



# Regional Planning Guidelines for the Greater Dublin Area 2010-2022

*(Volume II – Appendices and Background Papers)*



**REGIONAL PLANNING GUIDELINES FOR THE  
GREATER DUBLIN AREA  
2010-2022**

**Prepared by Dublin & Mid-East Regional  
Authorities.**

**Volume II  
Appendices & Background Papers**

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# **Appendix A1**

## **Effective Integration of Spatial, Land Use and Transport Planning**



## **Appendix A1**

### **Effective Integration of Spatial, Land Use and Transport Planning**

As part of the review process for the Regional Planning Guidelines, the policies, objectives and recommendations of this document seek to ensure consistency between all strands of the regional planning strategy and relevant transport strategies, including T21, 'Smarter Travel', National Transport Authority strategies and the objectives of the Dublin Transport Authority Act.

While no NTA strategy has yet been published, the RPGs are committed to ensuring the effective integration of regional planning policies and national and regional transport policy. As part of the initial review process, submissions were invited and received from key transport agencies with responsibilities in the GDA including the Department of Transport, Dublin Transport Office, National Roads Authority, Dublin Airport Authority and Iarnród Éireann<sup>1</sup> and these comments contributed to the formulation of RPGs. Each section of the RPG's has been examined against the direction of strategic transport policies and the key transport initiatives.

Chapter 1 of the RPG's sets out the context for the GDA and identifies key inputs to the document, recognizing Transport 21 as having particular importance because much of the Plan focuses on delivering high grade public transport within the GDA to serve population growth within the metropolitan area and identified regional towns. The strong links between transport and sustainable land use planning, as advocated in current and emerging transport strategies, is recognised and this ethos has been influential in the framing of the settlement, infrastructural and economic strategies. Consequently, the RPG's seek to encourage land use policies that support the investments currently being made in public transport under Transport 21 and other strategic transport policy areas to ensure that the maximum benefit is gained both economically, socially and environmentally.

A number of core principles are set out within Chapter 2 (which establishes the vision for the RPG's) and have been aligned with the T21 investment programme by ensuring development in the GDA is directly related to investment in integrated high quality public transport services. This concept expanded on throughout the subsequent policy areas in the Plan.

The economic strategy contained within Chapter 3 recognises the important links between effective transport and economic competitiveness. The improvements and projects established under T21, in tandem with other economic growth factors, provide the opportunity for the region to be competitive within the international marketplace and to strengthen the regional economy. The role of multi modal corridors and strategic transport routes allows for the movement of goods, services and labour between gateways and major employment centres, thus providing attractive locations for businesses. This chapter also explicitly supports connectivity between strategic employment centres, ports and airports which are necessary to support business, having an impact on both product and labour markets; and also the importance of linking places of work and residence with public transport to achieve more sustainable commuting patterns. Investment in linkages is important as improved transport infrastructure can have benefits to outputs, costs and productivity. As such the delivery of T21 projects and a modal travel shift to 'greener travel' is considered to be important for the sustainable economic growth of the GDA.

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<sup>1</sup> This is not an exhaustive list. Please refer to 'directors report on pre-draft consultation' for the 2010 Regional Planning Guidelines for the GDA' for a full listing of submissions, available at [www.rpg.ie](http://www.rpg.ie)

Chapter 4 sets out the settlement and housing policy for the RPG's and supports the core principles of the RPGs outlined in Chapter 2. It also seeks to build on the policy direction adopted by the 2004 RPG's and the investment decisions of Transport 21 by focusing on the importance of coupling investment in new housing and associated services to investment in public transport infrastructure. Strategic Policy SP1 reflects this commitment by supporting national investment in public transport services by focusing new development areas to key locations to achieve the integration of land use and high quality public transport provision as part of a broader policy approach. The building of critical mass is seen as a means to support public transport investment, value for money and sustaining a well functioning and attractive transport system for users.

Chapter 5 which deals with rural development, promotes sustainable land use patterns in line with current guidance documents such as the *Rural Housing Guidelines for Planning Authorities 2005*, and patterns of development and land use which reduce the need to travel by private car where non rural generated housing is discouraged, whilst supporting local housing for those engaged in the local rural economy and local services.

Chapter 6 of the RPGs includes the transport strategy which acknowledges the progress made in transport infrastructure since 2004. Building on this progress, and taking account of recent transport publications, the vision for the RPGs transport policy and development in the GDA is steered by the convergence of national policy towards greater consistency in transport planning, spatial planning and land use management. The direction for the development of transport priority for the region is based around five broad headings- Public Transport, Roads, Airports, Ports and Cycling and Walking. Significant emphasis is placed on the role of public transport and 'green travel' options, including sustainable compact urban areas served by high capacity and well developed public transport systems, integration of public transport systems and services, improving choice and opportunities for reduced car travel by rural communities, promotion of higher densities for employment uses around public transport nodes and protection of identified and future possible public transport corridors.

Strategic Policy PIP1 supports the aforementioned approaches, while the accompanying table lists a series of key transport projects which are seen as been of central importance to the regional development over the life of the plan. These named projects provide clarity in investment and are included under the T21 programme of works or have been supported by other sustainable transport policy such as the '*Smarter Travel*' documents. Policy recommendations PIR 1 – PIR10 set out a series of strategic recommendations for transport operators, local authorities and relevant stakeholders, which seek to ensure delivery of effective and cost efficient land use and transport planning development. This mirrors the aspirations of current government policy under the Smarter Travel programme and T21.

The Green Infrastructure (G.I.) section of the RPGs, under Chapter 7, highlights the importance of transport corridors in developing GI strategies. The role of such connections for promoting walking and cycling for both leisure and commuting through safe pathways is recognised and emphasised.

Chapter 8 relates to social infrastructure and sustainable communities, detailing issues in relation to social inclusion, education, health, ethnicity, youth, living standards and housing environments. Strategic recommendation SIR1 recognises that the delivery of housing needs to follow sustainable models through avoiding low density car based development forms and be focussed on medium densities which will support and be integrated with a range of community facilities within accessible walking distances. Where lands are close to public transport nodes/stations or QBC corridors the density and connectivity of developments should directly support increased population being able to benefit from good transport links.

Chapter 9 considers regional flood risk appraisal. The recently published Planning Guidelines *The Planning System and Flood Risk Management*, in November 2009 recommend assessment of flood risk at all stages in the planning process and set out that regional flood risk appraisal and management policy recommendations are necessary to set a policy framework for Development and Local Area Plans at the local level. The need to protect across the GDA the natural flood plains and riparian corridors of all rivers that have not already been built on, following the completion of Flood Risk Assessment Management Systems is emphasised. With this in mind, transport infrastructural developments, existing and proposed, will need to be aware of and prepared for potential flood events, areas and patterns of occurrence.

Chapter 10 - Implementation, Monitoring & Evaluation, reiterates a number of investment priorities and indicates that central to the Greater Dublin Area RPG strategy is the delivery of Transport 21 and its associated high quality public transport network, as the central framework to accommodating and framing sustainable growth patterns for the future and reducing the carbon footprint of the Regions. It also recognises that the establishment of the NTA will play a central part in this delivery. In relation to RPG transport policy and recommendations, a series of indicators have been included to monitor progress.

## **Appendix A2**

### **Indicators for future Monitoring and Reports on RPG Implementation**

## Appendix A2: Potential Indicators for Future Monitoring and Reports on RPGs Implementation (and Climate Change assessment of policy).

### Section 1: Indicators.

Table A1

Climate Change Column Key: Adaptation (will the policy increase regional adaptability to overall impact of climate change?): A; Mitigation (will the policy contribute to reducing the causes of the adverse environmental impacts related to climate change): M; p = positive/yes/potentially yes; x = negative/no; o = neutral/negligible; u = uncertain

Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
<i>Chapter 1</i>	CLIP1: integration of climate change considerations, based on best scientific evidence, into all policy areas	<ul style="list-style-type: none"> <li>• Numbers of local climate change strategies or Energy Action Plans across the GDA</li> </ul>	Local Authorities		<u>A</u> p	<u>M</u> p
<i>Settlement Strategy</i>	SP1: supporting smarter travel, sustainable growth and towns, consolidation, etc.	<ul style="list-style-type: none"> <li>• % population living in metropolitan area; distance buffers to health and education services;</li> <li>• CSO census: travel data – distance to work (&lt; 24 km);</li> <li>• population density per ED or groups of EDs</li> <li>• Population and growth for EDs, groups of EDs and county level.</li> </ul>	Local Authorities; CSO (SAPS and POWCAR) DTO, DoEHLG Other research as becomes available	GIS mapping will be utilised as available; MOLAND model used for scenario analysis may be utilised as policy tool going forward.  Overall policy and recommendations are linked to other policy areas including Transport Strategic Policy PIP1;	<u>A</u> u	<u>M</u> p
<i>Settlement Strategy</i>	SR1: land prioritized in line with RPGs.	<ul style="list-style-type: none"> <li>• Refer to Development Plans and Local Area Plans</li> <li>• Areas of zoned land in major urban areas</li> </ul>	Local Authorities;		<u>A</u> o	<u>M</u> o
<i>Settlement Strategy</i>	SR2: sequential approach and public transport.	<ul style="list-style-type: none"> <li>• Refer to development plans;</li> <li>• total build on brownfield (units/area);</li> <li>• growth in designated towns;</li> <li>• transport modal split and rail use numbers</li> </ul>	Local Authorities; CSO; Irish Rail		<u>A</u> o	<u>M</u> o
<i>Settlement Strategy</i>	SR3: Growth directed to upper tiers of hierarchy. SR4: Phasing policies in towns outside key priority areas – growth to designated areas.	<ul style="list-style-type: none"> <li>• Population growth;</li> <li>• % future housing lands upper tier</li> <li>• population and employment densities</li> <li>• House permissions &amp; completions per county</li> <li>• Refer to development plans</li> </ul>	CSO, Local authorities (LAs); DoEHLG housing reports	Market forces such as GDP, employment opportunities, rental rates/vacancy rates and house prices will be monitored to provide national and international context for housing growth.	<u>A</u> u o	<u>M</u> u o
<i>Settlement Strategy</i>	SR5: infrastructural needs.	<ul style="list-style-type: none"> <li>• Mean travel times to work; school; college;</li> <li>• Services index;</li> <li>• WWTP capacities (PE equivalents to population ratio)</li> </ul>	LAs; EPA; CSO; DTO	This recommendation is linked to SIR 2-7 – design, mix of typologies, provision of educational, recreational, health	<u>A</u> p	<u>M</u> p

Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
				and childcare services) It is also linked to RR3 (infrastructural deficits). This recommendation is, moreover, linked to PIR 12/13 (Water services demand and supply); PIR 16 (waste water)		
<b>Settlement Strategy</b>	SR6: habitats directive.	•Status as determined by screening at regional scale and HDA to carried out at plan and project scale	NPWS; Development Plans; LAPs		<u>A</u> p	<u>M</u> o
<b>Settlement Strategy</b>	SR7: brownfield potential.	•%brownfield utilisation	Local Authorities		<u>A</u> o	<u>M</u> o
<b>Rural Development</b>	RP1: sustainable development of rural areas; urban rural linkages; community capital.	•Refer to Development Plans; •Reports of rural groups and departments	Department Agriculture, Forestry and Fisheries; Dept Community and Rural Affairs; LAs; NPWS; Leader; others, enterprise boards; EU rural development policy (EAFRD)	This is a broad stroke appraisal intended to be carried out on a triennial basis or as reports and information become available	<u>A</u> p	<u>M</u> p
<b>Rural Development</b>	RP2: To support agriculture, horticulture and rural based enterprises – emphasis on green economy.	•Office will report on data and information from Department of Community and Rural Affairs/ Leader reports as they become available •CSO stats on agriculture (census)	CSO – agricultural stats Statcentral.ie	An emphasis on the green economy and the production of locally produced fuels and food – a market based approach if properly managed can positively mitigate climate change. In terms of the overall policy the balance between positive versus negative effects remains uncertain	<u>A</u> o	<u>M</u> u
<b>Rural Development</b>	RR1: Rural Housing. & RR2: Design.	•Housing reports; numbers of one-off housing with septic tank only	CSO, Local authorities (LAs); DoEHLG	Context for housing design, type, location etc is the Sustainable Rural Housing Guidelines for Planning Authorities	<u>A</u> o o	<u>M</u> o p
<b>Rural Development</b>	RR3: addressing Infrastructural deficits.	•Services Index for rural communities •Leader activities per area; •RTI route present or expanding •Mean travel times to distance and work •Broadband penetration	Refer first to development plans. LAs and other data; Department Rural Affairs; CSO, ComReg.	Services be carried out every 2-3 years depending on resources  Census data every 4 years  Links to PIR6 recommendation on rural transport	<u>A</u> o	<u>M</u> p
<b>Rural Development</b>	RR4: the development of rural areas should consider public transport connectivity to higher tier areas.	• Rural Transport Programmes per county • Public bus connectivity	Department Transport	Improved public transport connectivity is positive in terms of climate change contribution where it displaces private	<u>A</u> u	<u>M</u> u/p

Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
				transport rather than adds to it		
<b>Rural Development</b>	RR5: achieving a balance between leisure and tourism, needs of modern farming and preservation of environment through use of feasibility studies and scientific evidence	<ul style="list-style-type: none"> <li>•REPs; soil quality data; •River Basin District data and EPA data</li> <li>• approximate visitor numbers to each region – main tourist attractions</li> </ul>	ERBD; SERBD; Neagh Bann RBD; EPA; Department Agriculture and Fisheries	REPs – caveat that scheme is being wound down	<u>A</u> p	<u>M</u> p
<b>Rural Development</b>	RR6: incorporation of broader rural development issues-water management (WFD), groundwater ecosystem functioning.	<ul style="list-style-type: none"> <li>•River Basin District data and EPA data</li> </ul>	RBD plans and data; EPA data; LA environmental data and reporting		<u>A</u> p	<u>M</u> p
<b>Rural Development</b>	RR7: rural entrepreneurship.	<ul style="list-style-type: none"> <li>•% living and working at home;</li> <li>•% 3<sup>rd</sup> level education working within 24km of residence</li> <li>•leader schemes;</li> <li>•number of rural enterprises grant aided</li> <li>•young farmers grants uptake;</li> <li>•broadband penetration and uptake</li> </ul>	ComReg; CSO; Leader;	Overall context may be measured if possible on the ratio of indigenous agricultural production to imported stocks	<u>A</u> o	<u>M</u> p
<b>Rural Development</b>	RR8: natural aggregate resources.	<ul style="list-style-type: none"> <li>•Corine land use data or mapping at development plan level of layers of key natural aggregate resources</li> </ul>	EPA; Development plans (LAs)		<u>A</u> o	<u>M</u> o
<b>Rural Development</b>	RR9: habitats directive.	<ul style="list-style-type: none"> <li>• NPWS reports</li> </ul>	NPWS or related		<u>A</u> p	<u>M</u> o
<b>Physical Infrastructure - Transport</b>	PIP1: developing transport strategic policy and a land use strategy that supports sustainable development.	<ul style="list-style-type: none"> <li>•Delivery of T21 projects, bus corridors and strategic national and non national roads will be reported on.</li> </ul>	DTO; Department Transport	Context set by T21; Smarter Travel, 2009; 2030 Vision;	<u>A</u> u	<u>M</u> p
<b>Physical Infrastructure – Water quality</b>	PIP 2: water quality.	<ul style="list-style-type: none"> <li>• EPA <i>Provision and Quality of Drinking Water</i> reports; RBMS and EPA monitoring</li> <li>• Monitor timely delivery of infrastructural projects</li> </ul>	EPA; RBMS; LAs	Request to EPA to provide % of samples complying with drinking water indicator parameters for all local authority areas in the Dublin and Mid East regions	<u>A</u> p	<u>M</u> o
<b>Physical Infrastructure- Wastewater</b>	PIP 3: waste and surface water.	<ul style="list-style-type: none"> <li>• EPA <i>Provision and Quality of Drinking Water</i> reports; RBMS and EPA monitoring</li> <li>• Plant PE equivalent (current and projected) will be monitored and compared against projected PE equivalents accounting for population (and if possible industrial/commercial) growths</li> </ul>		Request to EPA to provide % of samples complying with drinking water indicator parameters for all local authority areas in the Dublin and Mid East regions.  Potential to use MOLAND for further mapping of WWTP catchment areas	<u>A</u> o	<u>M</u> o
<b>Physical Infrastructure- Energy &amp;</b>	PIP 4: ICT and energy.	<ul style="list-style-type: none"> <li>% renewable energy provision nationally and regionally (where</li> </ul>	SEI; TSO; DCENR		<u>A</u> p	<u>M</u> p



Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
<b>Communication</b>		available)				
<b>Physical Infrastructure- Waste Management</b>	PIP5: that waste management remains a priority -investment in reuse and recycling.	Tracking exchange and reuse of materials through expanded “dublinwaste.ie” and other exchange programmes such as greenbusiness.ie	EPA; LAs		<u>A</u> o	<u>M</u> p
<b>Physical Infrastructure - Transport</b>	PIR1: land use and transport. PIR7: links to Dublin Airport and expansion. PIR9: walking and cycling.	<ul style="list-style-type: none"> <li>•Tracking Delivery of projects.</li> <li>•Transport modal split</li> <li>•Extent of bus corridors (Km)</li> <li>•Extent of walking/cycling routes (km)</li> <li>•% new car registrations of hybrid cars or all cars under 1.1 litre</li> <li>•% work in same settlement as resident</li> <li>•Mean Travel Times</li> <li>•Climate change indicators- national CO<sub>2</sub> emissions and transport energy consumption /GDP</li> <li>•Refer to Development plan zoning</li> </ul>	DTO; CSO; Department Transport, SEI; Department Communication, Energy and Natural Resources; Dublin Bus; Bus Eireann	NTA; National Cycle Policy Framework.  Recommendation is linked to SIR 1 on housing densities and transport accessibility	<u>A</u> u o p	<u>M</u> p n p
<b>Physical Infrastructure - Transport</b>	PIR 2-5 land use and transport policy. PIR2: Smarter Travel. PIR3: LUTS to inform planning. PIR4: planning to abide with recommendations of NTA. PIR5: identify and protect strategic road corridors.	•Refer to Development plans; NTA; LAPs; Department Transport policy documents	Department of Transport, NTA, Local Authorities – city and county plans		<u>A</u> p p u u	<u>M</u> p p p u
<b>Physical Infrastructure - Transport</b>	PIR6 : rural transport programme.	•Use and availability of RTP		Links to RP1	<u>A</u> p	<u>M</u> p
<b>Physical Infrastructure - Transport</b>	PIR8 :examine port expansion and possibility of new port	Refer to appropriate future provisions in Development plans			<u>A</u> u	<u>M</u> p
<b>Physical Infrastructure - Transport</b>	PIR9: walking and cycling (as above).	Target of 10% all trips by bicycle – CSO transport modal split	CSO (SAPS)	Education programmes; green schools can be used as a proxy for awareness; numbers s	<u>A</u> p	<u>M</u> p
<b>Physical Infrastructure - Transport re</b>	PIR10: habitats directive-transport.	•Status as determined by screening at regional scale and HDA to carried out at plan and project scale	NPWS; Development Plans; LAPs	Also relevant for PIR14; PIR19, PIR33	<u>A</u> p	<u>M</u> o
<b>Physical Infrastructure- Water and Wastewater</b>	PIR11: Source of Water Supply.	Report on actions	DoEHLG; Local Authorities	Investment in developing a sustainable and ecologically	<u>A</u> u/p	<u>M</u> o

Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
				friendly water supply should positively mitigate for climate change.		
<i>Physical Infrastructure-Water and Wastewater</i>	PIR12: Water Conservation and Management.	At plant level water supply energy demand requirements per annum as measured by KWh/annum  Water metering and or national water study reports as they become available	Plants; EPA; Local Authorities	Water metering may introduce over time the ability to accurately assess household and per capita water usage  Ecological audits will be utilised where possible.  A culture change in water usage will increase regional ability to adapt to potential climate change impacts	<u>A</u> p	<u>M</u> p
<i>Physical Infrastructure-Water and Wastewater</i>	PIR13: water storage and quality	EPA; local authority monitoring reports	LAs; EPA		<u>A</u> p	<u>M</u> o
<i>Physical Infrastructure-Water and Wastewater</i>	PIR 14 habitats directive water management	Assessment at site level indicator not applicable			<u>A</u> p	<u>M</u> o
<i>Physical Infrastructure-Water and Wastewater</i>	PIR15/16: investment in wastewater treatment infrastructure and growth towns  PIR15: investment in Waste Water Treatment facilities and networks to meet the needs of the River Basin Management Plan PIR16: Ensure that future capacity is provided in growth towns	Quality of receiving waters- RBD data and EPA The Quality of Bathing Waters. Check of growth projections to WWTP capacities	EPA, ERBD etc		<u>A</u> o p	<u>M</u> o o
<i>Physical Infrastructure-Water and Wastewater</i>	PIR17: location of regional wastewater treatment plant with marine outfall	n/a			<u>A</u> o	<u>M</u> o
<i>Physical Infrastructure-Water and Wastewater</i>	PIR18 scale of development matches discharge licenses	Refer to Development plans and Local Area Plans			<u>A</u> o	<u>M</u> o
<i>Physical Infrastructure-Water and Wastewater</i>	PIR19: habitats directive waste water management	Assessment at site level indicator not applicable			<u>A</u> p	<u>M</u> o
<i>Physical Infrastructure-Water and Wastewater</i>	PIR20: GSDSDS	Refer to SUDS	Local Authorities	Links to GIR 17 (Urban Drainage Systems) and to flooding FR3	<u>A</u> p	<u>M</u> o
<i>Physical Infrastructure-Water and Wastewater</i>	PIR21: pluvial flooding	Mapping. Refer to Coastal studies; Flood Risk Assessment Models	OPW; GSI;Teagasc; EPA		<u>A</u> p	<u>M</u> o
<i>Physical Infrastructure-Water and Wastewater</i>	PIR22: groundwater	GW should be steady state; EPA; RBM plans data as available	GSI; EPA; RBDs	Links to GIR20 relating to Groundwaters	<u>A</u> o	<u>M</u> o
<i>Physical Infrastructure-Water and Wastewater</i>	PIR23: land drainage and other works- cumulative affects and impact on habitats	Refer to development plans	Local Authorities	Links to GIR16 RBM plans; RR6 – WFD rural areas	<u>A</u> p	<u>M</u> o
	PIR24 Climate change	Climate change stats	DoEHLG; academic	This	<u>A</u>	<u>M</u>

Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
					p	o
	and weather events	will be delivered through NCCS; WWF; intergovernmental reports; Departmental reports; Also FRAMs; RBMPs.  Potential to use MOLAND model  Annual cost of flooding – year on year	report and institutes; international reports; OPW; RBMPs	recommendation is not clearly measurable in isolation; Will need to be assessed in relation to water management plans; flood risk appraisals and assessments; the quality of sewerage and drainage systems; building design and settlement patterns are some key elements which will impact on regional ability to absorb climate change events  PIR24 links to maintaining robust and diverse well connected habitats – ie the extent of green infrastructure)	p	o
<b>Physical Infrastructure - Energy and Communications</b>	PIR25: reinforcements in the grid to ensure energy needs of future populations are met.	<ul style="list-style-type: none"> <li>•National per capita demand for energy</li> <li>•Total km of gas pipeline; and transmission networks</li> <li>•Gird 25 target completion</li> </ul>	Eirgrid –TSO reports; ESB Networks; Gas Capacity Statement; DoEHLG; CER; NDP 2007-2013		<u>A</u> o	<u>M</u> p
<b>Physical Infrastructure – Energy and communications</b>	PIR26 and PIR 27 (renewables)	<ul style="list-style-type: none"> <li>•% renewable energy generation</li> <li>•% energy use by sector</li> <li>•BER ratings</li> <li>•Energy consumption/GDP</li> </ul>	SEI; Department Energy Communications and Natural Resources;	Assuming BER ratings data becomes available	<u>A</u> p	<u>M</u> p
<b>Physical Infrastructure – Energy and communications</b>	PIR28: county level adherence to Department of the Environment Heritage and Local Government publications relating to ‘Telecommunications Antennae and Support Structures’, ‘Wind Energy Development’ and any other guidance which may be issued in relation to communications and sustainable energy provisions.	n/a		Sustainable energy guidance will potentially increase regional ability to adapt to potential climate change scenarios and to the drivers of climate change – CO <sub>2</sub> emissions arising from fossil fuel market, natural processes/cycles	<u>A</u> p	<u>M</u> p
<b>Physical Infrastructure – Energy and communications</b>	PIR 29: Energy Action Plan.	Refer to County Development plans and/or (bio-)energy plans	LAs		<u>A</u> p	<u>M</u> p
<b>Physical Infrastructure – Energy and communications</b>	PIR30: Development of internationally competitive ICT sector.	Use benchmarking data from Forfas and EU to ascertain rating in terms of performance and provision across EU27 and OECD countries	Forfas (OECD indicators); ComReg; CSO; Department Communications Natural Resources and Energy.	Telecommunication competitiveness is linked to economic performance – policy recommendation ER5. ER5 seeks to create a smarter	<u>A</u> o	<u>M</u> u

Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
				economy. The use of NGNs and broadband penetration is critical to the development and enhancement of a smart economy		
<i>Physical Infrastructure – Energy and communications</i>	PIR31: avoidance of creation of sterile lands.	Development and local plan zoning policy level	LAs		<u>A</u> o	<u>M</u> o
<i>Physical Infrastructure – Energy and communications</i>	PIR 32: Transmission networks and renewable energy.	Reference annual report of transmission system operator and consult with their planning division on % renewable energy generation within the “East” region as a proxy for GDA	TSO		<u>A</u> u	<u>M</u> p
<i>Physical Infrastructure – Energy and communications</i>	PIR 33: habitats directive –energy.	Assessment at site level indicator not applicable Reference NPWS reports / circulars	NPWS		<u>A</u> p	<u>M</u> p
<i>Physical Infrastructure – Energy and communications</i>	PIR 34: That a study is undertaken on wind energy potential by local authorities jointly in the GDA focusing on suitable areas for larger wind energy projects, role of micro wind energy in urban and rural settings and the potential for wind energy within industrial area.		Local Authorities	Potential to utilise a strengthening resource	<u>A</u> p	<u>M</u> p
<i>Physical Infrastructure – Energy and communications</i>	PIR35: To maximise the potential of the ICT sector it is strongly recommended that: open access fibre connections are included in new developments....	Appraisal of data from relevant bodies as they may become available- Forfas/ComReg/Dept. Energy, Communications and Natural resources			<u>A</u> o	<u>M</u> o
<i>Physical Infrastructure- Waste Management</i>	PIR36: integrated waste management and adaptability of services.	•Units of overall performance: •Per capita MSW and packaging per waste region and land fill capacities •Numbers of recycling centres; and recycling rates	EPA –National Waste Database; Local authorities; private contractors		<u>A</u> o	<u>M</u> o
<i>Physical Infrastructure- Waste Management</i>	PIR37: Diversion of biodegradable waste.  PIR38: Space for domestic recyclables storage in developments and provision of bring banks.	•Home composting; Use of brown bins •Landfill capacity •Bring banks per 10,000 persons	EPA; Local authorities; private contractors		<u>A</u> o	<u>M</u> p
<i>Physical Infrastructure- Waste Management</i>	PIR39: increased prevention and reuse through business clustering...	•Units of overall performance: Per capita MSW and packaging per waste region and land fill capacities •Energy generation from waste reuse	EPA; Local authorities; private contractors		<u>A</u> o	<u>M</u> p
<i>Physical</i>	PIR 40 appropriate	Not relevant		Responsibility of	<u>A</u>	<u>M</u>

Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
<i>Infrastructure-Waste Management</i>	management of waste management facilities.			EPA, Local Authorities	o	o
<i>Physical Infrastructure-Waste Management</i>	PIR 41 : habitats directive waste management.	Assessment at site level indicator not applicable			<u>A</u> p	<u>M</u> o
<i>Green Infrastructure</i>	GIP 1:to protect built heritage.	Applicable at Development and local plan level. Review – RPS; industrial building records, review of heritage plan actions	Local Authorities; DoEHLG		<u>A</u> o	<u>M</u> o
<i>Green Infrastructure</i>	GIP 2: natural environment.	<ul style="list-style-type: none"> <li>•NPWS reports on SACs/SPAs</li> <li>•Biodiversity plan actions at LA level</li> </ul> <p>Mapping at regional level to establish linkages;</p> <ul style="list-style-type: none"> <li>•Population density in urban areas</li> <li>•Numbers (area) development in greenfield areas</li> <li>•%Natura 2000 area to total land by county and region</li> <li>• 6 year Habitats Directive –Article 17 report on flora and fauna</li> <li>• Natura 2000/Amenity Area/Coastal Parks within 5km radius of designated growth town</li> <li>•Forest within 10km of designated settlement</li> </ul>	NPWS  In-House and LAs  FIPS	<p>The indicator development proposed here will form an important regional level analysis and cornerstone for GI in the region.</p> <p>Mapping is central to creating and maintaining buffers and corridors.</p> <p>Moland Land Use Model proposed for use (UII).</p> <p>It is critical that all aspects of development take account of the Habitats Directive Appropriate Assessment which will screen for potential problems. The outcome of these assessments at lower planning tiers will provide the most accurate indication of environmental protection of Natura 2000 (SAC/SPANHA) areas and pNHAs)</p>	<u>A</u> p	<u>M</u> p
<i>Green Infrastructure</i>	GIP 3: river basins.	Refer to RBMPs and monitoring for ERBD;SERBD Neagh Bann RBD; Shannon RBD respectively	LAs/EPA		<u>A</u> o	<u>M</u> o
<i>Green Infrastructure</i>	GIP 4: ICZM.	Refer to reports and outcomes of Dublin Bay Taskforce or equivalent other	DoEHLG		<u>A</u> p	<u>M</u> o
<i>Green Infrastructure</i>	GIP 5: landscape.	Refer to LCCAs and direction from	LA		<u>A</u> o	<u>M</u> o
	GIP 6: Green Infrastructure.	Extent of green infrastructure regionally (approximate areas)	Waterways Ireland; NPWS; LAs; and all associated mapping resources		<u>A</u> p	M o
<i>Green Infrastructure</i>	GIR1 and GIR2: protect new and existing heritage, adopt	Applicable at Development and local plan level	Local Authorities; DoEHLG		A o	M o

Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
	appropriate plans and policies.				o	o
<b>Green Infrastructure</b>	GIR3 (Audits RPS; ACA) GIR25/26 (landscape character assessments and Amenity Area Orders)	•Applicable at Development and local plan level and will be measured across region through numbers of: •ACAs; RPS lists; LACCAs •Numbers of amenity areas per 1000 persons	Local Authorities	Landscape Character Assessments can assist in developing robust landscapes	<u>A</u> o p	<u>M</u> o o
<b>Green Infrastructure</b>	GIR4 education programmes and awareness programmes.	Number of green schools (proxy measurement)	An Taisce, Local Authorities	Building in climate change into awareness and education program can help reduce impact of anthropogenic causes of climate change	<u>A</u> o	<u>M</u> p
<b>Green Infrastructure</b>	GIR5: traditional design of plots, streetscapes, etc.	Applicable at county development plan level	LAs		<u>A</u> o	<u>M</u> o
<b>Green Infrastructure</b>	GIR6 provide grant assistance for conservation projects.	Levels of grant assistance	LAs		<u>A</u> o	<u>M</u> o
<b>Green Infrastructure</b>	GIR7: sensitive retrofitting of existing building stock.	Applicable at county development plan level.	LAs	Retrofitting of existing building stock can displace the need for new building stock, increase energy efficiency and ensure that a higher percentage of existing building stock is better prepared for more extreme climate change events	<u>A</u> p	<u>M</u> p
<b>Green Infrastructure</b>	GIR8 improving the appearance and character –protecting distinctive identities.	Applicable at county development plan level.	Local Authorities		<u>A</u> o	<u>M</u> o
<b>Green Infrastructure</b>	GIR9: Enhancement and Integration of Heritage Corridors.	Applicable at county development plan level. – Mapping of Corridors	Local Authorities		<u>A</u> o	<u>M</u> o
<b>Green Infrastructure</b>	GIR10: research to identify key historic landscapes and possible World Heritage sites.	Applicable at county development plan level.	Local Authorities		<u>A</u> o	<u>M</u> o
<b>Green Infrastructure</b>	GIR11: to protect natural and built heritage and develop recreational uses which is complementary to this protection.	Applicable at county development plan level.	Local Authorities		<u>A</u> p	<u>M</u> o
<b>Green Infrastructure</b>	GIR12: Heritage Action Plans.	Refer to Local Authority Action Plans – outline which objectives have been met	Local Authorities		<u>A</u> o	<u>M</u> p
<b>Green Infrastructure</b>	GIR13: Biodiversity action plans.	Refer to NPWS article 17 reports; Biodiversity Action Plans at LA level	NPWS; LAs		<u>A</u> p	<u>M</u> p

Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
<i>Green Infrastructure</i>	GIR14 protection of trees.	•Number of tree protection orders	Local Authorities		<u>A</u> p	<u>M</u> p
<i>Green Infrastructure</i>	GIR15: passive enjoyment of heritage.	Visitor numbers to heritage sites (to be selected)			<u>A</u> o	<u>M</u> o
<i>Green Infrastructure</i>	GIR16 (and GIP3) - planning and water & associated directive alignment – local authorities incorporate objectives of River Basin Management Plans.	Alignment of WFD RBM Plans, Nitrates Action etc) at county and local level. Track progress of WFD/RBM system objectives	River Basin Management Systems  LAs		<u>A</u> o	<u>M</u> o
<i>Green Infrastructure</i>	GIR17 and GIR 18 SUDS, to reduce flood risk, pollutants runoff; and protection of areas of high ecological status, respectively.	Local Authority implementation through alignment with RBM systems.  •Use of RBMS data from Eastern South Eastern, Neagh Bann and Shannon river basin districts	RBM systems LAs  Websites: <a href="http://www.wfdireland.ie">www.wfdireland.ie</a> <a href="http://www.epa.ie">www.epa.ie</a> <a href="http://www.epa.ie/rivermap">www.epa.ie/rivermap</a>  NPWS	There are pressures on 4 types of water bodies, namely, rivers, GW, lakes and transitional & coastal waters. The pressures placed on these bodies are closely linked to settlement strategies and wastewater infrastructures as well as policing and enforcement of agricultural; industrial and residential activities	<u>A</u> p  p	<u>M</u> o  o
<i>Green Infrastructure</i>	GIR 19: shellfish...	Refer to Shellfish monitoring, characterisation and pollution reduction programme	Food safety authority Ireland; EPA water quality reports. PRPs –Marine Institute	Monitoring programmes will assist in dealing with the threat of invasive species (as facilitated by climate change impacts)	<u>A</u> p	<u>M</u> o
<i>Green Infrastructure</i>	GIR 20: groundwater protection...	Data on soil types and quality are relatively steady state;  Overlaying GW sensitivities, that is, aquifers with development maps	GSI, Local Authorities, EPA, DoEHLG		<u>A</u> o	<u>M</u> o
<i>Green Infrastructure</i>	GIR 21 habitats directive...				<u>A</u> p	<u>M</u> o
<i>Green Infrastructure</i>	GIR 22: Dublin Bay Taskforce recommendations GIR 23: Expansion of ICZM GIR24: Coastal Parks	Record findings of Dublin Bay Taskforce and be cognisant of directions from DoEHLG  Cognisance of: Water Framework Directive, Birds Directive, Marine Strategy Framework Directive, Flood Risk Assessment studies, Article 6 of the Habitats Directive, best available information on the regional impacts of climate change and all current and future alignments between	DRA, DoEHLG	The RPG office is aware of the potential for coastal parks as both means to attract tourism, linking green and blue infrastructure and protect the environment. This may form part of a mapping exercise in line with ICZM and Dublin Bay Moreover account will be taken of WFD and Flood Risk Assessment as part of these processes.	<u>A</u> p  p	<u>M</u> o  o



Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
		these directives, assessments, and plans.				
<b>Green Infrastructure</b>	GIR25 landscape assessment, GIR 26 special amenity areas GIR27 Carbon Sinks and heat sinks...) GIR 28 Geological and Soil Mapping GIR 29: mapping landslide hazard areas	LACCA classifications  Special Amenity Area Orders  Carbon Sequestration potential data use, not currently possible (proxy data to be used for land use types)  GSI data for landslide hazard areas	GSI, EPA, other relevant reports on carbon sequestration; COFORD; others	Soil, flood and geographical mapping will need to be expanded at local authority level to ensure informed decisions for these policy recommendations	<u>A</u> p  o p p p p	<u>M</u> o  o p o o
<b>Green Infrastructure</b>	GIR30 –GIR 35: Green Infrastructure Strategy.  GIR 30: each Local Authority to prepare a GI Strategy.  GIR 31: GI as a material consideration to inform future planning.  GIR 32: to prepare a stock-take of existing data ...  GIR 33: GI to inform design and layout of residential areas.  GIR 34: recognise importance to biodiversity and ecological integrity.  GIR 35: positive approach to agreed and managed access in the regions countryside and coastal areas for walkers and cyclists.	To be carried out by local authorities to link with regional GI connections, to inform design and layout and so forth	Local Authorities	This is a strategy development and mapping exercise.  Green Infrastructure is linked to many policy recommendations in rural locations such as RR5 (leisure and tourism); RR6 Water Management and WFD and RR8: key natural aggregate resources  GI is also linked to many other biodiversity and heritage policies  Green infrastructure will also over time develop links with renewable energy policy (biofuel production and wind energy)	<u>A</u> p  p p p o	<u>M</u> p  p u u o o
<b>Social Infrastructure</b>	SIP1: Sustainable community development,; societal needs and planning integration.	•Services Index <sup>2</sup> (to be carried out on a biennial basis) •Regional quality of life reports (as they become available ) – CSO  •Deprivation Index (see appendix)		Policy links to RR3 (infrastructural deficits); PIR 1-5, 6-7, 9 (Land Use and Transport; Sustainable transport routes, linkages and modes);	<u>A</u> o	<u>M</u> o
<b>Social Infrastructure</b>	SIP 2 quality of life...	No agreed measurement – subjective – Services index or deprivation index could be used as	LAs; regional data	Quality of life is a subjective measure based on a range of factors; finance (regional	<u>A</u> o	<u>M</u> o

<sup>2</sup> For more detail on the Services Index see Appendix. Dublin as the gateway for the region and an international hub will be benchmarked internationally using in house regional and local authority data from existing benchmarking initiatives such as Open Cities.

Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
		proxy		GDP/capita); health (distance to nearest Primary Care); education; accessibility (time to work or school); % green space etc. or a combination of above		
<b>Social Infrastructure</b>	SIR1; housing densities and transport accessibility.	<ul style="list-style-type: none"> <li>•% modal in transport split by county and town</li> <li>•% distance to work &gt;24km</li> <li>•Population Density</li> <li>•Services Index<sup>3</sup></li> </ul>	ESRI, CSO-POWCAR; LA data; Local Government Management Services Board; Others	<p>Statistics used for the development of the Services index can utilised as stand alone indicators where suitable – ie number of childcare facilities.</p> <p>The Services Index will provide an overall measure of social infrastructure for “moderate” growth towns to the “metropolitan core” towns</p> <p>A central data repository for the region is proposed for data collation and analysis.</p>	<u>A</u> p	<u>M</u> p
<b>Social Infrastructure</b>	SIR2 high quality, mixed use design in line with Departmental guidelines.	n/a			<u>A</u> o	<u>M</u> p
<b>Social Infrastructure</b>	SIR3: Education...	<ul style="list-style-type: none"> <li>•Education: mapping of schools based on population growth projections.</li> <li>•Population change</li> <li>•Calculation of Age dependency ratios</li> <li>•Primary Schools per 10,000 population</li> <li>•Secondary Schools per 10,000 population</li> </ul>	Department Education and Science, CSO; HEA		<u>A</u> o	<u>M</u> o
<b>Social Infrastructure</b>	SIR4: Health...	<ul style="list-style-type: none"> <li>•HSE health atlas</li> <li>•Map health infrastructure including primary care centres- existing and proposed, and to overlay these with Development plan layers.</li> <li>•Deprivation Index</li> </ul>	Local Authority; HSE, Trustz Haase	This is primarily a mapping exercise	<u>A</u> o	<u>M</u> o
<b>Social Infrastructure</b>	SIR5: Childcare facilities...	<ul style="list-style-type: none"> <li>•Existing facilities per capita within moderate growth town to metropolitan consolidation growth towns and within the gateway core.</li> </ul>	Local Government Management Services Board (LGMSB)		<u>A</u> o	<u>M</u> o

<sup>3</sup> For more detail on the Services Index see Section 2 of this appendix. Dublin as the gateway for the region and an international hub will be benchmarked internationally using in house regional and local authority data from existing benchmarking initiatives such as Open Cities.

Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
		•Number of new planning schemes which incorporate a community facility				
	SIR6 Habitats Directive recreation and other social infrastructure.	Assessment at site level indicator not applicable			<u>A</u> p	<u>M</u> o
<i>Social Infrastructure</i>	SIR7: recreational and leisure programmes and facilities.  SIR8: Arts and Culture.	•Arts grants per local authority •Average opening hours libraries •Number of children's playgrounds directly provided/1000 persons; •Number of visitors to local authority facilitated swimming pools per 1000 population	LGMSB		<u>A</u> o  o	<u>M</u> o  o
<i>Social Infrastructure</i>	SIR 9: minority groups; disability; ethnicity; social inclusion.	•Ethnic background per county (if available) •Deprivation Index •Uptake in traveller accommodation programme • Investments in accessibility in transport infrastructure and the built environment for disabled Numbers of new developments with disability access •Rapid and Clar areas – deprivation change	CSO, LGMSB; Local Authorities; T. Haase Index; Department Community and Rural Affairs;  National Disability Authority – NDP 2007-2013 (may be difficult to quantify and reports will be referenced as they become available)		<u>A</u> o	<u>M</u> o
<i>Social Infrastructure</i>	SIR 10: needs of elderly/infirm.	•Local Area and County Development Plans	Local Authorities		<u>A</u> o	<u>M</u> o
<i>Flood Risk Appraisal</i>	FP1 & FR1: (avoid development in flood risk areas) and FR2 (SFRA).	•Strategic Flood Risk Assessment Models at local plan level will be required • Flood Risk Assessment models will be referenced and overlaid (once available) on Development plan layers • Coastal Flooding Study and associated maps	OPW- FRAMS and the Coastal Flooding Study and data www.flooding.ie  Local Authorities  DoEHLG; Department Agriculture, Forestry and Fishing	Linked to SR1; GIR22 (ICZM and flood risk) and PIR 21/23.  Pressures include increases in tidal surges, rising sea levels, rising GW levels and deterioration of forested, mountainous areas due to forestry and development activities.	<u>A</u> p  p	<u>M</u> o  o
<i>Flood Risk Appraisal</i>	FR3: Flood protection and SUDS schemes used to improve biodiversity.	Data available from Local authorities / OPW;	Local authorities; OPW	Policy links to GIR16 and PIR20 and so forth	<u>A</u> p	<u>M</u> o
	FR 4 habitats directive flood risk.	Indicator not applicable –FRAMS and NPWS reports will provide useful reference points for habitats assessment			<u>A</u> p	<u>M</u> o
<i>Economic Development</i>	EP1 Dublin gateway is international driver of enterprise with support from designated (employment) centres	•NSS regions reports; •employment levels regional; •POWCAR data (4 years on place of	NSS –DoEHLG spatial planning unit CSO; Forfas; IDA; Enterprise Ireland; Local Authorities	Policy is linked to a collection of other policies and recommendations such as the	<u>A</u> u	<u>M</u> u

Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
	regionally. Growth in designated areas involves growing skills capacity and infrastructure to support the economy and their hinterlands.	residence and place of work) •International benchmarking – Dublin to be benchmarked using existing data from the Regional Authority and the International Affairs and Research Office in DCC	and enterprise boards; ESRI; Regional Authority and the International Affairs and Research Office in DCC	settlement strategy (SP1, SR1) and transport (PIP1)  It is linked to physical infrastructures PIR 11-13 water supply, demand and management PIR 28 (ICT); PIR31 integrated waste management; PIR 25 (reinforcement of grid and transmission) networks; PIR 26 (renewable energy provision), etc  It is linked to rural economic development RP1 (sustainable growth) and RR7 (entrepreneurship)  It is more indirectly linked to green infrastructure and flood risk policies (GIR17 FP1 etc) – maintaining sustainable environments for high quality of life, robust environments and physical infrastructure development		
	EP2: To seek sustainable economic growth across the GDA, by the promotion of identified core economic areas across the GDA in both the Dublin and Mid East Regions to facilitate new employment opportunities for existing populations and seek to reduce the volume of unsustainable long distance commuting.	Cross tabulations using POWCAR of employment type per county per education level; age category; social classification; and across job sectors	CSO;-POWCAR; QNHS; IDA; Enterprise Ireland; FAS; NACE	POWCAR is only available every 4 years but is a statistically robust resource. New opportunities data will need to be provided through enterprise and employment agencies.	<u>A</u> u	<u>M</u> p
<b>Economic Development</b>	ER1 developing the GDA as an international destination for business.	International benchmarking of the following, where available – labour costs; oil prices; electricity costs; lease rates; land costs; education attainment; numbers of university students; commute mode; cost of housing; crime rate; imports and exports, air passengers; unemployment rates	Regional Authority and the International Affairs and Research Office in DCC	International benchmarking will use a signal system to establish ideal set of economic and sub economic indicators to show where the GDA is sustainably progressing	<u>A</u> o	<u>M</u> u
<b>Economic Development</b>	ER2: support urban – rural links developing	Distance to work; work and resident	POWCAR, CSO	Linked to PIR6 (rural transport);	<u>A</u> o	<u>M</u> u

Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
	employment opportunities.	EDs,- to establish patterns of travel		RP1; and, RR4; and RR7.		
<i>Economic Development</i>	ER3: promotion of sustainable travel choices; mixed use settlement forms.  ER18: Jobs Ratio (Employment and population density and commute distances will point up job creation levels and employment opportunities in growth centres over time, supporting services).	•Transport modal split •employment and population density •Services index	CSO, Local authorities	Policy links to SR5 (infrastructure), RR3 (infrastructure) , SIR 1 (housing densities and transport accessibility); PIR 6 (sustainable transport)  ER3 and ER18 are different policies however indicators proposed can be used as proxy measures for both recommendations	<u>A</u> p	<u>M</u> p
<i>Economic Development</i>	ER4: Support entrepreneurship and enterprise at appropriate locations.	•Numbers of science/incubator and innovation parks per county •Services index as proxy measure for services to support economy •Numbers of patents	Local authorities; Regional Authority; IDA; Enterprise Ireland		<u>A</u> o	<u>M</u> o
<i>Economic Development</i>	ER5: Develop the GDA as a smart economy, smart city region and innovation, regional specialisms.	•Not singularly measurable but necessary for economic competitiveness •Use proxy indicators such as broadband penetration; arts grants; Exports in the ICT and pharmaceutical sectors); GVA per person at basic price. Regional specialism will require facilitation through CDPs and LAPs	CSO, Forfas, ESRI, ComReg Universities and Institutes of Technology, Local Authority reports	Not singularly measurable but necessary for economic competitiveness	<u>A</u> o	<u>M</u> p
<i>Economic Development</i>	ER6: support the development of economic clusters; green economy; food production etc.  ER10 :delivery of strategic employment sites innovation/intellectual enterprise zones and SDZs.	•Numbers of business clusters; industrial parks; SDZs; IE zones • % green economy that is attributable to national GNP/GDP or •% national energy demand from green sources •Annual Services Inquiry – Costs (CSO)	CSO, local authority data and relevant government departments	Links to PIR39 (business clustering for waste exchange)  Investigation into and identification of novel indicators to measure the green economy is recommended	<u>A</u> p	<u>M</u> p
<i>Economic Development</i>	ER7: Support the role of Dublin Airport	•Passenger Numbers/annum (relative to GDP)	DAA		<u>A</u> o	<u>M</u> x
<i>Economic Development</i>	ER8 Support the Green Economy.	•% green economy that is attributable to national GNP/GDP • Numbers of businesses with ISO14001 or EMAS	Estimation (Dept Finance; SEI, use energy demand as proxy) NSAI/NAB		<u>A</u> p	<u>M</u> p
<i>Economic Development</i>	ER9: support factors of competitiveness entrepreneurship and	•Planning permissions which have specific focus on green	Local Authorities	These data can be correlated to Annual Services	<u>A</u> u	<u>M</u> u

Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
	sustainable businesses.	businesses) •Business start up data from enterprise boards (various programmes)		data from CSO on regional (Nuts II) the contributory costs of doing business		
<i>Economic Development</i>	ER11 promoting a continued emphasis on sustainable transport.	Modal Split and T21 projects	CSO		<u>A</u> p	<u>M</u> p
<i>Economic Development</i>	ER12:Continued emphasis on ICT.	Benchmarking data (OECD) Monitor roll out National Broadband Scheme	Forfas (OECD indicators); ComReg; CSO; Department Communications Natural Resources and Energy.	ICT will place additional demand on water and energy. ICT also has the potential to decrease use of paper, reduce travel etc. With proper management it therefore has potential to be a positive in terms of climate change mitigation	<u>A</u> u	<u>M</u> p
<i>Economic Development</i>	ER13: Recognising the important role of Ports.	Port traffic RoRo & LoLo.	Dublin Port	Overall to recognise the role of ports has neutral impact. Any port development should be carried out with potential impact of climate change on that development in consideration	<u>A</u> u	<u>M</u> o
<i>Economic Development</i>	ER14: direct new retail floorspace in to existing large population bases and those centres selected for growth.	County level retail permissions for retail floorspace (convenience and comparison)	Retail Planning Guidelines for Planning Authorities and with the Retail Planning Strategy for the Greater Dublin Area 2008 (and as updated)		<u>A</u> o	<u>M</u> o
<i>Economic Development</i>	ER15 Promotion of sustainable tourism practices and a high quality built environment.	n/a			<u>A</u> p	<u>M</u> p
<i>Economic Development</i>	ER16: delivery of water supply and waste water infrastructure.	•Monitor delivery of critical projects	OPW, LA	Ties in with water supply and waste water infrastructure indicators	<u>A</u> p	<u>M</u> o
<i>Economic Development</i>	E17 creation of local employment opportunities and reduce commuting.	Travel to work times per county and region	CSO (POWCAR)	Ties to ER3 Broader travel choice creates a more adaptable and flexible region in terms of impacts of climate change. This policy relates to travel reduction rather than travel choice.	<u>A</u> o	<u>M</u> p
<i>Economic Development</i>	Broad level economic indicators	•Consumer Sentiment Index •Consumer price analysis (cost of goods to per capita GVA) – inflation index •GVA/person at basic prices •Household disposable income	(ESRI/KBC) QNHS –CSO Household Budget Survey-CSO	These indicators are required to be tracked to set context for national performance and to look at performance in relative terms compared to the international economic climate		

Chapter	Policy/Recommendation	Indicator (or action)	Source of data/information	Context/Comment	Climate Change	
		<ul style="list-style-type: none"> <li>•employment densities</li> <li>•Unemployment and participation rates</li> <li>•GNP and GDP</li> </ul>				

## **Section 2: Services Index**

This index is designed to indicate the infrastructure and associated services available within, a) metropolitan consolidation towns b) large growth towns I and II; and c) moderate sustainable growth towns.

This index can provide an approximate measure of the service provision of a given settlement within the GDA. Tertiary service categories selected for inclusion are subjective but attempt to cover a broad range of services. The index is consistent in terms of method of service level measurement across settlements. It is designed to give an approximate indication of the overall level of centrality<sup>4</sup> or service level of any given settlement. Service categories are not meant to be examined in isolation rather each component contributes to the overall measurement of service centrality and establishes an over all trend. In addition the index accounts for infrastructure and service provision only and does not account for service cost variations between places of differing size or place in the spatial hierarchy. The theory is that larger settlements generally will provide levels of services and infrastructure not available in smaller settlements and will serve groups of nearby smaller settlements where higher order services are not available. Services considered the “most valuable” will occur in settlements with the highest degree of centrality. The index can indicate settlement level service provision deficits in relative terms or indicate where settlements have levels of infrastructure higher than their population size might suggest, for example, smaller settlements which provide tertiary level services to a wide hinterland area (settlements with established rural hinterlands).

Here, a simple rating system is developed. Values of 1, 2 or 3 are assigned for lower, intermediate and higher order services. The more frequently a service occurs in a settlement the more likely it will receive a score of 1. For example, most settlements have a primary school or a local supermarket. Whereas a post office or Garda station service may not be as frequent and receives a score of 2. Following this logic, a regional hospital would receive a score of three. The methodology is imprecise but the Services index nevertheless gives an accurate reflection of the relative services offered by each settlement.

Town Name \_\_\_\_\_ County Name \_\_\_\_\_  
 Population \_\_\_\_\_

**Service Categories**

<sup>4</sup> Centrality is a numerical expression of the extent to which a settlement serves its surrounding hinterland based on services offered. Service provision is an important variable affecting travel patterns and in assisting the identification of the extent of functional areas nested within spatial hierarchies.



<b>Town Name</b> _____ <b>County Name</b> _____ <b>Population</b> _____	
<b>Service Categories</b>	
<i>RETAIL</i>	
"Supermarket" Rating	Shopping Centre and Retail Park =3; Shopping Centre with Supermarket (Spar/Super Valu Centra Mace etc) = 2; Supermarket which is a stand alone local shop = 1
<i>LOCAL GOVERNMENT OFFICES and CIVIC AMENITIES</i>	
Post Office Rating	Y/N; Y = 2
Local Authority Offices	Y/N; Y= 3
Town Councils	Y/N; Y= 2
Court Offices	Y/N; Y = 2
Court Houses	Y/N; Y =1
Garda Stations	Y/N Y = 2
Overall Fire stations Rating	Y/N; 1,2,3
Recycling AND Bring Centres / 1000 population	To Be Determined (TBD) (Relative to other scores)
Community Centre/Parish Hall	0.1/1000 population = 3; < 0.1/1000 population = 2
<i>ARTS</i>	
Art Gallery/Exhibition Centre	Y/N; Y= 2
Cinemas	Y/N; Y= 2
Museums	Y/N; Y = 2
Theatres	Y/N; Y = 2
<i>EDUCATION AND ACCESS TO INFORMATION</i>	
Libraries	National or 3rd level Institute library =3; County Library =2; Branch Library = 1
Internet Café	Y/N; Y= 2
Highest Speed Broadband Available	10 or less = 1; 10-20 = 2; 20 or more = 3
Primary School	Y/N; Y=1
Secondary School	Y/N; Y= 2
Third Level Institution	Y/N; Y= 3
<i>TRANSPORT</i>	
Train Station Rating	Y/N; Active = 3; inactive but active line = 1
Ports	Y/N; Y = 3
Airport	Y/N; Y =3
Bus Accessibility Rating	Y/n; Bus Station =2; Bus Stop = 2
<i>BANKING</i>	
Bank Rating	2 or more = 2
ATM	2 or more = 1
<i>HEALTH</i>	
GP Rating	GPs/1000 population; 5 or more = 3; 2-4= 2; 0-1 = 1
Ambulance Rating	Y/N; (Public Private and Volunteer); 2
Health Provision	Regional Hospital = 3; District =2; Primary Care Centre = 1
Pharmacy	1 pharmacy =1; 2 or more = 2
<i>EMPLOYMENT AND BUSINESSES</i>	

<b>Town Name</b> _____ <b>County Name</b> _____ <b>Population</b> _____	
<b>Service Categories</b>	
IDA Ireland Office	Y/N; Y =2;
Local Enterprise Ireland Office	Y/N; Y= 2
Chamber of Commerce	Y/N ; Y= 2
FAS Employment Services Office	Y/N; Y = 3
IBEC Office	Y/N; Y= 2
Social Welfare Office Rating	Head Office = 3; Office = 1
<i>RECREATION</i>	
Tourist Office	Y/N; Y =2; Tourism Centre = 1
RAI Restaurants in Town Centre	Y/N; Y= 2
No. Hotels	TBD (Relative to other scores)
No. Guesthouses	TBD (Relative to other scores)
Public Swimming Facilities	Y/N; Y during summer months =1; Y all year =2
Children's playground	Numbers per thousand population
<i>OTHER</i>	
Childcare facilities/Crèches	Numbers available linked to age dependency of settlement
Laundrette	Y/N; Y= 1
Solicitor Rating	1-5 solicitors present = 1; 6 or more = 2
Real Estate	1-2 present = 1; 3 or more = 2
<b>Services Index</b>	<b>Absolute Score</b>

## **Appendix A3**

### **Occupancy Rates for Target Year by Council**

## Appendix A3

### Occupancy Rates for Target Year by Council

<b>Occupancy Rate Forecasts used in RPG Projections</b>	<b>2006 Census (population to Household Ratio)</b>	<b>2016 Projection</b>	<b>2022 Projection</b>
Dublin City	2.27	2.26	2.02
Dun Laoghaire Rathdown	2.50	2.42	2.17
Fingal	2.67	2.58	2.32
South Dublin	2.82	2.65	2.38
Kildare	2.71	2.66	2.39
Meath	2.66	2.62	2.35
Wicklow	2.57	2.56	2.30

## **Appendix A4**

### **River Basin Management Plans – Note on Monitoring**

## **Appendix A4**

### **River Basin Management Plans – Note on Monitoring**

The EU Water Framework Directive is being implemented to ensure that good status is achieved in rivers, lakes, estuaries, coastal and ground waters by 2015. The RPGs will take account of the numbers water bodies at risk in the Eastern (primarily), South Eastern, Neagh Bann and Shannon basins and how these overall figures are improving. Mapping will be used to routinely update in house data with regard to ecological status (High to Bad) and selected pressures.

The River Basin Management System(s) will therefore become the primary data and information provider for the RPGs, in terms of ecological status, measures and (alternative) objectives. Rather than replicate the work of this system and plan the RPGs monitoring process will appraise the progress of the RBMS, for the years 2015 and 2021 respectively, relating their progress to the relevant policies of the Guidelines under the RBMS headings:

- 1) Wastewater
- 2) Industrial discharges,
- 3) Landfills, quarries etc;
- 4) Agriculture,
- 5) Wastewater from unsewered properties,
- 6) Forestry,
- 7) Dangerous substances,
- 8) Physical modifications, and
- 9) Abstractions.

## **Appendix A5**

### **Strategic Environmental Assessment**



# Arup Consulting Engineers



## SEA of the Review of the Regional Planning Guidelines for the Greater Dublin Area 2010-2022

Environmental Report

July 2010

Arup Consulting Engineers

Dublin & Mid East  
Regional Authorities

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**SEA of the Review of  
the RPGs for the  
Greater Dublin Area  
2010-2022**

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Environmental Report

Arup Consulting Engineers

Dublin & Mid East  
Regional Authorities

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**SEA of the Review of  
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Greater Dublin Area  
2010-2022**

---

Environmental Report

July 2010

**Arup Consulting Engineers**  
50 Ringsend Road, Dublin 4 Ireland  
Tel +353 1 233 4455 Fax +353 1 668 3169  
[www.arup.ie](http://www.arup.ie)

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party

Job number D6406/40

Job title	SEA of the Review of the RPGs for the Greater Dublin Area 2010-2022	Job number	D6406/40
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Document title	Environmental Report	File reference	
----------------	----------------------	----------------	--

Document ref

Revision	Date	Filename	D6406.40 RPG SEA Environmental Report Issue.doc		
Draft 1	05/01/10	Description	First draft		
			Prepared by	Checked by	Approved by
		Name	Conor Buggy	Steven Harding	Joyanne Manning
		Signature			
Issue	16/07/10	Filename	D6406.40 RPG SEA Environmental Report Issue.doc		
		Description			
			Prepared by	Checked by	Approved by
		Name	Conor Buggy	Steven Harding	Joyanne Manning
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			

Issue Document Verification with Document

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## Appendices

Appendix A

Appendices A1 - A4

## NON TECHNICAL SUMMARY

### NTS1 Introduction

This Environmental Report has been prepared as part of the Strategic Environmental Assessment (SEA) of the Review of the Regional Planning Guidelines (RPG's) of the Greater Dublin Area (GDA) in accordance with national and EU legislation. SEA is a method of assessing the potential significant environmental impacts and effects of a Plan or Programme by integrating environmental factors into the development of the Plan and related decision-making process.

The purpose of this Environmental Report is to:

- a) inform the development of the RPG's;
- b) identify describe and evaluate the likely significant effects of the RPG's and its reasonable alternatives; and
- c) provide an early opportunity for the statutory authorities and the public to offer views through consultation.

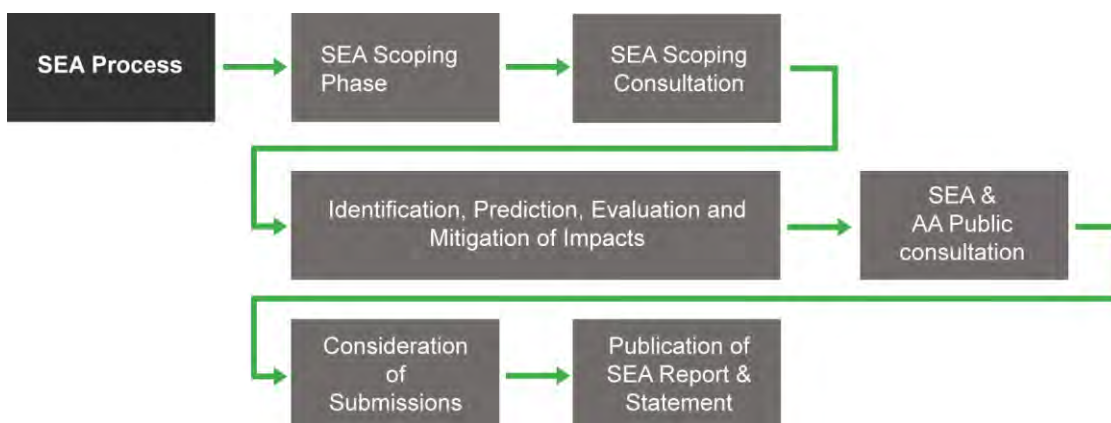
The Greater Dublin Area (GDA) includes the geographical area of Dublin City, Dun Laoghaire-Rathdown, Fingal, South Dublin, Kildare, Meath, and Wicklow and incorporates the regions of both the Dublin Regional Authority and the Mid-East Regional Authority. The Planning and Development Act 2000 requires these regional authorities to make Regional Planning Guidelines in respect of the whole of this combined area and to provide a strategic planning framework for the long-term sustainable development of the area for the 12 year period up to 2022. The Planning Act also requires the RPG's to be reviewed again in 2016.

### NTS2 Methodology

This Environmental Report contains the assessment of the potential significant impacts effects on the receiving environment, from implementing the proposed RPG Strategic Policies and Recommendations. It reflects the assessment requirements of the SEA Directive (2001/42/EC) on and also the transposed regulations in Ireland (S.I. 435/2004). The stages followed in the SEA are summarised in Figure 1 below.

Integration of the SEA and draft Review of the RPG's was achieved through close involvement of relevant team members in all stages of the project, including SEA scoping; review of the baseline environment; and public consultation and scoping. The SEA and RPG Teams also participated in a number of internal and external workshops in relation to developing the SEA assessment methodology, alternatives to be considered in the SEA, SEA objectives, targets and indicators, mitigation measures and monitoring strategies.

