development may be achieved for uses which by their nature are not reliant on roads infrastructure, and which are located in areas accessible to public transport nodes. Clearly, the quality of the public service in terms of its range of destinations and the frequency of service will determine if the public transport service is a realistic alternative to the private car. In this regard, the service should for example deliver people from their homes to their place of work with a minimum of modal transfers required. Where a person is required to drive to a location to access the public transport system the chances of that public transport being used is reduced. Where public transport nodes which serve the commercial uses, however are within walking distance of residences, the demand and viability of that service increases. Thus, good public bus networks through residential areas, and which serve commercial/employment areas are necessary to reduce reliance on private cars.

8.14 Designing for Sustainability

- 8.14.1 It is now generally accepted that higher densities does not necessarily have to mean high buildings. Some approaches that could be considered are mentioned here.
- 8.14.2 The introduction of terraced housing can accommodate a greater number of dwelling units in an area (than typical suburban semi-detached or detached dwellings) while also allowing for the provision of private gardens, which is an important requirement for some residents. A reduction in off-street parking associated with individual dwellings can also help towards achieving higher densities. Such proposals would have to provide for some controlled parking and limit the number of spaces per dwelling, while also ensuring easy access to public transport and basic services such as local shops to provide a more comprehensive approach to car trip (and therefore car space) reduction. In areas of very high accessibility to public transport, it may be possible to consider residential development with no parking provision. A frequent, reliable and efficient public transport system would be required for such an approach to be possible.
- 8.14.3 In the case of Navan, given it's proximity to Dublin and the inevitable draw of Dublin not only in terms of employment but also with regard to high order retail, leisure and recreation, it is likely that car ownership in Navan will be quite high and car parking spaces will have to be accommodated within new developments. Consideration of a reduction in levels however could be appropriate on town centre sites and close to transport nodes with good connections to the town centre and to Dublin.
- 8.14.4 Conversely, it should be also noted that higher densities does not necessarily mean high site coverage. Depending on the location and physical attributes of a given site, higher buildings with substantial open space between them could deliver reasonably high densities while ensuring the creation and protection of physical and residential amenities, and also allowing a highly permeable type of development promoting linkages between areas and encouraging pedestrian/cyclist activity. Some sites close to the river have been identified as possible locations for this type of development.

8.15 Local Area Criteria

- 8.15.1 The land use planning and development policies and approaches described above should be tailored to suit the specific requirements of individual sites and areas as appropriate, and accordingly adopted in statutory development plans. Tables 8.1 to 8.5 include objectives and policies to be adopted for different types of area within Navan.

Table 8.1: Criteria for Residential Development

POLICY CONTEXT	HOW TO ACHIEVE
<p>SPGs: co-ordination of release of residential land with the establishment of employment</p>	<ul style="list-style-type: none"> • Set an order of priority in the development plan linking new residential with new employment quantum. • Apply phasing to zoning of lands requiring an employment floorspace for a set residential quantum.
<p>Promoting sustainable development: Future residential development must be as prudent as possible in the consumption of land and demand for services.</p>	<ul style="list-style-type: none"> • Identify new residential development by reference to specific types (e.g. percentage for apartment/conventional dwellings). • Record residential amenity criteria by reference to residential type and location. • Set minimum densities close to transport nodes and local/town centres. • Introduce road hierarchy/functional classification. Residential streets should be 4.5m wide or less. Vehicle speeds to be restricted to 30mph.
<p>DTO Strategy 2000-2016: Necessity for demand management alongside infrastructural improvements. Management measures include 'designing new developments to minimise the need for motorised travel'.</p>	<ul style="list-style-type: none"> • Identify Bus lanes and bus priority measures. • Residential layout must allow for through-routes for public transport and pedestrian routes on otherwise sealed residential cells. • Deliberately develop routings for public bus, cycling and walking, that visibly cheats the road network, thus making these modal options more attractive. • Such measures should also be applied to established areas. • As a general rule, a public transport bus connection should be available within 500m of residences. • Pedestrian routes should be pleasant and safe and not dominated by motorised traffic. They should also be overlooked to provide passive security. • Dedicated cycle route should be provided and segregated from motorised traffic. • Bicycle parking should be provided at destinations, e.g. town centre, local centre, places of employment. • Development plan should articulate the ability for progressive expansion of public transport services in tandem with resident, employment and visitor populations growth (provide a description of the public transport service level achievable subject to future development, e.g. at outer suburbs – established development could sustain say two buses per hour, the completion of development on 50% of landbank could sustain 4 buses per hour; full development could sustain 6 buses per hour for longer periods.)
<p>Good quality of open space and general landscaping related to residential development</p>	<ul style="list-style-type: none"> • Introduce identified function for all open areas.

Table 8.2: Criteria for Employment

POLICY CONTEXT	HOW TO ACHIEVE
<p>DTO STRATEGY 2000-2016: The necessity of demand management alongside infrastructural improvements</p> <p>“Parking should be to maximum standards”</p> <p><i>“Designing new developments to minimise the need for motorised travel”</i></p>	<ul style="list-style-type: none"> • Methods of restricting demand for parking include: <ul style="list-style-type: none"> • Reducing the number of workplace parking places, • Increasing the cost of long-stay parking, <p>The parking policy in the statutory development plan should require all applicants to justify the parking content, even when this is within the maximum standards allowable and stated in the plan.</p> <ul style="list-style-type: none"> • High employment generating uses e.g. office development should fall within 400m of bus connection or 800m of rail connection. Higher commercial densities to be provided within catchment area of Rail. The highest densities should be located closest to public transport nodes. • Bicycle parking to be provided at places of employment.
<p>Meath County Development Plan 2001</p> <p>Encouraging the provision of employment within the county close to housing.</p> <p>To provide for the supply of zoned serviced land in line with actual needs and the provisions of regional planning guidelines to avoid excessive over zoning and consequent difficulties in co-ordinating development.</p>	<ul style="list-style-type: none"> • Set an order for priority of development on zoned landbank in Navan relating new residential accommodation to employment development. • Develop mixed-use schemes with an inducement for employment floorspace. • Record plan objective under 10(2)(d) of the 2000 Act making clear the land use imperatives of sustaining a 60,000 resident population. These are: <ul style="list-style-type: none"> ▪ Introduction of significant new employment, ▪ A requirement for new layout and design of residential, employment and mixed use districts, ▪ A reappraisal of many established areas, ▪ The application of a viable bus transport network for the town, ▪ Operation of a rail link between Navan and Dublin

Table 8.3: Criteria for the Town Centre

POLICY CONTEXT	HOW TO ACHIEVE
<p>Policies to encourage the improvement of town centres</p>	<p>The main requirement to implement this policy is to improve accessibility to the centre by all modes, to improve the mix and variety of activities and retail, to improve the level of night time usage and to link the existing traditional centre with shopping centre area and with any future expansion areas.</p> <ul style="list-style-type: none"> • Reorganise parking within the centre. Provide parking facilities at edge of town centre on major radials into centre to reduce through traffic. • Design policy should record that all sites must have building frontage onto the street alignment, with parking to the rear/side or underground. • Provide priority access for public transport services to deliver passengers to the town centre. The Shopping Centre precinct is a suitable location. • Introduce pedestrian priority zones, including pedestrianised streets. • Promote distinctiveness and diversity within different areas of the town centre, through use mix, architectural character, and environmental improvements. • Encourage night time activity within the town centre. This may be achieved by increasing the types of activities available within the centre. Activities which encourage night time activity include theatres, cinemas, cultural activities, restaurants, pubs, night-clubs. • Increase the number of residential units within and adjacent to town centres and of the level of night time activity of the centre. Residential infill development to be encouraged having regard to appropriate town centre residential amenities (density to be determined by site design factors, not a specified density). • The statutory Development Plan should identify sites for infill, redevelopment and increase of densities. • Promote new higher value employment district in the environs of the County Council buildings. • Promote mixed-use schemes along the Blackwater riverfront and to the north of the river for mixed use developments, including some employment uses. • Propose a new pedestrian link in this area from the north side of the river would help to integrate the northern side of the town with the town centre thereby creating more activity in the town centre in both day-time and night-time • Prepare town centre zoning objective, which requires a percentage allocation of applications for commercial/employment use and for residential use. Create floorspace increase inducements (such as identify sites for a minimum density of residential plus a floorspace range for commercial use)

Table 8.4: Criteria for other Urban Areas

POLICY CONTEXT	HOW TO ACHIEVE
<p>DTO STRATEGY 2000-2016: The necessity of demand management alongside infrastructural improvements</p> <p><i>“Designing new developments to minimise the need for motorised travel”.</i></p>	<ul style="list-style-type: none"> • The layout of new development areas must be co-ordinated to ensure public transport penetration and access/egress priority. . • Development Plan objective should require a minimum percentage of frontage development along distributor roads. (This does not mean individual access). Associated with this, the development plan should include an objective to set minimum building height/ carriageway width ratios on the distributor roads. • Ensure direct linkage from residential areas to the adjoining road network through all cul-de-sac/end of house scheme locations. Thus, permeability for walking/cycling is continual • Direct, clear and safe cycle routes should become explicit in the design of new developments and in the overall transportation system. The cycle routes should deliberately be developed on a routing system that visibly <i>cheats</i> the road network thereby making this modal option more attractive due to shorter more direct journeys.
<p>Maximum accessibility to public transport infrastructure is required.</p>	<ul style="list-style-type: none"> • The primary catchment area around a bus stop for the internal Navan service should be taken as 350m radius. Development should be oriented towards the bus route corridors. • Development within 500m of the proposed rail stations should be developed to optimise resident and working populations. Density should be a manifestation of specific scheme design and locational context, rather than a set figure.
<p>Planning and Development Act 2000</p> <p>First Schedule-Part I-Location and Pattern of Development: Purposes for which objectives may be included in the development plan include: “Promoting sustainable settlement and transportation strategies in urban and rural areas.”</p> <p><i>“Regulating and controlling the layout of areas and structures, including density, spacing, grouping and orientation of structure in relation to roads, open spaces and other structures”.</i></p>	<ul style="list-style-type: none"> • The development plan should identify areas where substantial change can potentially be implemented (e.g. undeveloped zoned lands within existing areas, existing areas with potential for infill or complete redevelopment to improved quality and sustainable development standards. • Development plan should determine sequencing of development on zoned land (the release of land of different phases to be linked with the achievement of employment use development in the town).
<p>Reduce urban sprawl and create a clearer distinction between urban and rural areas.</p>	<ul style="list-style-type: none"> • Define the desired future boundaries of the built-up and non built-up areas of Navan. • Planning policies should aim to create a recognisable and sustainable edge. This could be achieved by defining functional (use), visual and aesthetic requirements for development along the boundary.
<p>DOE Sustainable Development Strategy 1997</p>	<ul style="list-style-type: none"> • Demarcate a green pedestrian/cyclist network which maximises opportunities for use rather than

<p>Planning process can also promote the most effective use of already developed areas.</p>	<p>necessarily defers to established layouts and boundaries.</p> <ul style="list-style-type: none"> • Cycling and walking is made more attractive when it appears possible to cheat the traffic, i.e. to get a more direct routing than by road. Direct segregated routing, such as from the end of a cul-de-sac onto neighbouring routes is possible and beneficial but the segregated stretch must be short and/or overlooked. Current instances where separate estates present walls to each other but there is little or no permeability, would suggest that great improvements could be made relatively easily. These identified break through routes may also open up infill locations for new development. • The green route strategy can therefore provide a clear supporting logic for infill development, with shared benefits for both existing and prospective residents, where otherwise such infill might be perceived as simple speculation.
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Table 8.5: Criteria for Open Space

POLICY CONTEXT	HOW TO ACHIEVE
<p>Meath County Development Plan 2001. Open Space policy.</p>	<p>Plan objectives should categorise all existing and proposed open spaces to one of these, as follows:</p> <ul style="list-style-type: none"> • Space for routine use, i.e. a direct routing to shops/community facilities/ transport nodes. This space should be readily visible from neighbouring buildings, be close to the road network. The Plan should consider certain forms of pavement as open space (for example wider spaces at local centres where café use can be encouraged, and allow for high quality examples to be offset against open space quantum. This offers a clear incentive to developers to think about the quality of urban spaces being created and where they should rationally be laid out, rather than applying a quantum open space standard and attaching it where it fits into an already laid out scheme. • Space for active uses. This space should be close to the centre of the community and be linked to institutional uses such as schools. It should also provide a feeder into routine passive use areas. For example a person walking a dog or pushing a pram will feel safer using open space if it passes and is close to more active areas where there is human presence/bustle. • Destination space. This is space to which people come on an occasional basis as a clear decision (e.g. use of Phoenix Park or Sandymount for a walk). The creation of such space must be carefully assessed to ensure that it has sufficient amenity merit to attract this form of activity. Otherwise it will not be used enough to give a sense of security and from then on it will fall into disrepute. This is the critical objective in relation to the riverside area of Navan. Securing public ownership, maximising points of access and implementing development uses in the immediate vicinity of the riverside area to ensure usage thresholds, are key objectives for inclusion in the development plan. <p>Civic/public spaces to be provided within the town centre include:</p> <ul style="list-style-type: none"> • Area around Kennedy Road • Fair Green • Area close to new Rail station • Riverside areas

8.15.2 The future development of a number of sites within or close to the town centre are of considerable importance, due either to their relationship with transportation options proposed in this strategy, or to their high profile/visible nature and consequent impact on the perception of the town for residents and possible investors. The attractiveness and permeability of the town centre is also of considerable importance in terms of encouraging local residents to avail of retail and commercial services locally, rather than exporting demand for same to Blanchardstown or Dublin city.

