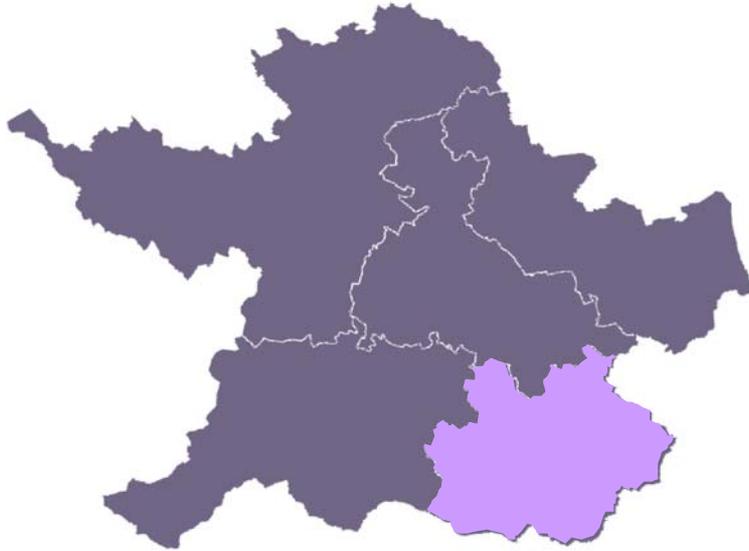


MEATH COUNTY COUNCIL

Dunshaughlin Local Area Plan 2009-2015 Strategic Environmental Assessment
[incorporating assessment of proposed material amendments to Draft Local Area Plan]



Adopted 22nd September 2009



comhairle chontae na mí
meath county council

Planning Department



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Non-Technical Summary

Introduction

AWN Consulting Ltd. (AWN) has been commissioned by Tiros Resources Ltd. undertake a Strategic Environmental Assessment (SEA) of the Local Area Plan (LAP) for Dunshaughlin, Co. Meath. The SEA was conducted in accordance with the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. 435 of 2004) and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. 436 of 2004).

Screening and consultation were carried out to identify the key environmental issues as follows:

- The impact of an increasing population on existing services, facilities and housing
- Protection of the groundwater resource and water supply to Dunshaughlin town
- Protection of the River Boyne SAC to which treated wastewater effluent is discharged
- Wastewater treatment capacity for the town
- Management of traffic volumes within and through Dunshaughlin town and provision of public transport infrastructure and for pedestrians/cyclists
- Preservation of the cultural and built heritage of Dunshaughlin

Environmental aspects assessed in the SEA include biodiversity and flora and fauna, human beings, noise, air quality and climatic factors, material assets, cultural and built heritage and landscape.

The aims and objectives of the Dunshaughlin LAP reflect the mandatory objectives set out in the Planning and Development Act 2000 including the zoning of land, the provision of infrastructure and the conservation and protection of the environment.

Baseline Environment

Biodiversity and Flora and Fauna

There are no designated Special Areas of Conservation (SACs), Special Protection Areas (SPAs), or proposed or designated National Heritage Areas (NHAs) within the limits of the study area. An area of geological interest has been identified in the north western area of Dunshaughlin including some lands within the study area. Wastewater generated in Dunshaughlin is treated at a Wastewater Treatment Works (WWTW) in the townland of Castletown Tara which discharges into the River Boyne, a candidate SAC for certain habitats and species.

Human Beings

The population of Dunshaughlin Town increased by 10.5% in the period 2002-2006. This figure is further expected to increase by 49% by 2011. The bulk of the population growth is directed to the urban centre of Dunshaughlin. The Dunshaughlin LAP includes a population target of 12,000.

Despite recent investments in infrastructure recent unemployment data has shown that unemployment has increased by 71%, 96% and 91.3% for the State, the county of Meath and the area of Dunshlaughlin respectively.

In relation to community facilities, the Dunshaughlin LAP proposes to provide some improvements in community facilities which include both the construction of new facilities (including schools and a civic amenity centre) and the extension of existing facilities (health centre).

In terms of the provision of open space and recreational areas, the Dunshaughlin LAP to provide a total of 35 ha of open space in accessible and appropriate locations such that every resident has easy access to it and to create quality pedestrian and cyclist links and connections between the spaces

Noise

It is expected that the existing noise climate in Dunshaughlin town centre would be dominated by road traffic noise from the N3, which serves as the main artery route between Navan and Dublin. Away from the town centre the noise environment would be expected to be more varied and influenced more by local noise sources such as building services equipment serving shops and restaurants, local traffic, community noise.

Water Quality

Dunshaughlin lies within the Eastern River Basin District in the catchment area of the Boyne and Broadmeadow Rivers. The Skane River, a tributary of the River Boyne, flows in the vicinity of Dunshaughlin town and effluent from wastewater generated in Dunshaughlin is discharged to the River Boyne, a candidate SAC. The Rivers Boyne and Skane are classified by the EPA as slightly polluted, and as of moderate water quality status under the Water Framework Directive. The main pressure on water quality is from agriculture. The Eastern RBD Draft River Basin Management Plan (December 2008) has as an objective the restoration of these rivers to good water quality status through the implementation of a programme of measures.

Groundwater underlying the town of Dunshaughlin consists of a bedrock aquifer that is classified as locally important and generally moderately productive (Lm). The aquifer has an interim vulnerability that varies from low to extreme within the study area. The Dunshaughlin Water Supply Scheme is currently under construction and will supply groundwater to meet domestic, commercial and industrial needs to 2025. Under the Water Framework Directive, groundwater quality in the Dunshaughlin classified as of good quality status and groundwater resource is registered as a protected area for drinking water supply.

Soils and Geology

Subsoils in the study area comprise primarily made ground underlain by till derived from carboniferous limestone. The bedrock geology is dominated by rocks of the Carboniferous Period and the LAP area is located on the Loughsinny Limestone Formation. An Area of Geological Interest forms part of the north eastern LAP area.

Air Quality and Climatic Factors

EPA monitoring of air quality in Dunshaughlin indicate that good air quality is generally experienced in the LAP area. The main source of pollution is road traffic emissions, specifically that resulting from traffic on the N3. Completion of the M3 motorway bypass will result in reduced traffic congestion in Dunshaughlin and an associated improvement in air quality. The inclusion of a green belt will mitigate air quality impacts from the M3.

Material Assets

The Dunshaughlin Water Supply Scheme is currently under construction and has been designed to provide a secure groundwater supply to the Dunshaughlin area capable of supplying the 2025 demand for domestic, commercial and industrial uses. Wastewater

generated in Dunshaughlin is treated at the Wastewater Treatment Works (WWTW) at Castletown Tara and effluent is discharged to the River Boyne, a candidate SAC.

Surface water runoff within the study area is currently managed via a system of surface water drains that discharge to local surface water system. The Office of Public Works' flood mapping website (www.floodmaps.ie) identifies two areas in Dunshaughlin where significant flooding occurred in November 2000.

The LAP includes for the routing of the Clonsilla to Pace railway line to the east of Dunshaughlin with a rail station to the north of the town centre. The railway link together with construction of the M3 motorway bypass will reduce congestion through the centre of Dunshaughlin. Reducing of congestion from these schemes will also provide the opportunity to improve pedestrian and cycle facilities through the town.

In relation to waste management, a bring bank is currently provided at the Meath County Council local area office in Dunshaughlin. The LAP includes for the provision of a civic amenity centre adjacent to the existing Health Centre.

Cultural and Built Heritage

Dunshaughlin town is named after Saint Secundinus (or Saint Seachnall) who is associated with the early Christian church site at the north end of Main Street that is now a national monument. The presence of a Norman motte in the Catholic graveyard may indicate early settlement along the length of what is now the Main Street and this area is designated as an area of archaeological interest. There are thirteen protected structures within the study area.

Landscape

The Dunshaughlin LAP study area is located between an area of hills and upland areas classified as of exceptional landscape value and high sensitivity and an area of lowland landscape of very high value and moderate sensitivity. The landscape character of Dunshaughlin town centre is distinctive as the street curves around to accommodate the site of Saint Seachnall or Saint Secundinus' Church at the north of the Main Street. However, excessive signage, poles and overhead wires detract from the quality of streetscape and contribute to an effect of visual clutter.

Predicted Significant Effects on the Environment and Mitigation

Biodiversity, Flora and Fauna

Implementation of the Dunshaughlin LAP may result in development in wet grassland habitats and on the Area of Geological Interest within the LAP boundary. Consultation with the GSI and other relevant statutory bodies and conservation of habitats of interest will ensure no negative effects result. Implementation of the open space strategy will improve biodiversity within the LAP boundary.

Alternative wastewater treatment arrangements should be provided (or upgrading of the WWTW at Castletown Tara) in the event of population growth resulting in wastewater flows above the design capacity. This will ensure that discharge of a poor quality effluent to the River Boyne candidate SAC and there are no negative impacts on the quality of the River Boyne or the integrity of the candidate SAC.

Implementation of the LAP policies and objectives will ensure that there are no significant negative effects on biodiversity, flora and fauna and it is recommended that site-specific biodiversity, flora and fauna impact assessments be carried out for large scale developments, and in particular for proposed developments in sensitive habitats.

Human Beings

Implementation of the Dunshaughlin LAP will provide high quality residential, working, educational, community and recreational environments as well as sustainable travel patterns. It is considered that implementation of the LAP will have positive effects on people's quality of life. In relation to employment, the zoning of land for commercial and industrial uses together with the current improvements in infrastructure will assist employment growth.

Population increase may affect human health in relation to the quality of potable water supply, and the impact of increased traffic generated by the increased population on local air quality and noise and vibration levels. The Dunshaughlin Water Supply Scheme is currently under construction and will secure a groundwater supply to the Dunshaughlin while protection of the quality of this groundwater provide for in the Eastern RBD Draft River Basin Management Plan.

In order to ensure the protection of human health, it is recommended that the Dunshaughlin LAP should include policies and objectives to ensure the sustainability and quality of the groundwater resource that supplies the Dunshaughlin Water Supply Scheme.

Noise

The principal protection against potential noise impacts is through appropriate choice of land use objectives and zoning. The new M3 bypass will have a significant effect on the noise climate within the LAP area, particularly the route of the existing N3 and within the vicinity of the M3 itself. Noise levels within the town centre will reduce rendering it more suitable for residential development, recreational, community, educational and amenity uses. The Green belt between the M3 and development areas within the LAP will minimise road traffic noise levels received at sensitive locations within the LAP boundary.

The M3 railway corridor will run through Dunshaughlin. This railway will have a discernable effect on the noise climate in the vicinity of the final route and should be taking into consideration within the planning process.

When selecting land for residential and recreational zoning, consideration should be given to the proximity of the lands to potentially noisy areas such as major roads, railways, airports and heavy industrial zones. Industrially zoned lands should be located away from residential or recreational areas. However, it is recognised that it is not always practicable to separate non-compatible uses, and the co-habitation of noise sensitive or the noise generating uses should not necessarily preclude the granting of planning permission for either development type, as long as robust and detailed noise impact assessments have been undertaken prior to consent being granted in order to ensure that noise impacts are adequately controlled or mitigated.

Water Quality

The residential, employment, public transport and roads objectives are likely to result in population growth and development of existing greenfield sites that will place increased demands on water supply, generate increased amounts of wastewater and surface water runoff.

The Dunshaughlin Water Supply Scheme will ensure a secure supply of water while implementation of the Eastern RBD Draft River Basin Management Plan will ensure that surface and groundwater quality are protected. In relation to wastewater cognisance should be taken of population and economic growth in relation to the capacity of the WWTW at Castletown Tara to ensure no negative impacts on the quality of the River Boyne.

The surface water management and flooding objectives in the Dunshaughlin LAP will have positive impacts in relation to ensuring the sustainability and quality of surface water runoff and in turn the quality of receiving water bodies.

Soils and Geology

The removal of the soil layers and bedrock will occur during the construction of proposed developments, contaminated material could be present if located at a Brownfield site.

The significant effects in relation to soils and geology are that, should a Construction & Demolition Waste Management Plan not be implemented, this may lead to litter or pollution issues on the site or adjacent sites. Development in the Area of Geological Interest could have negative impacts on this area if not conducted in an appropriate manner.

Implementation of Construction & Demolition Waste Management Plans and maintaining a high level of due diligence will ensure that there are no negative impacts on the soils and geology at proposed developments. The GSI will be consulted regarding development proposal in the Area of Geological Interest.

Air Quality and Climatic Factors

Road traffic is expected to be the dominant source of emissions in the region of and resulting from the development of the Dunshaughlin LAP. The key road traffic derived pollutants that may affect local air quality are NO₂, benzene, PM₁₀, PM_{2.5} and CO.

The impact of the Dunshaughlin LAP should not lead to exceedances of the limit values provided in the Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002) and EU Directive 2008/50/EC.

Vehicle emissions associated with the development of the Dunshaughlin LAP will give rise to CO₂ and N₂O emissions in the region. Furthermore, emissions from space heating in commercial and residential units will also contribute to national emissions of greenhouse gases.

An environmental objective of the Dunshaughlin LAP will be to limit adverse impacts on climate and include measures such as promoting the use of public transport and the achievement of optimum building energy ratings for both residential and non-residential units.

Implementation of the public transport, roads and energy policies and objectives will serve to mitigate negative impacts on air quality and climatic factors in the Dunshaughlin LAP area.

Material Assets

Population, economic and employment growth and will occur in tandem with the provision and development of material assets including water supply, wastewater treatment, surface water drainage, public transport services, roads infrastructure, waste management, telecommunications and broadband services, and energy supply.

The likely significant effects in relation to water supply, wastewater treatment and surface water drainage have been discussed above. In relation to waste management, several initiatives such as education awareness will assist with meeting the targets set out in the Waste Management Plan for the North East Region 2005 - 2010.

Implementation of the public transport, roads, telecommunications and broadband objectives of the LAP will have positive long term effects on human beings while the implementation of the energy objectives will have positive impacts on air quality and climatic factors.

Cultural and Built Heritage

Implementation of the Dunshaughlin LAP policies and objectives will provide adequate protection to the cultural and built heritage within the study area to ensure that there are no negative impacts on the area of archaeological interest or the protected structures. Future development will complement the existing historical character of Dunshaughlin. No additional mitigation measures are deemed necessary.

Landscape

Implementation of the Dunshaughlin LAP policies and objectives will provide preserve, protect and improve the landscape character of Dunshaughlin, particularly the valuable streetscape along Main Street. Implementation of the open space strategy will enhance the natural landscape within the Dunshaughlin LAP area. No other mitigation measures are necessary.

