

SEA STATEMENT

OF THE

KILKENNY CITY & ENVIRONS DEVELOPMENT PLAN 2008-2014 STRATEGIC ENVIRONMENTAL ASSESSMENT



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Section 1 Introduction

1.1 Terms of Reference

This is the SEA Statement of the Kilkenny City and Environs Development Plan (CEDP) 2008-2014 Strategic Environmental Assessment (SEA).

1.2 SEA Definition

SEA is a systematic process of predicting and evaluating the likely environmental effects of implementing a plan, or other strategic action, in order to ensure that these effects are appropriately addressed at the earliest appropriate stage of decision-making on a par with economic and social considerations.

1.3 Legislative Context

Directive 2001/42/EC of the European Parliament and of the Council, of 27 June 2001, on the assessment of the effects of certain plans and programmes on the environment, referred to hereafter as the SEA Directive, introduced the requirement that SEA be carried out on plans and programmes which are prepared for a number of sectors, including land use planning.

The SEA Directive was transposed into Irish Law through the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (SI No. 435 of 2004), and, the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI No. 436 of 2004). Both sets of regulations became operational on 21 July 2004.

The SEA Directive and the instruments transposing it into Irish Law require that after the adoption of a plan or programme, the plan or programme making authority is required to make a Statement available to the public, the competent environmental authorities and, where relevant, neighbouring countries. This Statement is referred to as an SEA Statement (DEHLG, 2004)¹.

¹ Department of the Environment, Heritage and Local Government (2004) *Implementation of SEA Directive*

1.4 Content of the SEA Statement

The SEA Statement is required to include information summarising:

- a) how environmental considerations have been integrated into the plan,
- b) how
 - the environmental report,
 - submissions and observations made to the planning authority on the Draft Plan and Environmental Report, and
 - any transboundary consultations [this is not relevant to the Kilkenny City and Environs Development Plan]

have been taken into account during the preparation of the plan,

- c) the reasons for choosing the plan, as adopted, in the light of the other reasonable alternatives dealt with, and
- d) the measures decided upon to monitor the significant environmental effects of implementation of the plan.

1.5 Implications of SEA for the Plan

As a result of the aforementioned legislation, the Kilkenny City and Environs Development Plan 2008-2014 was required to undergo SEA.

The findings of SEA were expressed in an Environmental Report which was submitted to the Elected Members alongside the Draft Plan. The purpose of the report was to provide a clear understanding of the likely environmental consequences of decisions regarding the future accommodation of growth in Kilkenny City and Environs.

(2001/42/EC): Guidelines for Regional Authorities and Planning Authorities Dublin: Government of Ireland.

Amendments made to the Draft Plan at each stage of the process were evaluated for their environmental consequences and these were presented to the Elected Members in the form of Addenda. On adoption of the Draft Plan, these Addenda were used to update the original Environmental Report into a final Environmental Report which accompanies the adopted Plan.

At each stage of the process the Elected Members were required by the legislation to take into account the Environmental Report - including the Addenda - before the adoption of the plan or programme.

Section 2 How Environmental Considerations were integrated into the Plan

2.1 Consultations

SEA scoping consultations with the competent environmental authorities - the Environmental Protection Agency, the Department of the Environment, Heritage and Local Government and the Department of Communications, Marine and Natural Resources - informed the type of environmental issues which were chosen to be dealt with by the SEA as well as the level of detail with which these issues were addressed.

Further information on how the outputs of scoping consultations informed the process is provided under Section 3.2.

2.2 Early Communication of Environmental Sensitivities

2.2.1.1 Introduction

Significant environmental considerations were integrated into the Draft Plan before it was placed on public display for the first time.

Environmental sensitivities were mapped in order to identify which areas of the City and Environs would be most sensitive to development and would suffer the most adverse effects if growth was to be accommodated in those areas.

The sensitivities were communicated to the Plan-making team on a regular basis from the outset of the Plan preparation process. By identifying areas with the most limited carrying capacity in the City and Environs the making of recommendations to divert growth away from these areas was facilitated.

A number of sensitivities in the City and Environs which were identified and communicated to the Plan making team are shown on Figure 2.1.

2.2.1.2 GIS Mapping including Overlay mapping

A Geographical Information System (GIS) was used in order to map the sensitivities identified above. The GIS allowed for each of these sensitivities to be weighted and mapped overlapping each other in order to identify where most sensitivities in the City and Environs occur. Figure 2.2 shows one of these overlays for the City and Environs.

Environmental sensitivities are indicated by colours which range from acute vulnerability (red) to high vulnerability (orange) to moderate vulnerability (yellow) and low vulnerability (green). Where the mapping shows a concentration of environmental sensitivities there is an increased likelihood that development will conflict with these sensitivities and cause environmental deterioration. This is particularly the case where the cumulative development of small-scale projects, such as rural housing, gradually causes a slow deterioration of a resource, such as water quality. Providing this information to the Plan-making team enabled the integration of environmental considerations into the Plan.

2.3 Early Identification and Evaluation of Alternatives

A range of potential alternative scenarios (see Section 4) for the types of planning strategies for the City and Environs were identified at an early stage in the process and evaluated for their likely significant environmental effects.

Communication of this evaluation enabled the Plan-making team to make an informed choice as to which alternative to put before the Elected Members as the Draft City and Environs Development Plan.

Communication of this evaluation to the Elected Members through both the Environmental Report and presentations enabled the Elected Members to make an informed choice with regard to the adoption of the City and Environs Development Plan.

GIS software enabled the mapping of the areas of each scenario which would be most likely to be impacted upon.

2.4 Mitigation

Environmental considerations have also been integrated into the adopted Plan through a number of mitigation measures² which were recommended to be integrated in the Plan both through communication with the plan-makers and within the Environmental Report.

Measures recommended by the Environmental Report and are shown on Table 2.1.