8.15.3 The areas for which local town planning criteria are now considered are:

- Rail Station area and County Council office precinct
- Riverside Development Sites
- Fair Green
- Kennedy Road/Shopping Centre Precinct

8.16 Rail Station Precinct

8.16.1 The following land use conditions and requirements are important considerations in regard to future development of the area around the proposed rail station and the county council office buildings:

8.16.2 Land Use and Planning Considerations for the Rail Station Area:

- With the population of Navan growing to 60,000 there will be demand for increased retail/commercial services. Increased demand will result in town centre growth. Town centre growth limited to southern or western directions due to presence of rivers.
- Need for second major retail centre within Navan. This should be located close to town centre so as not to detract from the viability of the town centre. The area to south of existing centre suitable given existing and future significant residential populations in this area. Also proposed distributor road will allow easy access to area south of town centre without necessity to travel through the town centre.
- The area in the vicinity of the proposed Rail station location is currently the location of redundant and low intensity use industrial/warehouse buildings, GAA grounds and a pitch and putt course. These are not high value uses and are potentially relocatable.
- The proposed rail station location is within easy walking distance of the existing town centre, either via the GAA grounds and Brews Hill or via Railway Street.
- These industrial/warehouse/recreational land uses adjoin well established low level residential development.
- Area around County Council buildings – redevelopment potential for high value office uses – area close to existing town centre and to proposed rail station location.

8.16.3 Town Planning Objectives and Criteria for the Rail Station Area:

- Prepare Architectural Framework for the area to determine most sustainable use of land in terms of building densities, heights and layout.
- Zone lands in vicinity of proposed rail station location for mixed commercial and residential uses including retail, offices, and town centre uses.
- Designate site for future station and include in statutory development plan. No development here pending provision of rail link and station – possible consideration to temporary public transport facility for bus service.
- High-density development around the station. Promote innovative design in areas adjoining rail station in interim period, which in the future have potential to link with/relate to possible rail station.

Architectural Framework to specify plot ratios for development in this area. These should range generally from 1.5 to 3.0. The lower density development would likely be required in some instances at the edge of the area, which adjoins established low-level residential development. This would protect residential amenities and provide an appropriate transition of scale between the established areas and the high-density development around the station. Consideration should be given to higher densities where it can be shown that the existing amenities can be protected, or for the provision of a landmark building.

- In the case of residential developments these should be developed at a density of not less than 50 units per hectare, with a range of higher densities up to 70 units per hectare possible closer to the centre of the proposed 'action plan' area.
- The internal space standards of apartment development should be quite generous to encourage demand for this type of accommodation within Navan.
- Objective for minimum residential component to commercial developments. Initially this may be low, e.g. 5 to 10%. In the longer term where a rail link is secured, this figure could be reviewed and increased, also having regard to demand for apartment accommodation.
- Architectural Framework should assess appropriate building heights across the area. The edges of the area adjoining established residential areas likely to require lower building height (2 – 4 storeys), rising closer to the rail station, possibly to a 6-7 storey landmark building, which could even incorporate the station.
- Create link to existing town centre (via GAA grounds to Brews Hill). Possibility for some public space here with buildings fronting on. Uses here, as well as public space, should encourage movement between existing centre and proposed rail station, e.g. ground floor retail, restaurant, public house.
- In the interim period prior to the delivery of a rail link to Navan uses which act as attractors and which can establish the area as a second anchor node of the town centre should be promoted. There is already demand in Navan for a second retail centre. Such a use would at present not be dependent on rail and therefore could be established in the short term and act as a catalyst for other development in the area not reliant on rail. Another use which could act as an attractor and help establish this area would be a cultural /recreational building such as an art gallery, museum, public library, public hall or exhibition hall.
- Car parking to be either underground or multi-storey. No surface parking. Provide parking facilities to the rear of buildings away from public frontages/public spaces.
- Car parking standards for this area should be 'maximum' standards, e.g. 1 space per apartment and 1 space per 250 sq.m. gross office development. At the second development plan review stage this could be reduced, having regard to the situation existing at the time with the rail link to Dublin. Residential standards could be reduced to 1 space per 2 apartments and 1 space per 350 sq.m. gross office floorspace.

8.17 Riverside Development Sites

8.17.1 Land Use and Planning Considerations for the Riverside Areas:

- Riverside locations in Navan are currently an under-utilised resource. They have excellent development potential due both to their proximity to the town centre and also by virtue of their natural visual amenities.
- There are possibilities for development on both the north and south banks of the River Blackwater.

- The River Blackwater and the N3 currently have a severance effect on the town. Development of the riverside locations should address this issue (reduction in traffic volumes on the N3 with the introduction of the Navan by-pass will also help in this regard).
- The natural topography of the north bank riverside sites will allow development of multi-storey buildings.
- The style of future development on these sites is not confined as the sites essentially address the river and are not immediately adjoined by existing development.
- There is an existing undeveloped site beyond the riverside site on the northern side of the Blackwater, along Ratholdren Road and with frontage onto the Inner Relief Road (Abbeylands).
- Develop a new *Boulevard* along the existing N3 with the completion of the M3 bypass and proposed Distributor Road.

8.17.2 Proposed Town Planning Objectives and Criteria for the Riverside Areas:

- These areas are suitable for mixed-use development, mainly residential and office with some limited retail in the form of small shop units. Given the high profile nature of these sites, in particular the northern bank, these areas would also be suitable for restaurant, public house, cultural or community uses.
- There is potential on these sites for a dramatic landmark development that could become a point of reference for Navan, in particular the northern bank. In this regard, innovative architecture should be encouraged in this area, as the style of development is not confined by any existing development. Buildings in this area could rise to 5 – 6 storeys.
- The minimum residential density which should be allowed on these sites is 50 units per hectare and minimum plot ratios for development in general should be 2.0 – 2.5.
- Development on the northern bank of the River Blackwater should provide for linkages with possible future development of the site immediately to the north (on Ratholdren Road).
- Potential also exists for development on the southern bank. Development here however should be of a much lower scale than on the northern bank and should provide high levels of open space areas to maintain views across the river. It is important to retain a relatively high level of openness on these lands. Otherwise the advantages of the reduced traffic flow (and therefore severance) on the N3 would not be optimised as views of the river would be closed off and a new form of severance introduced.
- Any future development on the southern bank of the River Blackwater to the west of the Inner Relief Road should have regard to the provision of pedestrian links across the river to the proposed new town park. This would be necessary to make the public park easily accessible from the town centre by foot.

8.18 Fair Green

8.18.1 Land Use and Planning Considerations for the Fair Green Area:

- The Circular Road has a severance effect on the Fair Green Area
- The parking provision at the Fair Green detracts from the setting of a number of buildings of historic note.
- Need to accommodate market trading.

8.18.2 Town Planning Objectives and Criteria for the Fair Green Area:

- Traffic calming/management to reduce the severance effect of the circular road – including additional crossing points. Creation of linked pedestrian routes through the north and south parts of the Fair Green and possible regrading also likely to improve severance impact.
- Most of surface parking to be removed. Retain hard landscaped area for market stalls. Possibility of allowing parking here on Sundays.
- Redevelopment potential at eastern end of Fair Green, around the Infirmary. Sensitive redevelopment required due to presence of historic buildings.
- Objective to aim for high densities, i.e. above 50 units per hectare. However, due to presence of historic buildings, this may need to be reduced, to protect/improve its settings.
- The Fair Green area will be an important public space joining the old Town centre with the new development surrounding the Central rail Station.

8.19 Kennedy Road/Shopping Centre Precinct

8.19.1 Land Use and Planning Considerations for the Kennedy Road Area:

- The central area around Kennedy Road is dominated by surface car parking.
- Traditionally, the buildings on Trimgate Street and Watergate Street backed onto the Shopping Centre/Kennedy Road precinct. There have been some recent developments to the rear of Watergate Street that are beginning to address this problem, such as the multi-storey car park and cinema developments, and some infill residential schemes.
- The extensive car park area fronting onto Abbey Road is open and lacks definition.
- A positive feature of the area are the lane ways which lead from Trimgate Street and Watergate Street to the shopping centre precinct, as they directly link the traditional main street with the shopping centre.
- The Kennedy Road/shopping centre precinct comprises of a large proportion of the town centre area, yet functions more like a suburban shopping centre than one located in the heart of a town centre. The surface parking surrounding the shopping centre exacerbates this problem. The limited mix of land uses in the area also reduces the use of the area outside of opening hours of the shopping centre. The multiplex cinema does create some life in the area at night but this is not significant.

8.19.2 Town Planning Objectives and Criteria for the Kennedy Road Area:

- Encourage new development to create a tighter urban form more appropriate to a town centre area
- Shopping Centre is located within the town centre. Extensive surface car parking not appropriate. Replacement with multi-storey parking would be more appropriate to town centre urban form. This would release land for civic space and additional development land.
- Create Urban/Civic space at Kennedy Road in place of surface parking.
- Encourage 'frontage' development onto new civic space. This could involve new build or alterations/extensions to existing properties.
- Improve urban form and definition along Abbey Road. Development in this area would create a streetscape, which is more appropriate for this town centre location.

- Encourage a greater mix of uses in any new development in the area. Uses to be promoted are those, which would add life and vibrancy to the area outside the opening hours of the shopping centre. Appropriate uses include residential, leisure/recreational facility, community building, cultural uses, restaurants and pubs. An improvement in the urban environment of the area with the removal of some surface car parking and the provision of a civic space would encourage such uses to locate in this area.
- Residential densities of at least 50 dwellings per hectare should be provided in new development. Where lower densities are proposed, applicants should have to present a valid argument for such.

9 THE PREFERRED STRATEGY – URBAN DESIGN

9.1 Urban Design Principles

9.1.1 The Urban Design approach to the town of Navan was guided by a series of general principles, which should be taken into account at every stage of a town's development. These can be summarised as follows:

- **Character** – A town should have its own identity and be easily differentiated from other towns
- **Legibility** – A town should have a clear image and its components should be easily identified
- **Value** – A town should create its own value, in order to sustain the desired mix of uses, as well as the quality of its townscape
- **Continuity and Enclosure** – A town should have a clear distinction between public and private spaces
- **Diversity** – A town should boast variety and choice
- **Accessibility** – A town should be easy to get to and move through in a variety of transport modes
- **Adaptability** – A town should be able to change easily and incrementally
- **Inclusiveness** – A town should provide a diverse range of services and goods to a wide variety of users
- **Quality of the Public Realm** – A town should be an appealing place, with attractive and successful public spaces
- **Sustainability** – A town where the balance between the natural and the built environment is achieved

9.2 Urban Structure

9.2.1 Due to the expected population growth and development, the future Navan town will 'look' different from today. From one central core at present, the centre of Navan should expand and include several complementary elements, each of which will have an individualised character. Figure 9.1 represents schematically the different components of Navan, as well as their interconnectivity.