Monitoring

Biodiversity & Flora and Fauna

A monitoring programme will be established by Meath County Council within the lifetime of the LAP. Habitat loss, habitat deterioration, loss in biodiversity, protected species and protected areas will be monitored. This is necessary to record the sources and effects of such disturbance and to provide a baseline for future management decisions. This programme shall be undertaken in consultation with the Biodiversity Officer and Heritage Officer of Meath County Council and in conjunction with the National Parks and Wildlife Service, Eastern Regional Fisheries Board and Birdwatch Ireland.

Human Beings

The LAP has taken into account and addressed issues relating to transportation, local service facilities, provision of pedestrian and cyclist facilities, provision of public open spaces and creation of high density well designed residential and urban quarters.

Noise

No specific long term noise monitoring programmes are deemed necessary as the Dunshaughlin LAP is implemented, however noise monitoring may be carried out at noise sensitive locations near to construction, industrial or other noise generating activities.

Water Quality

Monitoring of all water bodies in the LAP area will be undertaken by Meath County Council in conjunction with the EPA at regular intervals. Water quality monitoring is required to protect and enhance the status of aquatic ecosystems with regard to their water needs.

Groundwater

The Dunshaughlin Water Supply Scheme is supplied by groundwater and it is recommended that the quality of the groundwater resource be regularly monitored. In addition, monitoring of drawdown should also be carried out to identify any depletion in the quantity of the groundwater resource. This will be carried out by Meath County Council.

Flooding

In order to avoid flooding of developed areas and avoid unnatural alterations to drainage systems which affect river flows the potential flood risk of proposed development will be monitored. This will be carried out by Meath County Council in conjunction with the Office of Public Works. The consultation draft guidelines for Planning Authorities by the DoEHLG - The Planning System and Flood Risk Management, September 2008 will be referred to.

Soils and Geology

During the construction of proposed developments, it is recommended that a monitoring programme be put in place with regard to the potential for soil contamination from construction materials. It will be important that the mitigation measures outlined in previous section are adhered to with respect to the soil resource.

Air and Climate

Air quality monitoring programs have been undertaken throughout Ireland in recent years by the EPA and Local Authorities. The most recent EPA annual report on air quality monitoring undertaken throughout Ireland is entitled "Air Quality In Ireland 2007 - Key Indicators of Ambient Air Quality".

Continuous EPA monitoring is carried out at a range of Zone C towns and both urban and rural Zone D locations using continuous monitors in 2007. Although no EPA or Local Authority monitoring has been carried out within the region of the Dunboyne / Clonee / Pace LAP, data from these Zone C and D locations can be used to provide an indication of the prevailing air quality conditions in the region.

Surface Water Drainage

It is recommended that the use and application of SUDS within the LAP area be carried out within the lifetime of the Plan. The area will benefit from linkage between SUDS and the recommended wastewater capacity. Meath County Council will monitor the use of SUDS on all proposed developments at a planning and design stage.

Waste Water

In relation to waste water provision, a future capacity study should be undertaken with a view to determining the amount of potential capacity required to implement the Plan, particularly with a view to enabling the development of future employment uses on the appropriately zoned lands. Monitoring will be carried out by Meath County Council to ensure that all zoned lands are connected to public sewer network ensuring treatment of wastewater prior to discharge. This will improve treatment at wastewater treatment facilities and limit potential pollution sources in vulnerable areas.

Flow monitoring of wastewater entering the Castletown Tara WWTP should be conducted in order to ensure that the capacity of the WWTP is not exceeded. The quality of effluent entering the River Boyne candidate SAC should also be monitored.

Cultural and Built Heritage

To promote the protection and conservation of the cultural heritage and maintain viable use of protected structures, as identified in the Meath County Heritage Plan, Meath County Council will monitor all recorded buildings, monuments and areas of importance. This will be carried out in conjunction with other relevant local authorities and the DoEHLG.

In monitoring the outcome of the Plan with regard to architectural heritage, the DoEHLG considered it likely that "qualitative indicators" rather than "quantitative indicators" are more appropriate in adjudging subsequent environmental impacts on the architectural heritage of the locality. To this end, it is recommended that a series of 'qualitative' indicators be drafted to monitor the effects of the Plan with regard to the architectural heritage.

Landscape

In order to conserve and enhance valued natural landscapes and the features within them and protect and enhance the sustainable amenity value of water bodies, rivers, and wetlands in the area, Meath County Council will monitor all planning applications to prevent unacceptable alterations to landscape character.

1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction to Strategic Environmental Assessment (SEA)

Directive 2001/41/EC environmental assessment of the effects of certain plans and programmes on the environment ("SEA Directive") came into force in Ireland on 21st July 2004. The Directive applies to plans and programmes for which the first formal preparatory action is taken on or after 21 July 2004. The Directive has been transposed into Irish Law through two sets of Regulations:

- European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. 435 of 2004); and
- Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. 436 of 2004).

The main objective of the SEA Directive is to "provide for a high level of protection for the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development." There are four main requirements of the SEA Directive:

- The preparation of an Environmental Report, where the likely significant environmental effects are identified and evaluated.
- Consultation with the public, environmental authorities, and any EU Member State affected, on the environmental report and draft plan or programme.
- Consideration of the findings in the Environmental Report and the outcome of the consultations in deciding whether to adopt or modify the draft plan or programme.
- Publicising the decision on adoption of the plan or programme and how the SEA influenced the outcome.

It is widely believed that such environmental effects cannot be adequately addressed through project-level environmental impact assessment (EIA), hence the development of the SEA Directive and associated methodology. It is intended that the application of SEA will lead to more sustainable development through the systematic appraisal of policy options. Ultimately, SEA seeks to address the more strategic environmental issues (such as cumulative and synergistic environmental impacts) through this 'high-level' form of appraisal.

1.2 Progress to date

The publication of this SEA Report was preceded by a number of earlier stages in the SEA process, as follows (from 'Assessment of the Effects of Certain Plans and Programmes on the Environment'; Department of the Environment, Heritage and Local Government, 2004):

1. Screen certain plans (such as some Development Plans, Variations of Development Plans and Local Area Plans) to decide if SEA is necessary;
2. Where SEA is required, scope the Environment Report;
3. Collect baseline environmental data;
4. Prepare the Environment Report;

5. Consultation with designated environmental authorities, the public, and (if necessary) adjacent EU Members;
6. Provide specified information to the public, environmental authorities and any transboundary States, following adoption of the plan; and
7. Monitor the significant environmental effects of implementing the plan

1.3 SEA Screening process

Screening is the term given to the process where the need for an SEA of a given plan or programme (P/P) is considered. Plans and Programmes can vary hugely in size and appearance. For the purposes of the SEA Directive, P/Ps are defined as:

“P/Ps shall mean plans and programmes, including those co-financed by the European Community, as well as any modifications to them:

- *which are subject to preparation and/or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government, and*
- *which are required by legislative, regulatory or administrative provisions.”*

Article 13A of the SEA Regulations refers to the “determination of need for environmental assessment (i.e. SEA) of [a] development plan”, i.e. SEA screening. The Article states that SEA is mandatory for specific development plans, and discretionary for others (depending of the potential for significant environmental effects).

In Ireland SEA is mandatory under the Regulations above for the following plans:

- Regional Planning Guidelines,
- City and County Development Plans,
- Development Plans by Town Councils, where the population of the area is 10,000 persons or more,
- Local Area Plans for areas with a population of 10,000 persons or more, and
- Planning Schemes in respect of Strategic Development Zones (SDZs).

Meath County Council (the Authority) considers that the preparation of the Local Area Plan (LAP) for the town of Dunshaughlin requires an SEA to be undertaken, on the basis that the population exceeds the 10,000 persons threshold. Section 3.4 of the SEA Directive *Guidelines for Regional Authorities and Planning Authorities* (November 2004, published by the Department for the Environment, Heritage and Local Government) states that “if the planning authority considers there is a *prima facie* case for SEA, it should proceed to the scoping stage”.

1.4 SEA Scoping

Scoping is the term applied to the consideration of the range of environmental issues that will be addressed in the Environmental Report of the SEA. It is not a legal requirement of the SEA Regulations, but is recommended as good practice. Scoping is a vital stage with respect to defining the scope and form of the SEA process. This will ensure that all the relevant environmental issues are properly addressed. The scoping stage of an SEA will also determine the level of detail that will be provided in the Environmental Report.

1.5 Key Environmental Issues

The key environmental issues were identified through consultation with Meath County Council and Statutory Consultees.

The methodology for SEA scoping was based on a combination of:

- Review of available SEA guidance, both from Ireland and the UK;
- Review of previous Environmental Reports and other SEA documents;
- Examination of existing documentation from the study area; and
- AWN's experience in the field of SEA practice.

The key environmental issues for consideration in the preparation of the LAP for Dunshaughlin are:

- The impact of an increasing population on existing services, facilities and housing
- Protection of the groundwater resource and water supply to Dunshaughlin town
- Protection of the River Boyne SAC to which treated wastewater effluent is discharged
- Wastewater treatment capacity for the town
- Management of traffic volumes within and through Dunshaughlin town and provision of public transport infrastructure and for pedestrians/cyclists
- Preservation of the cultural and built heritage of Dunshaughlin

In order to address the key environmental issues identified above, the following environmental aspects are assessed in the SEA:

- Biodiversity and flora and fauna
- Human beings
- Noise and vibration
- Water quality
- Soils and geology
- Air quality and climatic factors
- Material assets
- Cultural and built heritage
- Landscape

1.6 SEA Scoping Consultation

The following organisations have been contacted with regard to scoping the SEA:

- Environmental Protection Agency
- Department of Environment Heritage and Local Government
- Department of Communications Energy and Natural Resources
- Office of Public Works
- National Parks and Wildlife Service
- Eastern Regional Fisheries Board
- Department of Transport
- National Roads Authority
- Heritage Council
- Fáilte Ireland

2.0 Contents of the Environmental Report

The contents of the SEA Environmental Report can be found in Schedule 2B of the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (listed below), which is itself based on Annex I of the SEA Directive.

The following information shall be contained in an environmental report

(a) An outline of the contents and main objectives of the plan or programme, or modification to a plan or programme, and relationship with other relevant plans or programmes;

(b) the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme, or modification to a plan or programme;

(c) the environmental characteristics of areas likely to be significantly affected;

(d) any existing environmental problems which are relevant to the plan or programme, or modification to a plan or programme, including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to the Birds Directive or the Habitats Directive;

(e) the environmental protection objectives, established at international, European Union or national level, which are relevant to the plan or programme, or modification to a plan or programme, and the way those objectives and any environmental considerations have been taken into account during its preparation;

(f) the likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors;

(g) the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme, or modification to a plan or programme;

(h) an outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;

(i) a description of the measures envisaged concerning monitoring of the significant environmental effects of implementation of the plan or programme, or modification to a plan or programme;

(j) a non-technical summary of the information provided under the above headings.

The remainder of this Environmental Report shall be structured as follows:

- Section 3** Dunshaughlin LAP Aims, Objectives, Links to other Environmental Protection Objectives.
- Section 4** Consideration of Alternatives
- Section 5** Baseline Environmental Conditions and Problems; Future Baseline Conditions.
- Section 6** Predicted Significant Effects on the Environment and Mitigation.
- Section 7** Monitoring

3.0 DUNSHAUGHLIN LAP AIMS AND OBJECTIVES, AND LINKS TO OTHER ENVIRONMENTAL PROTECTION OBJECTIVES

3.1 Aims and Objectives of the Dunshaughlin LAP

Section 10 of the Planning & Development Act, 2000 sets out mandatory objectives, which shall be included in a Development Plan. These are summarised as follows: The zoning of land for the use solely or primarily of particular areas for particular purposes where to and to such extent as the proper Planning and sustainable development of an area requires the uses to be indicated;

- The provision or facilitation of the provision of infrastructure;
- The conservation and protection of the environment;
- The integration of the planning and sustainable development of the area with the social, community and cultural requirements of the area and its population;
- The preservation of the character of the landscape and the character of architectural conservation areas;
- The protection of structures, or parts of structures, which are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest;
- The development and renewal of areas in need of regeneration;
- The provision of accommodation for Travellers;
- The preservation, improvement and extension of amenities and recreational amenities;
- The provisions of the Major Accidents Directive (Directive 96/82/EC);
- The provision or facilitation of provision of services for the community;
- The protection of the linguistic and cultural heritage of the Gaeltacht, where applicable.

3.2 Links and Other Environmental Protection Objectives

The following policy perspectives in the preparation of the Dunshaughlin LAP were considered.

- **Sustainable Development: A Strategy for Ireland 1997**, which provides a framework for the achievement of sustainability at a local level.
- **Ministerial Guidelines and Directives** including those on Housing Strategies, Retail Planning, Childcare, Residential Density, Architectural Conservation, Landscapes, Sustainable Rural Housing Guidelines and Strategic Environmental Assessment Guidelines. Due regard will be taken of all future amendments during the plan period.
- **Local Agenda 21** identifies the principles for the involvement and participation of local communities in the local democratic process. Meath County Council is committed to the objectives of Local Agenda 21 as indicated in the guidelines "Towards Sustainable Local Communities".
- **The National Biodiversity Plan 2002** sets out a framework through which Ireland will provide for the conservation and sustainable use of biodiversity over a five year period.
- **The National Heritage Plan 2002** sets out a clear and coherent strategy and framework for the protection and enhancement of heritage over the next 5 years.
- **Sustainable Rural Housing Guidelines-Guidelines for Planning Authorities.**

4.0 CONSIDERATION OF ALTERNATIVES

With regard to the Dunshaughlin LAP, no specific alternatives were considered but environmental considerations were considered through internal consultations within Meath County Council during the development of the LAP.

The key land use locations within the LAP area were selected on the basis of:

- Minimisation of impacts on environmental designations (pNHAs, aquifer protection areas etc.);
- Consideration and compatibility with neighbouring land uses; and
- Proximity to strategic infrastructure network.

5.0 BASELINE ENVIRONMENTAL DATA

5.1 Biodiversity and Flora and Fauna

There are no candidate or designated Special Areas of Conservation (SACs), Special Protection Areas (SPAs), or proposed or designated National Heritage Areas (NHAs) within the limits of the study area. An area of geological interest has been identified in the north western area of Dunshaughlin including some lands within the study area, and as referred to in the soils and geology section of this report.

The town centre of Dunshaughlin is a typical urban-type environment, comprising primarily hard standing with areas of open space. The remainder of the study area comprises a belt of agricultural land surrounding the developed town centre. Meath County Council carried out a Biodiversity Survey of Dunshaughlin (November 2008). This survey identifies the following habitats of interest within Dunshaughlin town:

- WL2 – Treeline
- FW4 – Drainage ditch
- WL1 – Hedgerow
- GS4 – Wet grassland
- GS2 – Dry meadows and grassy verges
- GS1 – Dry calcareous and neutral grassland

These habitats are illustrated in Appendix 7.1 of the Dunshaughlin LAP.