The following mitigation measures were integrated into the Plan as individual or as part of a number of individual Plan measures

- Subsidiary Plans (SP)
- MM1: Designated Ecological Sites
- MM2: Designated Wetland / Peatland Ecological Sites
- MM3: Salmonid Waters Protection
- MM4: Ecological Networks
- MM5: Water Quality Protection
- MM5: Archaeological Heritage
- MM6: Architectural Heritage
- MM7: Landscape

The following measure was not integrated into the Plan as there are not sufficient resources at Kilkenny County Council to undertake the measures:

- Kilkenny *County* Development Plan Spatial Strategy (SS)

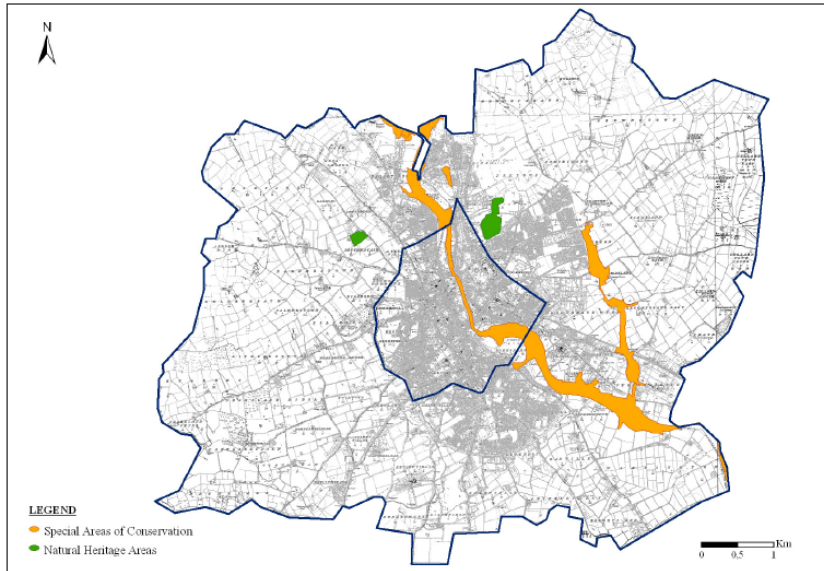
² Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing a human action, be it a plan, programme or project. Mitigation measures can be roughly divided into those that: prevent effects; reduce the magnitude or extent, probability and/or severity of effect; repair effects after they have occurred, and; compensate for effects, balancing out negative impacts with other positive ones. Where there are likely to be significant negative effects, consideration should be given in the first instance to preventing these effects or, where this is not possible, to reducing the effects.

2.5 The Draft Plan and Amendments

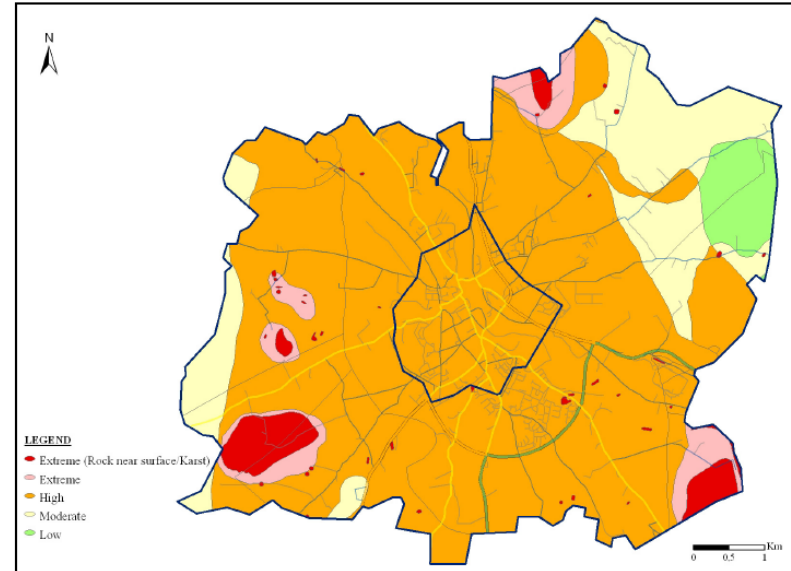
The Draft CEDP that emerged from the Plan preparation process and Amendments to this Draft Plan were each placed on public display for various periods of time during which submissions and observations were invited.

At the end of each of these periods a report was prepared by the Manager proposing changes which arose from certain submissions and observations made during the relevant display period to, where relevant, the Draft Plan or the Amendments.

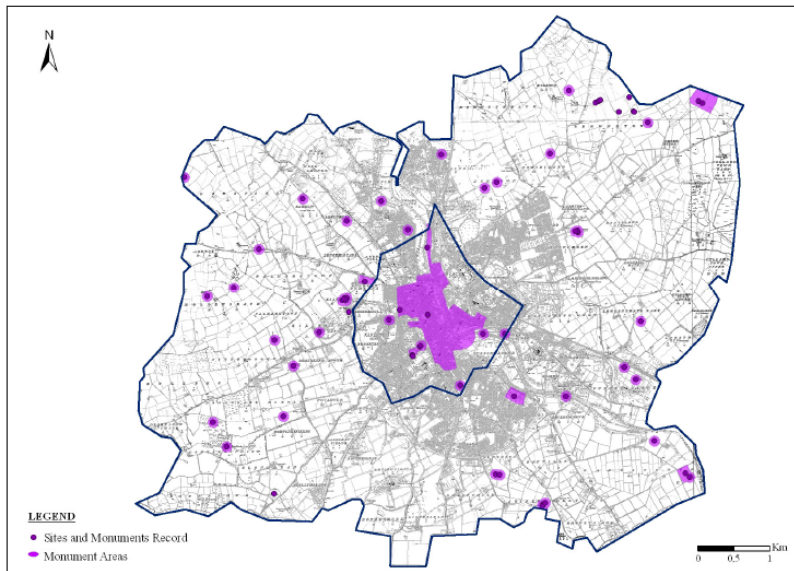
On each of these occasions, in order to enable the Elected Members make an informed decision an Addendum to the Environmental Report detailing the environmental consequences of changes to the Draft Plan or Amendments contained in the Manager's Report accompanied the Manager's Report.