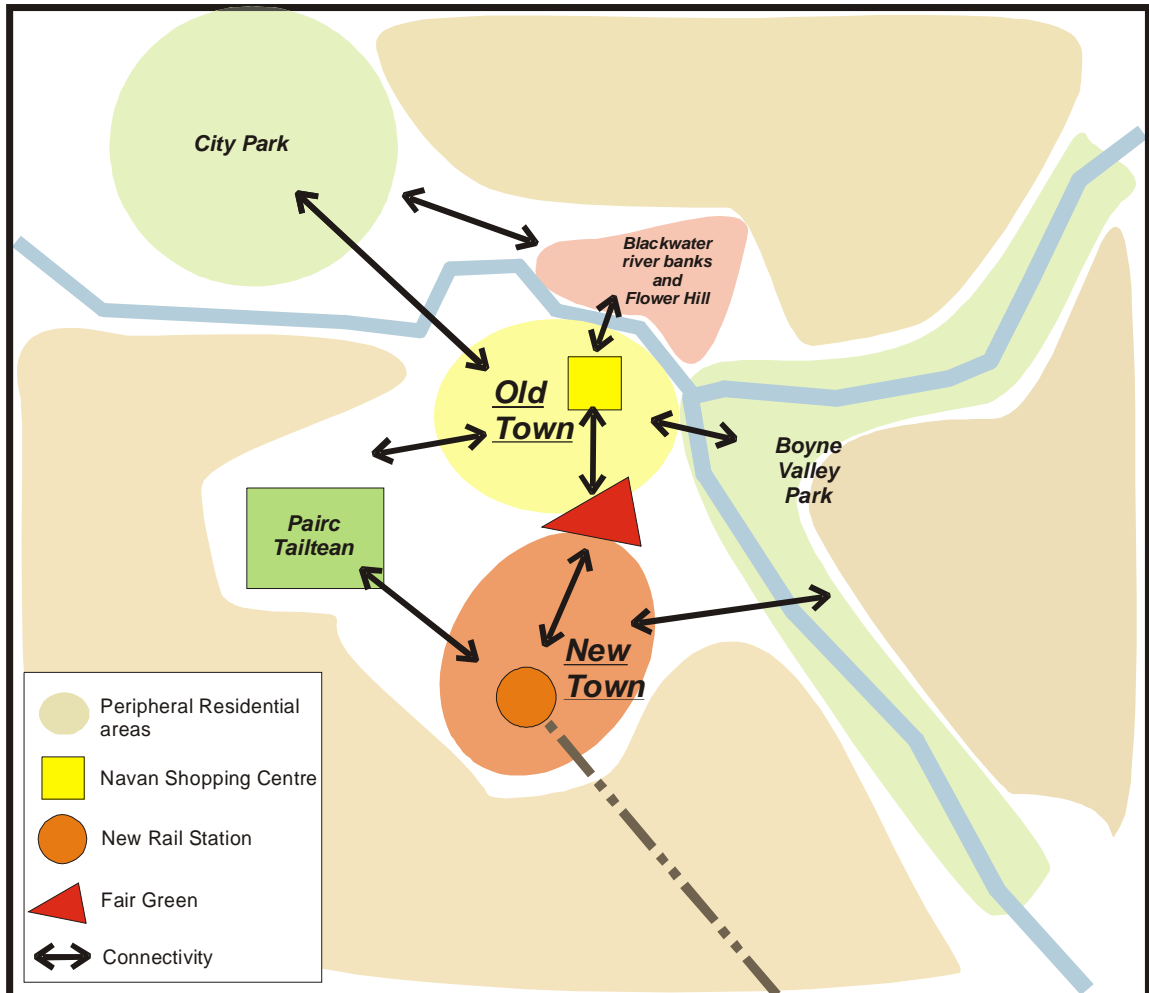


Figure 9.1 : The Urban Structure of Navan

9.2.2 The existing centre of Navan (*Old Town*), comprising Navan Shopping Centre, Trimgate Street, Market Square, Ludlow Street, etc. should continue as the traditional shopping district with a further improved quality of public space. This can be achieved with the redevelopment of the Shopping Centre area, the proposals for Kennedy Road and the pedestrianisation of Trimgate Street. Based on the findings of the recently commissioned traffic management plan for Navan, the pedestrianised area could be extended to other streets, such as Ludlow Street and Market Square.

9.2.3 The historical character of this area should be maintained and enhanced by preserving and restore notable buildings, by keeping the retail and residential mix of uses and by rehabilitating the laneways, which are a legacy of Navan’s medieval past.

- 9.2.4 The *New Town* will develop around the new Rail Station and towards the existing centre. Here, Navan has the opportunity of stating its maturity, economic achievement and status as a regional capital by implementing modern urban design solutions and aesthetically striking architecture. A comprehensive mix of uses may be located in this area in order to create a complementary town centre, thus enabling the balanced growth of the wider Navan core.
- 9.2.5 The pivotal point where the balance of the centre is concerned is the Fair Green area. The creation of a new civic space in this area, which is presently dominated by car parking, is of key importance. The Fair Green should become the focal point of the interrelation between the *Old Town* and the *New Town*, as well as a recognisable local bus hub. Most of the local bus services will serve this area, giving it a strong public transport character.
- 9.2.6 The layout of the new civic space should take into consideration the inclusion of attractor uses, taking advantage of the strong public transport function (the existing Library should be retained). Pedestrian permeability should also be a feature of the new Fair Green, to allow optimum usage of the area by pedestrian movements between the *Old Town* and the *New Town*, as well as to improve the pedestrian routes to and from public transport (Rail and Bus).
- 9.2.7 A third element in the urban structure of Navan is the area comprising the banks of the River Blackwater and Flower Hill. This area is suitable to accommodate quality high-density residential developments, due to its close proximity to the existing centre. Flower Hill should be regenerated in order to recuperate its former retail character, forming in the future an extension to the retail axis Trimgate Street - Watergate Street.
- 9.2.8 A conjunction of outlying residential districts and areas of open space may frame these three areas of Navan. The open space should assume different layouts, in order to function as an ecological and landscape resource, as well as spaces that are actively used by the Navan population. The new Town Park, the valley of the Boyne and Pairc Tailteann can be the backbone of the 'green' component of Navan's urban structure. The optimum use of green space is discussed in more detail in chapter 11.3.
- 9.2.9 This urban structure can only function as a whole, if integrated by the several networks proposed in this report. The cycle and pedestrian network must provide the links between the different elements within the centre, while the local bus network should connect these areas with the residential periphery of Navan.

9.3 Optimum Locations for Activity Centres

- 9.3.1 To optimise the accessibility of activity centres, uses should be mixed and integrated, in order to form clusters of trip origins and destinations.
- 9.3.2 Mixed land use mean that retail shops are located within a residential neighborhood, or residential units are located in a commercial center or industrial area. The mix of uses makes consumer services accessible to residents, and a balance of housing and jobs within each community may allow some residents to work near their home.

9.3.3 The location of facilities like schools and shops at the most accessible points in the public transport, walking and cycle networks, reduces considerably the pressures on the road network, for trips can more easily be made by these modes.

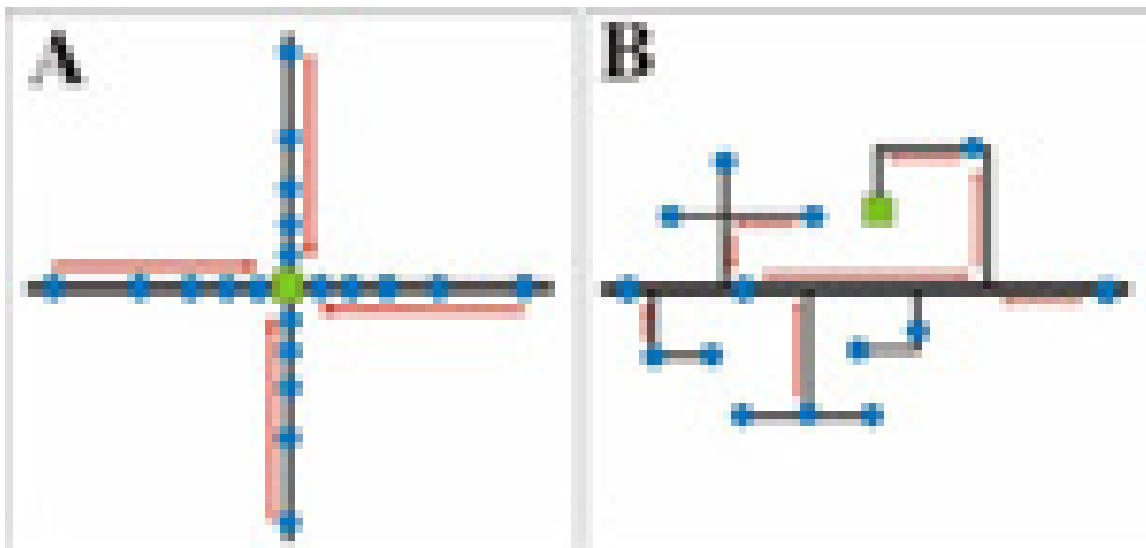


Figure 9.2 : Examples of Efficient (A) and Inefficient (B) Location of Activity Centres

9.3.4 Diagram A in Figure 9.2 shows how locating an activity centre at a crossroads reduces travel requirements, increasing accessibility. On the other hand, the type of location represented in Diagram B tends to increase traffic congestion, increase trip distances, reduce travel choice and reduce accessibility.

9.3.5 Many local centres of activity (e.g. local shopping, community, school uses) in Navan are already in existence, and access to them by all modes must be tackled retrospectively by the network strategies.

9.3.6 However, in new development schemes, local centres and other attractors of trips (such as schools or parks) should be located in proximity to all networks, with priority locations served by the public transport and pedestrian/cycle networks.

9.3.7 The proposed new local shopping centre at Bailis is a good example of an optimum location, although special attention should be given to its pedestrian and cycle accessibility. In order to take the most out of its optimum location, the impact of the heavy traffic on the adjacent roads has to be minimised by including quality cycle and pedestrian crossings.

9.4 Optimum Use of Green Space

9.4.1 A significant positive natural feature of Navan is its location at the confluence of two rivers – the River Blackwater and the River Boyne. As the town historically developed around a river crossing, the town centre is located adjacent to the rivers. There is a huge potential to develop the riverbank areas as open green spaces with integrated public footway and cycle track links to residential, retail, leisure and working environments.