Preservation of habitats will be of importance in the future development of Dunshaughlin, in particular the preservation of hedgerow, treeline and wet grassland habitats. Map 1 of the Dunshaughlin LAP indicates the location of trees to be preserved.

Wastewater generated in Dunshaughlin is treated at a Wastewater Treatment Works (WWTW) in the townland of Castletown Tara, approximately 9.5 km north west of Dunshaughlin town. It is conveyed from the WWTW at Castletown Tara to an outfall at Dowdstown Bridge that discharges into the River Boyne approximately 6 km south east of Navan town and 11.5 km north west of Dunshaughlin. The River Boyne is a candidate SAC selected for alkaline fen and alluvial woodlands, both habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Atlantic Salmon, Otter and River Lamprey.

5.2 Human Beings

5.2.1 Population

The Meath County Development Plan (2007 – 2013) has identified Dunshaughlin as a Moderate Growth Town. Moderate Growth Towns are designations identified in the Regional Planning Guidelines and have population targets of up to 15,000. This designation for Dunshaughlin is as a result of key infrastructural improvements, including the M3 bypass which is due to be completed in 2009/2010 and the proposal for a new rail station in the town as part of the Pace to Navan rail corridor.

The results of the Census of Population 2006 indicate that the population of Dunshaughlin Town in 2006 was 3,384, an increase of 10.5% on the 2002 figure of 3,063. Table 5.1 summarises the population growth in the area between 2002 and 2006. The town of Dunshaughlin forms part of the overall ED for Dunshaughlin which also includes the rural hinterland. The overall ED is included for comparative purposes.

	2002	2006	Change 2002 – 2006	
			Actual	Percentage
County Meath	134,005	163,831	28,826	21.5
Dunshaughlin Town ¹	3,063	3,384	321	10.5
Dunshaughlin Rural Area	1,864	1,861	-3	-0.2
Dunshaughlin ED	4,927	5,245	318	6.5

Table 0.1 Population of County Meath, Dunshaughlin Town, Rural Area and Dunshaughlin ED, 2002 and 2006

Source: Central Statistics Office (CSO): 2002, 2006 Census

A comparison on the rate of growth between the rural and urban areas indicates the limited expansion in the population in rural areas and that, in line with policy on rural housing, the bulk of the population growth is directed to the urban centre of Dunshaughlin.

Meath County Council have estimated future population growth based on a review (September 2008) of planning applications granted in the area since 2006. It is estimated that the population of Dunshaughlin will be 5,075 in 2011.

5.2.2 Employment

The labour force comprises the total number of people at work, the number of unemployed and the number of first time job seekers. In 2006, the labour force in County Meath was 83,920 and in Dunshaughlin it was 1,673. This represents an increase from 63,134 and 1,400 respectively on the figures for 2002.

The overall participation rate in Meath was 67.5% in 2006, an increase from 61.7% in 2002. The comparable figures for Dunshaughlin were 68.8% (2006) and 67.4% (2002) respectively.

The unemployment rate in Meath remained static at 6.5% from 2002 to 2006. In Dunshaughlin the unemployment rate (including first time job seekers) increased slightly from 4.5% in 2002 to 5% in 2006. The number of people employed in Dunshaughlin increased by 18.6% from 2002 to 2006 and in Meath this figure increased significantly by 36%.

Recent investments in infrastructure including the M3 motorway, water supply, wastewater treatment capacity, broadband infrastructure and proposed improvements in public transport make Dunshaughlin a viable and attractive location for employment.

However, recent unemployment data from the CSO indicates that the rate of unemployment in the State increased by 71% from December 2007 to December 2008. In Meath, the figure

¹ It should be noted that the development boundary of the town is slightly larger than the boundary as defined by the Central Statistics Office for Census purposes. Thus, the actual population of the town will be slightly larger than recorded by the Census.

was 96%. In Trim, the nearest Social Welfare Office to Dunshaughlin, unemployment increased by 91.3%.

5.2.3 Community Facilities

The sufficient provision and appropriate location of community facilities contributes to a vibrant town and a life quality that sustains the community, promotes social integration and increases the attractiveness of the town as a location for residents, employers and visitors.

At present, Dunshaughlin accommodates a range of educational, churches (including a graveyard), health and public services facilities, including three schools (one secondary and two primary), a library, a health centre run by the Health Service Executive, area offices of Meath County Council which also functions as a community meeting place, a Courthouse, a Garda station, a fire station, a range of public open spaces including a pitch and putt course and playing fields associated with the secondary school that are also used by the GAA and a range of childcare facilities.

The town, therefore, has a very strong community focus where key services are provided commensurate with the status of Dunshaughlin in the settlement hierarchy of the region.

In relation to community facilities, the Dunshaughlin LAP proposes to provide for the following:

- A new primary school on lands to the north east of the town;
- An extension to the Community School;
- The expansion of Seachnaill Naofa Primary School as required through zoning of lands;
- Safe access and dropping off facilities at educational establishments;
- The replacement of temporary buildings with permanent accommodation at educational establishments;
- The expansion of the Health Centre as required through zoning of lands;
- Relocation of the fire station away from the town centre;
- A new graveyard located to the rear of the existing Health Centre; and
- A bring centre located to the south-west of the existing Health Centre.

5.2.4 Open Space and Amenities

There are 11.5 ha of land zoned open space which are in active recreation use in Dunshaughlin. With the exception of Knocks Park and the Pitch and Putt Course, existing open space generally comprises grassed areas. There is a further 14.7 ha of land zoned for active and passive recreational amenities yet to be developed. In addition, there are numerous areas of varying size that are not zoned open space but used as informal parks and play spaces. These spaces range from purpose built small parks constructed as part of residential development to 'left over' open space at road sides and street corners. These spaces are also important and contribute to the open space network and to the overall visual amenity of the area.

While the above numbers indicate that there is a good quantity of existing and zoned open space, there is a perception locally, amongst local sporting groups and schools in particular, that recreational space is insufficient to service the community. This is because many such areas are difficult to access and contain no facilities such as play equipment or seating and therefore are not considered as usable open space. The perception of insufficient open space is further compounded by the significant area of land zoned for open space use but currently

in inaccessible open fields. This principally comprises the two large parcels to the south-east and north-west of the town totaling 14.7 ha.

There is a deficiency in pedestrian and cycle connections between open space and recreation areas. Creating a network of pedestrian and cycle routes has the potential not only for getting from A to B in a sustainable manner, such as school to home, but also for encouraging exercise and interaction within the community and for enhancing the amenity of the area in general.

The primary focus of the open space strategy is, therefore, to provide the required quantum of space to meet the needs of a growing population; to provide open space in accessible and appropriate locations such that every resident has easy access to it and to create links and connections between the spaces.

The Dunshaughlin LAP equates a population of 12,000 to an open space requirement of 38.4 ha as follows:

- 4.8 ha children's play area
- 14.4 ha urban parks/general amenity space
- 19.2 ha playing fields

Existing zoning provides for c. 26 ha of open space and the LAP provides a further 9.0 ha, equating to a total of 35 ha. Map 2 of the LAP indicates the location of proposed open space and recreation areas identified in the open space strategy.

5.2.5 Human Health

In relation to human health, there is a general lack of data available on a usable scale for the Dunshaughlin LAP SEA.

5.3 Noise and Vibration

At this strategic level of environmental assessment it is not considered necessary or feasible to establish the baseline noise environment across the LAP area by means noise monitoring surveys. It is however possible to broadly scope the noise environment through examination of the town plan and experience of typical environmental noise landscapes.

The noise climate in Dunshaughlin town centre would be expected to be dominated by road traffic noise from the N3, which serves as the main artery route between Navan and Dublin, with a high proportion of heavy vehicle traffic. Away from the town centre and close proximity to the N3 the noise environment would be expected to be more varied and influenced more by local noise sources such as building services equipment serving shops and restaurants, local traffic, community noise. Noise levels in the vicinity of industrial and commercial premises may be exposed to operational noise from machinery and delivery lorries along with building services noise.

Although it has not been necessary to determine the localised noise environment in relation to this strategic assessment it should be noted that when assessing individual developments it is important that the local noise environment is adequately classified through appropriate environmental noise measurement survey. Noise measurements should be conducted in general accordance with the guidance set out in *ISO 1996: Acoustics – Description, measurement and assessment of environmental noise-2008*.

5.4 Water Quality

5.4.1 Hydrology

Dunshaughlin lies within the Eastern River Basin District in the catchment area of the Boyne and Broadmeadow Rivers. The Skane River, a tributary of the River Boyne, flows in the vicinity of Dunshaughlin town. As described in Section 5.1 (Biodiversity and Flora and Fauna) effluent from the WWTW at Castletown Tara (that treats wastewater generated in Dunshaughlin) is discharged to the River Boyne, a candidate SAC.

Biological monitoring of the River Skane at Dowdstown Bridge carried out by the EPA indicates that in 2003 the water quality was classified as Q3-4, slightly polluted. EPA monitoring of the River Boyne at Ballinter Bridge indicates that in 2003 the water quality was classified as Q3-4, slightly polluted.

In relation to the Water Framework Directive, the Eastern River Basin District Draft (RBD) River Basin Management Plan (December 2008) classifies both the River Boyne and the Skane River as of moderate quality status in the vicinity of the outfall point at which effluent from the Castletown Tara WWTW is discharged to the Boyne River. The main pressure on water quality is identified as from agriculture.

The Eastern RBD Draft River Basin Management Plan (December 2008) has as an objective the restoration of these rivers to good water quality status through the implementation of a programme of measures. Annex B identifies the following measures for the Boyne Lower:

- Riparian buffers
- Enforce regulations on septic systems
- Upgrade WWTW of < 2000 p.e.
- Restrict cattle access to rivers through creation of cattle access points
- Emphasise linkage between planning, water services and environmental sections within local authorities for planning purposes
- Implement community digestors for alternative energy
- Department of Agriculture – Code of Good Practice and Guidelines on the use of biosolids in Agriculture, 1999
- PCS – Principles for Good Plant Protection Practice
- Development plans/local area plans – should integrate OSWTS risk matrices
- Las to adopt a common register of approved site assessors and common code of practice for maintaining register
- Las to utilise risk maps of OSTWTS to inform decision making and target areas for inspections
- Modernise Abstraction Legislation, including a system for licensing surface water abstractions
- Conduct awareness campaign for sustainable domestic water use, including rainwater harvesting and domestic soakaways for storm water

5.4.2 Hydrogeology

Groundwater underlying the town of Dunshaughlin consists of a bedrock aquifer that is classified as locally important and generally moderately productive (Lm). The Geological Survey of Ireland (GSI) has assigned interim vulnerability to the aquifer and this varies from low to extreme (with karst features or rock near the surface) within the study area. The Dunshaughlin study area lies within both the inner and outer source protection zones for the aquifer.

Under the Water Framework Directive, groundwater quality in the Dunshaughlin area is classified as of good quality status and groundwater resource is registered as a protected area for drinking water supply.

The GSI website provides information on 17 No. wells that have been drilled within Dunshaughlin. A number of these are identified as providing a public supply or for domestic use with yields varying from 22 to 1300 m³/day.

The Dunshaughlin Water Supply Scheme is currently under construction and will source groundwater from 7 No. production wells that were recently drilled in Dunshaughlin. The scheme will have a 3,000 m³/day capacity, an increase from the current capacity of 1,200 m³/day.

5.5 Soils and Geology

5.5.1 Soils

The Teagasc Soil Map of Ireland shows that subsoils underlying the study area comprise mainly made ground (in Dunshaughlin town centre) with soil covering the area to be predominantly till derived from carboniferous limestone (approximately 290 – 355 million years ago), lake sediments to the east and some small deposits of sandstone and shales. The majority of the surface of Dunshaughlin comprises made ground. Water supply to Dunshaughlin is dependant on groundwater sources and the overlying soil characteristics have the potential to impact on aquifer. It is not thought that soils will be a significant issue, given the general urban context of the study area.

5.5.2 Geology

The bedrock geology of the LAP area is dominated by rocks of Carboniferous Period. The site proposed for development rests on limestone bedrock from the Lower Carboniferous (Dinantian) period.

Much of the limestone found in Ireland was formed during the geological Upper Palaeozoic era, when a warm shallow sea covered a large area of what is now Ireland.

Limestone in Ireland was formed during the Carboniferous period, approximately 355 – 290 million years ago, by deposition of calcium carbonate (formed by the deposition of marine organisms with calcium carbonate shells and skeletons) at the bottom of the sea. During the Carboniferous period in this area, general subsidence permitted the sea to invade the lower ground of the area. Continued subsidence resulted in the laying down of shallow and then deeper marine sediments.

The LAP area is located on the Loughshinny Limestone Formation, which is comprises laminated to thinly bedded argillaceous, puritic, locally cherty limestone, interbedded with dark grey to black shale. The limestones include argillaceous micrites and graded calcarenities. The formation is well exposed in the Loughshinny area between Drumanagh Head and Copper Mine Bay. Its thickness ranges from less than 100 m to 150 m.

An Area of Geological Interest has been identified in the north eastern region of Dunshaughlin, a portion of which is included in the LAP boundary. The LAP includes an objective to consult with the Geological Survey of Ireland regarding proposals for development in this area.

5.6 Air Quality and Climatic Factors

5.6.1 Air Quality Standards

In order to reduce the risk to health from poor air quality, national and European statutory bodies have set limit values in ambient air for a range of air pollutants. These limit values or "Air Quality Standards" are health- or environmental-based levels for which additional factors may be considered. For example, natural background levels, environmental conditions and socio-economic factors may all play a part in the limit value which is set.

The applicable limit values in Ireland include the Air Quality Standards Regulations 2002, which incorporate EU Directives 1999/30/EC and 2000/69/EC (see Appendix A). These directives will soon be superseded in Irish law by Council Directive 2008/50/EC (published 11/06/08), which combines the previous air quality framework and subsequent daughter directives (see Appendix A). Although the EU Air Quality Limit Values are the basis of legislation, other thresholds (e.g. lower / upper assessment and alert thresholds) outlined by the EU Directives are used which are triggers for particular actions.

5.6.2 Climate Agreements

Ireland ratified the United Nations Framework Convention on Climate Change (UNFCCC) in April 1994 and the Kyoto Protocol in principle in 1997 and formally in May 2002^(2,3). For the purposes of the EU burden sharing agreement under Article 4 of the Kyoto Protocol, in June 1998, Ireland agreed to limit the net growth of the six GHGs under the Kyoto Protocol to 13% above the 1990 level over the period 2008 to 2012^(4,5). The UNFCCC is continuing detailed negotiations in relation to GHGs reductions and in relation to technical issues such as Emissions Trading and burden sharing. The most recent Conference of the Parties (COP14) to the agreement was convened in Poznan, Poland in December 2008.