#### NTS Figure 1 SEA Process Stages



**NTS3 Screening and Scoping**

The screening process identifies at the earliest possible opportunity whether a proposed plan or programme requires SEA, in order for the assessment to be factored into the development plan process. The development of RPG's will always require SEA as a mandatory measure due to the requirements of the SEA Regulations, so screening was not a necessary part of this SEA process.

The SEA scoping phase is a key part of the assessment process as it establishes the range of environmental issues to be covered and the level of detail the assessment will investigate. The Scoping Process allows input from the environmental authorities and relevant stakeholders to be incorporated at an early stage of the SEA. Essentially any issues/comments submitted as part of the scoping process will provide greater focus on the environmental issues in the development of the RPG's. A scoping report for this SEA was published in February 2009, which asked key questions of statutory consultees and key stakeholders. A range of submissions were received in response to the scoping report which were incorporated into the environmental assessment process.

**NTS4 RPG Policies and Recommendations**

The review of the existing RPG's has produced an updated set of draft strategic policies and recommendations adjusted to take account of changes in the environment and new and updated legislation, policies and programmes that have come into effect since the previous RPG's were published. These policies and recommendations have been devised with the primary focus on the sustainable development and protection of the environment of the GDA.

**NTS5 Review of Relevant Plans and Programmes**

A review of plans, policies and programmes relevant to the RPG's was carried out. The review focussed primarily on National, European and International plans and programmes. In reviewing other plans, the following questions were asked:

- Do the RPG's contribute to the fulfilment of objectives and goals set in other Plans?
- To what degree are the goals and objectives set in other plans and programmes impacted by the RPG's?

The findings of the review helped define the objectives for the SEA and informed the assessment of alternative options. Some of the key Plans, Programmes and Policies include;

- The Kyoto Protocol;
- The EIA Directive;
- The EU Habitats and Birds Directives;
- The EU Water Framework Directive and associated Groundwater Directive and Floods Directive.

The Visio Chart highlighted below includes the full range of relevant plans, polices and programmes which are relevant to the RPG's.





According to recent EPA publications (EPA, 2008), Ireland's natural environment, although under increasing pressure, generally remains of good quality and represents one of the country's most important national assets. The fourth EPA State of the Environment Report (2008) identified four priority challenges for the environment, which comprise: limiting and adapting to climate change; reversing environmental degradation; mainstreaming environmental considerations; and complying with environmental legislation and agreements. All of these are highly relevant to the RPG's. Table 1 sets out existing environmental pressures for the nation that are of particular relevance to the GDA environment.

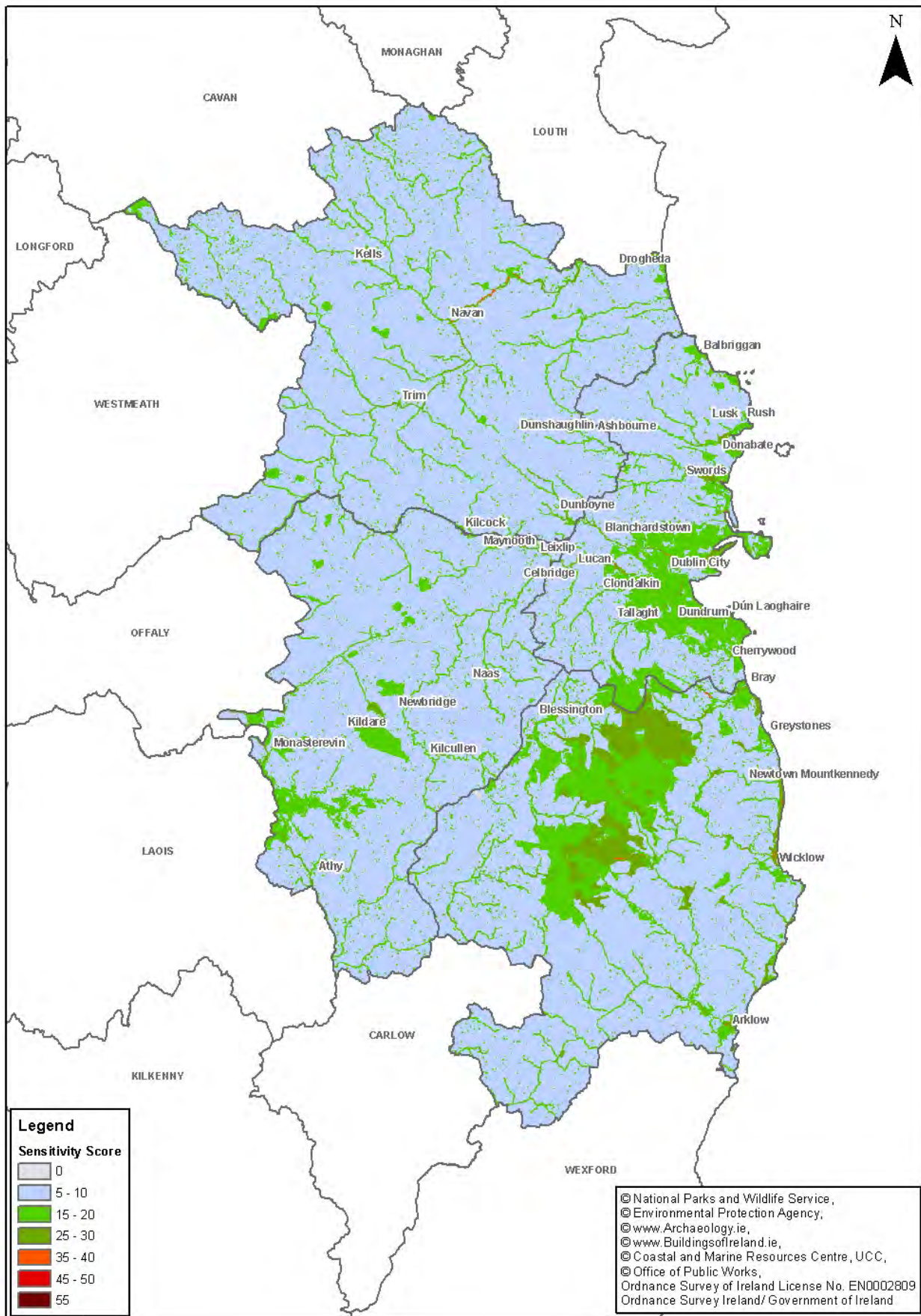
**NTS Table 1 Current Environmental Pressures**

Topic	Pressure
Biodiversity, Flora and Fauna	<ul style="list-style-type: none"> <li>- Throughout the island of Ireland there has been a decline in many of the native species through habitat loss, competition, development and agriculture.</li> <li>- Wastewater discharges, runoff from agriculture, leachate from landfills and contaminated sites and nutrient input from forestry can all have detrimental effects on water quality resulting in subsequent impacts to biodiversity.</li> <li>- Annex II species such as freshwater pearl mussel and salmon are particularly sensitive to pollution.</li> <li>- Widespread development on shorelines and floodplains and the associated infilling of wetlands is a potential environmental problem within this District.</li> <li>- Invasive non-native plant and animal species are one of the greatest threats to biodiversity in Ireland.</li> </ul>
Population and Human Health	<ul style="list-style-type: none"> <li>- Ireland's economy has experienced unprecedented economic growth since the early 1990's.</li> <li>- New individual houses and housing clusters, reliant on septic tanks, threaten water quality.</li> <li>- Demand for more food and industrial goods has led to more intensive or expanded activities with higher water demand and pollution threats.</li> <li>- Pressure from abstractions can reduce flow in springs and lower water levels in lakes, wetlands and wells.</li> <li>- Concerns have been raised about the capacity of water supplies in the Eastern district, where the rapid pace of development, population and commercial activities- is leading to shortage in some areas.</li> </ul>
Soils and Geology	<ul style="list-style-type: none"> <li>- Precipitation changes, predicted as one of the global warming impacts on Ireland, could have serious implications for slope stability and landslides and their resultant impacts on water management activities.</li> <li>- Eroded soil washed into rivers during heavy rainfall contains an increased nutrient content, which can damage the balance of nutrient poor, aquatic ecosystems by shifting their species composition, supporting more nutrient-loving species. This can lead to the eutrophication of rivers and lakes.</li> <li>- Extraction activities, when mismanaged, are resulting in pressures</li> <li>- On water quality. In particular, peat cutting can be damaging to vegetation, hydrology and landscape.</li> <li>- Alternately, the extractability of mineral, sand and gravel resources is also being curtailed and/or reduced by the encroachment of residential development into rural areas and the conflicts between people and the impacts associated with these activities, e.g. noise, traffic.</li> </ul>
Water Resources	<ul style="list-style-type: none"> <li>- The main pressures on surface and groundwater quality within the region are point and diffuse, physical modifications, climate change and other local issues.</li> <li>- Point and diffuse sources include; wastewater and industrial discharges, landfills, quarries, mines and contaminated sites, agriculture, wastewater from unsewered properties, forestry; and discharge of dangerous substances.</li> <li>- Increasing flood risk as a result of climate change.</li> </ul>

	<ul style="list-style-type: none"> <li>- Supplies of potable water.</li> <li>- Exceedence of waste water treatment capacity.</li> </ul>
Air and Climate	<ul style="list-style-type: none"> <li>- Currently there are no significant concerns with regard to air quality at the regional level.</li> <li>- With regard to climate, inputs of greenhouses gasses from activities within the GDA, which require the use of fossil fuels, add to the carbon dioxide emissions produced on the island.</li> </ul>
Landscape	<ul style="list-style-type: none"> <li>- Existing pressures on landscape and visual resources as a result of are primarily related to impacts to sensitive views and landscapes resulting from the siting of development, including various types of infrastructure, without sensitivity to these resources.</li> </ul>
Cultural Heritage	<ul style="list-style-type: none"> <li>- Development of infrastructure, in addition to development resulting from economic growth and increasing population, is placing pressure on sites or features of architectural, archaeological or cultural heritage interest.</li> </ul>
Material Assets	<ul style="list-style-type: none"> <li>- Increased development including residential and industrial expansion continues to put pressure on existing transport infrastructure.</li> <li>- Increased development including residential and industrial expansion continues to put pressure on existing energy and telecommunications infrastructure.</li> <li>- Increased development including residential and industrial expansion continues to put pressure on existing water sources with regards to quantity as well as on the treatment facilities used to treat both drinking water and wastewater.</li> <li>- In addition, existing water quality issues are resulting in pressures on economic shellfish and aquaculture activities along with fisheries used for recreational purposes.</li> </ul>

Arising from the baseline an environmental sensitivity map was created to determine the most environmentally sensitive features of the GDA. This allowed for the determination of potential environmental impacts. Figure 2 illustrates the GDA environmentally sensitive areas.

NTS Figure 2 GDA Environmental Sensitivity Map





Adhering to the objectives of the SEA Directive, the principle interactions and inter-relationship between the SEA environmental topics must also be included in the environmental assessment. Table 2 highlights the key inter-relationships identified in this SEA

While all environmental topics interact with each other to some extent only the significant relationships on a regional level were considered. Direct relationships are highlighted in red while indirect relationships are highlighted in blue.

**NTS Table 2 Key Interrelationships between Environmental Topics**

	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Flooding	Air Quality & Climate	Cultural Heritage	Landscape	Material Assets
Biodiversity		Blue	Blue	Red	Blue	Blue	White	Blue	White
Population & Human Health	Blue		Red	Red	Red	Red	Red	Red	Red
Soils & Geology	Blue	Red		Blue	Blue	Blue	Blue	Red	Red
Water Resources	Red	Red	Blue		Red	Red	White	Red	Red
Flooding	Blue	Red	Blue	Red		White	Blue	Red	Red
Air Quality & Climate	Blue	Red	Blue	Red	White		White	White	Red
Cultural Heritage	White	Red	Blue	White	Blue	White		Red	White
Landscape	Blue	Red	Red	Red	Red	White	Red		Red
Material Assets	White	Red	Red	Red	Red	Red	White	Red	

**NTS7 Environmental Objectives, Targets and Indicators**

A range of environmental objectives were established for the original RPG's. These objectives have been reviewed and revised to take account of recent changes in planning practice and legislation. The environmental objectives for the RPG's are outlined below:

**Biodiversity, Flora and Fauna**

Conserve the diversity of habitats and species while improving access for the appreciation and promotion of wildlife.

**Population and Human Health**

Improve people's quality of life based on high-quality residential, working and recreational environments and on sustainable travel patterns.

**Soils and Geology**

Safeguard soil and geological quality and quantity.

**Water Resources and Flooding**

Improve water quality, the management of all waters and coastal resources to comply with the standards of the Water Framework Directive and incorporate the objectives of the Floods Directive into sustainable planning and development.

### Air Quality and Climate

Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency.

### Cultural Heritage including Archaeological and Architectural Heritage

Promote the protection and conservation of the cultural, including architectural and archaeological, heritage through the sustainable integration of development with its surroundings in a coherent fashion to enhance the context into which it is placed.

### Landscape

Conserve and enhance valued natural, developed and historic landscapes and features within them.

### Material Assets

Make best use of existing infrastructure and promote the sustainable development of new infrastructure.

Based on these objectives a range of environmental targets and indicators was devised. Targets were considered over the duration of the baseline data collection and assessment, and throughout the consultation process, in order to meet the Strategic Environmental Objectives as well as the objectives of the review of the RPG's. In each case, targets are required to be attributable to the implementation of the RPG Strategic Policies and Recommendations. The targets and indicators associated with each SEA Objective are presented in Chapter 4 of the environmental report.

### NTS8 Assessment

The assessment process was primarily qualitative in nature, with some aspects based on expert judgement. This qualitative assessment compares the likely impacts against the Strategic Environmental Objectives to see which RPG Policies and Recommendations meet the Strategic Environmental Objectives and which, if any, contradict these.

Particular reference was made to the potential for cumulative effects in association with other relevant plans and programmes within the GDA area. The proposed 2030 Vision for Greater Dublin Transport (DTO), the Dodder and the Fingal East Meath Flood Risk Assessment and Management Studies, the Water Supply Project – Dublin Region Draft Plan and the relevant River Basin Management Plans were of significant relevance.

The assessment process categorised environmental impacts using the following ratings based in the impact assessment criteria defined by the EPA for environmental impact assessment;

### NTS Table 3 Impact Ratings

Duration and Type of Impact	
S	Short-term - Impact lasting one to seven years
M	Medium-term - Impact lasting seven to fifteen years
L	Long-term - Impact lasting fifteen to sixty years
P	Permanent - Impact lasting over sixty years
T	Temporary - Impact lasting for one year or less
C	Cumulative – Impact that is ameliorated by other impacts
Significance of Impact	
	Major positive
	Positive
	Neutral
	Negative
	Major negative
	Uncertain

As the RPG's have been designed to promote sustainability and to protect the environment, the majority of policies and recommendations have positive impacts when assessed against the environmental objectives. The principal uncertain and negative impacts are outlined in summary below.

### Biodiversity, Flora and Fauna

Potential expansion of development into undeveloped and rural areas of the GDA will impact ecology. However, these impacts will be mitigated on a project basis through the environmental impact assessment process.

### Soil & Geology

Development of the GDA requires the use of aggregates for building materials which will impact on the geological resources of the region. However as quarries require an EIA, environmental impact will be addressed at application stage.

### Water Resources & Flooding

A negative impact associated with water resources of the GDA is the potential for impact to groundwater through the use of geological resources. As previously stated such projects will require an EIA and environmental impacts will be assessed in more detail at application stage. A further potential impact is the development of flood risk alleviation measures in river catchments. Such flood relief measures can have negative impacts on catchment character, morphology and habitats.

### Air & Climate

The principal potential negative impact arises from the further expansion of air traffic into and out of the region's airports, primarily Dublin Airport. It should be noted however that improvements in aircraft emissions through modern aircraft design and fuel efficiency will reduce the level of impact on climate and human health.

### Cultural Heritage including Architectural and Archaeological Heritage

Particular regard should be paid to potential localised impacts which can become cumulative impacts across a range of projects in an area subject to large development.

### Landscape

These negative environmental impacts to landscape arise from the continued urban expansion of the region. There are a range of strategic policies and recommendations designed to protect the landscape however and mitigation measures have been proposed throughout the assessment to ensure that the integrity of the GDAs landscape is not compromised.