9.4.2 The proposed green structure for Navan contains five major elements as shown in Figure 9.3:

- Navan Town Park
- River Blackwater
- River Boyne - Ramparts

- River Boyne along Dublin Road and River Confluence Point
- Outer Rural Hinterland of Navan

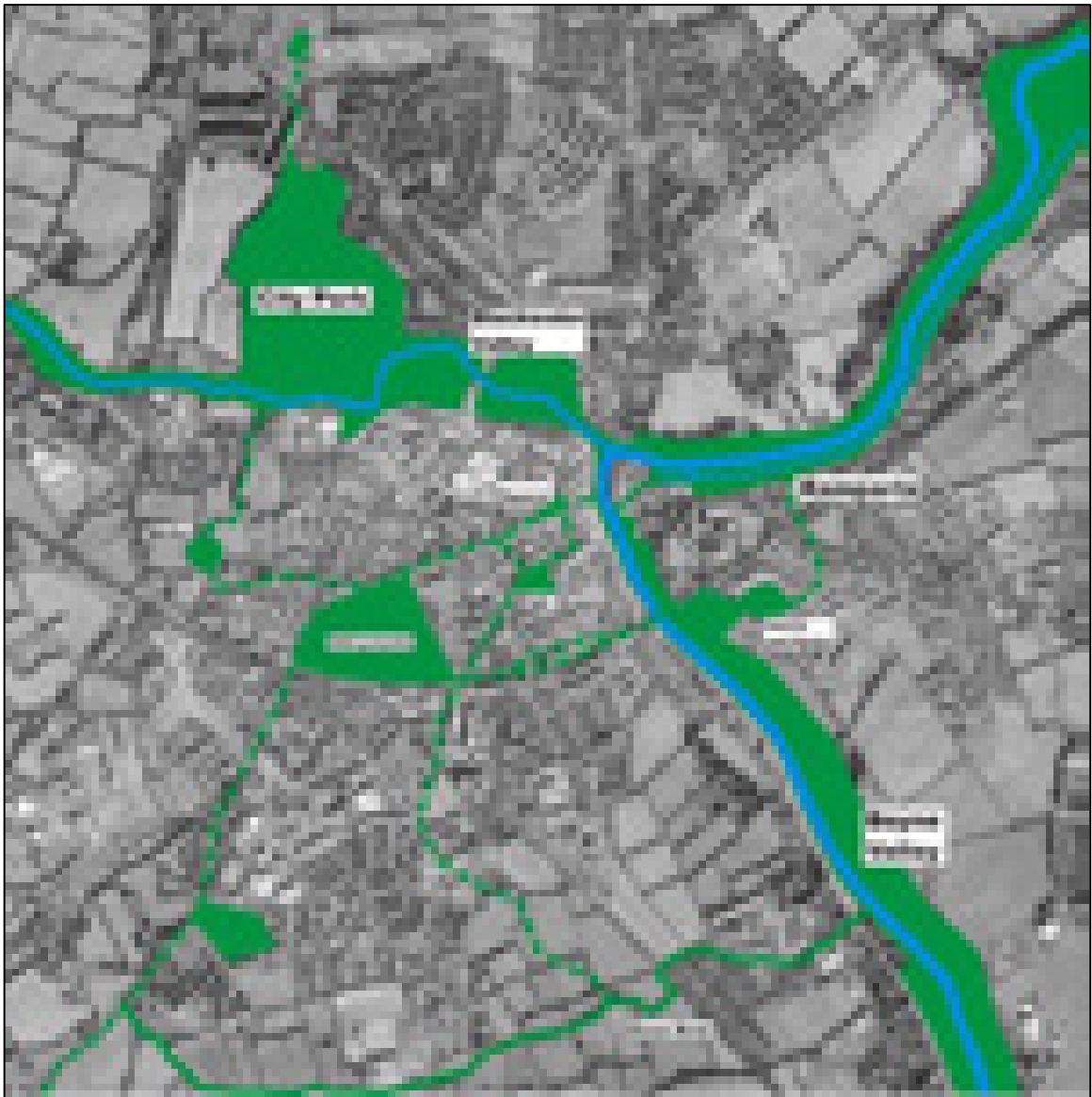


Figure 9.3 : Proposed Green Structure of Navan

- 9.4.3 The proposed Navan Town Park is located within close proximity to the town centre to the north of the River Blackwater. This facility should be provided with suitable links to historical and recreational attractors such as the Motte (Athboy Road) and the GAA sports grounds, near the Town centre.
- 9.4.4 The peripheral residential areas of Navan should incorporate green areas with pedestrian and cycleway links to the Town centre. The new developments have to include internal green structures that are compatible with each other, forming a coherent pattern at a larger scale. Examples of how this can be achieved are shown in Figure 9.4.

9.4.5 Also of great importance is the integration of this Green/Ecological structure into the broad rural hinterland of Navan. The intention of using the Boyne valley as a tourist attractor on its own right, taking advantage of the numerous tourist spots in the area, will only be achieved if there is a continuous green pattern linking Trim, Navan, Slane and Drogheda. Different types of landscaping are required for different sectors of the valley, but emphasis has to be put in guaranteeing the accessibility and interconnection between the several urban settlements and tourist attractors.



Figure 9.4 : Examples of the Integration of Development with Green Ecological Features

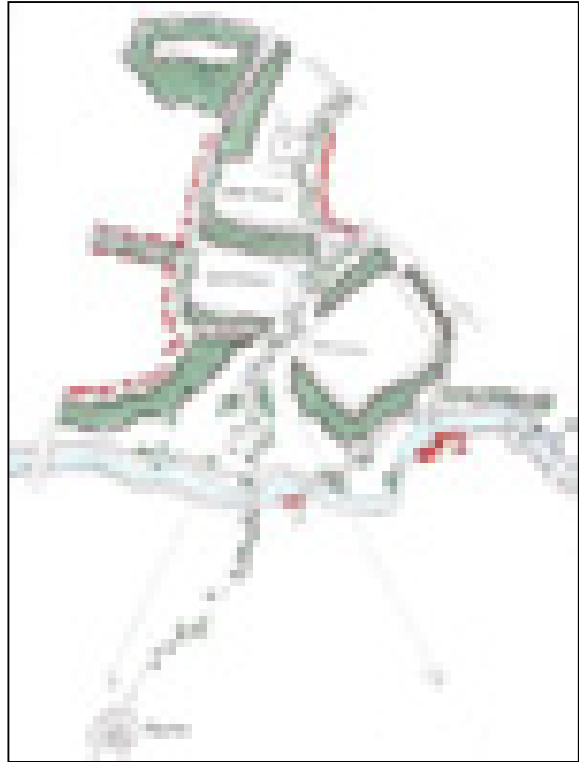
9.4.6 Linkages have been proposed between all the green areas within Navan, linking the rivers, the ramparts, historical and recreational grounds together. The green network should incorporate the following areas:

- Navan Town Park
- Boyne Valley - Ramparts
- Boyne Valley - Navan River Park
- Blackwater river banks
- Town Centre (Fair Green, Trimgate Street, Market Square)
- Navan Central Station
- Pairc Tailteann and sports grounds on Commons Road
- Rail bridge over the River Boyne
- Athlumney Castle and Motte

- Motte (Athboy Road)
- Rural hinterland of Navan

9.4.7 The proposed Town Park to the northwest of the town centre should be used as actively as possible, in order to ensure the perception of safety to users. The accommodation of sports grounds and the relocation of the Pitch&Putt Club may be a suitable way to guarantee the usage of this Park by considerable amounts of people. A suggested layout for this Park can be seen in Figure 9.5.

Figure 9.5 : Suggested Layout for New Town Park



9.4.8 Accessibility is critical to achieve high levels of usage of the Park. The internal cycle and pedestrian network layout should allow trips through the Park as well as plenty of routing alternatives within it. The Park should also be well integrated with the surrounding residential areas and used as a route for cyclists between these and the town centre. An integrated design is strongly recommended for the new residential area to the west of this Park.

9.4.9 The provision of this major leisure area should be supported by the provision of proper cycling and pedestrian crossings of the river Blackwater, which can be directed towards two main focal points: the Town centre and the Motte, to the south of the Kells Road. The latter connection will be integral part of the main green structure of Navan.



9.4.10 The Swan River forms a natural boundary at the south of Navan and can also be an attractive link for pedestrians and cyclists between the residential areas along the Dublin Road, Trim Road and Commons Road, connecting all of these with the proposed South station. An example of this type of landscaping solution can be seen in Figure 9.6.

Figure 9.6 : Example of a Green Corridor defined by an existing Water Feature

9.4.11 Navan has several attractive historical features within close proximity to the town and are hidden from the public eye that could be integrated with the green space areas and linkages.

- The Motte located to the West of the town, off the Athboy Road should be developed with a public access as this location has an attractive and important viewing point over the whole town and environs.
- Athlumney Castle is located to the southwest of the town with a view of Navan overlooking the river valley. It is an impressive relic of the past and is surrounded by a largely green and rural setting despite being a short distance from Navan town centre. The castle could be made more accessible to the public and incorporated into a potential heritage tour of Navan.

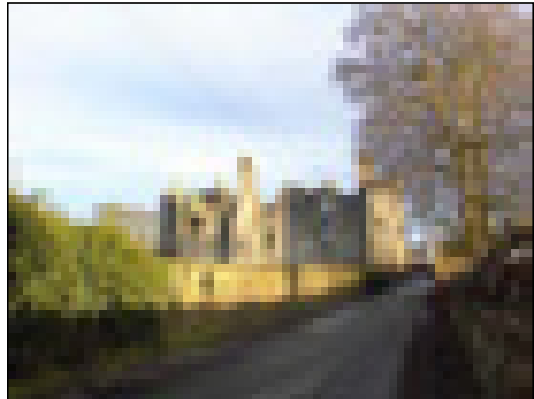


Figure 9.7 : Athlumney Castle

- A Motte located within 70m of Athlumney Castle, overlooking the Boyne and the centre of Navan.
- The old railway bridge is an important link between east and west Navan. This railway bridge is an impressive gateway into Navan that currently is under-utilised. Its utilisation as a pedestrian/cycle/bus link will improve considerably the accessibility of the eastern areas of Navan.
- Donaghmore church and 10th century round tower are situated approximately 1km from Navan, on the Slane Road.

9.4.12 The area of Blackcastle, an old castle site, is situated north of Navan overlooking Navan and the confluence of the two rivers. It has the most impressive view and landscape of Navan incorporating all the historical sites mentioned above, churches and the rivers.

9.5 Town Centre

9.5.1 The town centre of Navan is a critical area in what the success of the Masterplan is concerned. The expected growth in population of Navan will necessarily have a direct impact on the amount of town centre activities and even on the boundaries of what can be identified as the centre of Navan.

9.5.2 The way the town centre is going to look like and the type of uses it will have are directly related to the Transportation and Land Use options presented in this report. Therefore, this Masterplan proposes the expansion of the heart of Navan towards the new Central Station on the south of the existing centre. It proposes the creation of a new attraction pole (retail, business, residential) around this station, which together with the existing Shopping Centre will establish the broad axis in which the most densification and mix of uses should occur.

9.5.3 With an increase of the population of Navan to 60,000 persons, which is envisaged under this study, would create significant additional demand for retail space that will result in an enlargement of the town centre. The topography of the town, in particular the presence of the rivers Blackwater and Boyne, will naturally encourage growth of the town centre in a southerly or westerly direction. Given that the transport strategy of this report proposes a rail connection with the central station located immediately to the south of Navan O'Mahony's, it would be appropriate for town centre growth to be encouraged in this direction either along Brews Hill or Railway Street.

- 9.5.4 The town centre should be densified, in order to include a bigger share of residential use than at present. Several opportunities exist in specific areas such as the shopping centre surrounding areas, the Fair Green and the N3, which should be transformed into an urban street when both the Motorway and the Distributor Road are in place. In addition to these locations, a level of densification should be applied to backyards and laneways within the existing urban net. Examples of urban townhouses developed around a courtyard can be seen in Figure 9.8.



Figure 9.8 : Courtyard Townhouses

- 9.5.5 The integration of uses such as residential and retail should be promoted in the core of Navan. The tradition of living over the shop that has been present in many Irish towns has lost some of its importance as new provision of retail and housing is done in a horizontal rather than vertical segregation. New infill developments in Navan must try to integrate vertically these two types of uses.