² Framework Convention on Climate Change (1999) [Ireland - Report on the in-depth review of the second national communication of Ireland](#)

³ Framework Convention on Climate Change (1997) [Kyoto Protocol To The United Nations Framework Convention On Climate Change](#)

⁴ EPA (2007) [Environment in Focus 2007 - Environmental Indicators for Ireland](#)

⁵ ERM (1998) [Limitation and Reduction of CO₂ and Other Greenhouse Gas Emissions in Ireland](#)

5.6.3 Air Pollution Sources

The major source of air pollution within the Dunshaughlin LAP Area is road traffic emissions, specifically that resulting from traffic on the N3. Air quality is variable and subject to significant spatial variation, with concentrations generally falling significantly with distance from major road sources ⁽⁶⁾. The highest levels of air pollution are currently experienced in Dunshaughlin town centre.

Completion of the M3 Clonee to North of Kells Scheme will lead to reduced traffic congestion in Dunshaughlin with an associated improvement in air quality. Although, the M3 road scheme will also represent an additional air pollution source in the region, the inclusion of a green belt between the road and Dunshaughlin as part of the Dunshaughlin LAP will mean that the effect of road traffic emissions from the M3 on the developments within the Dunshaughlin LAP will be minimised.

A review of IPPC licences issued by the EPA for the region shows no IPPC licensed facilities within the LAP Area ⁽⁷⁾.

5.6.4 Meteorological Data

A key factor in assessing temporal and spatial variations in air quality is the prevailing meteorological conditions. Depending on wind speed and direction, individual receptors may experience very significant variations in pollutant levels under the same source strength (i.e. traffic levels) ⁽⁸⁾. Wind is of key importance in dispersing air pollutants and for ground level sources, such as traffic emissions, pollutant concentrations are generally inversely related to wind speed. Thus, concentrations of pollutants derived from traffic sources will generally be greatest under very calm conditions and low wind speeds when the movement of air is restricted. In relation to PM₁₀, the situation is more complex due to the range of sources of this pollutant, and thus measured levels of PM₁₀ can be a non-linear function of wind speed.

5.6.5 Air Quality Zones in Ireland

As part of the implementation of the Framework Directive on Air Quality (1996/62/EC), four air quality zones have been defined in Ireland for air quality management and assessment purposes ⁽⁹⁾. Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 15 towns with a population of greater than 15,000. The remainder of the country, which represents rural Ireland but also includes all towns with a population of less than 15,000 is defined as Zone D. In terms of air monitoring, the LAP Area is categorised as Zone D ⁽⁹⁾.

5.6.6 EPA / Local Authority Monitoring Programmes

Air quality monitoring programs have been undertaken throughout Ireland in recent years by the EPA and Local Authorities. The most recent EPA annual report on air quality monitoring undertaken throughout Ireland is entitled *"Air Quality In Ireland 2007 - Key Indicators of Ambient Air Quality"*⁽⁹⁾.

⁶ UK DEFRA (2007) Design Manual for Roads and Bridges Vol 11 Section 3 Part 1 - HA 207/07

⁷ EPA Website (2007) <http://www.epa.ie/whatwedo/licensing/>

⁸ World Health Organisation (2006) Air Quality Guidelines - Global Update 2005 (and previous Air Quality Guideline Reports 1999 & 2000)

⁹ EPA (2007) Air Quality in Ireland 2007 - Key Indicators of Ambient Air Quality (& previous annual reports 1997-2006)

Continuous EPA monitoring is carried out at a range of Zone C towns and both urban and rural Zone D locations using continuous monitors in 2007^(9,10). Although no EPA or Local Authority monitoring has been carried out within the region of the Dunshaughlin LAP, data from these Zone C and D locations can be used to provide an indication of the prevailing air quality conditions in the region.

5.6.7 Review of EPA Monitoring Data

Nitrogen dioxide (NO₂) monitoring was carried out at five Zone D locations in 2007, at Navan, Ferbane, Cork Harbour, Glashsboy and Kilkitt. The NO₂ annual averages for these sites ranged from 2 µg/m³ in Kilkitt to 16 µg/m³ in Navan. NO₂ monitoring was carried out at three Zone C locations in 2007, at Limerick Park Road, Ennis and Waterford⁹. The NO₂ annual averages for these three sites were 15, 14 and 18 µg/m³, respectively. Hence long-term average concentrations measured by the EPA at representative Zone C and D locations were significantly lower than the annual average limit value of 40 µg/m³.

The results of carbon monoxide (CO) monitoring carried out in Navan in 2007 (Zone D) showed no exceedances of the 8-hour limit value⁹, with an average level of 0.5 mg/m³. Data for the Zone C station in Waterford in 2007 indicated a long-term average of 0.5 mg/m³⁽⁹⁾. Thus measured levels at the representative Zone C and D locations were significantly lower than the 8-hour limit value.

With regard to benzene, monitoring was carried out at Waterford in 2007⁽⁹⁾, with an annual average of 0.8 µg/m³. The results of monitoring carried out in the Zone C locations of Ennis and Bray in 2006 indicated long-term averages of 0.6 and 0.3 µg/m³ respectively⁽⁹⁾. Thus measured benzene levels were significantly lower than the annual limit value of 5 µg/m³ at the representative Zone C and D locations.

Long-term measurements of particulate matter with a size less than 10 µm (PM₁₀) carried out at seven Zone D locations in 2007, gave average levels ranging from 10 µg/m³ in Kilkitt to 23 µg/m³ in Navan⁽⁹⁾. Data from the Phoenix Park in Dublin also provides a good indication of urban background levels, with an annual average in 2007 of 12 µg/m³⁽⁹⁾. Hence long-term average concentrations were significantly lower than the annual average limit value of 40 µg/m³. While no PM_{2.5} (particulate matter with a size less than 2.5 µm) monitoring was carried out at Zone C or D locations, the results of monitoring at Station Road in Cork City in 2007 (Zone B)⁽⁹⁾ indicated an average concentration of 8 µg/m³, which is significantly lower than the limit value of 25 µg/m³. Thus measured PM₁₀ and PM_{2.5} levels were significantly lower than the annual limit value of 5 µg/m³ at the representative Zone B, C and D locations.

In summary, the review of EPA monitoring at representative Zone C and D locations in Ireland indicates that good air quality is generally experienced in the region of the Dunshaughlin LAP.

5.7 Material Assets

5.7.1 Water Supply

The Dunshaughlin Water Supply Scheme is currently under construction and has been designed to provide a secure water supply to the Dunshaughlin area and is capable of supplying the 2025 demand. The scheme will be sourced from 7 No. production wells that were recently drilled around Dunshaughlin village and construction of a new water treatment plant with a capacity of 3,635 m³/day. 3,000 m³ of storage capacity will be accommodated in

¹⁰ EPA Website (2007) <http://www.epa.ie/whatwedo/monitoring/air/>

a new 42 m high elevated water tower which is due for completion in 2010. This is an increase from the current capacity of 1,200 m³/day. The Scheme also includes for the laying of gravity mains to connect the water tower into the existing distribution network and for the upgrading of the existing distribution network. The projected Scheme has a population equivalent of 14,000, including for domestic, commercial and employment uses up to 2025.

5.7.2 Wastewater Treatment

The current wastewater treatment facilities for the town are provided in the Castletown/Tara Waste Water Treatment Works which became operational in 2008. This facility has a population equivalent (p.e.) of 12,000 with a reserve capacity of 4,000 p.e. The inlet and outlets are designed for a maximum hydraulic capacity of 18,000 p.e. if the need arises.

This facility has considerably improved wastewater collection in the town and has been designed to provide a modern, efficient and effective wastewater collection and treatment system for the immediate and long term requirements of Dunshaughlin. Its provision ensures development will happen with key infrastructure already in place and, from an infrastructural viewpoint, ensures that Dunshaughlin can grow to a Moderate Growth Town in a sustainable manner.

5.7.3 Surface Water Drainage

Surface water runoff within the study area is currently managed via a system of surface water drains that discharge to the local surface water network. The Office of Public Works' flood mapping website (www.floodmaps.ie) identifies two areas in Dunshaughlin where significant flooding occurred in November 2000. These areas lie to the north and east of the study area and are identified on the Dunshaughlin LAP Map 1.

5.7.4 Transport

Public Transport

It is proposed to extend the rail line from Pace to Navan, including a stop at Dunshaughlin. The preferred route travels to the east of the town with a stop north of the town centre and this route has been incorporated into the Dunshaughlin LAP.

Roads Infrastructure

The N3 which forms the Main Street of Dunshaughlin developed as a thoroughfare between Dublin and Navan but is currently operating beyond its capacity, particularly due to overspill of growth from the Greater Dublin Area. The M3 bypass is currently under construction and is due to open in late 2009 or early 2010. It is anticipated in the Environmental Impact Statement for the M3 motorway that this scheme will reduce traffic travelling through Dunshaughlin by 75% on current levels. The M3 road scheme also includes for a distributor link road connecting the M3 with the local road network in Dunshaughlin and the LAP includes a proposal to connect this link road with the N3 south of the town.

Meath County Development Plan (2007 – 2013) proposes a link road at the east and north eastern edge of Dunshaughlin that would form a circular route around the west of the town. Permission has recently been granted (but construction has not yet commenced) for the south western element of this road from the Dublin Road to the Lagore Road which is impacted by the preferred option for the Pace to Navan Rail link (Route B which travels to the east of Dunshaughlin).

Pedestrians and Cyclists

It is estimated that the opening of the M3 bypass will remove 75% of traffic that currently travels through Dunshaughlin. This will provide the opportunity to improve pedestrian and cycle facilities and the open space strategy in the LAP includes for a network of pedestrian and cycle routes around and through the town.

5.7.5 Waste Management

In terms of waste management infrastructure, the Waste Management Plan for the North East Region 2005-2010 forecasts the use of the landfill for municipal waste disposal for the period 2005-2010.

In terms of waste management infrastructure the Waste Management Plan for the North East Region is taken into consideration for all policies and plans in the North East region. The plan was published in 2001 by Meath County Council, Louth County Council, Cavan County Council and Monaghan County Council. The Plan was reviewed in 2004, and the revised Plan for the 2005 – 2010 was published in 2006.

The need to progress towards waste management targets established at EU and National level is recognised in the Plan. As such, ambitious targets are stated in the revised (current) Plan, for businesses in terms of waste reduction, reuse, recycling and disposal. These are essentially unchanged from the original targets set for the region and are summarised in Table 5.2.

Source	Recycling	Energy Recovery	Landfill
Household	43%	39%	18%
Commercial & Industrial	43%	39%	18%
Construction & Demolition	85%	-	-

Table 0.2 Waste Management Targets for the North East Region (2005 – 2010)

Municipal landfill charges in Ireland are based on the weight of waste disposed. In the Meath Region, charges are approximately €120-140 per tonne of waste at Knockharley landfill, (which includes a €20 per tonne landfill levy introduced under the *Waste Management (Landfill Levy) Order 2008*).

At present, a bring bank is provided at the County Council Offices in Dunshaughlin that accepts glass, cans, and textiles. It is an objective of the LAP to provide a bring centre to the south west of the existing Health Centre. This facility will accept all waste streams.

Development will generate demand for domestic and commercial waste disposal and collection services. The construction phases of developments will also produce significant volumes of waste. Developers are obliged to submit a construction and waste management plan prior to the commencement of any proposed construction activities. All waste material generated during both the construction and operational phases of development must only be collected by appropriately licensed waste contractors and disposed of in licensed waste facilities.

5.7.6 Broadband

Broadband is currently available in Dunshaughlin from a number of service providers.

High speed broadband is an essential requirement for the attraction of business into a town, particularly in the context of the objective to secure jobs in the town and to reduce commuting. The Department of Communications, Energy and Natural Resources has put in place a regional broadband programme which includes for the building of high speed, open space broadband networks, in association with the local and regional authorities, in major towns and cities.

The success of the first phase of the Metropolitan Area Networks (MANs) programme has led to a second phase of projects, for broadband provision in over 90 towns with a population in excess of 1,500 people. Dunshaughlin is one such town. MANs are completed or under construction in 66 additional towns under Phase II of the Programme. The construction of the networks in these 66 towns was completed in mid 2008. Construction of MANs in the remaining 28 towns is currently under review pending the outcome of a value for money review of phase 1 of the programme and the outcome of the consultation on the Next Generation Broadband policy paper.

It is the intention of the Planning Authority to encourage the roll out of broadband services in the County and in this regard, it shall be an objective that all planning applications for significant new development shall provide for the delivery of broadband infrastructure in line with each phase of development.

5.8 Future Baseline Environmental Conditions

In the absence of implementation of the Dunshaughlin LAP, it is envisaged that future baseline environmental conditions will proceed as follows:

- Proliferation of residential development without the provision of the rail service or distributor link road could lead to further traffic congestion within Dunshaughlin with consequent negative impacts on noise levels and air quality.
- Inappropriate planning of commercial and industrial activities in relation to the location of appropriately zoned lands could compromise the provision of local employment, and in turn economic and employment growth.
- The LAP includes a strategy for provision of open space and recreational areas interlinked by pedestrian and cycling routes. Failure to implement this strategy could have negative impacts on human beings in terms of quality of life.
- In relation to natural heritage, development on wet grassland areas or the area of geological interest to the north east of Dunshaughlin without adequate assessment and sensitivity could result in negative impacts on sensitive habitats or the geological area of interest.
- In relation to built and cultural heritage, inappropriate subsurface excavations in the area of archaeological interest could compromise the integrity of archaeological features in this area. Failure to control building finishes on Main Street could negatively impact on the architectural character and aesthetic value of the existing streetscape.
- The LAP includes objectives and policies to extend and provide additional community facilities including schools, the health centre, a graveyard, a civic amenity centre and relocation of the fire station away from the town centre. If these facilities were not provided then this could have a negative impact on population and economic growth.

- Continued growth of the town without careful monitoring of wastewater treatment volumes could potentially lead to the WWTP at Castletown Tara operating above capacity and producing a poor quality effluent that could have negative impacts on the quality of the River Boyne candidate SAC.
- The LAP provides a context for improvement of telecommunications and broadband services. It is essential that these services are continually improved to facilitate economic growth and employment.

6.0 PREDICTED SIGNIFICANT EFFECTS ON THE ENVIRONMENT AND MITIGATION

6.1 Assessment Methodology and Environmental Criteria

The policy and objective assessment process is based on a matrix-type assessment, whereby each policy is individually assessed against the SEA assessment criteria in Table 6.1. The criteria have been developed following a review of SEA guidance, both from Ireland and the UK, and recent examples of SEA's in Ireland.