### Material Assets

There are some potential negative impacts in relation to urban expansion into green space in urban areas as well as buffers between the urban and rural landscapes as a material asset. Priority should be given for the development of existing serviced and sequential land.

### **NTS9 Alternatives**

As part of the SEA process, consideration was given to alternative development patterns for the region. The Urban Environment Project has developed four possible development patterns using the MOLAND model. The following scenarios were evaluated as part of the SEA:

1. Baseline/Continued Trends Approach;
2. Finger Expansion of Metropolitan Area;
3. Consolidation of Key Towns & the City;
4. Consolidation & Sustainability and some expansion at nodes on Transport Corridors.

Full details regarding the MOLAND model and the methodology employed can be found in Appendix A4 of the Environmental Report.

Consolidation and sustainability of development is a primary theme of both the National Spatial Strategy (NSS) (Department of Environment and Local Government 2002) and the RPG's (Dublin Regional Authority and Mid-East Regional Authority 2004). The following three indicators were used to assess sustainability:

- Encroachment on protected areas (SPA's/SAC's/NHA's);
- Development proximity to public transport corridors;
- Metropolitan Area vs. Hinterland Population Split.

The four Scenarios represent hypothetical end points of different policy directions. For each scenario there are associated costs and benefits with following any of these paths and the exact direction pursued will be decided by the interaction between planners, policy makers and the public working together. However, as the GDA has undergone such massive change in the recent past it is useful to simulate development into the future, expose potential environmental issues before they occur and structure RPG and Local Authority policies accordingly.

#### **NTS10 Mitigation and Monitoring**

Mitigation was incorporated into the RPG strategic policies and recommendations through the internal and external workshops. Consequently, the draft policies and recommendations are considered to be environmentally sustainable. Further environmental mitigation was stipulated arising from the assessment.

Article 10 of the SEA Directive requires that monitoring be carried out to identify at an early stage any unforeseen adverse environmental impacts due to implementation of any Plan or Programme, in order to take remedial action where these adverse impacts are identified through monitoring. Monitoring will focus on aspects of the environment that are likely to be significantly impacted by the RPG's. Where possible, indicators have been chosen based on the availability of the necessary information and the degree to which the data will allow the target to be linked directly with RPG implementation throughout their lifetime. Depending on the results of the monitoring exercise, adjustments to targets and indicators may be made to ensure the continued effectiveness of the monitoring programme in the interest of optimal environmental protection.

All monitoring and indicators will need to be SMART - **Specific Measurable Agreed Realistic Time-bound**.

As a result of the SEA Process, there is a recommendation to use the existing RPG GDA Steering Committee to ensure the implementation of mitigation measures and monitoring programme and reporting to the relevant local authorities at regular intervals. This will be very beneficial in ensuring that all monitoring and indicators are progressed and delivered.

#### **NTS11 Going Forward**

With the publication of the final RPGs and its associated Environmental Report, the SEA Statement will be produced and published within eight weeks which will outline the SEA process for the development of the RPGs from start to finish.



# 1 REVIEW OF THE REGIONAL PLANNING GUIDELINES FOR THE GREATER DUBLIN AREA 2010-2022

## 1.1 Introduction

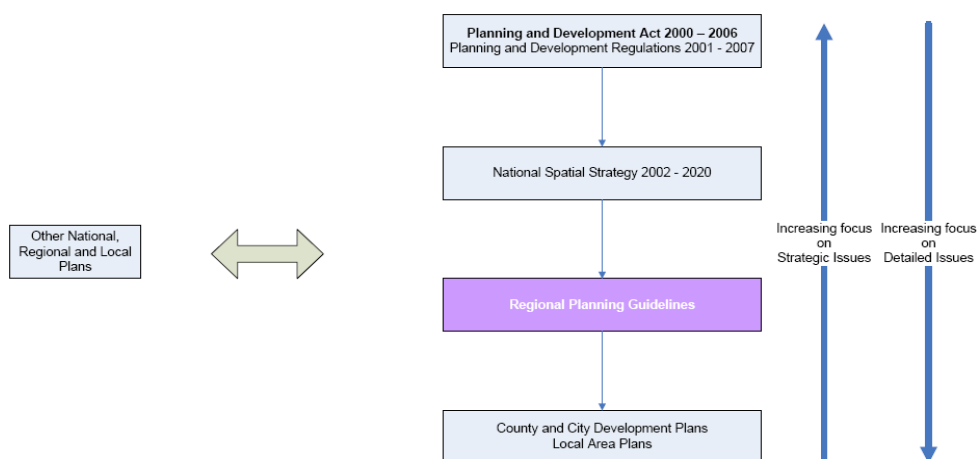
Planning Legislation is set out in the Planning and Development Act 2000-2006 and the principal regulations relating to the Act are outlined in the Planning and Development Regulations 2001-2007.

The National Spatial Strategy sets the national context for spatial planning from 2002-2020. The overall aim of this strategy is to achieve a better balance of social, economic and physical development. The National Spatial Strategy deals with development at regional and local level in broad terms. The Planning and Development Act 2000-2006 requires that this strategy is integrated with both regional planning guidelines and county and city development plans.

The Regional Planning Guidelines are the main means by which to implement the National Spatial Strategy, as detailed in Section 21 of the Planning and Development Act 2000. Regional Planning Guidelines give effect to the NSS at regional level and provide more detailed guidance and policy. They must be consistent with the overall context of the NSS. The overall objective of the guidelines is to provide a long-term strategic planning framework for the development of the region.

County and City Development Plans must have regard to national and regional strategies and guidelines to both inform and structure land use policies. Development Plans provide the key policy contact for individual planning decisions within the development plan area. In addition, the Guidelines for Planning Authorities outlines that good development plans will also inform policies at regional and national level.

As well as forming a component within the hierarchy of spatial plans, the Regional Planning Guidelines are also informed by other relevant plans, strategies and programmes at national regional and local level. The following diagram shows the relationships between the Regional Planning Guidelines and other plans and strategies.



Source: Adapted from Department of Environment Heritage and Local Government, *Development Plans Guidelines for Planning Authorities, 2007*

## 1.2 The Greater Dublin Authority Regional Planning Guidance

The Greater Dublin Area (GDA) includes the geographical area of Dublin City, Dun Laoghaire- Rathdown, Fingal, South Dublin, Kildare, Meath, and Wicklow and incorporates the regions of both the Dublin Regional Authority and the Mid-East Regional Authority. The Planning and Development Act, 2000 requires these regional authorities to make Regional Planning Guidelines in respect of the whole of the combined area of their regions, to provide a strategic planning framework for the long-term sustainable development of the area for the 12 year period up to 2022. The Planning Act also requires the RPGs to be reviewed again in 2016.

The RPGs is a policy document which aims to direct the future growth of the Greater Dublin Area over the medium to long term and works to implement the strategic planning framework set out in the National Spatial Strategy (NSS) published in 2002. It achieves this through appraisal of the critical elements involved in ensuring sustainable and good planning, and through the protection of sensitive and environmentally important locations. The RPGs inform and direct the City and County Development Plans of each of the Councils in the Greater Dublin Area. They provide the clear policy link between national policies -the National Development Plan and the National Spatial Strategy and other national policy documents and guidance; and Local Authority planning policies and decisions. The RPGs aid each of the Councils in the Greater Dublin Area to work together for the better planning of the whole area of Dublin and the surrounding Mid-East Region.

In developing the Vision for the RPGs three key Government policy documents directly impact on the direction of the strategy in considering the future growth, development and investment required in the GDA - the National Development Plan, the National Spatial Strategy and the 2009 national transport policy, Smarter Travel - A Sustainable Transport Future.

### **RPG Vision Statement**

*The GDA by 2022 is an economically vibrant, active and sustainable international Gateway Region, with strong connectivity across the GDA Region, nationally and worldwide; a region which fosters communities living in attractive, accessible places well supported by community infrastructure and enjoying high quality leisure facilities; and promotes and protects across the GDA green corridors, active agricultural lands and protected natural areas.*

Delivering the vision within the RPGs will be achieved through the integrated two mutually supporting strategies of the RPGs - The Settlement Strategy and The Economic Strategy - integrated with the Physical Infrastructure, Green Infrastructure, Social Infrastructure and Rural Development Policies and Recommendations. Each strategy has been assessed and responsive to the objectives of the Strategic Environmental Assessment and the Strategic Flood Risk Appraisal.

## 1.3 Relationship of the plan with other relevant plans and programmes

Undertaking a contextual review is an important aspect of the SEA process as it outlines the important messages contained in other, relevant, policy and guidance documents. These documents could be at an International (including European) or national level, and so influence the GDA RPG, or at a regional or local level in which case they are influenced by the GDA RPG. The Visio Chart below highlights the relevant plans policies which are relevant to the RPGs.



**Table 1.1 Relevant Directives, Policies and Plans**

Theme	Sustainable Development
<b>Principal Policy Documents</b>	<p>Local Agenda 21 (1992)</p> <p>Renewed EU Sustainable Development Strategy, 2006</p> <p>Sustainable Development - A Strategy for Ireland – 1997</p> <p>Making Ireland's Development Sustainable – 2002</p> <p>The National Climate Change Strategy 2007-2012</p> <p>County Climate Change Strategies</p>
<b>Relevance to GDA RPG</b>	<p>Sustainable solutions demand holistic thinking and it is imperative that sustainable development principles underpin the formulation of RPG strategic proposals. The GDA must ensure that the RPG is developed in an integrated fashion optimising the social and environmental impacts and opportunities, within the context of available economic resources.</p> <p>There is a need to provide cohesion between environmental, social and economic objectives, whilst addressing the temporal aspects of policy implementation. The RPG should identify long term policy ambitions that can be implemented through current and future revisions of the guidance, rather than address short-term strategic ambitions.</p>
Theme	Biodiversity
<b>Principal Policy Documents</b>	<p>UN Convention on Biological Diversity (1992)</p> <p>Convention on Wetlands of International Importance (Ramsar Convention 1971)</p> <p>EU Habitats Directive (92/43/EEC)</p> <p>Birds Directive</p> <p>National Biodiversity Plan (2002)</p>
<b>Relevance to GDA RPG</b>	<p>All levels of legislation and policy state how the RPG needs to consider the effects of biodiversity loss and how to effectively conserve and enhance biodiversity features.</p> <p>The EU Habitats Directive requires an 'Appropriate Assessment' to be undertaken where plans or projects may have an impact on Special Areas of Conservation (SACs) or Special Protection Areas (SPAs). This point is fundamental to the RPG, and as such, appropriate measures should be taken to assess and mitigate any adverse impacts on sites designated under the EU Habitats Directive.</p>
Theme	Population and Human Health
<b>Principal Policy Documents</b>	<p>EU Drinking Water Directive</p> <p>EU Bathing Water Directive</p> <p>EU Integrated Pollution Prevention Control Directive</p>

	<p>National Spatial Strategy 2002</p> <p>Sustainable Urban Housing: Design Standards for New Apartments. Guidelines for Planning Authorities 2007</p> <p>Quality Housing for Sustainable Communities. Best Practice Guidelines for Delivering Homes Sustaining Communities 2007</p>
<b>Relevance to the GDA RPG</b>	<p>Possible impacts on population and human health can relate to standards of living that may have an impact on physical and mental well-being. Physical health can be influenced by the wider environment conditions and factors such as the provision of alternative transport facilities such as cycle lanes and pedestrian facilities. Mental health can be influenced by social and economic factors such as the availability of secure and good quality housing, or the access to suitable employment opportunities.</p> <p>The RPG should incorporate policies and strategic proposals that encourage the integration of land uses to increase socio-economic betterment; promote access to open areas; cater for alternative and healthier forms of transport (to the private car); and protect and enhance the quality of environmental features.</p>
<b>Theme</b>	<b>Soils and Geology</b>
<b>Principal Policy Documents</b>	<p>EU Thematic Strategy for Soil Protection (2005)</p> <p>Dublin Waste Management Plan 2005-2010</p>
<b>Relevance to the GDA RPG</b>	<p>The RPG should conform to the EU strategy on soil protection, by maintaining and protecting soil quality, Conformance with the Dublin Waste Management Plan will ensure that soil quality will not be jeopardised by waste management proposals.</p>
<b>Theme</b>	<b>Water Resources</b>
<b>Principal Policy Documents</b>	<p>EU Water Framework Directive (2000/60/EC)</p> <p>Groundwater Directive (2006/118/EC)</p> <p>EU Marine Strategy Framework Directive (2008/56/EC)</p> <p>EU Shellfish Waters Directive (2006/113/EC)</p> <p>Draft River Basin Management Plans (incl. Eastern, South Eastern, Neagh Bann International and Shannon International River Basin Districts)</p> <p>National Water Pollution Control Legislation</p> <p>River Basin Management Planning – A Practical Guide for Public Authorities.</p>
<b>Relevance to the GDA RPG</b>	<p>The Water Framework Directive (WFD) is a key initiative aimed at improving water quality throughout the EU. It applies to rivers, lakes, groundwater, and coastal waters. The Directive requires a co-ordinated approach to water management in respect of whole river basins with a view to maintaining high status of waters where it exists, preventing any deterioration in the existing status of waters and achieving at least "good status" in relation to all waters by 2015.</p>



	<p>The GDA RPG must ensure that strategic policies and proposals do not inhibit the effectiveness of the WFD ambitions.</p> <p>A total of eight River Basin Districts (RBDs) have been identified on the whole island of Ireland as the “administrative areas” for co-ordinated management of WFD implementation. Policies within the GDA RPG should not conflict with policies contained within the various River Basin Management Plans.</p>
<b>Theme</b>	<b>Flooding</b>
<b>Principal Policy Documents</b>	<p>Floods Directive (2007/60/EC)</p> <p>Planning Guidelines on the Planning System and Flood Risk Management 2009</p> <p>Fingal East Meath Flood Risk Assessment and Management Study (in preparation)</p>
<b>Relevance to the GDA RPG</b>	<p>The Floods Directive requires member states to take a three stage approach to managing flood risk that includes undertaking preliminary flood risk assessments of river basins by 2011; develop flood hazard maps for areas at risk by 2013; produce flood risk management plans for these areas of risk by 2015. The GDA RPG must identify the need to develop appropriate locations in order to prevent additional flood risk impacts.</p> <p>Regional Authorities are required to prepare regional level strategic flood risk assessment as an integral input to the preparation of the RPG’s and as a framework for ongoing co-ordination of the development plans of local authorities in their areas. This should be therefore taken into account during the preparation of the GDA RPG.</p>
<b>Theme</b>	<b>Air Quality and Climate Change</b>
<b>Principal Policy Documents</b>	<p>Kyoto Protocol</p> <p>National Climate Change Strategy 2007-2012</p> <p>County Climate Change Strategies</p>
<b>Relevance to the GDA RPG</b>	<p>Ireland’s target as identified in the Kyoto Protocol and underpinned in the National Climate Change Strategy is to limit growth of greenhouse gas emissions to 13% above 1990 levels in the period 2008-2012.</p> <p>The RPG must address not only the level of carbon that the strategic policies may encourage but also the potential indirect impacts of policy implementation at a local level by the dependant authorities</p>
<b>Theme</b>	<b>Cultural Heritage</b>
<b>Principal Policy Documents</b>	<p>Valetta Convention</p> <p>European Convention on the Protection of the Archaeological Heritage (1992)</p> <p>National Heritage Plan (2002)</p> <p>County Heritage Plans</p>