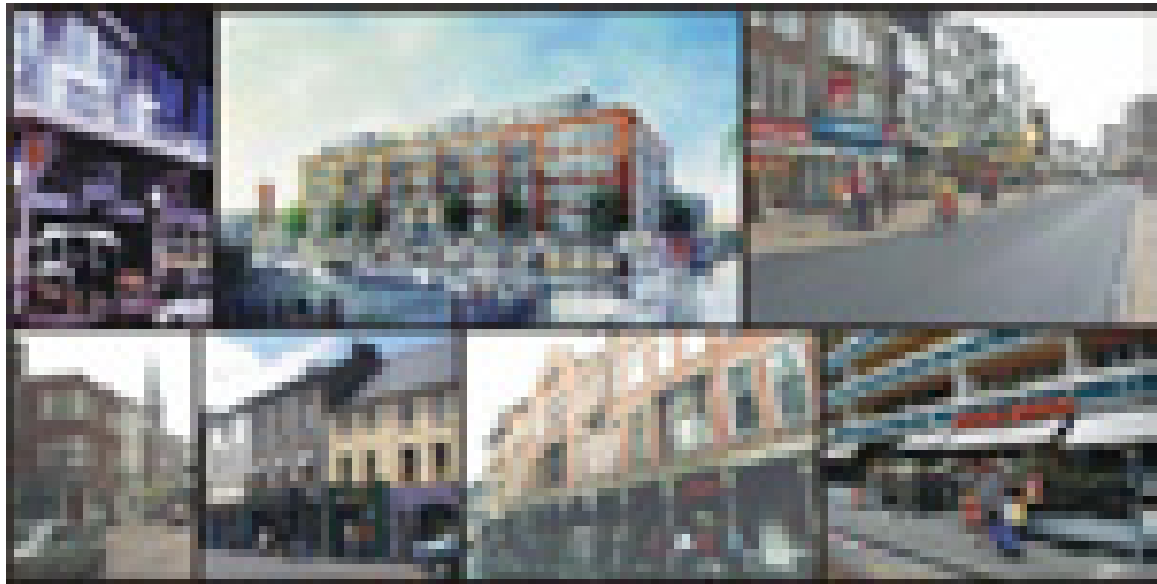


Figure 9.9 : Examples of Residential over Retail

- 9.5.6 The new *Boulevard* on the existing N3 is one of the locations where the '*living over the shop*' solution can and should be applied. This will provide the area with full-day generation of activity in a quality urban landscape, which is the key for the success of a new neighbourhood.

NAVAN

- 9.5.7 To be able to grow in a sustainable way, Navan should retain and enhance the main assets of its central area - its strong retail character and a considerable mix of uses. Added to this, Navan should open towards the river valleys, by taking the opportunity of reclaiming the existing N3 and make it part of a vibrant Town centre.
- 9.5.8 In order to enhance the attractiveness of the core of Navan, the traffic volumes that at present pass through its inadequate road network have to be substantially reduced. For this to happen, several traffic management measures have to be in place, in addition to the overall Road infrastructure improvements.
- 9.5.9 Some traffic management and parking policy measures proposed for the centre of Navan are described below:
- Creation of a **20 mph zone**, which should cover most of the existing Town centre
 - Adoption of a **two-way flow in Flower Hill and the Inner Relief Road**, in order to achieve more flexibility in the route options for trips between the north and the centre of Navan. This is one of the measures that will ensure the reduction of traffic on the old N3 and help rejuvenate commercial/retail activity on Flower Hill
 - **Traffic calming measures** in key spots like in the vicinity of schools, residential areas and main retail streets.
 - Provision of **parking facilities** in the immediate periphery of the central area, in order to discourage car penetration into the centre.
 - Creation of **parking routes**, which serve mainly the purpose of access to the car parks within the centre, hindering or disallowing through trips.
 - Regulation and reduction of on-street parking, in order to disincentive car trips towards the core of Navan.
 - **Pedestrianisation** of some key links like Trimgate Street, and possibly Market Square, Ludlow Street, Kennedy Road and Carriage Road.
 - Provision of **good walking and cycling accessibility** to the centre, namely to the new Central station and between this and the other central areas.
 - Provision of **adequate cycle parking facilities** throughout the central area.

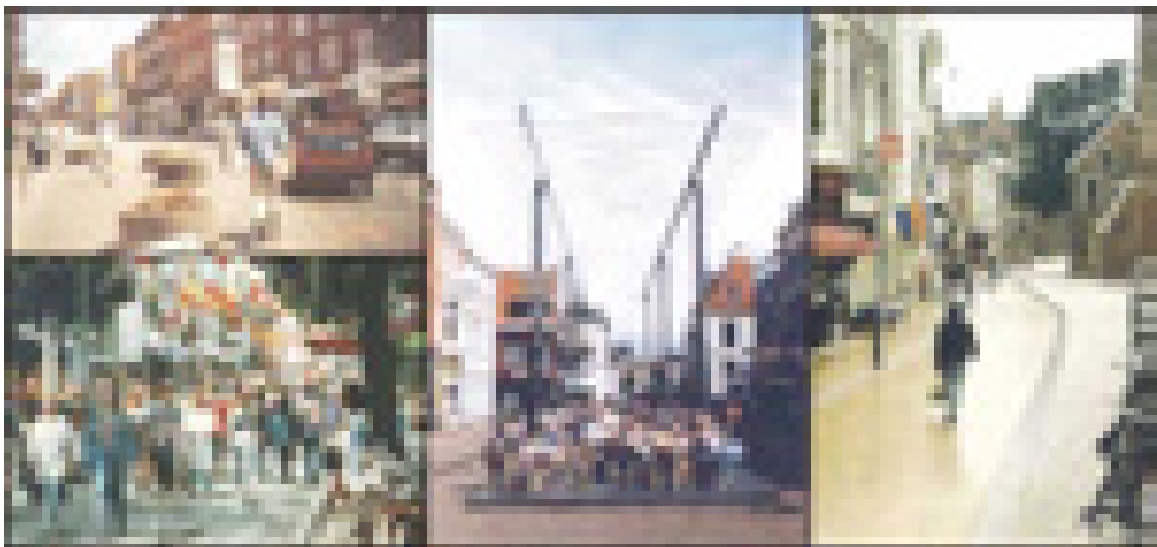


Figure 9.10 : Examples of Pedestrianised Areas

9.5.10 The attractiveness of the Navan core will also be related to the level of effort put into the design layouts, the architectural quality of the new developments and the coherent use of street furniture. Special attention should be given to areas with the potential to be the main civic centres, such as Kennedy Road, Market Square/Trimgate Street/Ludlow Street and Fair Green.

9.6 New Railway Station Area

9.6.1 A new rail station is to be located to the south of Carriage Road and west of the Trim Road, forming the terminus of the Navan-Dublin passenger rail link. The area around the new rail station should act as the new attraction pole in the town centre of Navan. Well connected with the existing town centre, this area should include significant retail and business facilities, as well as an element of residential use.

9.6.2 In order to achieve this, the Study identifies an area that should be subject to a specific planning and implementation process, in the form of a Local Area Plan. The area identified (Figure 9.11) includes consolidated areas and uses that should be integrated with the new urban development (O'Mahony's, St. Benildus Villas), as well as areas suitable for redevelopment, such as the existing industrial area on Carriage Road, the Pitch&Putt course and the lands between the County offices and the old Rail station.

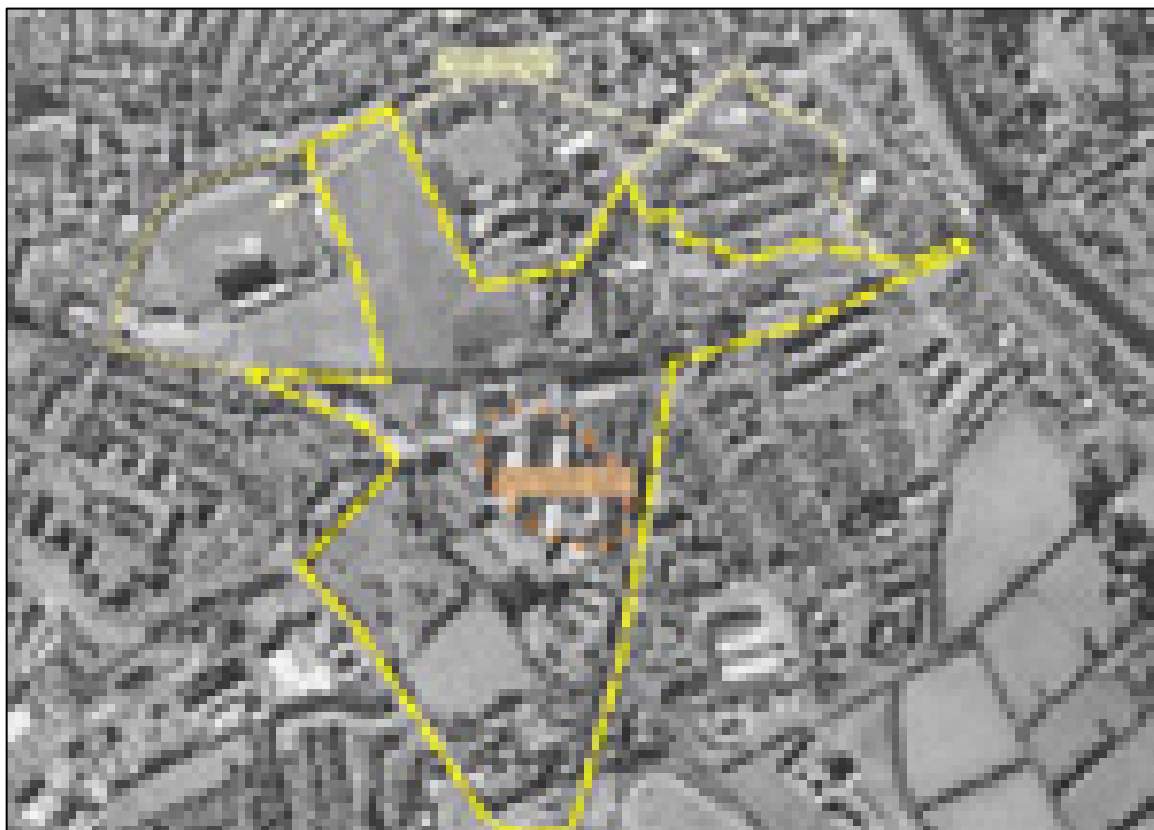


Figure 9.11 : Proposed Area for Local Area Plan

9.6.3 Two additional areas (Pairc Tailteann and Fair Green) can be included the area subject to the Local Area Plan, due to their importance in the relation between the New Station area and the rest of Navan's town centre. Although these areas can be subject to specific plans, their characteristics, function and layout should comply with the Plan for the New Station area.

- 9.6.4 Significant densities can be applied to this area, with imaginative solutions to accommodate different uses, such as retail, residential, business and public transport. In order to achieve the provision of the required mix, the average height of the buildings in this area can be considerably higher than in the rest of Navan. The area should incorporate at least one tall landmark building, which will add value to the overall Navan landscape.
- 9.6.5 One of the solutions that can be applied to optimise the available space is the construction over and under the railway. Retail and business uses are suitable for the space made available over the station, whereas car parking, bus termini and station-related facilities (e.g. ticket offices) can use underground space. Figure 9.12 shows some examples of this solution.