Aspect	Environmental criteria
Biodiversity, fauna & flora	<ul style="list-style-type: none"> • Conserve and promote the diversity of habitats, protected/designated conservation areas and protected species
Human Beings	<ul style="list-style-type: none"> • Improve people's quality of life based on high-quality residential, working and recreational environments and on sustainable travel patterns • Promote social inclusion for all • Reduce and prevent crime and the fear of crime • Promote existing and new recreational, nature/wildlife, open space and community facilities
Noise and vibration	<ul style="list-style-type: none"> • Minimise noise, vibration and emissions from traffic, industrial processes and extractive industry
Water	<ul style="list-style-type: none"> • Promote sustainable water consumption patterns, based on long-term protection of available water resources • Reduce progressively discharges of polluting substances to all waters • Protect all sources of public drinking water supply
Soil (inc. minerals)	<ul style="list-style-type: none"> • Maintain the quality of soils • Give preference to the re-use of brownfield lands, rather than developing of greenfield lands • Minimise the consumption of non-renewable sand, gravel and rock deposits • Minimise the amount of waste sent to landfill
Air & climate	<ul style="list-style-type: none"> • Reduce all forms of air pollution • Minimise emissions of greenhouse gases to contribute to the reduction and avoidance of human-induced global climate change • Reduce energy consumption patterns and maximise the use of renewable energy sources with respect to climate change
Material assets	<ul style="list-style-type: none"> • Maximise use of existing built environment • Avoid flood risk in selecting sites for development
Cultural heritage	<ul style="list-style-type: none"> • Promote the protection and conservation of cultural, architectural and archaeological heritage resources
Landscape	<ul style="list-style-type: none"> • Conserve and enhance values and historic landscapes, and features within them • Promote conservation and enhancement of townscapes and the urban environment

Table 6.1 Proposed SEA Assessment Criteria

The information sources used in developing the environmental assessment criteria are detailed as follows:

- *Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland*; prepared for the Environmental Protection Agency (Ireland) by ERM Ireland Ltd (2003)
- *Implementation of the SEA Directive, Guidelines for Regional Authorities and Planning Authorities*; DoEHLG (November 2004)
- *The Strategic Environmental Assessment Directive: Guidance for Planning Authorities*; Office of the Deputy Prime Minister, UK; (October 2003)

6.2 Significant Environmental Effects and Mitigation

This section details the predicted effects of the implementation of the Dunshaughlin LAP and recommends mitigation measures, where deemed necessary.

Biodiversity and Flora & Fauna

The Meath County Council Biodiversity Survey (November 2008) has identified habitats of interest within Dunshaughlin town. In considering future development in Dunshaughlin, preservation of treeline, hedgerow and wet grassland habitats is of particular importance. Mature trees to be preserved have been identified in the LAP. In addition, wastewater generated within the study area is treated at the Castletown Tara WWTP and effluent is discharged to the Boyne River, a candidate SAC. It is important to provide adequate wastewater treatment capacity in line with population, commercial and industrial growth.

6.2.1 Biodiversity, Flora and Fauna: Policies & Objectives of Dunshaughlin LAP

Natural heritage objectives and policies likely to affect biodiversity and flora and fauna include:

LAP Objective NH-1: To consult with the Geological Survey of Ireland regarding proposals for development in the area of Geological Interest which falls within the Local Area Plan boundary as indicated in Map 1.

LAP Policy – NH-1: New primary pedestrian walkway connections as mapped will be developed as 'green corridors'. The paths design will result in the walkways being safe (overlooked), readily identifiable walking/running routes connecting parks and open spaces throughout Dunshaughlin. These pedestrian routes will not simply provide a footpath. Provision for connection from the residential areas out to the Green Belt zone will promote biodiversity, access and high visual amenity as green 'wedges' maintaining a strong visual and physical connection from the rural landscape into the town. The walkways network will create and strengthen habitat links throughout the town.

LAP Policy – NH-2: To protect and conserve existing hedgerows and prevent loss and fragmentation of ecological corridors where possible. Maintenance and management of hedgerows will be in accordance with best practice guidelines issued by Teagasc and the Heritage Council. (in accordance with Dev Plan HER POL 23 and 28)

LAP Policy – NH-3: To promote the protection and preservation of existing hedgerows and to encourage planting of native hedgerows of native provenance in accordance with the County Development Plan policy HER POL24.

LAP Policy – NH – 4: To encourage the retention, where possible, of hedgerows and other distinctive boundary treatments in rural areas. Where removal of a hedgerow, stone wall or other distinctive boundary treatment is unavoidable, provision of the same type of boundary will be required of similar length set back within the site. This shall also relate to Road Improvements and Realignments carried out by the Local Authorities or agents on their behalf. (in accordance with Dev Plan HER POL 25)

LAP Policy – NH – 5: To recognise the archaeological importance of townland boundaries including hedgerows and promote their protection and retention, in accordance with the County Development Plan policy HER POL 27.

LAP Policy – NH – 6: Mature trees and hedgerows will be preserved and protected in recognition of the contribution mature trees make to the landscape and character of an area and their value as wildlife corridors. Open space and walkways will incorporate where possible and appropriate existing mature trees and hedgerows and contain new planting to strengthen potential habitat links. Refer to the Heritage Map below for detail of existing habitat mapping and Map 1 for existing trees to be preserved.

LAP Policy – NH – 7: Native species (preferably of native genetic stock) will be used where possible in planting schemes in existing and new parks and in open space areas.

LAP Policy – NH – 8: The NeighbourWood Scheme will be promoted along with other initiatives that aim to establish and enhance woodlands for recreation and wildlife benefits in partnership with local communities. County Development Plan policy HER POL 32.

LAP Policy – NH – 9: The impacts of future development on the wet grassland to the east of Dunshaughlin will be ascertained, particularly in relation to alterations in the hydrology of the area.

LAP Policy – NH – 10: To use the Meath County Council Dunshaughlin Biodiversity Survey (dated November 2008 and reproduced below) and any future tree survey in determining trees and vegetation to be retained and/or enhanced as part of all future development. The Biodiversity survey will also be used in determining appropriate plant species for new planting.

LAP Policy – NH – 11: To protect existing ecological corridors including rivers, streams, hedgerows, trees, wooded areas, scrub and traditional stone walls. All proposals for development shall be required to identify all ecological corridors, assess the impact of the proposal on these and set out detailed mitigation measures to offset any negative impact.

LAP Policy – NH – 12: The use of permeable and porous surfaces which comply with SuDS and the use of French drains is to be encouraged as necessary. The flood plain is a valuable natural resource in the management of floodwaters and the

protection of property and productive lands on higher ground; the Council will at all times protect this as the primary role of the floodplain in the LAP area.

LAP Policy – NH – 13: To conserve and protect the natural habitats and water quality in the River systems within the LAP area, in accordance with the tenets set out in the Eastern River Basin District Draft River Basin Management Plan of December 2008.

Wastewater treatment objectives likely to affect biodiversity and flora and fauna include:

LAP Objective WWT-1: To ensure that all new developments have and are provided with satisfactory drainage systems in the interest of public health and to avoid the pollution of ground and surface waters.

Biodiversity, Flora and Fauna: Likely Significant Effects

The proposed zoning map proposes that residential communities, open spaces and other commercial and industrial development be provided for in areas that have been identified as containing flora and fauna habitats of interest including wet grassland, treeline and hedgerow habitats. Residential communities, community facilities and open spaces are provided for in an Area of Geological Interest in the north eastern region of the study area.

The natural heritage policies and objectives outlined above provide for consultation with the Geological Survey of Ireland in relation to proposed development in the Area of Geological Interest and for the protection of hedgerows and for preservation of treeline and hedgerow habitats where possible. In addition, the LAP policies promote the planting of native hedgerows and trees and provide for the assessment of impacts of future development on wet grassland habitats. Therefore, providing that habitats of interest are maintained where possible and no development occurs that will have detrimental impacts on wet grassland habitats, it is assessed that the LAP will have long term positive effects on biodiversity, flora and fauna.

Implementation of the open space strategy will improve biodiversity within the LAP boundary.

In relation to provision of wastewater treatment facilities, the existing WWTP at Castletown Tara, which discharges to the River Boyne candidate SAC, has a design population equivalent of 12,000 with reserve capacity of 4000 p.e. The inlet and outlet design capacities are for a maximum hydraulic capacity of 18,000 p.e. The LAP provides for a population target of 12,000 which would equate to a larger population equivalent when wastewater discharges from commercial and industrial sources are taken into account. Should implementation of the Dunshaughlin LAP result in wastewater generation equivalent to greater than 16,000 p.e. (the design and reserve capacity of the WWTP at Castletown Tara), then it will be necessary to provide for alternative wastewater treatment arrangements or to upgrade the WWTP at Castletown Tara. This will ensure that overloading of the Castletown Tara treatment plant resulting in poor quality effluent does not occur and will ensure that there are no negative impacts on the Boyne River candidate SAC. This situation will require monitoring to ensure the current capacity of 12,000 p.e. is not breached and is particularly important in protecting the quality of the River Boyne candidate SAC.

Biodiversity, Flora and Fauna: Mitigation

Implementation of the LAP policies and objectives will ensure that there are no significant negative effects on biodiversity, flora and fauna. It is recommended that site-specific biodiversity, flora and fauna impact assessments be carried out for large scale developments, and in particular for proposed developments in wet grassland habitats.

6.2.2 Human Beings

The Dunshaughlin LAP provides for a population target of 12,000. In relation to employment, the LAP identifies that the current trend in Meath is similar to the national trend in that the rate of unemployment has increased significantly (by 96%) from December 2007 to December 2008. The LAP provides for improvements in community facilities including the extension/expansion of existing educational facilities, the provision of a new primary school, the expansion of the existing Health Centre, relocation of the fire station, provision of a new graveyard and a bring centre. In relation to open space the Dunshaughlin LAP provides for increasing the available area of open space to 35 ha and improving the quality thereof. It also aims to improve access to pedestrians and cyclists between open spaces and recreational facilities.

Human Beings: Policies & Objectives of Dunshaughlin LAP

The following aspects of the Dunshaughlin LAP are likely to affect human beings:

- Residential policies and objectives – provide for provision of high residential densities in the area of the train station to the north of the town, residential zoning on lands to the south-west of the town (in tandem with the extension of the M3 Distributor Link Road), in-fill housing developments, a balance of social, affordable and private housing and in the type and size of units, phasing of housing development to correspond to the provision of infrastructure, community and recreational facilities, provision of pedestrian and cycling links.
- Employment policies and objectives – provide for zoning of land for commercial and industrial development, promotion of existing industries, provision of high-density employment uses in the town centre area and close to public transport nodes, phasing of development with the provision of essential infrastructure, provision of new distributor link road, development of lands in the area of the rail station in accordance with an approved Urban Framework Plan, provision of a buffer/linear park between residential lands and employment lands to the south west of the town and that residential use in areas zoned for employment use be 'open for consideration only' with residential development strictly secondary to the primary employment use of the site.
- Open space strategy – provides for provision of 35 ha of open space within the LAP boundary, creation of a hierarchy of open space to achieve a variety of open space facilities with connection to the pedestrian and cycleway network, access to play areas for children within a walkable distance, and the development of cycling and walking facilities in and around Dunshaughlin.
- Natural heritage objectives and policies – provide for new primary pedestrian walkway connections to be developed as green corridors resulting in safe, overlooked walkways/cycle ways that connect open spaces throughout Dunshaughlin and between residential areas and the green belt zone.
- Education policies and objectives – provide for access for all residents to

educations and by all modes of transport with high quality pedestrian and cycle links from residential areas, sharing of recreational facilities between education providers and the wider community, facilitation of a new primary school on lands to the north east of the town, extension of the Community School, expansion of Seachnaill Naofa Primary School, safe access and dropping off facilities and the replacement of temporary buildings with permanent accommodation.

- Health policies and objectives – provide for provision of primary and secondary care services in the town through zoning of additional lands in the vicinity of the Health centre to facilitate its expansion as required.
- Community policies and objectives – provide for relocation of the fire station away from the town centre, provision of a graveyard located to the rear of the existing Health Centre and provision of a bring centre to the south-west of the existing Health Centre.
- Water supply objectives – provide for implementation of the Water Conservation Programme to conserve valuable resources by reducing wastage, utilising water supply in an efficient manner and ensuring that drinking water complies with the EU Drinking Water Directive 98/83/EC
- Wastewater treatment objectives – provide for ensuring that all new developments have and are provided with satisfactory drainage systems in the interest of public health and to avoid the pollution of ground and surface waters.

Human Beings: Likely Significant Effects

Implementation of the Dunshaughlin LAP will provide high quality residential, working, educational, community and recreational environments as well as sustainable travel patterns. Providing for social and affordable housing promotes social inclusion. The LAP places a significant emphasis on the provision of high quality open space and recreational areas with pedestrian and cyclist links between and to residential areas. Therefore, it is considered that implementation of the LAP will have positive effects on people's quality of life. In relation to employment, the zoning of land for commercial and industrial uses together with the provision of a sustainable transport network including rail link, M3 motorway and the proposed distributor link road will promote Dunshaughlin as a suitable location for investment.

The consequences of a population increase may affect human health in relation to the quality of potable water supply, and the impact of increased traffic generated by the increased population on local air quality and noise and vibration levels. The Dunshaughlin Water Supply Scheme is currently under construction and has been designed to provide a secure groundwater supply to the Dunshaughlin area capable of supplying a population equivalent of 14,000 including for projected domestic, commercial and employment uses up to 2025. Protection of the quality of this groundwater supply is vital to ensuring the health of the population of Dunshaughlin. The Eastern RBD Draft River Basin Management Plan (December 2008) has identified that the main pressures on the groundwater resource in the vicinity of Dunshaughlin are from agriculture and wastewater from unsewered properties and has recommended that measures be taken to reduce groundwater pollution from these sources. The LAP policy of ensuring that new developments are drained satisfactorily will have a positive contribution to maintaining groundwater quality. The LAP should also include policies and objectives to ensure sustainability of the groundwater resource.

The likely significant of a population increase on water quality and air quality are discussed on sections 6.2.4 Water Quality and 6.2.5 Air Quality and Climatic Factors.

Human Beings: Mitigation

In order to ensure the protection of human health, it is recommended that ongoing monitoring be carried out to ensure the sustainability and quality of the groundwater resource that supplies the Dunshaughlin Water Supply Scheme. Regular water quality monitoring and drawdown monitoring of the wells supplying the scheme should be carried out.