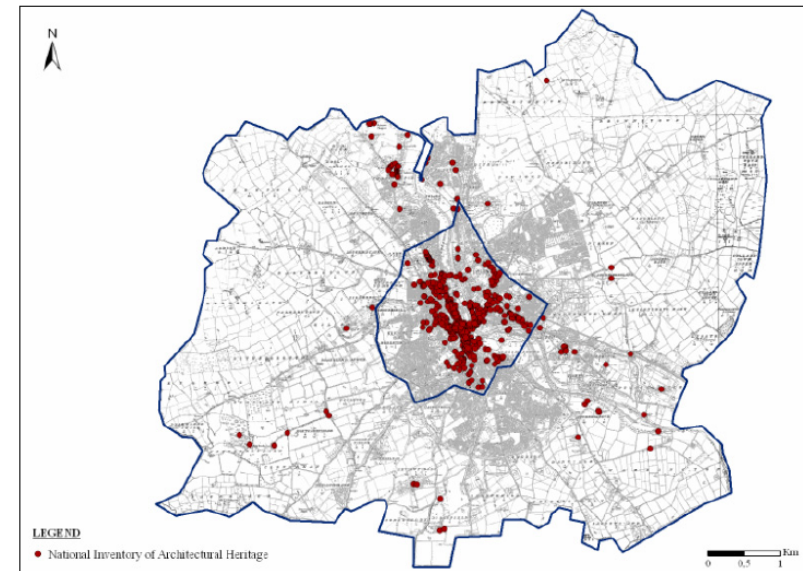
Designated Ecological Sites



Ground Waters Vulnerability Rating



National Monuments



National Inventory of Architectural Heritage

Figure 2.1 Environmental Sensitivities

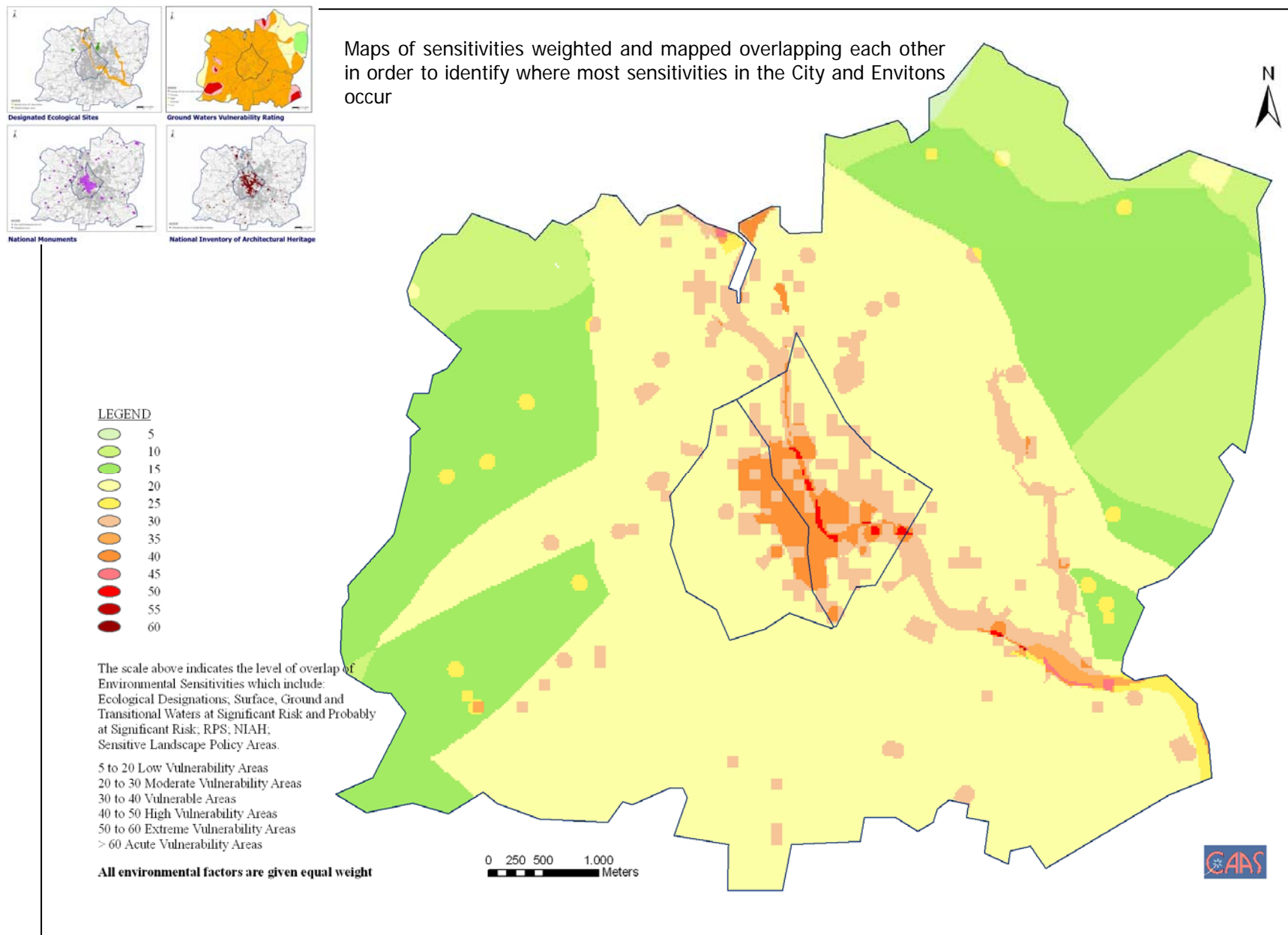


Figure 2.2 Overlay of Environmental Sensitivities

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Strategic Environmental Assessment