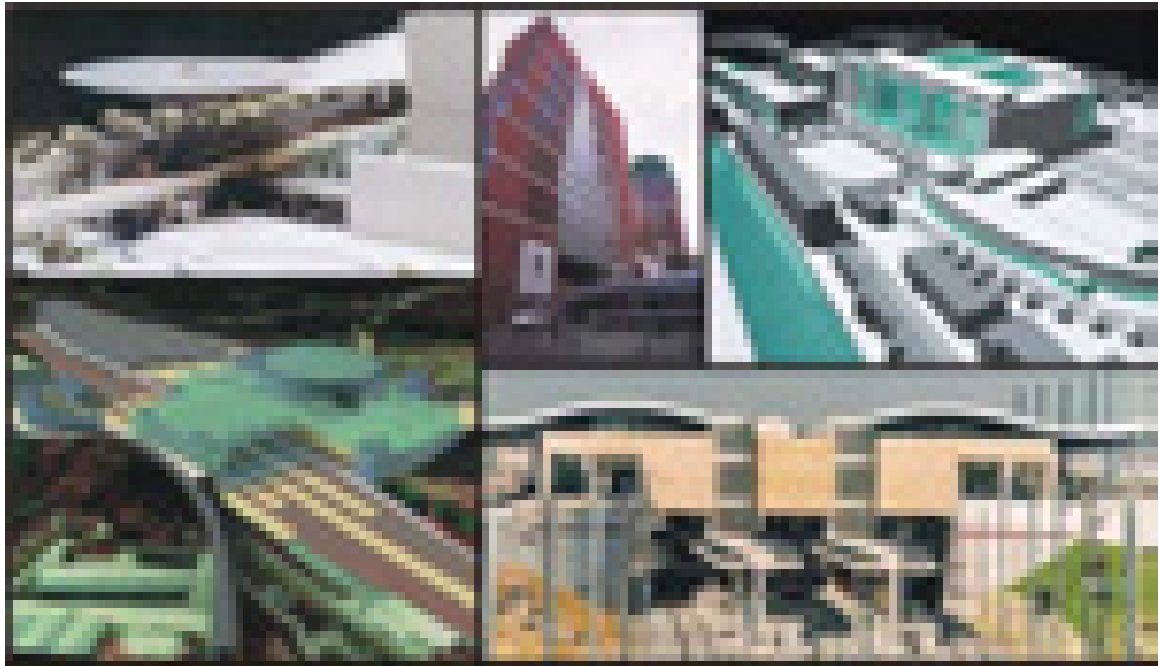
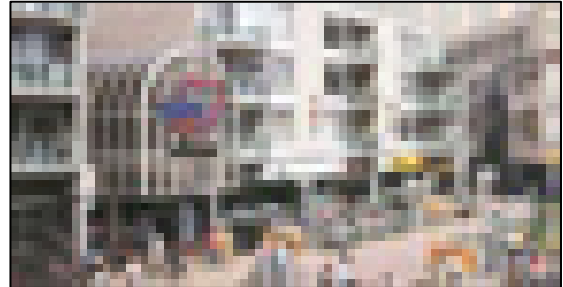


Figure 9.12 : Examples of Development Over and Under Rail Stations

- 9.6.6 It is suggested that a new landscaped station 'plaza' is created, bringing improved access by all modes, plus a sense of place and arrival at Navan. The frontages of the station and other landmark buildings should define visually this 'plaza'.
- 9.6.7 The main square of the city of Zoetermeer in The Netherlands (see figure 9.13), is an example of the full integration of different uses with a rail station. This pedestrianised square is built over the city's main rail station, and includes shops, residential (mainly over the shops), and offices, including the Town Hall.

- 9.6.8 The advantage of locating high-density development around public transport interchanges is that more public transport users will have their origins and destinations within walking distance from public transport. However, developments that are based in one single activity like employment (e.g. Office park) tend to require a very specific public transport service, which is concentrated in the peak period of the morning and evening, and that is unidirectional (arrivals in the morning and departures in the evening).

Figure 9.13 : Main Square in Zoetermeer, The Netherlands, built over the Rail Station



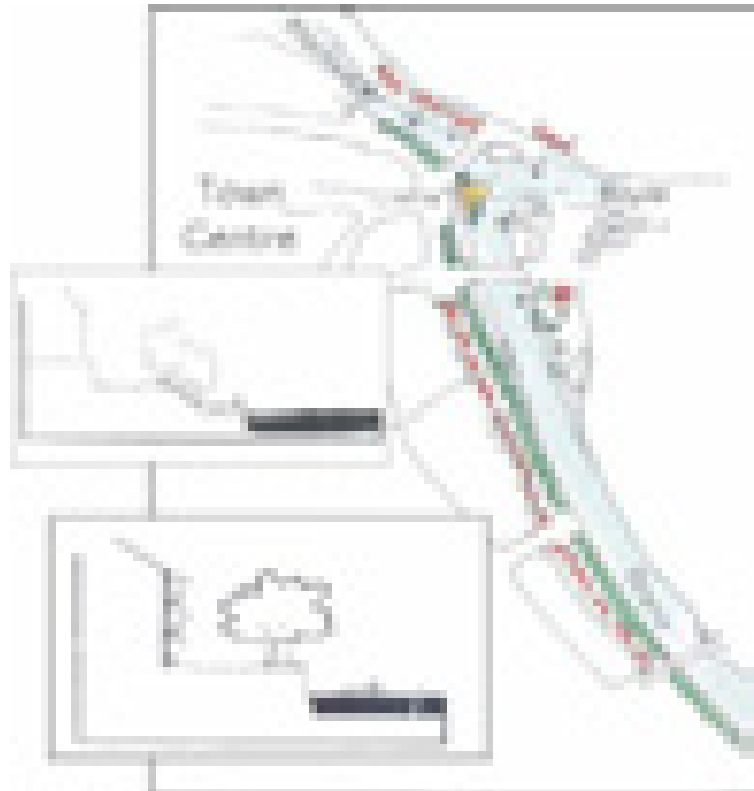
- 9.6.9 This area must include a mix of uses that promotes activity throughout the day, rather than concentrated activity in the peak hours. The public transport function of the area, together with the provision of employment will generate demands for extended peak hours (the peak demands for commuters to Dublin will be different from the local employment demand peak).
- 9.6.10 On the other hand, cultural and leisure uses such as Cinemas, Art Centres, Health and Fitness Clubs, etc, will generate early morning, evening and late evening demands that will counter-balance the higher levels of demand of the AM and PM peaks. In the same way, an element of Retail will increase the levels of demand throughout the day, mainly between the two peak periods.

9.7 Riverside Areas

- 9.7.1 The integration of rivers and other water features in the urban fabric of a town or city starts to be regarded as one of the most important interventions towards the enhancement of its quality of living and economic development.
- 9.7.2 Important benefits can be drawn from a closer relation between a town like Navan and its rivers, including:
- Enhances the visual attractions of the town
 - Improves image of properties and development
 - Increases commercial benefits (approximately 20% increase in land value and rents for properties with a waterfront view in the UK)
 - Improves the quality of life for town dwellers
 - Allows and promotes the establishment of pedestrian and cycle routes in the town
 - Offers educational and play opportunities for children
 - Water in motion masks undesirable urban noise, providing an atmosphere of quiet and calm
 - Gives the town a sense of identity, because each combination of landform, waterway, riverside buildings and bridges is unique.
- 9.7.3 Riverside areas often include private along with public owned land. Any intervention must take into account the careful definition and sharing out of maintenance responsibilities at the earliest stages of planning. Multiple ownership of riverside lands shouldn't constitute an obstacle to broader strategic schemes for the town.

9.7.4 At present the majority of the riverbanks are not well maintained with few paths and limited crossings. There are also old derelict mills, which should either be demolished or developed as recreational or heritage centres or as a public amenity. The present state of dilapidation of these buildings detracts from the beauty of the river valley and efforts should be made to improve the aesthetics of this natural area.

Figure 9.14 : Suggested Layout for Boyne Riverbank



9.7.5 The ramparts of Navan include the River Boyne and the canal. This is a very picturesque area that could be greatly developed with attraction points with viewing points, boat hire, kiosks and fishing facilities, as well as with strategic links to nearby settlements and local amenities.

- 9.7.6 Water based sport activities such as fishing, kayaking and canoeing should also be developed along the rivers. Islandbridge, in Dublin and Leixlip/Celbridge, in Kildare are good examples of how to take advantage of a water feature for sport activities. Facilities like clubhouses can be important attractors and generators of activity, and national or international competitions can be staged, putting Navan on the map of national sport.



Figure 9.15 : Examples of Actively Used Water Features

- 9.7.7 The existing park on the east side of the Boyne near Athlumney Bridge should be expanded and developed as “Navan River Park”. This area should be enhanced utilising the natural features of the rivers and their embankments as areas of green space combined with pedestrian and cycle links. The Park could be further developed with a unique theme for Navan involving exhibitions, arts and open-air theatre in the park. The park would also be within 500m of Athlumney Castle, Motte and the railway bridge.
- 9.7.8 The lands along the two Navan rivers (Boyne and Blackwater) should be subject to a particular urban design approach. These are locations that play an important role in the strategic objective of integrating Navan with its rivers.

- 9.7.9 The usage of the riverbanks as leisure areas is directly dependent on the levels of perceived safety that can be achieved. One of the most effective ways of improving the perception of green areas is the inclusion of development facing them. Residential developments facing or integrated with the riverbanks, together with the provision of cycle and pedestrian facilities as part of the overall network, will enhance the potential of the rivers as actively used areas of Navan.



Figure 9.16 : Examples of Waterfront Developments

- 9.7.10 Due to their proximity to the town centre, some riverside lands are suited for higher residential densities. It is the case of the lands along the Blackwater River, between Flower Hill and the Inner Relief Road, for which there are some developments proposed. This specific site is of extreme importance to the links between the centre of Navan, namely the Shopping Centre area, and the residential neighbourhoods to the north of the Blackwater.
- 9.7.11 The type of development in these areas will have to be permeable for pedestrians and cyclists. New developments should promote, rather than hinder, the crossing of the rivers by sustainable modes. Therefore, the provision of pedestrian/cycling bridges should be included in the projects as they happen.
- 9.7.12 The early provision of pedestrian and cycle links over the rivers is desirable, but only if the attractors are in place on both sides of the rivers and these links are part of a coherent network. If this doesn't happen, there is the danger that these bridges may become 'no-go' places, due to their isolation, being very difficult to rehabilitate their image, when the development comes on board.
- 9.7.13 Some sites were identified where new crossings of the rivers can be included into development proposals. These are shown circled in yellow in Figure 9.17.