6.2.3 Noise

The adverse effects of excessive noise on communities vary from direct effects such as noise-induced hearing loss, speech interference, sleep disturbance and annoyance, to indirect or secondary effects, such as long-term effects on physical and mental health as a result of long-term annoyance and prolonged disturbance to sleep. This has led to the European Parliament introducing the European Noise Directive 2002/49/EC relating to the assessment and mitigation of environmental noise.

European Noise Directive (2002/49/EC)

The aim of this directive is:

“to define a common approach intended to avoid, prevent or reduce on a prioritized basis the harmful effects, including annoyance, due to exposure to environmental noise”

This aim is to be achieved through three stages:

- completion of strategic noise maps to determine the exposure to environmental noise for agglomerations, roads, railways and airports over a defined scale;
- ensuring that the effects of environmental noise are made available to the public; and
- through the adoption of strategic noise Action Plans designed to set out a framework for the prevention and reduction of environmental noise and identifying quiet areas for preservation.

Meath County Council is the statutory body designated with the production of the County Meath Noise Action Plan which encompasses Dunshaughlin. This document has been reviewed as part of this Strategic Environmental Assessment.

Noise sensitive land uses and developments would commonly include:

- residential dwellings;
- hotels and hostels;
- nursing homes;
- hospitals;
- schools;
- places of worship;
- community areas;
- recreational areas.

When these noise sensitive areas are located in proximity to noise sources such as listed above it is important that potential noise impacts are adequately assessed and mitigated against as to ensure that the proper enjoyment and use is not negatively impacted.

Water

Water Quality

Monitoring of all water bodies in the LAP area will be undertaken by Meath County Council in conjunction with the EPA at regular intervals. Water quality monitoring is required to protect and enhance the status of aquatic ecosystems with regard to their water needs.

Groundwater

In terms of addressing the existing situation of localised pollution from wastewater, it is recommended that a groundwater monitoring programme be initiated in areas where groundwater vulnerability is high i.e. North and South of Dunboyne. This will be carried out by Meath County Council with the assistance of the Geological Survey of Ireland.

In addition, it will be extremely important that physico-chemical monitoring programme be implemented in full in order to ensure that the mitigation measures are proving effective.

Flooding

In order to avoid flooding of developed areas while maintaining natural flood plains and avoid unnatural alterations to drainage systems which affect river flows the potential flood risk of proposed development will be monitored. This will be carried out by Meath County Council in conjunction with the Office of Public Works. The consultation draft guidelines for Planning Authorities by the DoEHLG - The Planning System and Flood Risk Management, September 2008 will be referred to.

Noise: Likely Significant Effects

At this strategic planning level the principal protection against potential impacts is through appropriate choice of land use objectives and zoning. Careful consideration should therefore be given to potential noise impacts that could arise from the strategic planning process and the establishment of a defined Local Area Plan. Where it is not possible to reduce potential impacts through choice of land use objectives and zoning at the strategic planning level it is important to ensure that robust assessment methodologies are put in place at the planning consent level in order to ensure that noise impacts are fully adequately control to protect residential and occupational amenity.

Infrastructure Development

The new M3 bypass is due for completion in early 2010 and will run c. 1km to the west of Dunshaughlin town centre. This new road does not fall under the scope of the Dunshaughlin LAP, however it will have a significant and discernable effect on the noise climate within the planning area, and in particular in the vicinity of the M3 itself and in the vicinity of the existing N3 that runs through the centre of the town. As such it should be a material consideration in appropriate and considered land use zoning within the area.

The new M3 is expected to remove approximately 75% of the through traffic from the town centre. This will significantly improve the noise climate in the town centre and along the existing N3. The lands in close proximity to this road will become more suitable for residential development, recreational, community, educational and amenity uses.

The due to the increased capacity and speed associated with a national road the new M3 motorway will have significant noise levels within its vicinity, and it would generally be prudent to locate noise sensitive developments and land uses an appropriate distance from

this road. This has been incorporated into the development plan through zoning of the area bounding the east of the M3 as H1 (*"H1: To maintain a green belt between the development and the M3"*), which will reduce potential noise impacts at a strategic level by keeping noise sensitive land zoned an appropriate distance from the road and ties in with the aims and objectives of the European Noise Directive.

The M3 railway corridor will run through Dunshaughlin. As with the M3 motorway this railway does not fall under the scope of the LAP however it will have a discernable effect on the noise climate in the vicinity of the final route and should be taking into consideration within the planning process. At this stage there are two possible options for the routing of the railway line and for the location of the Dunshaughlin stop.

However the above advice does not preclude the granting of planning permission for residential development adjacent to roads and railways as long as robust and detailed noise impact assessments have been undertaken in order to ensure that adequate noise mitigation is implemented to protect residential amenity.

Land Use Zoning

When selecting land for residential zoning, for example land use objectives A1, A2, A3 and A4 within the Dunshaughlin Local Area Plan, careful consideration should be given to the proximity of the lands to potentially noisy areas such as major roads, railways, airports and heavy industrial zones. Residential communities and associated open areas and recreational/educational facilities are sensitive to noise and reasonable steps should be taken to isolate these areas from noisy developments at the strategic zoning stage.

By the same token, when land is being considered for industrial zoning (E1 and E2) then consideration should be given the zoning of neighbouring areas. For example, areas zoned for industrial use, which have the potential for significant noise generating operations to apply for planning permission in the future, should generally not be situated in close proximity to areas zoned for residential or recreational use.

Due to their nature commercial zones are often located in close proximity to residential areas, and often form part of the same mixed use zoning (A4). Although they are not incompatible uses, commercial activities have potential to result in significant localised noise impacts, for example from air handling/chiller units or goods delivery. It is therefore important that potential noise impacts are robustly assessed prior to planning consent.

Notwithstanding the above, it is accepted that due to other considerations this is not always practicable to separate non-compatible uses, and the co-habitation of noise sensitive or the noise generating uses should not necessarily preclude the granting of planning permission for either development type, as long as robust and detailed noise impact assessments have been undertaken prior to consent being granted in order to ensure that noise impacts are adequately controlled or mitigated.

There are two significant infrastructural projects within the Dunshaughlin Local Area Plan boundary that should be taken into consideration with the land use zoning process, the new M3 motorway and the new railway line and station. As part of the LAP a land use objective has been set out to maintain a green belt between the development boundary and the M3. This is sensible strategic design in line with the aims of the European Noise Directive and will help to maintain a reasonable noise environment for future residential development. Residential development in the vicinity of the new railway line should also be stepped back appropriate distances of the line in order to protect against future noise impacts.

However it is recommended that all future noise sensitive development in proximity of major roads, the railway line and commercial/industrial developments should have noise impact assessments carried out to assess the suitability of the existing noise climate for residential development and to establish if noise mitigation is required. Similarly all proposed industrial/commercial development in the vicinity of residential areas should have potential impacts robustly assessed, and mitigated designed, prior to granting planning consent. Typical methods for assessment of suitability of land use and the requirement for mitigation are discussed in the in the mitigation section.

Noise: Mitigation Measures

It is possible to plan the layout of land use zones in order to reduce potential conflicted co-location of uses, such as residential and recreational uses not being situated adjacent to industrial use or national roads. However it is not always possible to put in place these separating distances, and there will be a requirement to mitigate the noise impacts in a more development specific and targeted manner through the planning process.

The relationship between individual noise generating development and noise sensitive developments is generally unique and dependent on numerous localised factors. As such potential mitigation measures should be assessed and designed specifically for each individual situation as part of the planning process.

There is currently no national policy or guidance which addresses the issue of noise during planning, which tends to lead to inconsistencies between applications and how different Local Authorities address noise issues in the planning process. However outline below is some general guidance and methodologies for the assessment and mitigation of noise impacts.

Residential Development

When assessing residential planning applications the suitability of the land for residential development in terms of the prevailing noise environment should be established. For example, lands bounded by major motorways or factories would generally not be considered ideal for residential development if suitable alternative sites are available. In the absence of Irish planning guidance relating to noise the UK document *Planning Policy Guidance 24 (PPG24) - Planning and Noise* is often cited.

This document provides advice relating to the suitability of a site for residential development based on the prevailing noise climate across the site in the absence of development. Noise levels are measured or predicted across the site and used to classify the site in one of four categories (designated Noise Exposure Categories A to D). Note that it is not unusual to find that different portions of the same site fall into different categories as noise levels change across a site. If the site falls into Category A, noise is not considered to be a significant factor. Category B designation indicates that noise control measures may be required and a Category C designation is indicative of conditions where noise control measures should be employed. Lands falling into Category D are generally not considered suitable for residential development.

In summary PPG 24 is a planning tool that can be used to establish whether or not a site is suitable for residential development and if noise mitigation measures are required. If the site is considered suitable for residential development and the Local Authority are satisfied that reasonable living conditions can be obtained at the development through noise mitigation, then there should be a requirement for a detailed sound insulation assessment to be undertaken for the development in order to establish a scheme of specific noise mitigation measures.

In the absence of suitable Irish documentation the UK standard *British Standard BS 8233: 1999: Sound Insulation and noise reduction for buildings – Code of Practice* is commonly used as a basis for assessing the sound insulation requirements of new residential developments. This standard recommends internal (i.e. bedrooms and living rooms) and external (i.e. gardens and balconies) noise levels for dwellings from external noise sources such as road traffic noise and rail noise. The requirement for such an assessment to be undertaken can be controlled through an appropriately worded planning condition requiring a scheme of sound insulation measures to be submitted and approved prior to commencement of development. It should be noted that the guidance contained in BS 8233 relates to 'anonymous' noise sources such as road and rail. For noise sources with distinct character, such as industrial or night-club noise, then a more detailed assessment and more stringent criteria may be required to fully protect amenity.

It should be noted that the NRA target figure of 60dB L_{den} is commonly attributed as a design target for new residential developments in the vicinity of existing roads. This is an incorrect interpretation of this design target and the BS 8233 guidance should be used.

Noise mitigation for residential development can be formed from a range of complimentary measures. The most effective means of mitigating noise is through sensible development design such that habitable rooms, such as bedrooms and living rooms, are situated on the building facades facing away from the noise source in question; or through screening of the residential element of a development with less sensitive elements such as commercial or office units. However it is often not possible to design buildings in this manner and it will be necessary to incorporate specific sound insulation measures into the building facade in order to limit the ingress of excessive external noise into habitable rooms.

This is commonly achieved through upgrading the windows to a more substantial acoustic glazing construction and replacing window frame trickle vents with proprietary acoustic wall vents. Noise levels in gardens and open areas are commonly mitigated through the use of carefully designed fencing.

It is important that checks are put in place as part of the planning consent process in order to ensure that recommended sound insulation measures are implemented as approved by the Local Authority and that workmanship is of a standard as not to degrade the performance of the glazed units.

Commercial/Industrial Development

When assessing planning applications for commercial/industrial developments in the vicinity of noise sensitive areas it is important that careful consideration is given to the potential for adverse noise impacts and of future noise complaints. If the development in question has the potential to generate excessive noise an assessment should be requested in order to predict the likely impacts prior to consent being granted.

Although only strictly applicable to IPPC licensed premises, guidance and criteria for assessing noise impacts from commercial/industrial activities is often taken from the Environmental Protection Agency document *Guidance Note For Noise In Relation To Scheduled Activities, 2nd Edition*. This document suggests noise limits of 55dBA $L_{Ar,T}$ for daytime and 45dBA $L_{Aeq,T}$ for night-time at sensitive locations. In the absence of formal overarching planning guidance these limits commonly form the basis of planning conditions in a wide array of circumstances although they may not always be an appropriate gauge of or protection against potential noise impacts.

It is recommended that a noise impact assessment is requested prior to planning consent being granted in order to ensure that the premises has the potential to meet the adopted

noise criteria and, if required, recommend a suitable scheme of noise mitigation and control measures to protect residential amenity. If the Local Authority are satisfied that noise from the premises can be controlled and will not result in unacceptable impacts, then a suitable worded planning condition should be attached in order to ensure that the noise mitigation scheme is implemented that that impacts are adequately controlled.

6.2.4 Water Quality

Dunshaughlin lies within the Eastern RBD in the catchment area of the Boyne and Broadmeadow Rivers. Wastewater generated in Dunshaughlin is treated at the Castletown Tara WWTW and effluent is discharged to the River Boyne candidate SAC, the quality of which has been identified by the EPA as being slightly polluted. Under the Water Framework Directive, the River Boyne and the Skane River have been classified as of moderate water quality status and it is an objective of the Eastern RBD Draft River Basin Management Plan (December 2008) to restore these rivers to good water quality status through the implementation of a programme of measures.

Groundwater underlying the town of Dunshaughlin consists of a locally important and generally moderately productive (Lm) bedrock aquifer which varies in interim vulnerability from low to extreme. This aquifer is the source for the Dunshaughlin Water Supply Scheme that is currently under construction and that will supply water to a population equivalent of 14,000 including for projected domestic, commercial and employment uses up to 2025. Under the Water Framework Directive, groundwater quality in the Dunshaughlin area is expected to achieve good status and the groundwater resource is registered as a protected area for drinking water supply.

Water Quality: Policies & Objectives of Dunshaughlin LAP

The following aspects of the Dunshaughlin LAP are likely to affect water quality:

- Residential policies and objectives – described in Section 6.2.2.
- Employment policies and objectives – described in Section 6.2.2.
- Natural heritage policy NH – 9 - provides for the assessment of the impacts of future development on the wet grassland to the east of Dunshaughlin, particularly in relation to alterations in the hydrology of the area.
- Public transport objectives – provide for locating rail line east of Dunshaughlin and rail station north of the town, and for the preparation of an Urban Framework Plan for lands in the area of the rail station location to the north of the town and to include a park and ride facility.
- Roads objectives – provide for supporting major road improvements by preserving corridors of any such proposed routes free from development that would interfere with their provision, continuing the Distributor Link Road from its position east of the Dunshaughlin Interchange to the N3 south of the town, facilitation of the completion of the eastern relief route, upgrading of the R125 and Red Bog incorporating pedestrian and cycling facilities, provision of a new link road connecting the R125 and Red Bog through zoned lands, upgrading the spur road off the Red Bog Road to the west, and undertaking environmental improvements along the N3 as it travels through the town once the M3 bypass is completed.

- Water supply objectives – described in Section 6.2.2.
- Wastewater treatment objectives – described in Section 6.2.2.
- Surface water management objectives – provide for ensuring that all new developments have and are provided with satisfactory drainage systems in the interest of public health and to avoid the pollution of ground and surface waters, and require all large scale developments to provide “Sustainable Urban Drainage Systems” (SuDS) as part of their development proposals.
- Flooding objectives – provide for requiring that new development should not itself be subject to an inappropriate risk of flooding nor should it cause or exacerbate such a risk at other locations, controlling development in the natural flood plain of rivers and that account be taken of any guidelines regarding flooding issued by the DEHLG or the OPW in the assessment of planning applications, and requiring that all significant developments impacting on flood risk areas provide a Flood Impact Assessment.