Reference	Recommendation
Kilkenny <i>County</i> Development Plan Spatial Strategy (SS)	<p>Mitigation measure SS as set out in the Kilkenny County Development Plan SEA Environmental Report identifies the Kilkenny Hub Corridor Impact Zone which has a significant potential to conflict with elevated densities of environmental sensitivities. In order to sustainably facilitate necessary development in this area the preparation of a Spatial Strategy to assist in the preparation of future development plans or local area plans in this area is recommended.</p> <p>This strategy will help to mitigate against impacts arising as a result of implementation of the Kilkenny City and Environs Development Plan.</p>
Subsidiary Plans (SP)	<p>Each Local Area Plan (LAP) or framework plan within the City and Environs should contain adequate policy and guidance in order to highlight the importance of retaining the unique character and diversity the appropriate areas, and provide for their protection.</p> <p>Policies should be amended where necessary to take of account of the carrying capacity of the environment - as outlined in this report.</p> <p>Consideration should be given in the drafting of residential policies to targeting the use of brownfield sites as a priority.</p> <p>Residential objectives which promote the identification of opportunities for infill development and consolidation of existing areas to reduce the need to zone additional greenfield lands should be included within LAP subject to stringent design guidance and environmental protection.</p> <p>The inclusion of a policy relating to the integration of the transport system throughout the LAP could have a considerable positive effect.</p> <p>The inclusion of a policy relating to the integrated provision of infrastructure within the LAP, may help in lessening the potential environmental impact of infrastructural requirements to service lands within those LAP, individually and cumulatively.</p>
MM1: Designated Ecological Sites	<p>Establish a buffer, free of development, at least 30m in width around designated ecological sites which may be larger depending on local ecological and drainage conditions and other factors as appropriate.</p>
MM2: Designated Wetland / Peatland Ecological Sites	<p>Planning applications within 30 metres of designated wetland/peatland ecological sites must be accompanied by an eco-hydrological assessment: which complies with Section 18 of the European Communities (Natural Habitats) Regulations 1997; identifies and evaluates the direct and indirect effects which the development would be likely to have upon the designated site, ecological connectivity and drainage. Planning applications must also be accompanied by evidence of consultation between the applicant and the National Parks and Wildlife Service with regard to the findings of this assessment. The need for ecological assessments for planning applications further than the 30 metre distance shall be decided upon on a site by site basis depending on local ecological and drainage conditions and other factors as appropriate.</p>
MM3: Salmonid Waters Protection	<p>A general minimum horizontal setback of 30m from the banks of salmonid waters for new development is to be created. Any planning applications within this setback must demonstrate that any development would not impact upon salmonid species or the habitats which sustain them.</p>
MM4: Ecological Networks	<p>Planning applications must: identify all ecological corridors (including hedgerows and masonry stone walls), likely to be significantly affected, which are present on the relevant lands; identify any losses to these corridors which would result if the application in question was granted and; show that such losses would be fully offset if the application was to be granted through the replacement of the relevant corridors, with corridors composed of similar species or materials, before any losses to the existing corridors occur.</p> <p>Where such opportunity exists between high value biodiversity areas applicants should be encouraged to enhance existing networks or create new networks between local biodiversity areas.</p>

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<p>MM5: Water Quality Protection</p>	<p>In order for permission to be granted to new developments, there must be sufficient capacity available to appropriately treat the waste water resulting from such developments. This may be done by: upgrading the capacity of the existing waste water treatment plant and agreeing a new Discharge License with the relevant organisation; sourcing capacity from other existing public waste water treatment plants, or by: constructing a new public waste water treatment plant.</p> <p>Thus new development will be served by either:</p> <p>Providing new capacity for public waste water treatment either through the provision of a new public waste water treatment plant or through allocation of additional capacity to existing waste water treatment plants and extending the existing public waste water treatment catchment to serve all possible developments within the plan area</p> <p>Or:</p> <p>Treating waste water through the use individual waste water treatment systems, such as septic tanks.</p> <p>If development is served by 'b.' then the conditions outlined in the EPA's (2000) 'Wastewater Treatment Manuals - Treatment Systems for Single Houses' shall be complied with, and:</p> <p>Planning applications must demonstrate that discharges to waters resulting from the granting of the application will comply with standards established under the South East River Basin Management Plan or interim recognized standards pending adoption of the South East River Basin Management Plan</p> <p>Applicants must submit a site suitability report alongside the planning application which outlines the likely effects on water quality which will be caused as a result of use of the relevant single waste water treatment system on site. This report shall be carried out by an appropriately qualified person. The appropriateness of the qualifications of such a person will be decided by the Planning Authority.</p> <p>The applicant, if successful with the relevant application, shall submit certification from an appropriately qualified person stating that the treatment system and associated percolation / filter area have been installed in accordance with the requirements of the EPA's (2000) 'Wastewater Treatment Manuals - Treatment Systems for Single Houses'. The applicant shall also submit agreement to maintain the complete system in accordance with the manufacturer's maintenance recommendations, for the lifetime of the system.</p> <p>Note: If capacity in a public waste water treatment scheme is not made available to all development within the plan area in the long term then existing septic tanks, percolation areas and proprietary effluent systems may require to be upgraded in the long term in line with the conditions specified above and a monitoring system set up to the same effect.</p>
<p>MM5: Archaeological Heritage</p>	<p>It is considered that archaeological heritage within the City and Environs is sufficiently protected by current designations and supporting policies within the CEDP.</p>
<p>MM6: Architectural Heritage</p>	<p>It is considered that architectural heritage within the City and Environs is sufficiently protected by current designations and supporting policies within the CEDP.</p>
<p>MM7: Landscape</p>	<p>It is considered that the landscape within the City and Environs is sufficiently protected by the designations of the various landscape components and by the policies within the CEDP relating to inter alia views and prospects.</p>

Table 2.1 Mitigation Measures from Environmental Report

Section 3 Environmental Report and Submissions & Observations

3.1 Introduction

This section details how both the Environmental Report and submissions and observations made to the planning authority on the Environmental Report and SEA process have been taken into account during the preparation of the plan.

3.2 SEA Scoping Consultations

Strategic Environmental Assessment scoping letters were sent to the Department of the Environment, Heritage and Local Government (DEHLG), Department of Communications, Marine and Natural Resources (DCMNR) and Environmental Protection Agency (EPA).

The responses to these letters were taken into account during the carrying out of the Strategic Environmental Assessment.

The Responses were as follows:

- Written response received from DEHLG covering the following topics:
 1. Archaeological heritage Strategic Actions to which the SEA must have regard
 2. Development issues with regard to archaeological heritage
 3. Architectural heritage recommendations for the protection and conservation of architectural heritage
 4. How to define architectural heritage
 5. The level of detail at which architectural heritage should be considered
 6. Data gaps with regard to architectural heritage
 7. How to deal with the 'do-nothing' scenario and monitoring
- A scoping meeting for the Kilkenny City Development Plan SEA was held with the EPA at which a number of issues were discussed. The EPA provided two documents: a *Screening Information Document including GIS Search for the Kilkenny City and Environs Development Plan* and a *Draft SEA Scoping Issues Document*.

- The DCMNR provided a reference to their generic guidelines as to what should be contained in the preparation of any environmental report.