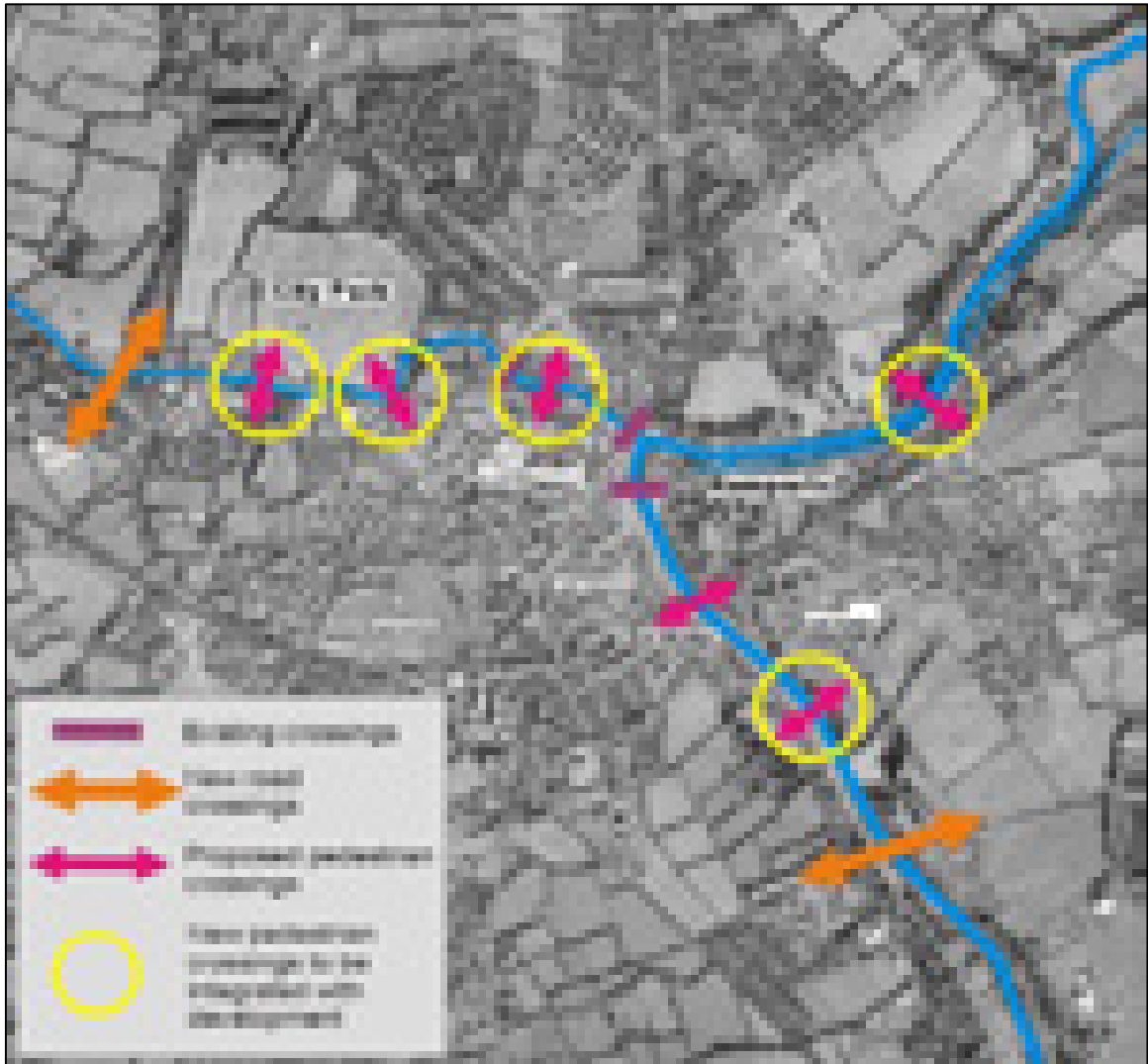


Figure 9.17 : Crossings of the Rivers Boyne and Blackwater

- 9.7.14 Safety near urban water features is a major concern of local authorities and developers. However there is a false sense that riverbanks and other water features are the cause of accidents, mainly involving children. The most dangerous water is that that is hidden away and uncared for. In the Netherlands, a country where recreational water is an important part of the urban landscape, there are very few water-related accidents.
- 9.7.15 However, appropriate design and detailing of the margins of a watercourse is essential in order to minimise risks. Culverts or sheer drops above deep or turbulent waters need to be protected, but shelving beaches or canals can be open and accessible.
- 9.7.16 The best way to avoid accidents is to educate society about sensible behaviour in relation to the rivers and its banks. Involving local schools in the design process of riverside developments can pay dividends in terms of both safety and respect for the amenities.

9.8 Residential Areas

- 9.8.1 As outlined earlier in this report, Navan has grown considerably in the last 5 to 10 years. The trend has been the provision of housing as an overspill from Dublin, as it hasn't been followed by the creation of local employment. The existing residential districts of Navan tend to have very low densities, and are extremely car-based in their layouts.
- 9.8.2 Future residential areas should reflect the recommendations of this report regarding the provision of a quality public transport network, quality walking and cycling facilities and integration of green areas and local activity centres.
- 9.8.3 The density of a residential area will have a direct impact on the quality of the public transport networks, on the distances to local attraction centres, and therefore, on its overall sustainability levels. The aspiration of Navan as a compact, sustainable town with quality public transport, walking and cycling connections will require higher densities than the ones that have been applied during the last decade. Figure 9.18 represents two contrasting types of residential development:

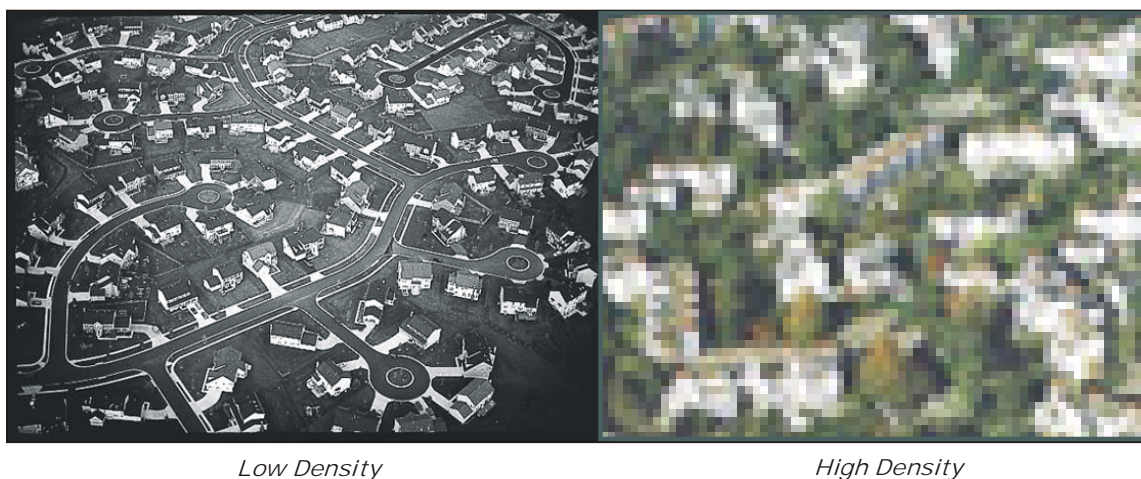


Figure 9.18 : Examples of Residential Development

- 9.8.4 Areas like Clonmagadden valley, Balreask and Athlumney can become attractive residential neighbourhoods, once the criteria set out in chapter 8 is applied to new developments. In the case of Clonmagadden, the process of defining the optimum characteristics and layouts will be framed by the Special Development Zone status.

9.9 Gateway Sites

- 9.9.1 The Navan Urban Economic Development Study (Brady, Shipman, Martin – 1996) recognizes the need for Navan Town to have clear entrance points or 'gateways'. That study identifies a series of sites where a specific development approach should be carried out. This approach has more to do with the treatment of open space and with landscaping than with actual new built developments.
- 9.9.2 The sites identified by BSM are in the boundary or part of what the Navan Land Use and Transportation Study considers the core of the future Navan.
- 9.9.3 The BSM study took into account a relatively small population growth of Navan, considering that the town centre would remain contained within its present boundaries.

9.9.4 The present Land Use and Transportation Study has a set population target of 60,000, so it is expected that Navan's boundaries, especially the ones of its centre, should differ from those considered on the referred study.

9.9.5 Another aspect that was taken into consideration is the fact that these gateways should be marked by the presence of business or residential developments with an architectural quality above average. The type of use should vary according to the function associated with each of the locations.



Figure 9.19 : Examples of Business Gateway Developments

9.9.6 Therefore, a series of additional locations for gateway developments was identified. These are described below:

- **Site 1 (on the intersection of the Distributor Road with the Slane Road)**

This site can be developed as part of the Clonmagadden SDZ. High quality residential frontages should face the Slane Road and its intersection with the Distributor Road. Footbridges over the referred roads can be identifiable features.

- **Site 2 (on the intersection of the Ratholdren Road with the Inner Relief Road)**

There are developments proposed for this area. A high profile hotel with leisure facilities seems a suitable option for a landmark in this location.

- **Site 3 (Kells Road, inside the Distributor Road)**

This approach to Navan has already some buildings (mainly industry-related) facing it. A densification of the frontages, adding some business and residential uses, is suggested. The challenge for this gateway is the shift in its character from a national road to an urban street. Attention should be put on the road width and surface, as well as on the pedestrian space and landscaping.

- **Site 4 (extension of Mullaghboy Ind. Estate to the north of the Athboy Road)**

This is an important development, as it fronts one of the accesses to the motorway. The quality of the frontages of the business/industrial buildings, which are to face both the access to the Motorway and the Distributor Road are the key for the role of this development as a gateway to Navan.

- **Site 5 (on the Trim Road, north of Beechmount Shopping Centre)**

The new access road to the Distributor Road, through the new developments south of the racecourse will connect with the Trim Road at Beechmount. This crossroads will be an important site for a gateway development. The proximity of the Rail station calls for higher densities, which can be achieved by one or two 4-5-storey buildings (on both sides of the Trim Road).

- **Site 6 (on the Dublin Road, north of the Academy Street junction)**

There are proposals for this site, which fit into the concept of gateway development. A high architectural quality residential or possibly mix-use development facing the Boyne is suggested for this location. This section of the Dublin Road has been the focus of a landscaping intervention as one of the sites identified by Brady, Shipman, Martin. This should, however be revisited, for the Dublin Road will have a significant decrease in car traffic when both the Navan bypass and the Distributor Road are operational. In this case, a substantial amount of land can be freed for pedestrian and cycling facilities, as well as for tree planting.



Figure 9.20 : Example of a Residential Gateway Development

- **Site 7 (on the Dublin Road, at Kilcarn)**

This site should contain the first identifiable feature of Navan for those motorists who arrive from the south via the N3 or the Motorway. Due to its distance from the centre of Navan, the site is not suitable for development. A major artistic feature easily identifiable with Navan is proposed here.

9.9.7 The location of the above-described Gateway sites can be seen in Figure 9.21



Figure B.20 | Proposed Location of Gateway Developments

10 IMPLEMENTATION, MONITORING AND REVIEW PHASING OF TRANSPORT INFRASTRUCTURE

- 10.1.1 Immediate efforts should be made to ensure the reinstatement of a rail link to Dublin as soon as possible. For this to happen, a detailed Rail alignment and feasibility study should be commissioned before the end of the year. This study will determine the exact alignment of the railway and, therefore the exact location of the station in Navan.
- 10.1.2 The timely decision on the building of the rail infrastructure will have a direct influence in keeping its costs low. In case the M3 motorway is built before the rail alignment is decided, the costs of tackling the several conflict points along the route will add considerably to the overall cost of the rail line.
- 10.1.3 Once the exact location of the station is known, an Integrated Area Plan must be produced to guide the development of the station's surrounding areas.
- 10.1.4 The proposed distributor road should also be planned and projected as a matter of urgency. This is an essential piece of infrastructure for the future development of Navan and is expected to play a crucial role in the reduction of traffic in the central area of the town.
- 10.1.5 Other measures can be undertaken, which are not directly related to the reinstatement of the rail services to Dublin. In the short-term, the walking and cycling network can start to be implemented, as well as some of the proposed traffic management measures proposed.
- 10.1.6 Along with these, the development of the proposed green/ecological structure for Navan can start to be put in place, with the redevelopment of the Ramparts and, followed by the opening of the new Town Park.
- 10.1.7 In the next five years, attention should be put on the developments in the vicinity of the river valleys. The development of both sides of the Blackwater is a priority, in so far as the connections between the Navan Shopping Centre area and the northern residential areas is concerned.
- 10.1.8 With the opening to traffic of the M3 motorway, the existing N3 can be downgraded to accommodate a bus-only link and more pedestrian space. Some town centre development, such as retail, business, residential and leisure should be allowed to face the new street and the river banks. The reduction on traffic volumes will also enable the pedestrianisation of Trimgate Street.
- 10.1.9 The Masterplan establishes clearly the preferable pattern for the expansion of town centre activities like retail towards the south, where the rail station is to be located. Further developments in this sector should then take into account the need for densification of a retail core that will be defined by the rivers and the referred station.

10.2 Land Use and Planning Implementation

- 10.2.1 A housing needs study of the local population should be undertaken as a priority, and updated as required for the statutory development plan review or variation processes. Such a study would help to differentiate between principally local and Meath housing derived demand and Dublin derived demand. In the absence of employment use development within the town, sufficient land to accommodate locally derived housing demand only should be released for development. This approach will help to manage the growth of Navan in a sustainable manner and to a controlled strategy. If employment activities are not secured for the town, then growth of residential development will be strictly controlled so that new residential development in Navan does not simply reflect a dormitory function for Dublin.