Water Quality: Likely Significant Effects

The residential, employment, public transport and roads objectives are likely to result in population growth and development of existing greenfield sites that will place increased demands on water supply, generate increased amounts of wastewater and surface water runoff.

The Dunshaughlin Water Supply Scheme is currently under construction and will supply water to domestic, commercial and employment uses from the bedrock aquifer underlying the town. Protection of the quality of this groundwater supply is vital to ensuring the health of the population of Dunshaughlin. The Eastern RBD Draft River Basin Management Plan (December 2008) has identified that the main pressures on the groundwater resource in the vicinity of Dunshaughlin are from agriculture and wastewater from unsewered properties and has recommended that measures be taken to reduce groundwater pollution from these sources. The LAP policy of ensuring that new developments are drained satisfactorily will have a positive contribution to maintaining groundwater quality. The LAP should also include policies and objectives to ensure sustainability of the groundwater resource.

The existing WWTP at Castletown Tara, which discharges to the River Boyne candidate SAC, has a design population equivalent of 12,000 with reserve capacity of 4000 p.e. The inlet and outlet design capacities are for a maximum hydraulic capacity of 18,000 p.e. The LAP provides for a population target of 12,000 which would equate to a larger population equivalent when wastewater discharges from commercial and industrial sources are taken into account. Should implementation of the Dunshaughlin LAP result in wastewater generation equivalent to greater than 16,000 p.e. (the design and reserve capacity of the WWTP at Castletown Tara), then it will be necessary to provide for alternative wastewater treatment arrangements or to upgrade the WWTP at Castletown Tara. This will ensure that overloading of the Castletown Tara treatment plant resulting in poor quality effluent does not occur and that there are no negative impacts on the quality of receiving waters, i.e. the Boyne River candidate SAC. This situation will require monitoring to ensure the current capacity of 12,000 p.e. is not breached and is particularly important in protecting the quality of the River Boyne candidate SAC.

The surface water management and flooding objectives in the Dunshaughlin LAP of providing all new developments with satisfactory drainage system, requiring all large scale developments to provide "Sustainable Urban Drainage Systems" (SuDS) as part of their development proposals and requiring Flood Impact Assessments to be carried out for significant developments in flood risk areas will have positive impacts in relation to ensuring the sustainability and quality of surface water runoff and in turn the quality of receiving water bodies.

Water Quality: Mitigation Measures

In relation to groundwater, it is recommended that ongoing monitoring be carried out to ensure the sustainability and quality of the groundwater resource that supplies the Dunshaughlin Water Supply Scheme. Regular water quality monitoring and drawdown monitoring of the wells supplying the scheme should be carried out.

In relation to surface water, it is recommended that flow monitoring of wastewater entering the Castletown Tara WWTP be conducted in order to ensure that the capacity of the WWTP is not exceeded. The quality of effluent entering the River Boyne candidate SAC should also be monitored.

In line with the objectives of the LAP, large scale developments should include for "Sustainable Urban Drainage Systems" (SuDS) as part of their development proposals and developments adjacent to areas with historical flooding events should carry out Flood Impact Assessments.

6.2.5 Soils and Geology

Subsoils underlying the study area comprise mainly made ground with soil covering the area to be predominantly till derived from carboniferous limestone. The bedrock geology is dominated by rocks of the Carboniferous Period and the LAP area is located on the Loughsinny Limestone Formation. An Area of Geological Interest forms part of the north eastern LAP area.

Soils and Geology: Policies & objectives of the Dunshaughlin LAP

Natural heritage objectives and policies likely to affect soils and geology include:

LAP Objective NH-1: To consult with the Geological Survey of Ireland regarding proposals for development in the area of Geological Interest which falls within the Local Area Plan boundary as indicated in Map 1.

Soils and Geology: Likely Significant Effects

The removal of the soil layers and bedrock will occur during the construction of proposed developments, contaminated material could be present if located at a Brownfield site.

The significant effects in relation to soils and geology are that, should a Construction & Demolition Waste Management Plan not be implemented, this may lead to litter or pollution issues on the site or adjacent sites. Development in the Area of Geological Interest could have negative impacts on this area if not conducted in an appropriate manner.

Soils and Geology: Mitigation

If Construction & Demolition Waste Management Plans are implemented, and a high level of due diligence is maintained, there will be no impact on the soils and geology at proposed developments. The GSI will be consulted regarding development proposal in the Area of Geological Interest.

Natural heritage policy NH – 13 – provides for implementation of the Eastern River Basin District (Draft) River Basin Management Plan policies and objectives within the LAP area.

6.2.6 Air Quality and Climatic Factors

Road traffic has been identified as the major source of air pollution within the Dunshaughlin LAP Area, specifically that resulting from traffic on the N3. Completion of the M3 bypass will lead to a reduction in traffic congestion in Dunshaughlin and an associated improvement in air quality. Dunshaughlin falls within air quality Zone D and EPA monitoring indicates that good air quality is generally experienced in this zone and thus in the region of the Dunshaughlin LAP.

Air Quality and Climatic Factors: Policies & Objectives of Dunshaughlin LAP

The main aspects of the Dunshaughlin LAP that are likely to affect air quality are the Public Transport, Roads and Open Space policies and objectives. The main aspects likely to affect climatic factors also relate to Public Transport and Roads policies and objectives. The energy policies will also contribute to effects on climatic factors.

Air Quality: Likely Significant Effects

Road traffic is expected to be the dominant source of emissions (with the possible exception of PM₁₀) in the region of and resulting from the development of the Dunshaughlin LAP. The key road traffic derived pollutants that may affect local air quality are NO₂, benzene, PM₁₀, PM_{2.5} and CO.

An environmental objective of the Dunshaughlin LAP will be to limit adverse impacts on air quality. This can be achieved through promoting the use of public transport, provision of cycle routes and cycle parking and seeking to minimise private car dependency in the region.

The impact of the Dunshaughlin LAP should not lead to exceedances of the limit values provided in the Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002) and EU Directive 2008/50/EC.

Climate: Likely Significant Effects

Vehicle emissions associated with the development of the Dunshaughlin LAP will give rise to CO₂ and N₂O emissions in the region. Furthermore, emissions from space heating in commercial and residential units will also contribute to national emissions of greenhouse gases.

An environmental objective of the Dunshaughlin LAP will be to limit adverse impacts on climate. Measures outlined for air quality such as promoting the use of public transport, provision of cycle routes and cycle parking and seeking to minimise private car dependency in the region are also applicable for climate. In addition, optimum building energy ratings should be achieved for residential and non-residential units, and the use of renewable energy resources should be promoted.

Air Quality and Climatic Factors: Mitigation Measures

Implementation of the public transport, roads and energy policies and objectives will serve to mitigate negative impacts on air quality and climatic factors in the Dunshaughlin LAP area.

6.2.7 Material Assets

The main aspects of material assets are summarised as follows:

- Water supply: The Dunshaughlin Water Supply Scheme is currently under construction and will supply sufficient water to domestic, commercial and employment uses from the bedrock aquifer underlying the town to meet the 2025 demand.
- Wastewater: Wastewater generated in Dunshaughlin is treated at the existing WWTP at Castletown Tara, which discharges to the River Boyne candidate SAC, has a design population equivalent of 12,000 with reserve capacity of 4000 p.e. The inlet and outlet design capacities are for a maximum hydraulic capacity of 18,000 p.e.
- Surface water drainage - Surface water runoff within the study area is currently managed via a system of surface water drains that discharge to the local network. There is a history of flood events occurring in two areas to the north and east of the study area.
- Public transport - It is proposed to extend the rail line from Pace to Navan; the preferred route travels to the east of the town with a stop north Dunshaughlin town centre
- Roads infrastructure - the N3 which forms the Main Street comprises a thoroughfare between Dublin and Navan and is operating beyond capacity at present. The M3 bypass is currently under construction which includes a distributor link road connecting the M3 with the local road network; the LAP proposes to connect this link road with the N3 south of the town. It also proposes various upgrades to other roads within the town.
- Waste management – a bring bank is currently provided at the County Council offices in Dunshaughlin that accepts glass, cans and textiles.
- Broadband – Broadband is currently available from a number of service providers in Dunshaughlin. Roll out of the Metropolitan Area Networks programme to provide high speed broadband to Dunshaughlin is currently under review.

Material Assets: Policies & Objectives of Dunshaughlin LAP

Essentially, all aspects of the Dunshaughlin LAP are likely to affect material assets. The policies and objectives in relation to residential development, employment, open space strategy, natural heritage, education, health, community, public transport, roads, water supply, wastewater, surface water management and flooding are described in the foregoing sections. In addition, the following objectives and policies will impact on material assets:

- Telecommunications objectives – in providing telecommunications masts, antennae and ancillary equipment, the objectives provide for consideration to be given to visual impact and other impacts the on the natural, built and historic environment including protected structures and their setting. The objectives provide for considering the potential for co-location of equipment on existing masts and the Department of the Environment, Heritage and Local Government “Telecommunications Antennae and Support Structure, Guidelines for Planning Authorities”.

- Broadband objectives – provide for the implementation of the broadband strategy for Meath County Council as it relates to Dunshaughlin by supporting the roll out of broadband infrastructure in Dunshaughlin, and for requiring that all planning applications for significant new development provide for the delivery of broadband infrastructure in tandem with each phase of development
- Solid waste collection and disposal objectives – provide for promoting education and awareness on all issues associated with waste management at industry and community level, implementation of the policies and objectives of the Waste Management Plan for the North East Region, requiring the provision of bring banks, bottle banks or other appropriate recycling facilities as part of the overall development in the case of new and extended shopping centre developments and commercial neighbourhood centres, educational, sports and recreational facilities, promoting and encouraging the recycling of construction and demolition waste in accordance with approved construction and demolition waste management plan and the provision of a civic amenity site in the south western area of the town.
- Energy objectives – provide for the promotion of energy efficient solutions in all new development proposals, supporting and facilitating the development of enhanced electricity supplies and associated networks to serve the existing and projected needs of Dunshaughlin, locating service cables, wires and piping underground where possible and locating existing overhead cables and associated equipment progressively underground with future capacity considered and appropriate ducting put in place.

Material Assets: Likely Significant Effects

Population, economic and employment growth and will occur in tandem with the provision and development of material assets including water supply, wastewater treatment, surface water drainage, public transport services, roads infrastructure, waste management, telecommunications and broadband services, and energy supply.

In relation to water supply, issues highlighted under human health and water quality include the need to ensure the quality and sustainability of water supply from the groundwater resource that supplies the Dunshaughlin Water Supply Scheme. Threats to groundwater quality have been identified as wastewater from unsewered properties and agriculture. The LAP should include objectives to protect the quality and sustainability of the groundwater resource.

Wastewater treatment capacity has been highlighted as an issue that could potentially have impacts on water quality and biodiversity. Growth of the population of Dunshaughlin to 12,000 will generate wastewater quantities greater than 12,000 p.e. which equates to the current limit of capacity of the WWTW at Castletown Tara. The WWTW has reserve capacity for 4,000 p.e. and the inlet and outlet design capacities are for a maximum hydraulic capacity of 18,000 p.e.

The surface water management and flooding objectives in the Dunshaughlin LAP of providing all new developments with satisfactory drainage system, requiring all large scale developments to provide “Sustainable Urban Drainage Systems” (SuDS) as part of their development proposals and requiring Flood Impact Assessments to be carried out for significant developments in flood risk areas will have positive impacts in relation to ensuring

the sustainability and quality of surface water runoff and in turn the quality of receiving water bodies.

In relation to waste management, awareness raising and education activities and the provision of a civic amenity centre will assist with meeting the targets set out in the Waste Management Plan for the North East Region 2005 - 2010. Diverting waste from landfills in the north east region will assist with protecting environmental quality, particularly groundwater quality.

Implementation of the public transport, roads, telecommunications and broadband objectives of the LAP will contribute to providing a suitable and sustainable environment for economic and employment growth and as such have positive long term effects on human beings. Implementation of the energy objectives will have positive impacts on air quality and climatic factors.

Material Assets: Mitigation Measures

Implementation of the LAP policies and objectives will ensure that services such as water supply, wastewater treatment, surface water drainage, public transport services, roads infrastructure, waste management, telecommunications and broadband services, and energy supply will be sufficient to complement and facilitate the economic and population growth of Dunshaughlin.

Ongoing monitoring of groundwater should be carried out to ensure the sustainability and quality of the groundwater resource that supplies the Dunshaughlin Water Supply Scheme. Regular water quality monitoring and drawdown monitoring of the wells supplying the scheme should be carried out.

Flow monitoring of wastewater entering the Castletown Tara WWTP should be conducted in order to ensure that the capacity of the WWTP is not exceeded. The quality of effluent entering the River Boyne candidate SAC should also be monitored.

6.2.8 Cultural and Built Heritage

The early Christian church site (Saint Seachnall or Saint Secundinus' Church) at the north end of Main Street in Dunshaughlin is a national monument. The presence of a Norman motte in the Catholic graveyard may indicate early settlement along the length of what is now the Main Street. This area is designated as an area of archaeological interest. There are thirteen protected structures within the study area.

Cultural and Built Heritage: Policies & Objectives of Dunshaughlin LAP

Build and cultural heritage objectives and policies likely to affect this environmental aspect include:

LAP Policy BH-1: To preserve and protect the area of archaeological interest indicated on Map 1 and to refer all proposals involving subsurface excavation to the Department of the Environment, Heritage and Local Government, whose observations will be taken into consideration in the determination of such proposals.

LAP Policy BH-2: To require that any new mixed use development conforms with the naming policy for residential developments set out in the County Development Plan.

LAP Policy BH-4: To have regard to the visual amenity provided by views of the spire of Saint Seanchall's Church in the consideration of any new development proposals, and to discourage developments which would block existing views.

LAP Policy BH-5: To ensure the continuing protection of the structures listed on the Record of Protected Structures, including their curtilages and boundary treatments. As the continued use of protected structures is one of the most efficient ways to safeguard their future, proposals for changes of use to protected structures will be considered on their merits.

LAP Policy BH-6: To encourage the retention of original or early windows, doors, renders, roof slates and ridge crestings, chimneys, and other significant features to the front elevation of historic buildings on Main Street.

LAP Policy BH-7: To discourage the rendering (plastering) or painting of the brickwork of the older buildings on Main Street to preserve their distinctive character.

LAP Policy BH-8: To preserve and enhance the character of the Main Street of Dunshaughlin by encouraging fenestration appropriate to each building, to the front elevations of buildings on Main Street.