3.3 Submissions and Observations

The only submission on the Environmental Report - from the Department of Communications, Marine and Natural Resources (DCMNR) - stated that the Department is satisfied that the SEA has addressed all the key environmental issues of relevance to the DCMNR.

No changes to the Environmental Report were made directly as a result of any submissions or observations. Relevant changes made to the Plan as a result of individual or multiple submissions have been evaluated by the Addenda (see Sections 2.5 and 3.4) and these evaluations have been integrated into the final environmental report.

3.4 Environmental Report

The findings of SEA were expressed in an Environmental Report which was submitted to the Elected Members alongside the Draft Plan. The purpose of the report was to provide a clear understanding of the likely environmental consequences of decisions regarding the future accommodation of growth in Kilkenny City and Environs.

Amendments made to the Draft Plan at each stage of the process were evaluated for their environmental consequences and these were presented to the Elected Members in the form of Addenda. On adoption of the Draft Plan, these Addenda were used to update the original Environmental Report into a final Environmental Report which accompanies the adopted Plan.

These amendments included alterations of, additions to and removal of Draft Plan provisions.

At each stage of the process the Elected Members were required by the legislation to take into account the Environmental Report - including the Addenda - before the adoption of the Plan.

Section 4 Alternatives and the Plan

4.1 Introduction

This Section details the alternatives which were identified and evaluated for likely environmental and planning effects as part of the SEA process for the Kilkenny City and Environs Development Plan.

Alternatives for the plan were developed around the concept of the development plan envelope, the extent of land area to be zoned under the plan. Note that the development plan envelope for the Kilkenny City and Environs Development Plan 2002 to 2008 (see Figure 4.1) is used as a reference from which each of the three alternatives developed.

4.2 Scenario 1 - *Compact Development*

4.2.1 Description

Development under Scenario 1 (see Figure 4.2) expands the development envelope set by the Kilkenny City and Environs Development Plan 2002 to 2008:

- A linear area of open space is provided for in the Eastern Environs
- In the eastern environs to the north of the N10 and to the east of lands zoned Industrial, lands are zoned Business Park with a Recreation, Amenity and Open Space buffer zoned around the Brownstown River
- Increased areas of residentially zoned lands are provided for in the south eastern environs
- Industrial / Business Park Zoning in the southern environs at Loughboy is extended so as to infill lands which are currently surrounded by this zoning

In addition to these expansions of the development envelope, Scenario 1 identifies areas which may undergo expansion in the future subject to development of a compact urban core and the provision of the appropriate infrastructure. These expansion areas are

located outside the development envelope in the western and south western environs.

4.2.2 Evaluation

4.2.2.1 Planning Impacts

The City and Environs' population and their associated employment, services and infrastructure are concentrated within the existing settlement centre. The outer boundaries of the settlement centre are strictly adhered to, expanding only where necessary and towards serviced lands.

The compact nature of development allows for efficient public transport links between employment and residential locations, facilitating easier circulation and mobility within the City and Environs. Demand for travel is reduced by a reduction in commuting.

The resulting density and scale of population allows for the economic provision of a wider range of services than would be the case in a more dispersed City.

The rural environment which surrounds the City is protected and maintained as this Scenario prevents the leakage of residential development into the surrounding rural areas.

Population is increased within the Borough Council's boundary and opportunities to create replacement and infill housing within the City are maximised.

4.2.2.2 Environmental Impacts

Surface and Ground Water

Almost all development is located over surface water bodies that are at significant risk and groundwater bodies that are vulnerable and probably at significant risk. This Scenario results in the least impact upon water quality as infill and renewal is encouraged and greenfield development occurs on serviced lands.

Ecology

Under this Scenario, with the exception of areas beside the salmonid River Nore and relevant tributaries - there is a relatively low potential for development and settlement to conflict with nature. However, developments adjacent to the

Nore and its tributaries or developments which potentially impact upon ecological connectivity should be very carefully prepared and scrutinised in order to anticipate and avoid impacts on these resources.

Cultural Heritage

The richness of cultural heritage within the City and Environs emphasises the need to put in place systematic ways of anticipating and avoiding architectural and potential archaeological impacts during the development stage. This is particularly relevant to infill and renewal development.

Landscape

The majority of the City Environ' landscape would remain unchanged under this scenario which allows for necessary and appropriate extensions to the development envelope.

4.3 Scenario 2 - *Semi Compact Development*

4.3.1 Description

Scenario 2 (see Figure 4.3) is as Scenario 1 except with significant extensions to the development envelope in order to provide a greater amount of low density residential zoned lands. Market forces prevail with the areas identified under Scenario 1 as potential future expansion areas, zoned as residential ignoring any prerequisite to develop from the inside of the City outwards. Most development occurs at the junctions of existing and newly built roads.

Due to the areas of land zoned residential, there is a likelihood that development will exceed the provision of the appropriate infrastructure needed to support it.

As well as zoning Scenario 1's potential future expansion areas, additional lands are zoned in the eastern environs and at Loughboy to the south.

4.3.2 Evaluation

4.3.2.1 Planning Impacts

Although most of the City and Environs' population and their associated employment, services and infrastructure are concentrated within the existing settlement centre, residential development leaks into the surrounding rural

areas resulting in difficulties with regard to the provision of necessary infrastructure in the short to medium term.

No or inefficient public transport links are provided in order to link expansions at the edge of the development envelope.

The provision of local community and social services becomes less economically viable in the outer areas.

A greater locational choice is provided for development within the City and Environs and market forces lead to the take up of green field development over infill and renewal opportunities.

4.3.2.2 Environmental Impacts

Surface and Ground Water

Almost all development is located over surface water bodies that are at significant risk and groundwater bodies that are vulnerable and probably at significant risk. This Scenario results in the increased likelihood of impacts upon water quality as development is allowed on lands which may not be serviced with the appropriate waste water treatment infrastructure.

Ecology

With the expansion of the development envelope there is increased likelihood that ecological connectivity will be significantly adversely impacted upon by residential development. Impacts upon ground and surface waters as a result of inappropriate waste water treatment have the potential to interact with sensitive aquatic species such as Atlantic Salmon.