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- 10.2.2 The statutory development plans should make use of priority/phased zoning for residential land. In this regard the 'phase 1' residential land zoned in a plan should be sufficient land to accommodate principally local and Meath derived demand, in accordance with the County Development Plan strategy. The release of further phases of zoned residential land should be linked to the provision of employment uses either on or off site, as appropriate.
- 10.2.3 Alternatively in areas where mixed use is identified as appropriate, where business/employment uses are provided ancillary to residential development, the developer should be permitted higher densities on the residential land.
- 10.2.4 The alignment of public transport corridors must as a priority be protected by their formal identification in the statutory plan. In this regard, the general alignment of the proposed future rail link has already been identified as part of this study. The final alignment and location of the proposed rail station should be determined and identified in the statutory development plan.
- 10.2.5 An area within a 150m radius around the proposed rail station should be identified within the statutory development plan. Development within this area should be strictly controlled until such time as a rail line and station is secured. In the medium-long term this approach will allow for the development or redevelopment of this area to a high density and with a mix of commercial, retail and residential uses which will be viable at that stage by virtue of the rail stop and associated high flows of people. In the short term, if the identified public transport node is serving a bus based service, development should be permitted, but only where this would be compatible with the long term objectives for further intensified development around a rail station. Development immediately around the public transport node site should be strictly restricted to retain adequate space for the provision of a future rail station and ancillary facilities.
- 10.2.6 A public transport service should be established on this corridor as early as possible. This may require the introduction of a bus service for the short – medium term until such time as the Government makes a decision on the rail link to Navan. With the exception of the restricted zone around the identified public transport node, higher densities must be applied immediately to all new developments, within the catchment area of the public transport service.
- 10.2.7 Generally, on development lands on the northern side of Navan densities higher than those, which have recently been implemented, must be applied. Differing criteria for the location of residential amenity areas (as discussed earlier in this Study) will dictate final layouts. However even conventional derived suburban forms can be sustained at a higher level of density that at present.
- 10.2.8 The optimal order of future residential development in Navan is listed below. As stated above, the application of phased/priority zoning in the statutory development plan, is a critical element in seeking to co-ordinate the release of residentially zoned land to reflect broadly the establishment of employment in Navan.
- 10.2.9 **Infill development within and around town centre and development of identified sites along the rivers.** Potential infill sites and development/redevelopment sites within and close to the town centre and rivers should be specifically identified in the development plan, in order to encourage their development in the short term. No maximum density should be applied for residential use. Site-specific design criteria should dictate the form and intensity of particular developments.
- 10.2.10 **Development of already zoned residential land** (the largest two remaining such land banks are the SDZ lands at Clonmagadden and lands on the southern side of the town at Balreask)

- 10.2.11 **Currently industrial zoned (but undeveloped) lands in the northwestern sector of the town.** While somewhat removed from the immediate walking catchment of the proposed transport corridor, the residential development of the lands on the northwestern side of the town, adjoining the site of the future Navan town park, would create natural pedestrian flows through the park thereby encouraging its purposeful use. It is also recommended that the boundary between the residential area and the public park area not take the form of a distinct line. Rather fingers of open space should extend into the residential area and fingers of development should extend into the park area. This approach would create a more secure park environment by the provision of passive security that would again encourage its use.
- 10.2.12 **Current industrial zoned (but undeveloped) lands in the northeastern sector of the town.** These lands are surplus to future employment/industrial land requirements and would be suitable for residential development. While the optimal order of development priority would promote development closer to the walking catchment of the proposed public transport service before these lands, it is recognised that they are already zoned for development and will also be well served by the proposed distributor road.
- 10.2.13 **Future development land requirements.** With the application of higher densities, infill development and the development of currently zoned lands would accommodate a significant proportion of the possible future population of Navan of 60,000 persons. These zoned lands constitute the logical location for expansion of the resident population commensurate with new employment, commercial and recreation amenity growth. Additional lands will nevertheless be required if the population is to reach 60,000 persons. It is recommended that any future expansion be accommodated to the south of the town. This area will be readily served by the proposed rail line, by the proposed by-pass and would have easier access to the town centre than lands to the north of the town. Any zoning here must be clearly set within an order of priority which restricts new development until established zoned lands have been successfully developed.

10.3 Water and Drainage Considerations

- 10.3.1 In their 1997 report Nicholas O'Dwyer's allowed for population and employment growth in the areas proposed in the then current Area Development Plan. The current recommendations in this report will result in some redistribution of the location and densities of the future population. In addition to continued growth in the Kilcarn and Johnstown areas, including the full development of the IDA business park, this study's recommendations would allow for a considerable growth in the town centre (7,500 persons) and the Balreask area (13,500 persons).
- 10.3.2 Although the Ferganstown treatment plant has sufficient capacity to accommodate a 60,000 population the collection and pumping system is limited. Nicholas O'Dwyer stated that "to increase the flows from the town centre by 7,500 persons would use up spare capacity allowed for future developments in Johnstown and Kilcarn. It would also be necessary to separate out some of the storm flows from the combined network within the town centre."
- 10.3.3 To provide for the 2020 population the current treatment plant will require expanding from its current capacity of 40,000 to 60,000 P.E. In addition, future developments to the south of Navan will require new and separate collection facilities discharging directly to the treatment plant. Central Navan increases may be included in the existing network but will require the provision of separate storm sewers. The Kilcarn/Johnstown area will require upgrade such that the area could transfer directly to Ferganstown.

10.4 Master Plan Monitoring and Review

- 10.4.1 In order to monitor the delivery of recommendations and the implementation of the overall master plan, it is proposed that the steering group continue to meet at 3 monthly intervals to assess:

- Scale of development of zoned areas
- Delivery of recommendations
- Slippage and corrective actions
- Public transport patronage levels
- Traffic flows and conditions
- Ongoing other travel demand studies

10.4.2 This will enable the steering group to recommend further interventions in order that the master plan objectives can be met.

10.4.3 Developers will be kept informed of the monitoring process through Meath County Council Planning Department.

10.4.4 In addition, it is also proposed to hold a major review at two-year intervals, where an audit can be undertaken on progress towards delivery of the master plan.

10.4.5 During this major review, it is recommended that updates to the travel demand forecasts and revised network tests should be undertaken, and updated recommendations to ensure delivery of the master plan should be made.

11 KEY RECOMMENDATIONS

11.1 Key Recommendations – Transportation

11.1.1 Roads

- Ensure the construction of the M3 between Clonee and Kells.
- Complete the construction of the distributor road, including two new bridges over the rivers Boyne and Blackwater.
- Ensure junction capacities are suitable for expected traffic flows, namely in key locations such as the Distributor road's intersections with the Kells Road, the Athboy Road and the Dublin Road.
- Ongoing development of a local area traffic model to test local traffic management and public transport priority schemes and to monitor scheme performance.

11.1.2 Rail

- Early reservation of rail corridor.
- Re-instate rail line to Dublin.
- Locate Navan terminus of the line (Central Station) in the Carriage Road area, south of the existing Town centre.
- Create a major public transport interchange around the new Central Station, including rail, local bus, regional bus, park&ride, retail and employment.

11.1.3 Bus

- Ensure the location of the regional service hub in the Central Station area.
- Improve the existing local bus service as a matter of priority.
- Adopt the proposed local bus service in tandem with the development.
- Ensure bus services in new developments from the outset.
- Adopt bus priority measures in links like the existing N3, Fair Green and Railway Street.
- Consider the usage of the Drogheda line rail bridge as a bus-only link between both sides of the Boyne.
- Ensure proper pedestrian accessibility to public transport.

11.1.4 Parking

- Provide parking in the direct periphery of the Town centre, with signposted routes directly from the Distributor Road.
- Consider densification of existing parking provision within the Town centre, in order to free land for other uses.
- Integrate short-term parking into retail development in the Central station area.
- Include an element of station parking to cater for commuters from the rural hinterland of Navan and from the N3 corridor (Kells, Virginia, Cavan).

11.1.5 Cycling and Walking

- Integrate proper cycling and pedestrian facilities in new developments.
- Integrate proper cycling and pedestrian facilities into existing and new green areas.

- Ensure that cycle and pedestrian routes form a coherent network.
- Prioritise walking and cycling connections to the new Central Station and to the existing Town centre.

11.2 Key Recommendations – Land Use

11.2.1 Development Layout and Density

- Co-ordinate the release of residentially zoned land to reflect broadly the establishment of employment in Navan.
- Maximise development within the existing urban area, through infill development, redevelopment of under-utilised buildings/land, and increase densities on new development land. Specifically identify potential sites in statutory development plan.
- Immediate preparation of Local Area Plans for Residential and Employment areas incorporating the elements of the Master Plan.
- Increase densities and mix of residential type.
- New residential layout must incorporate pedestrian and cyclist accessibility between residential areas and linking to town centre.
- Provide ancillary services within new large-scale residential developments as appropriate, i.e. retail, health, educational, recreational, through Local Area Plan and Development Control processes. There is a serious lack of secondary school accommodation on the northern side of the town. Provision for it should be made within the zoned landbank to meet demand.
- Early identification of public transport corridor and transport nodes within statutory development plan and control of development within surrounds of transport node pending delivery of public transport service.

11.2.2 Hierarchy of Centres

- The town centre should be consolidated and reinforced in terms of its retail, commercial, social and recreational functions.
- As the population of the town expand towards the 60,000 person resident target set for this Study, the increased demand will put pressure on the town centre services. To ensure that this pressure is not manifested in out of centre locations, it is considered that town centre zoning should be directed southwesterly from the current town centre proper towards the proposed central rail station.
- The area at and around the station would be appropriate for a second major convenience goods retail outlet for the town as it would be highly accessible by public transport and by private vehicle without the necessity to bring cars into the town centre. Some commercial activity should also be encouraged on the northern side of the river, which will help to link the two sides of the town. The scale of the uses permitted however should not threaten the viability of the existing centre or shift the focus of the town away from its current position around the tradition centre.
- Neighbourhood centre scale retail/commercial uses are necessary in each of the three sectors of the town. The size of these will depend on the future scale of growth of the population of Navan. The Beechmount Shopping Centre site on the southern side of the town can serve this function as can the Blackcastle Centre on the northern side of the town. This centre however is in need of redevelopment (proposals are being prepared). A neighbourhood centre is required on the eastern side of the town to serve the extensive population resident in the newly developed Johnstown area and surrounds. As further businesses set up in the IDA Business Park, a neighbourhood centre in this area will become increasingly important and in demand.

- In addition to neighbourhood centres, local centres providing basic services should be provided within new large-scale residential developments. This has generally not occurred with large residential developments granted permission in the last ten years. Thus, it may be necessary to identify areas where such local services are lacking and identify suitable locations. All new large-scale residential developments should make some provision for local services. The Planning Authority should seek to ensure that all residences are within easy walking distance of a local shop, with at least basic services.
- Promotion of IDA Business Park and Tara Mines lands as primary employment use locations. Extend the existing industrial park on the Athboy Road. Promote provision of small enterprise units within new residential developments. Incentive to developers for provision and marketing of such units will be permission for increased densities on the residential provision.

11.3 Key Recommendations – Urban Design

11.3.1 Environment and Ecology

- Open the town towards the rivers by implementing good quality design layouts in future developments.
- Implement proposed Green/Ecological structure.
- Link Green/Ecological features by proper cycle/pedestrian connections.
- Develop river banks for active use (Ramparts, Blackwater, old N3).
- Include active uses (sports, leisure) in new Town Park and in rivers.

11.3.2 Town Centre

- Pedestrianise Trimgate Street
- Apply traffic management measures to create a Pedestrian/Public Transport priority area in the Town centre.
- Promote 'Living Over the Shop' type of infill development.
- Utilise back lands to increase overall densities in the centre.
- Redevelop the Fair Green and Shopping Centre/Kennedy Road area into quality civic spaces.
- Promote the attractiveness of the network of laneways, increasing the permeability of the centre

11.3.3 Rail Station Area

- Prepare a Local Area Plan for the surroundings of the Central Station, to promote and regulate and the future development of this area.
- Aim for a modern, aesthetically striking, high density and mixed use neighbourhood
- Integrate Rail Station with bus, cycle and pedestrian networks.

11.3.4 Riverside Areas

- Develop new *Boulevard* along the N3.
- Promote river crossings by associating their provision with developments near the river banks.
- Integrate development with walking and cycling facilities, in order to keep the riverside areas permeable.

- Promote the provision of attractors such as kiosks, terraces and playgrounds.

11.3.5 Gateway Sites

- Develop identified sites with modern urban design solutions.

11.4 Key Recommendations – Monitoring and Review

- Establish regular Steering Group meetings to assess the proper implementation of the Masterplan
- Review the Masterplan every two years