LAP Policy BH-9: To enhance the character of the Main Street by requiring that any proposed development fronting onto it complement the existing character and contribute to Dunshaughlin's sense of place by its height, scale, and design. All proposed developments should be of architectural merit appropriate to the public face of Dunshaughlin.

LAP Policy BH-10: Proposals for developments of a candid contemporary design, rather than pastiche designs, will be encouraged in Dunshaughlin.

LAP Policy BH-11: To encourage the removal of existing visually intrusive unattractive signage, or their replacement with more appropriate signs which do not contribute to visual clutter.

LAP Policy BH-12: To encourage and facilitate the removal of visually obtrusive obsolete overhead cables and telegraph poles.

Cultural and Built Heritage: Likely Significant Effects

Implementation of the Dunshaughlin LAP policies and objectives will provide adequate protection to the cultural and built heritage within the study area to ensure that there are no negative impacts on the area of archaeological interest or the protected structures. Future development will complement the existing historical character of Dunshaughlin.

Cultural and Built Heritage: Mitigation

Implement the LAP cultural and built heritage objectives and policies; no additional mitigation measures are deemed necessary.

6.2.9 Landscape

The street pattern of Dunshaughlin is long and narrow in character and curves to accommodate the site of Saint Secundinus' Church, and provides intrinsic streetscape and cultural heritage value. Buildings such as the Garda Station, the gabled yellow brick houses on the west side of main street, several modest vernacular structures, and the former Fingall Arms Hotel (now Sherry Fitzgeralds) all contribute to the distinctive character of Dunshaughlin. However, excessive signage, poles and overhead wires contribute to an effect

of visual clutter. While signage is of its nature eye-catching, it must be carefully designed and erected to avoid detrimental effects on the visual amenity of the streetscape.

Landscape: Policies & Objectives of Dunshaughlin LAP

In addition to the built heritage objectives outlined above, the following open space policies will affect the quality and character of the landscape within the study area:

LAP Policy – OS - 10

In tandem with Action No. 35 of the Meath Heritage Plan (2007-2011) advice will be provided to stakeholders on best practice in the care and conservation of graveyards, in this instance in regard to the contribution of graveyards to open space networks, walking connections through the town and maximizing potential for biodiversity.

LAP Policy – OS - 11

Outcomes from Action No's. 43 and 44 of the Meath Heritage Plan (2007-2011) in regard to mapping of habitat, mature trees and woodlands, will be used to guide open space location and develop green pathways around Dunshaughlin.

LAP Policy – OS - 12

To protect and conserve existing hedgerows and prevent loss and fragmentation of ecological corridors where possible. Maintenance and management of hedgerows will be in accordance with best practice guidelines issued by Teagasc and the Heritage Council. (in accordance with Dev Plan HER POL 23 and 28)

LAP Policy – OS - 13

To promote the protection and preservation of existing hedgerows and to encourage planting of native hedgerows of native provenance. (in accordance with Dev Plan HER POL24)

LAP Policy – OS - 14

To encourage the retention, where possible, of hedgerows and other distinctive boundary treatments in rural areas. Where removal of a hedgerow, stone wall or other distinctive boundary treatment is unavoidable, provision of the same type of boundary will be required of similar length set back within the site. This shall also relate to Road Improvements and Realignments carried out by the Local Authorities or agents on their behalf. (in accordance with Dev Plan HER POL 25)

LAP Policy – OS - 15

To recognize the archaeological importance of townland boundaries including hedgerows and promote their protection and retention. (in accordance with Dev Plan HER POL 27)

LAP Policy – OS - 16

Mature trees and hedgerows will be preserved and protected in recognition of the contribution mature trees make to the landscape and character of an area and their value as wildlife corridors. Openspace and walkways will incorporate existing mature trees and hedgerows where possible and contain new planting to strengthen potential habitat links.

LAP Policy – OS - 17

To use native species (preferably of native genetic stock) wherever possible in the development of planting in existing and new parks and open spaces. Promote a high proportion of native planting.

LAP Policy – OS - 18

To promote the NeighbourWood Scheme and other initiatives that aim to establish and enhance woodlands for recreation and wildlife benefits in partnership with local communities. (HER POL 32.)

LAP Policy – OS - 19

To have regard to the traditional Green Belt concept of ensuring residents of urban areas have adequate access to high quality green space that provides recreation opportunities, retains attractive landscapes near population centres, improves degraded land and secures nature conservation. (HER POL 98)

LAP Policy – OS - 20

To prevent the coalescence of settlements by identification of appropriate areas of landscape as settings and buffer zones in tandem with the traditional Green Belt concept. (HER POL 99)

LAP Policy – OS – 21

To ascertain the impacts of future development on the wet grassland to the east of Dunshaughlin, particularly in relation to alterations in the hydrology of the area.

LAP Policy – OS – 22

To use the Meath County Council Dunshaughlin Biodiversity Survey (dated November 2008) and any future tree survey in determining trees and vegetation to be retained and/or enhanced as part of all future development. The Biodiversity survey will also be used in determining appropriate plant species for new planting.

Landscape: Likely Significant Effects

Implementation of the Dunshaughlin LAP policies and objectives will provide preserve, protect and improve the landscape character of Dunshaughlin, particularly the valuable streetscape along Main Street. Implementation of the open space strategy will enhance the natural landscape within the Dunshaughlin LAP area.

Landscape: Mitigation Measures

Implement the LAP cultural and built heritage and open space objectives and policies; no additional mitigation measures are deemed necessary.

7.0 MONITORING

Monitoring of the LAP area is essential to ensure that the environment is not adversely affected through the implementation of the LAP. Under Article 10 of the SEA Directive monitoring must be carried out of the significant environmental effects directly related to the implementation of the Plan *"in order to, inter alia, to identify at an early stage unforeseen adverse effects and to be able to undertake appropriate remedial action."*

While environmental data is directly available to Meath County Council such as water quality, recycling rates etc, other sources of information will be accessed to provide a comprehensive view of the effect of the Plan. In this regard Meath County Council will work with other agencies to gather data for the purposes of monitoring the implementation of the Plan. Therefore, while monitoring specific elements of the environment is not strictly the preserve of Meath County Council, it will continue to liaise and work with the EPA, The National Parks and Wildlife Service, The Eastern Regional Fisheries Board, as well as others.

The proposed monitoring programme allows for the collection of data relevant to the ongoing monitoring of the plan's implementation. It is proposed to investigate the feasibility of forming a monitoring review committee in order to collate and assessed data. The monitoring programme will therefore be expanded upon during the lifetime of the plan and will form the basis of the next baseline assessment for the SEA.

7.1 Biodiversity & Flora and Fauna

It is an aim of the LAP to conserve and protect the diversity of habitats both terrestrial and aquatic, and protected species within the LAP area. The feasibility of monitoring indicators in relation to biodiversity values during and after development of the LAP lands has been considered as required as part of the SEA process.

A monitoring programme will be established by Meath County Council within the lifetime of the LAP. Habitat loss, habitat deterioration, loss in biodiversity, protected species and protected areas will be monitored. This is necessary to record the sources and effects of such disturbance and to provide a baseline for future management decisions. This programme shall be undertaken in consultation with the Biodiversity Officer and Heritage Officer of Meath County Council and in conjunction with the National Parks and Wildlife Service, Eastern Regional Fisheries Board and Birdwatch Ireland.

7.2 Human Beings

The LAP will have an impact on the quality of life of existing and proposed residents with the increased population resulting in increased traffic levels, noise, air pollution, requirement for schools, local services, public open space and requirement for residential developments.

The LAP has taken into account and addressed issues relating to transportation, local service facilities, provision of pedestrian and cyclist facilities, provision of public open spaces and creation of high density well designed residential and urban quarters.

7.3 Noise

No specific long term noise monitoring programmes are deemed necessary as the Dunshaughlin LAP is implemented, however noise monitoring may be carried out at noise sensitive locations near to construction, industrial or other noise generating activities.

7.4 Water

7.4.1 Water Quality

Monitoring of all water bodies in the LAP area will be undertaken by Meath County Council in conjunction with the EPA at regular intervals. Water quality monitoring is required to protect and enhance the status of aquatic ecosystems with regard to their water needs.

7.4.2 Groundwater

The Dunshaughlin Water Supply Scheme is supplied by groundwater and it is recommended that the quality of the groundwater resource be regularly monitored. In addition, monitoring of drawdown should also be carried out to identify any depletion in the quantity of the groundwater resource. This will be carried out by Meath County Council.

7.4.3 Flooding

In order to avoid flooding of developed areas and avoid unnatural alterations to drainage systems which affect river flows the potential flood risk of proposed development will be monitored. This will be carried out by Meath County Council in conjunction with the Office of Public Works. The consultation draft guidelines for Planning Authorities by the DoEHLG - The Planning System and Flood Risk Management, September 2008 will be referred to.

7.5 Soils and Geology

During the construction of proposed developments, it is recommended that a monitoring programme be put in place with regard to the potential for soil contamination from construction materials. It will be important that the mitigation measures outlined in previous section are adhered to with respect to the soil resource.

7.6 Air and Climate

Air quality monitoring programs have been undertaken throughout Ireland in recent years by the EPA and Local Authorities. The most recent EPA annual report on air quality monitoring undertaken throughout Ireland is entitled "Air Quality In Ireland 2007 - Key Indicators of Ambient Air Quality".

Continuous EPA monitoring is carried out at a range of Zone C towns and both urban and rural Zone D locations using continuous monitors in 2007. Although no EPA or Local Authority monitoring has been carried out within the region of the Dunboyne / Clonee / Pace LAP, data from these Zone C and D locations can be used to provide an indication of the prevailing air quality conditions in the region.

7.7 Material Assets

7.7.1 Surface Water Drainage

It is recommended that the use and application of SUDS within the LAP area be carried out within the lifetime of the Plan. The area will benefit from linkage between SUDS and the recommended wastewater capacity. Meath County Council will monitor the use of SUDS on all proposed developments at a planning and design stage.

7.7.2 Water Supply

See Groundwater in Section 7.4.2.

7.7.3 Waste Water

In relation to waste water provision, a future capacity study should be undertaken with a view to determining the amount of potential capacity required to implement the Plan, particularly with a view to enabling the development of future employment uses on the appropriately zoned lands. Monitoring will be carried out by Meath County Council to ensure that all zoned lands are connected to public sewer network ensuring treatment of wastewater prior to discharge. This will improve treatment at wastewater treatment facilities and limit potential pollution sources in vulnerable areas.

Flow monitoring of wastewater entering the Castletown Tara WWTP should be conducted in order to ensure that the capacity of the WWTP is not exceeded. The quality of effluent entering the River Boyne candidate SAC should also be monitored.

7.7.4 Cultural Heritage

To promote the protection and conservation of the cultural heritage and maintain viable use of protected structures, as identified in the Meath County Heritage Plan, Meath County Council will monitor all recorded buildings, monuments and areas of importance. This will be carried out in conjunction with other relevant local authorities and the DoEHLG.

7.7.5 Archaeological Heritage

In monitoring the outcome of the Plan with regard to architectural heritage, the DoEHLG considered it likely that "qualitative indicators" rather than "quantitative indicators" are more appropriate in adjudging subsequent environmental impacts on the architectural heritage of the locality. To this end, it is recommended that a series of 'qualitative' indicators be drafted to monitor the effects of the Plan with regard to the architectural heritage.

7.7.6 Landscape

In order to conserve and enhance valued natural landscapes and the features within them and protect and enhance the sustainable amenity value of water bodies, rivers, and wetlands in the area, Meath County Council will monitor all planning applications to prevent unacceptable alterations to landscape character.

APPENDIX A
Air Quality Standards Regulations, 2002

Pollutant	Regulation	Limit Type	Margin of Tolerance	Value
Nitrogen Dioxide	AQSR (2002) & 1999/30/EC	Hourly limit for protection of human health - not to be exceeded more than 18 times/year	40% until 2003 reducing linearly to 0% by 2010	200 µg/m ³ NO ₂
		Annual limit for protection of human health	40% until 2003 reducing linearly to 0% by 2010	40 µg/m ³ NO ₂
		Annual limit for protection of vegetation	None	30 µg/m ³ NO + NO ₂
Lead	AQSR (2002) & 1999/30/EC	Annual limit for protection of human health	60% until 2003 reducing linearly to 0% by 2005	0.5 µg/m ³
Sulphur Dioxide	AQSR (2002) & 1999/30/EC	Hourly limit for protection of human health - not to be exceeded more than 24 times/year	90 µg/m ³ until 2003, reducing linearly to 0 µg/m ³ by 2005	350 µg/m ³
		Daily limit for protection of human health - not to be exceeded more than 3 times/year	None	125 µg/m ³
		Annual & Winter limit for the protection of ecosystems	None	20 µg/m ³
Particulate Matter (as PM ₁₀) Stage 1	AQSR (2002) & 1999/30/EC	24-hour limit for protection of human health - not to be exceeded more than 35 times/year	30% until 2003 reducing linearly to 0% by 2005	50 µg/m ³ PM ₁₀
		Annual limit for protection of human health	12% until 2003 reducing linearly to 0% by 2005	40 µg/m ³ PM ₁₀
Particulate Matter (as PM ₁₀) Stage 2 ^{Note 1}	AQSR (2002) & 1999/30/EC	24-hour limit for protection of human health - not to be exceeded more than 7 times/year	Not to be exceeded more than 28 times until 2006, 21 times until 2007, 14 times until 2008, 7 times until 2009 and zero times by 2010.	50 µg/m ³ PM ₁₀
		Annual limit for protection of human health	50% from 2005 reducing linearly to 0% by 2010	20 µg/m ³ PM ₁₀
PM _{2.5}	COM (2005) 447	Annual target value designed to limit unduly high risks to the population	None. Limit value applicable in 2010	25 µg/m ³ PM _{2.5}
Benzene	AQSR (2002) & 2000/69/EC	Annual limit for protection of human health	100% until 2006 reducing linearly to 0% by 2010	5 µg/m ³
Carbon Monoxide	AQSR (2002) & 2000/69/EC	8-hour limit (on a rolling basis) for protection of human health	60% until 2003 reducing linearly to 0% by 2005	10 mg/m ³ (8.6 ppm)

^{Note 1} EU 1999/30/EC states "Indicative limit values to be reviewed in the light of further information on health and environmental effects, technical feasibility and experience in the application of Stage 1 limit values in the Member States". Proposed EU Directive COM (2005) 447 will "replace the indicative limit values for PM₁₀ for the year 2010 by a legally binding "cap" for the annual average concentrations of PM_{2.5} of 25 µg/m³ to be attained by 2010".

Table 1 Air Quality Standards Regulations 2002 (based on EU Council Directives 1999/30/EC, 2000/69/EC and Proposed EU Directive COM (2005) 447)