Cultural Heritage

The richness of cultural heritage within the City and Environs emphasises the need to put in place systematic ways of anticipating and avoiding architectural and potential archaeological impacts during the development stage. This is particularly relevant to infill and renewal development.

Landscape

Increasing areas of agricultural land would be replaced by paved surfaces resulting in an increasingly visually apparent expansion of the City and Environs development envelope.

4.4 Scenario 3 - *Dispersed Development*

4.4.1 Description

Scenario 3 (see Figure 4.4) represents a further expansion of the City and Environs development envelop with particularly extensive areas zoned for low density residential development over and above those provided for by Scenario 2. Taking cognisance of market demands, lands are zoned at the junctions of existing routes into the City.

4.4.2 Evaluation

4.4.2.1 Planning Impacts

This approach does not appear to be set within a plan led or strategy vision for the future. Likely outcome of this approach:

Residential development covers the outer reaches of the City's environs before the necessary infrastructure and services can be provided leading to inappropriate waste water treatment and a greater need to use the private car for transport.

Large areas of residential development are left without public transport links, community and retail services.

Opportunities for infill or renewal are not taken up as greenfield development is pursued with consequences for the orderly and efficient development of newly developing areas on the edges of the City, obstruction of alignments for future provision of infrastructure, undermining viability of urban public transport and attendant later problems in terms of demands for higher public expenditure.

Potential adverse effects on water quality and environmentally sensitive areas, natural and made heritage resources the sustainable management and development of which do not appear to be taken into consideration in this approach.

This scenario does not converge with the NSS or RPG framework.

4.4.2.2 Environmental Impacts

Surface and Ground Water

Almost all development is located over surface water bodies that are at significant risk and

groundwater bodies that are vulnerable and probably at significant risk. This Scenario results in the adverse impacts upon water quality as development is unlikely to be accompanied by the appropriate waste water treatment infrastructure. Developments not connected with waste water treatment plants would cause significant deterioration in the quality of surface waters. There would be significant non-conformances with the provisions of the water Framework Directive.

Ecology

There would be significant breaches of the provisions of the habitats Directive as a result of adverse impacts upon designated ecological sites - including salmonid habitats - and ecological networks.

Cultural Heritage

Although impacts upon cultural heritage would still remain likely, if unmitigated against, instances of conflict between development and cultural heritage could be reduced if greenfield development was pursued ahead of infill and renewal.

Landscape

There would be significant and widespread deterioration of the character and integrity of the edges of what is currently a quite compact City. Large areas of good agricultural land would become blighted by low density residential development.

4.5 Summary of Analysis

On the basis of the above analysis Scenario 1 - *Most Compact* - emerged as the most sustainable alternative with regard to both environmental protection and economic and social development.

4.6 The Adopted City and Environs Development Plan

The City and Environs Development Plan that emerged from the plan preparation process and which was adopted conforms closely to Scenario 1.