<p><b>Relevance to the GDA RPG</b></p>	<p>National and County Heritage Plans implement the commitments from international conventions on the protection of cultural and archaeological heritage features.</p> <p>The current National Heritage Plan forms the basis of a coordinated strategic approach to the protection and management of heritage up to 2007. County Heritage Plans outline strategies for promoting and protecting local and regional heritage. County Heritage Plans highlight the strategic importance of heritage and each plan outlines proposals for managing and promoting heritage at a county level.</p> <p>The GDA RPG should ensure that strategic development does not adversely affect cultural and archaeological heritage and that areas of national and regional cultural importance are afforded adequate protection from development pressures.</p>
<p><b>Theme</b></p>	<p><b>Landscape</b></p>
<p><b>Principal Policy Documents</b></p>	<p>European Landscape Convention (2000)</p> <p>County Landscape Character Assessments</p>
<p><b>Relevance to the GDA RPG</b></p>	<p>County Landscape Character Assessments implement the commitments from international conventions on the classification and protection landscapes and seascapes. The classification and protection of the natural and built landscapes of the GDA should ensure that protected and vulnerable landscapes are not exposed to unsustainable or intrusive development.</p>
<p><b>Theme</b></p>	<p><b>Material Assets</b></p>
<p><b>Principal Policy Documents</b></p>	<p>Landfill Directive (EU/99/31)</p> <p>Delivering a Sustainable Energy Future for Ireland – The Energy Policy Framework (2007-2020)</p> <p>EU Environmental Liability Directive (2004/35/CE)</p> <p>Transport 21 (2006)</p> <p>Smarter Travel – A sustainable transport future (2009)</p> <p>National Cycle Policy Framework (2009)</p> <p>National Energy Policy</p> <p>Dublin Waste Management Plan (2005-2010)</p> <p>Kildare Waste Management Plan (2005-2010)</p> <p>Wicklow Waste Management Plan (2006-2011)</p> <p>North East Waste Management Plan (2005-2010)</p> <p>Greater Dublin Strategic Drainage Study</p> <p>Platform For Change, Dublin Transportation Office (2001)</p>

<b>Relevance to the GDA RPG</b>	<p>The protection of material assets, including transport infrastructure, energy networks and waste disposal centres, is a key consideration for the GDA RPG. Strategic policies should not only safeguard the existing level of functionality, but provide for future levels of need through appropriate proposals.</p> <p>Proposals for sustainable transport and renewable energy should be highlighted (as part of a sustainable energy mix), with provision for maximising waste recycling over waste disposal.</p> <p>The GDA RPG should ensure that the appropriate strategic infrastructure is in place to meet the development demands of the authority in a sustainable manner.</p>
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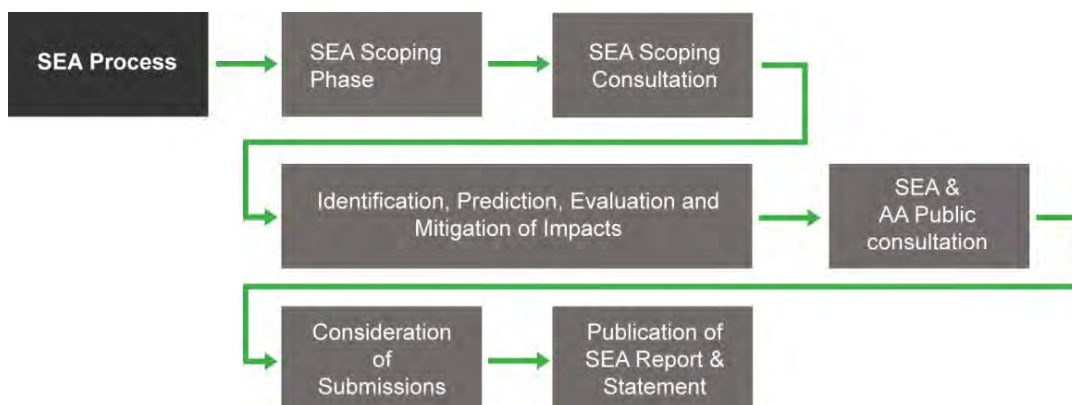


## 2 SEA METHODOLOGY

### 2.1 Introduction

This section highlights how the SEA of the RPG has been undertaken in line with the SEA Directive and domestic legislation. The SEA has been undertaken in an iterative manner, with preliminary assessment results being discussed with the GDA so that policy mitigation can be incorporated, where necessary, at the earliest possible stage.

The SEA methodology for the RPG review is based on legislative requirements and DoEHLG<sup>1</sup> / EPA<sup>2</sup> guidance and will ensure compliance with the SEA Directive and associated legislation. The level of detail of the SEA will be appropriate to the high-level nature of the RPGs. The following key stages have been identified:



The methodology used for this assessment is described below.

### 2.2 Screening

Screening is usually required for plans and programmes that may have significant impacts on the environment, though the potential impacts are not immediately clear. The screening process allows the responsible authority to identify at the earliest possible opportunity whether the development of the proposed plan or programme requires SEA, in order for the assessment to be factored in to the development plan process.

The development of RPG will always require SEA as a mandatory measure due to the requirements of the SEA Regulations, so screening was not a necessary part of this SEA process.

### 2.3 Scoping

The scoping phase of the SEA is a key part of the assessment process as it establishes the range of environmental issues to be covered and the level of detail the assessment will investigate. The Scoping Process allows input from the environmental authorities and relevant stakeholders to be incorporated at an early stage of the SEA. Essentially any issues/comments submitted as part of the scoping process will provide greater focus on the development of the following aspects of the RPG Review and SEA;

- Determine the key elements of the RPGs to be assessed;
- Determine the environmental issues to be assessed;
- Collect and report on relevant international, national and local plans, objectives and environmental standards that may influence or impact on the RPGs;

<sup>1</sup> Department of the Environment, Heritage and Local Government (2004). Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment. Guidelines for Regional Authorities and Planning Authorities.

<sup>2</sup> Scott, P & Marsden, P (2003). Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland (2001-DS-EEP-2/5) Synthesis Report Prepared for the Environmental Protection Agency by ERM Environmental Resources Management Ireland Limited

- Develop draft environmental objectives, indicators and targets to allow the evaluation of
- impacts; and
- Identify reasonable alternative means of achieving the strategic goals of the RPGs.

A scoping report for this SEA was published in February 2009, which asked key questions of statutory consultees and key stakeholders. A summary of the responses received on the scoping report are presented in Appendix A1.

## 2.4 Baseline Data

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Gathering suitable information relating to the state of the environment for a plan area is an integral part of the SEA process. The SEA Directive requires that certain information relating to the relevant environmental baseline is presented in order to help test the performance of the plan's implementation, as well as helping establish how the environment would change if the plan were not to implemented.

Baseline information has been collected from readily available sources, supplemented with a Geographical Information System (GIS) to graphically present relevant information. The baseline information for the GDA area is reported in Section 3 of this report.

## 2.5 Environmental Assessment of the Draft Plan

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The Environmental Assessment process ran in parallel to the RPG review and development process. As such the following stages were included in the timeframe for the review of the RPGs and the associated SEA process;

1. Preparation of Issues Paper;
2. 1<sup>st</sup> Public Consultation on Issues Paper;
3. Report on 1<sup>st</sup> Public Consultation;
4. Preparation of draft RPGs and SEA;
5. Draft for Public Display finalised;
6. 2<sup>nd</sup> Public Consultation on draft RPGs and SEA;
7. Report on 2<sup>nd</sup> Public Consultation;
8. Finalisation and translation of RPGs;
9. Publication of RPGs and SEA.

The environmental assessment process was undertaken in accordance with best practice SEA principles and guidance. This included desk reviews of all of the available GIS data, specialist investigation into the likely impacts associated with the RPG strategic policies and recommendations against the stated environmental objectives and iterative discussions between the RPG Development Team, Environmental Team and Habitats Directive Team. A suite of environmental assessment workshops was conducted with all three teams as well as with the EPA. More information on the assessment workshops is reported in Section 5.

## 2.6 Consultations

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The Scoping Document was released during the first stage of public consultation, and as outlined a number of comments were received from various interest groups which the assessment process incorporated.

Consultation was undertaken with the EPA regarding the methodology, structure and focus of the SEA. The aim is to produce a workable document that can be utilised throughout the lifetime of the RPGs and which will further influence the development of further regional plans and their associated SEAs.

Ongoing discussion and meetings with Technical Steering Group, senior representatives of each Local Authority as well as presentation to the local authority elected representatives.

Appendix A1 will be completed upon the finalisation of the second consultation period in 2010.

## 2.7 Consideration of Alternatives

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The SEA Directive requires that reasonable alternatives be assessed in order to demonstrate how the preferred strategy performs against other forms of action. Alternatives must be developed, described and assessed within the SEA process, with the results presented in the Environmental Report.

Section 6 of this Environmental Report highlights the development of the alternatives to RPG preferred strategy and how they performed against the SEA framework.

## 2.8 Technical Difficulties Encountered

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The availability of information available for incorporation into the GIS database was either inconsistent or up to date across the region. Some national information was also not available for use. Consequently, the environmental baseline and the sensitivity mapping are based on the obtainable information. Please refer to Section 3.3 regarding the gaps in data that arose in the procurement of data for the establishment of the environmental baseline.

In future iterations of the RPGs it should be considered, as these guidelines direct the sustainable development of regions and the linkages between them, that access to environmental data from all sources should be granted to the Regional Authority for the purposes of establishing an environmental baseline to the most accurate level possible. This will allow for the most robust strategic assessment possible.

## 3 CURRENT STATE OF THE ENVIRONMENT

### 3.1 Introduction

The GDA is home to rich agricultural land, holiday coastline, the city of Dublin and a range of towns and villages. With land area of around 7000 km<sup>2</sup> the GDA covers about one tenth of the country. Around 1.6 million people, (40% of Ireland's population) live in the GDA. The population is growing every year, partly due to the internal and external migration to live and work around Dublin.

In the EPA's 2020 Vision – Protecting the Irish Environment document it is noted that pressures on the Irish environment have increased significantly in recent years as a result of a decade of rapid and unprecedented economic growth. Unfortunately, these pressures have accelerated at a rate that far exceeds that observed in other EU countries. According to recent EPA publications (EPA, 2008), while Ireland's natural environment, although under direct and indirect pressure from a wide range of sources, generally remains of good quality and represents one of our most essential national assets. The fourth EPA State of the Environment Report (2008) identified four priority challenges for the environment, which comprise: limiting and adapting to climate change; reversing environmental degradation; mainstreaming environmental considerations; and complying with environmental legislation and agreements. All of these are highly relevant to the RPG planning process.

In 2020 Vision – Protecting the Irish Environment (EPA, 2007) the EPA promotes six environmental goals which consider the principal environmental challenges facing our nation. These goals, which are highly relevant to the sustainable development of the GDA and which have bearing on the assessment of the RPGs, are:

- Limiting and adapting to climate change;
- Clean air;
- Protected waters;
- Protected soils and biodiversity;
- Sustainable use of natural resources; and
- Integration and enforcement.

These goals are identified as a means of realising the vision of protecting and improving Ireland's environment.

### 3.2 Purpose of the Environmental Baseline

The assessment of the proposed RPGs against the current Environmental Baseline (November 2009) is the principal task of the SEA process. Consequently, this baseline description must be cognisant of the regional nature of the RPGs and the pressures and interrelationships between environmental topics. This baseline description will facilitate the following;

- A description of the current physical environment in the GDA with particular reference to those aspects of the environment which are experiencing plan-related problems at present, or are likely to be significantly affected by implementation of the plan;
- A do nothing scenario – an estimate of how current environmental conditions would change over time without implementation of the plan;
- Identify the current state of the environment, against which of the likely effects of implementing the plan can be assessed. The plans impacts can be estimated as the difference in environmental conditions with and without implementation of the plan.

The Environmental Baseline will provide an overview of the existing conditions within the GDA of the following environmental topics;

- Biodiversity, Flora and Fauna;
- Population and Human Health;
- Soils and Geology;
- Water Resources;
- Flooding;
- Air and Climate;
- Cultural Heritage including Archaeological and Architectural Heritage;
- Landscape
- Material Assets.

In accordance with the SEA Directive, the inter-relationship between the SEA environmental topics must be taken into account. Of particular note is the interrelationship between water (quality and quantity) and biodiversity, flora and fauna, soils, human health and population. Flora and fauna is dependent on the hydrological environment (surface water and groundwater) as a habitat but the terrestrial environment also relies on these resources. Water quality is also of particular importance with regard to human health as it provides a source of drinking water and its influence on agriculture and mariculture. Water is also used for leisure and recreational purposes, providing a material asset both for local populations and as an integral component of the tourism economy.

### 3.3 Difficulties Encountered

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The following difficulties and data gaps were encountered over the course of the compilation of the baseline and this assessment:

- Poor boundaries / administrative overlap for some data sets;
- Lack of quantitative data to same degree of detail for topic areas;
- Some information not compiled by the relevant agencies (e.g. biodiversity plans, cultural heritage plans and landscape characterisation plans);
- Lack of digitised data in some topic areas (e.g. landscape);
- Quantitative assessment made very difficult due to the very strategic level of the strategic recommendations proposed for incorporation in the RPGs.

### 3.4 Biodiversity, Flora and Fauna

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#### 3.4.1 Environmental baseline

The GDA possesses a unique ecological environment. A diverse range of habitats can be found across the GDA ranging from rivers, lakes and wetlands as freshwater habitats to estuaries; lagoons and coastlines as marine habitats; mountain ranges; pasture land; sand dunes; forests (both natural and planted); heathlands; as well as man-made habitats such as the Phoenix Park can all be found within the GDA. The habitats located within the confines of urban fabric, such as the Phoenix Park, are very important as sanctuaries for species and as a source of recreation for the urban populace. The diverse range of habitats including terrestrial, aquatic and marine ecosystems provides a robust environment for a range of flora and fauna species to thrive. This ecological heritage is an attraction for tourism to the GDA (particularly in Co. Wicklow) as it plays a role in both the visual landscape as well as leisure activities. Ecotourism while in its infancy in the region could become an integral component of the tourist industry within the GDA.

Each Local Authority within the GDA has prepared or is currently preparing their Biodiversity Plans. These plans will provide a county level detailed baseline of the ecological environment within its functional area, which will be used as an aid to the sustainable development of each area and in turn the region while protecting and promoting the regions biodiversity.

#### 3.4.1.1 Designated Areas

The GDA has a range of designated ecological sites and species of conservation value and/or of concern. Designated conservation areas are areas containing habitats or species of national or international conservation importance. There are four types of designation contained within the GDA: Special Areas of Conservation (SAC); Special Protection Areas (SPA); Ramsar sites; and Natural Heritage Areas (NHA). SACs are protected under the European Union (EU) Habitats Directive (92/43/EEC) while SPAs are designated under the EU Birds Directive (79/409/EEC), together these form the core designations of the Natura 2000 network. Ramsar sites are wetlands (freshwater, transitional and saltwater) of international importance designated under the Ramsar Convention, an international treaty which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. NHAs are protected under Irish Legislation; Wildlife Act 1976 (as amended 2000). NHAs are areas considered important for the habitats present or which hold species of plants and animals whose habitat needs protection.

There are dedicated Shellfish Waters off the north Dublin coast at Malahide and at Skerries / Balbriggan which the EPA has prepared Pollution Reduction Programmes for to ensure their status. Under Article 6 of the Water Framework Directive, the EPA must also maintain a Register of Protected Areas which are closely linked to the Natura 2000 site network of SACs and SPAs for water dependant ecosystems.

Also contained within the GDA is the Wicklow Mountains National Park which is one of five national parks in the country. This designation is created under its own legislation and straddles the other three types of ecological protection. Table 3.1 provides the numbers and types of each designation present in the GDA. These protected areas cover approximately 16.3% of the total landcover of the GDA, while the locations of these sites are shown on Figure 3.1.

Off the north Dublin coast there are designated shellfish areas which constitute a significant marine resource for the GDA.

**Table 3.1 Ecologically Designated Areas within the GDA**

Designation	Number within GDA
SAC	17
SPA	36
NHA	45
Ramsar	6
National Park	1 (Wicklow Mountains)

The following table shows the number of NATURA 2000 sites in each county of the GDA. They are categorised according to predominant habitat type. Many include more than one habitat type within the site. Some sites cross county boundaries and are mentioned in all counties concerned.

**Table 3.2 GDA Natura 2000 Habitats**

County	Peatland	Mountain	Grassland	Eskers	Machairs	Turloughs	Callows	Limestone Pavement	Cave / Quarry	Woodland	Rivers	Estuaries	Lakes	Coastal	TOTAL
Dublin			1							1		2		6	10
Meath	1										3		1		5
Kildare	3										2		1		6
Wicklow	2	1									5	2		5	15

#### 3.4.1.1 Species

Throughout Ireland (and correspondingly within the GDA Region) there has been a decline in many of the native species through habitat loss, competition, economic development and agriculture. Irish legislation protects some of these species. In Ireland there are 18 species of plant and animal identified as endangered and a further 52 recorded as vulnerable (Red Book).