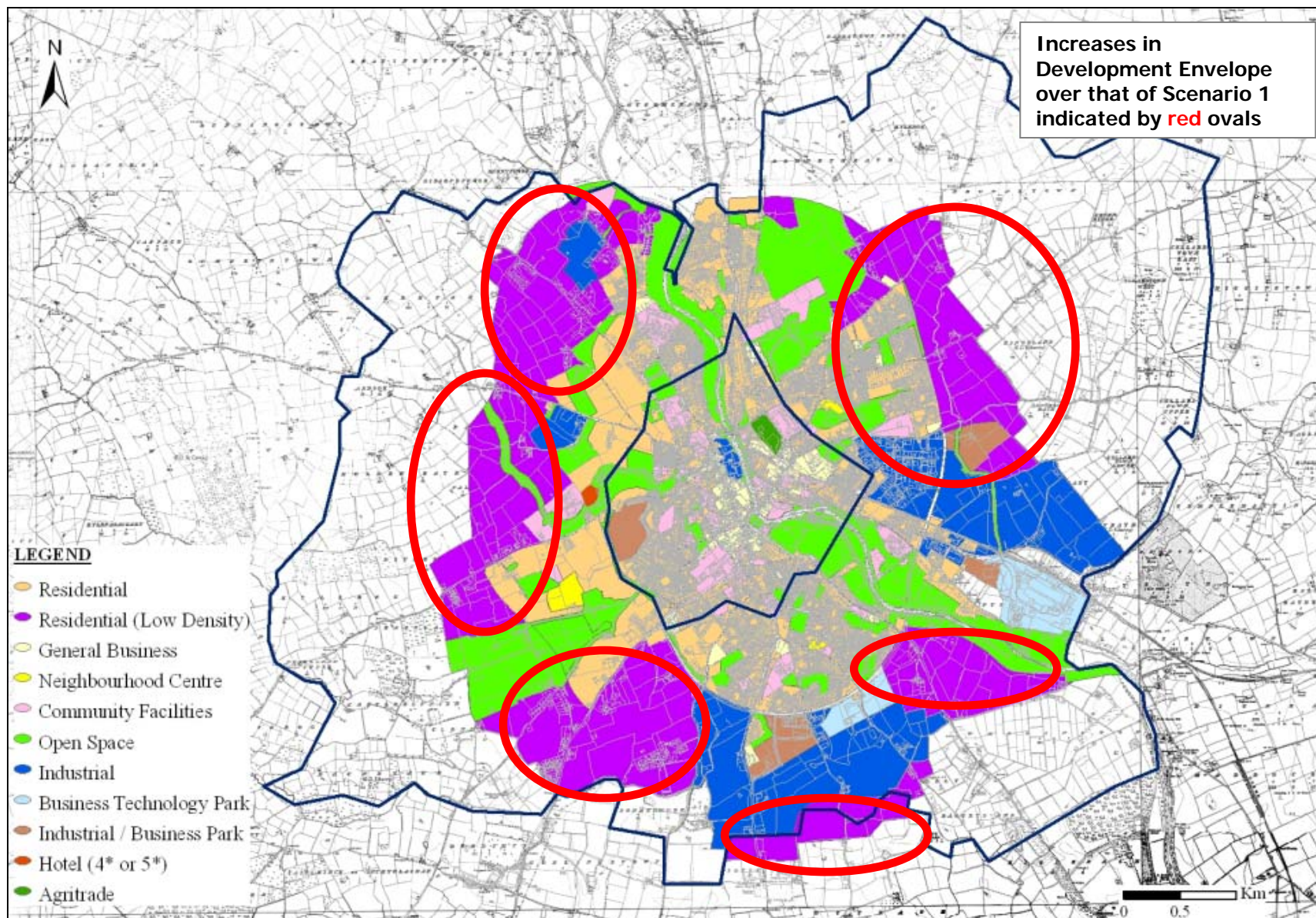


Figure 4.3 Scenario 2 *Semi Compact Development*

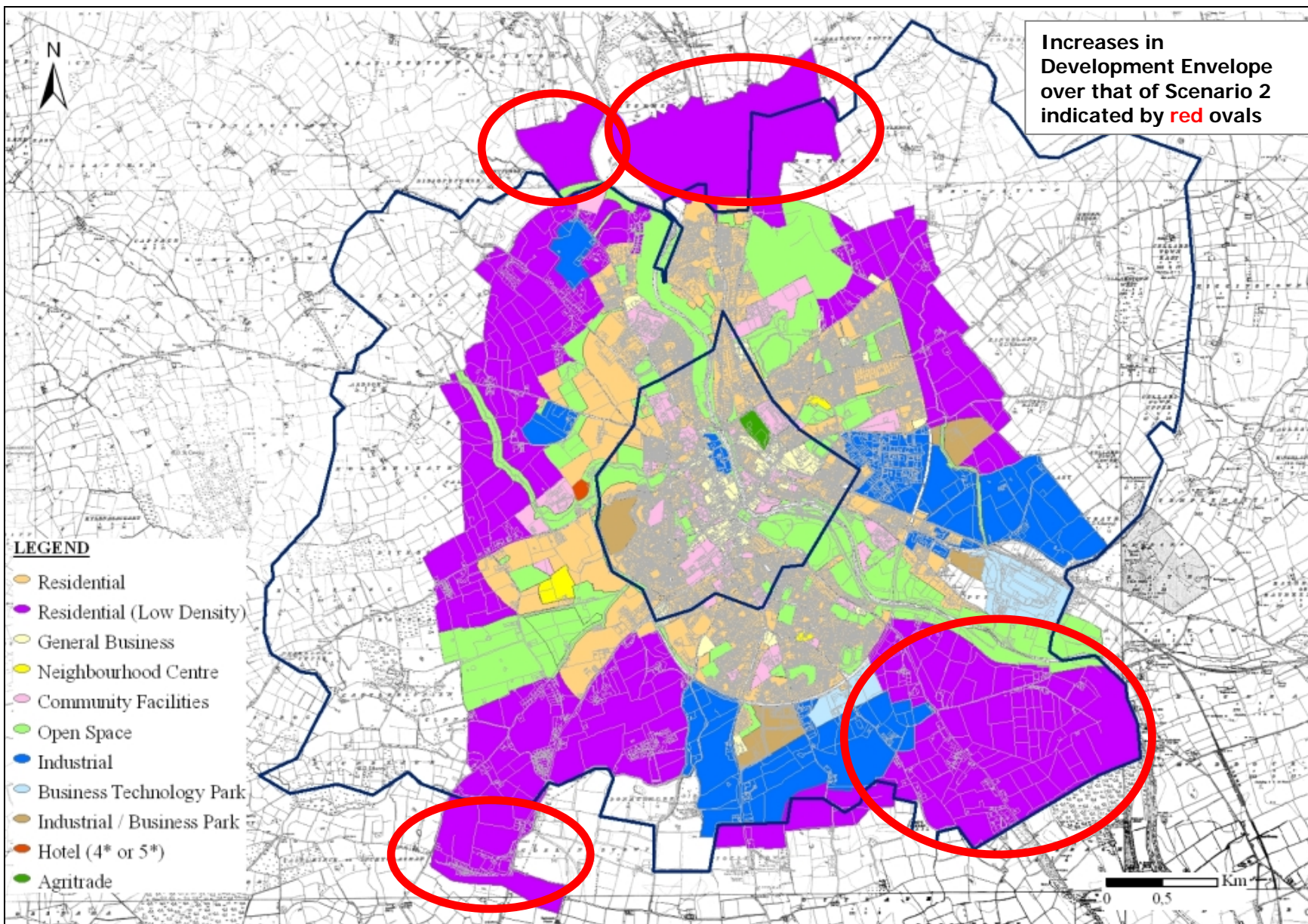


Figure 4.4 Scenario 3 *Dispersed Development*

Section 5 Monitoring

5.1 Introduction

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. This environmental report puts forward proposals for monitoring the City and Environs Development Plan (CEDP) which are adopted alongside the Plan.

Monitoring enables, at an early stage, the identification of unforeseen adverse effects and the undertaking of appropriate remedial action. In addition to this, monitoring can also play an important role in assessing whether the CEDP is achieving its environmental objectives and targets - measures which the CEDP can help work towards - whether these need to be reexamined and whether the proposed mitigation measures are being implemented.

5.2 Indicators and Targets

Monitoring is based around the indicators which were chosen earlier in the process. These indicators allow quantitative measures of trends and progress over time relating to the Strategic Environmental Objectives used in the evaluation. Focus will be given to indicators which are relevant to the likely significant environmental effects of implementing the CEDP and existing monitoring arrangements will be used in order to monitor the selected indicators. Each indicator to be monitored will be accompanied by the relevant target(s) which were identified with regard to the relevant legislation.

Table 5.1 below shows the indicator and targets which have been selected with regard to the monitoring of the plan.

5.3 Sources

Measurements for indicators should come from existing monitoring sources and no new monitoring should be required to take place. Existing monitoring sources exist for each of the indicators and include those maintained by Kilkenny Borough and County Councils and the relevant authorities e.g. the Environmental

Protection Agency, the National Parks and Wildlife Service and the Central Statistics Office.

The *Development Management Process* in Kilkenny Borough and County Councils will provide passive monitoring of various indicators and targets on an application by application basis. Where significant adverse effects - including positive, negative, cumulative and indirect - are likely to occur upon, for example, entries to the RMP, entries to the RPS or ecological networks as a result of the undertaking of individual projects or multiple individual projects such instances should be identified and recorded and should feed into the monitoring evaluation.

5.4 Excluded Indicators and Targets

As noted on Table 5.1 below, monitoring data on Indicator W2 (Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC) may not be available for the preliminary monitoring evaluation as the groundwater threshold values to which this indicator relates have not yet been identified by the EPA.

In addition, future monitoring data for Indicators A1i (Percentage of population within the plan area travelling to work or school by public transport or non-mechanical means) and A1ii (Average distance travelled to work or school by the population of the City and Environs) will not be available until the results of the next CSO Census are made available. It is recommended that data for these indicators be sourced for the SEA of the next review of the Plan.

5.5 Reporting

A preliminary monitoring evaluation report on the effects of implementing the CEDP will be prepared to coincide with the Manager's report to the elected members on the progress achieved in securing CEDP objectives within two years of the making of the plan (this Manager's report is required under section 15 of the 2000 Planning Act).

5.6 Responsibility

Kilkenny County and Borough Councils are responsible for collating existing relevant monitored data, the preparation of a monitoring report, the publication of this report and, if necessary, the carrying out of corrective action.

It is recommended that a Steering Committee be established to oversee the monitoring process.

5.7 Thresholds

The following thresholds - above which appropriate corrective action should be considered - have been set for the monitoring programme for the plan:

- Any boil notices on drinking water;
- Any fish kills;
- Any court cases taken by the DEHLG regarding impacts upon archaeological heritage including entries to the Record of Monuments and Places; and,
- Any complaints received from statutory consultees regarding avoidable impacts on one, some or all environmental components resulting from development which is granted permission under the CEDP.

Environmental Component	Selected Indicator(s)	Selected Target(s)	Source
Biodiversity, Flora and Fauna	<p>B1: Percentage of relevant habitats and designated ecological sites lost as a result of implementation of the CEDP</p> <p>B2: Number of significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites as a result of implementation of the CEDP</p> <p>B3: Percentage loss of connectivity between areas of local biodiversity as a result of implementation of the CEDP – as evidenced from a resurvey of CORINE mapping and any habitat mapping which is produced</p>	<p>B1: No losses of relevant habitats, species or their sustaining resources in designated ecological sites as a result of implementation of the CEDP</p> <p>B2: No significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites as a result of implementation of the CEDP</p> <p>B3: No ecological networks or parts thereof which provide significant connectivity between areas of local biodiversity to be lost without remediation as a result of implementation of the CEDP</p>	<p>CORINE Mapping, DEHLG Records & Development Management Process</p> <p>Development Management Process & Consultation with the National Parks and Wildlife Service</p> <p>Remote sensing of trees and hedges combined with CORINE mapping</p>
Population and Human Health	<p>HH1: Occurrence (any) of a spatially concentrated deterioration in human health</p>	<p>HH1: No spatial concentrations of health problems arising from environmental factors</p>	<p>Kilkenny Borough and County Council, EPA, Health and Safety Authority</p>
Soil	<p>S1: Area of brownfield land developed over the plan period</p>	<p>S1: Reduced availability of brownfield land (subject to availability on the open market, the demand for such land and the ability for such lands to be sustainably re-used within the provisions of the CEDP) at the end of the CEDP lifespan</p>	<p>Development Management Process</p>

Environmental Component	Selected Indicator(s)	Selected Target(s)	Source
Water	<p>W1: Biotic Quality Rating (Q Value)</p> <p>W2: Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC</p>	<p>W1i: To maintain a biotic quality rating of Q4, in line with the requirement to achieve good water status under the Water Framework Directive, by 2015</p> <p>W2: Compliance with Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC</p>	<p>Environmental Protection Agency</p> <p>As noted under Section 5.4, monitoring data may not be available for this indicator when the monitoring evaluation is being prepared.</p>
Air and Climatic Factors	<p>A1i: Percentage of population within the plan area travelling to work or school by public transport or non-mechanical means</p> <p>A1ii: Average distance travelled to work or school by the population of the City and Environs</p>	<p>A1i: An increase in the percentage of the population travelling to work or school by public transport or non-mechanical means</p> <p>A1ii: A decrease in the average distance travelled to work or school by the population of the City and Environs</p>	<p>CSO [As noted under Section 5.4, monitoring data may not be available for this indicator when the monitoring evaluation is being prepared].</p>
Material Assets	<p>M1: Number of new developments granted permission which cannot be adequately served by a public waste water treatment plant over the lifetime of the CEDP</p>	<p>M1: No new developments granted permission which cannot be adequately served by a public waste water treatment plant over the lifetime of the CEDP</p>	<p>Development Management Process</p>

Environmental Component	Selected Indicator(s)	Selected Target(s)	Source
Cultural Heritage	<p>CH1: Number of unauthorised developments occurring which result in full or partial loss to entries to the Record of Monuments and Places - including Zones of Archaeological Potential - and the context of the above within the surrounding landscape where relevant.</p> <p>CH2: Number of unauthorised developments occurring over the lifespan of the CEDP which result in physical loss or loss to the context in the surrounding landscape or streetscape of: entries to the Record of Protected Structures; Architectural Conservation Areas, or; entries to the National Inventory of Architectural Heritage.</p>	<p>CH1: No unauthorised developments occurring over the lifespan of the CEDP which result in full or partial loss to entries to the Record of Monuments and Places - including Zones of Archaeological Potential - and the context of the above within the surrounding landscape where relevant.</p> <p>CH2: No unauthorised developments occurring over the lifespan of the CEDP which result in physical loss or loss to the context in the surrounding landscape or streetscape of: entries to the Record of Protected Structures; Architectural Conservation Areas, or; entries to the National Inventory of Architectural Heritage.</p>	<p>Development Management Process; Complaints received from statutory consultees</p> <p>Development Management Process; Complaints received from statutory consultees</p>
Landscape	<p>L1: Number of complaints received from statutory consultees regarding avoidable impacts on the landscape - especially with regard to sensitive landscape features and designated scenic views - resulting from development which is granted permission under the CEDP</p>	<p>L1: No developments permitted which result in avoidable impacts on the landscape - especially with regard to sensitive landscape features and designated scenic views - resulting from development which is granted permission under the CEDP</p>	<p>Development Management Process; Complaints received from statutory consultees</p>

Table 5.1 Selected Indicators, Targets and Monitoring Sources