The GDA's unique ecological heritage has the capacity to promote sustainable populations of all species listed in the Red Book as well as all endangered species known to be found in Ireland. While the GDA has this capacity, the available evidence of all rare and protected species indicates that urban pressures do not allow for significant populations or widespread distribution within the GDA. The designated areas contained within the GDA play the principal role in protecting all manner of species including migrant birds, waterfowl, terrestrial, air borne, aquatic and marine mammals, amphibians, fish, shellfish, insects and plants.

#### 3.4.2 Relevant environmental issues

##### 3.4.2.1 Urban Expansion

Urban expansion in the GDA has been accelerating exponentially over recent years as increased development expands city and town limits into the countryside. Artificial land cover in general throughout GDA while higher than the rest of the country remains relatively low; however, the constant encroachment of the built environment on natural habitats will undoubtedly have an impact on natural flora, fauna and biodiversity. This is of particular concern within the highly developed and urbanised GDA Region.

##### 3.4.2.2 Water Dependant Habitats

Water treatment and wastewater discharges, agricultural and forestry runoff, leachate from landfills and contaminated sites, urban runoff and unlicensed industrial discharges all have significant negative impacts on water quality which results in subsequent impacts to biodiversity to both aquatic ecosystems as well as neighbouring terrestrial ecosystems.

Annex II species such as freshwater pearl mussel and salmon are particularly sensitive to pollution. Both require extremely good water quality conditions, preferably rivers with a biotic quality index of Q5. The EPA uses these Q5 to indicate the highest quality status categories. The physico-chemical water quality of surface waters is also highly critical in ensuring the status of these aquatic habitats. The 2009 Surface Water Regulations specify a range of environmental quality standards for all surface waters (river, lake, transitional and coastal), which must be met to achieve good water quality status.



These Regulations provide the establishment of legally binding quality objectives for all surface waters and environmental quality standards for ecological and chemical status and address the requirements of the Water Framework, Dangerous Substances and Priority Substances Directives. These Regulations also repeal the Phosphorus and Dangerous Substances Regulations. The 2009 Regulations are intrinsically linked into the objectives of the River Basin Management Plans and associated Programmes of Measures to ensure that all waters achieve good status by 2015 in each of the river basin districts which the GDA encompasses.

Unrestrained development on shorelines and floodplains and the associated infilling of wetlands prior to recent OPW Flood Risk Guidelines is a potential environmental problem within the GDA. This can have a direct impact on water dependent and rare habitats, such as turloughs. A further consequential impact on the sustainability of water supplies in light of development and growing demand in the GDA also results from this unrestrained development.

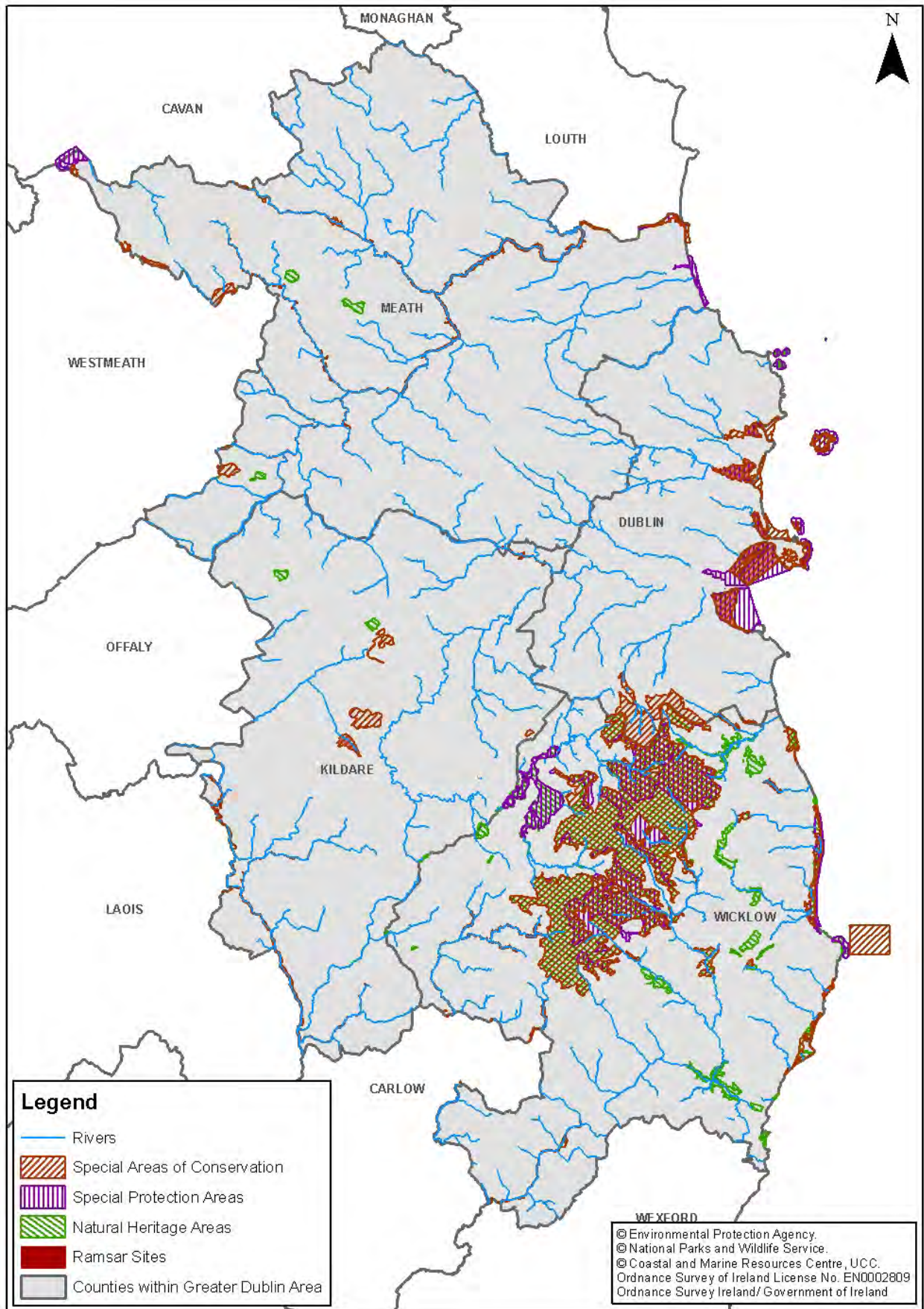
Abstractions for potable water can result in a direct impact on rivers and lakes and their associated flora and fauna and on groundwater dependent habitats.

#### 3.4.2.3 Invasive Species

Invasive non-native plant and animal species are one of the greatest threats to biodiversity within the GDA. Invasive alien species negatively impact biodiversity through competition, herbivory, predation, habitat alteration and introduction of parasites or pathogens and poses a risk to the genetic integrity of our native species. Terrestrial and aquatic habitats can be significantly negatively impacted, resulting in severe damage to conservation and economic interests, such as agriculture, fisheries, forestry and various recreational activities. Three particular species of concern are present in the GDA, Japanese Knotweed (*Fallopia japonica*), Giant Knotweed (*Fallopia sachalinensis*) and Himalayan Balsam (*Impatiens glandulifera*). Japanese Knotweed out-competes local species, such as sea grasses and kelp, for space and light.



**Figure 3.1 Protected Ecological Areas**



### 3.5 Population & Human Health

#### 3.5.1 Environmental baseline

The GDA encompasses 700,000 hectares; approximately 10% of the area of the state (RPGs 2004) yet accommodated 39% of the national population in 2006 and 2009. Figure 3.2 illustrates the key population centres and population density within the GDA.

There has been a high level of population growth in the past decade in the GDA which can be attributed to the unprecedented economic growth in the country. Table 3.3 below depicts data from the 2006 Census which demonstrates population change in the GDA between 2002 and 2006. This table shows that in 2006 the population of the GDA reached 1,666,536 which is a percentage increase of 8.5% in four years.

All counties within the GDA experienced population increases in the period 2002-2006. Between 2002-2006 the main areas of population growth in the region are Counties Fingal, Meath and Kildare. Dún Laoghaire Rathdown registered the smallest population growth. It is clear to see from Table 3.4 that while the overall population of the GDA has increased between 2007 to 2009, the rate of increase has slowed to 1.8%. The mid east counties, Kildare, Meath and Wicklow showed the largest increase (5.8%) while growth in the Dublin Area was significantly lower (0.1%).

**Table 3.3 Population of the GDA 2002 – 2006**

	2002	2006	Increase	% Increase
Dublin City	495,781	506,211	10,430	2.1
Dun Laoghaire Rathdown	191,792	194,038	2,246	1.2
Fingal	196,413	239,992	43,579	22.2
South Dublin	238,835	246,935	8,100	3.4
Kildare	163,944	186,335	22,391	13.7
Meath	134,005	162,831	31,826	21.5
Wicklow	114,676	126,194	11,518	10.0
<b>Total</b>	<b>1,535,446</b>	<b>1,666,536</b>	<b>131,090</b>	<b>8.5</b>

**Table 3.4 Population Estimates for the GDA 2007-2009**

	2007	2008	2009	% Increase
<b>Dublin*</b>	<b>1,210,300</b>	1,217,800	1,211,500	0.1
<b>Mid East**</b>	<b>496,500</b>	514,500	525,500	5.8
<b>Total</b>	<b>1,706,800</b>	<b>1,732,300</b>	<b>1,737,000</b>	<b>1.8</b>

Source: Census Population and Migration Estimates 2007, 2008 & 2009

\*Includes Dublin City, Dun Laoghaire Rathdown, Fingal and South Dublin County Council

\*\* Includes Kildare, Meath and Wicklow County Council

##### 3.5.1.1 Age Profile

For the purpose of looking at the population structure within the GDA, three factors are looked at; the dependent population (i.e. persons within the 0-14 and 65+ age cohorts); the working /independent population (i.e. persons within the 15-65 age cohort) and persons in the childbearing age cohort, aged 25-44). It is important to look at the age profile of any area when making provisions for schools, healthcare and employment etc. It is evident that the age structure between 2006 and 2009 has not altered significantly. In 2009, the dependant population accounts for 30.5% of the total population of the GDA, while the working/independent age group accounts for 69.5%. 35.5% of the population resides in the childbearing age cohort.

**Table 3.5 Age Profile of the GDA 2006**

	0-14	15-24	25-44	45-64	65+	Total
Dublin City	75,854	85,565	180,760	99,764	64,268	506,211
Dun Laoghaire Rathdown	35,244	30,408	57,052	45,347	25,987	194,038
Fingal	52,974	35,750	90,428	46,445	14,395	239,992
South Dublin	53,580	40,387	81,672	53,435	17,861	246,935
<i>Total</i>						
Kildare	43,009	27,876	64,515	38,156	12,779	186,335
Wicklow	27,137	17,767	40,331	28,442	12,517	126,194
Meath	38,150	21,961	56,491	33,205	13,024	162,831
<b>Total</b>	325,948	259,714	571,249	344,794	160,831	1,662,536
<b>% Total</b>	<b>19.6</b>	<b>15.6</b>	<b>34.4</b>	<b>20.7</b>	<b>9.7</b>	

Source: Census 2006

**Table 3.6 Estimated Age Profile of the GDA 2009**

	0-14	15-24	25-44	45-64	65+	Total
<b>Dublin</b>	234,900	158,000	435,100	256,600	126,600	1,211,200
<b>Mid East</b>	124,100	64,500	180,900	112,200	43,800	525,500
<b>Total</b>	359,000	222,500	616,000	368,800	170,400	1,736,700
<b>% Total</b>	<b>20.7</b>	<b>12.8</b>	<b>35.5</b>	<b>21.2</b>	<b>9.8</b>	

Source: CSO Population and Migration Estimates, April 2009

## 3.5.1.2 Household Size

Average household size continued to decline between 2002 and 2006. The Census 2006 results outline the average number of persons in private households for the GDA as just under 2.88 persons down from 3.04 in 2002.

**Table 3.7 Average number of persons per private household**

	2002	2006	% Change
Dublin City	2.59	2.50	-3.5
Dun Laoghaire Rathdown	2.90	2.77	-4.5
Fingal	3.18	2.95	-7.2
South Dublin	3.21	3.03	-5.6
Kildare	3.18	3.01	-5.3
Meath	3.17	2.99	-5.7
Wicklow	3.06	2.89	-5.6
<b>Average Change</b>	<b>3.04</b>	<b>2.88</b>	<b>-5.3</b>

Source: Census 2002 &amp; 2006

## 3.5.1.3 Household Completions &amp; Vacancy Rates

Increased housing completions are one of the factors that have contributed to high growth rates in the GDA. However, Table 3.8 shows that the number of housing completions has slowed significantly in 2008 compared with 2006 figures. The 2006 Census showed a high vacancy rate for the state of 15%. The average vacancy rate for the GDA was 9.6%.

**Table 3.8 Housing Completions**

Housing Completions	2006	2007	2008
Dublin City	7,746	6,678	5,348
Dun Laoghaire Rathdown	2,472	3,052	2,087
Fingal	5,863	4,725	2,149
South Dublin	3,389	3,270	1,758
Kildare	4,804	3,118	1,811
Meath	3,746	2,427	1,946
Wicklow	1,967	1,704	1,219
<b>Total</b>	<b>29,987</b>	<b>24,974</b>	<b>16,318</b>

Source: CSO Online Database

**Table 3.9 Vacancy Rates**

	Total Housing Stock 2006	Vacancy Rate %
Dublin City	223,098	11.7
Dun Laoghaire Rathdown	77,508	8.9
Fingal	89,909	8.8
South Dublin	87,484	6.2
Kildare	68,840	9.9
Meath	61,257	10.6
Wicklow	49,088	11.4
Average Vacancy Rate		9.6

Source: Census 2006

High growth in population occurred in areas of new housing development such as Fingal and Meath. Population growth also occurred in areas where there was no new housing since the 1990s and start of this decade as the “baby-boom” part of the population cycle increased occupancy in existing housing stock. Migration also increased population in locations across the GDA, especially in areas where there are strong employment centres at key towns in both the metropolitan and hinterland areas, particularly within Dublin City. Factors such as falling occupancy rates in more mature areas resulted in losses of population in some locations as houses pass through the family life cycle (Regional Planning Guidelines, 2009).

The DOEHLG outlined that in recent years the GDA has experienced a declining share of the national population growth which is largely as a result of the slowing growth of Dublin. In the period 1991-1996, 55% of national population growth took place in the GDA, whereas in the period 2002-2006 growth declined to 39% of national growth. Some of this growth may have shifted to counties surrounding the GDA (DOEHLG, 2009).

The DOEHLG circulated population projections to all Regional Authorities on 5th January 2009. The table below sets out the projected population for the GDA. National population growth is made up of two components, natural increase (increase in the number of births over deaths) and net international migration. Net international migration consists of migration of people resident in Ireland to live elsewhere out of Ireland against people from other countries coming to live in Ireland. The Departments estimates for 2010 and 2016 are conservative due to factoring in the likely impact of global and national economic factors on short to medium term migration trends. The 2022 projections provide a range of projections which have been estimated taking into account different trends that may emerge depending on the extent and period of recovery in the national and international economy and the consequent impact on population growth patterns. Table 3.10 below outlines the projected population for the GDA until 2022 as estimated by the DOEHLG.



**Table 3.10 Population Targets 2010, 2016 and 2022**

	2008	2010	2016	2022
<b>Dublin</b>	1,217,800	1,256,900	1,361,200	1,464,200
<b>Mid-East</b>	514,500	540,000	594,600	639,700
<b>Total</b>	1,732,300	1,796,900	1,955,800	2,103,900

Source: DOEHLG 2009

### 3.5.2 Relevant environmental issues

Population change is a complex topic. Within the GDA high growth has occurred in areas such as Fingal and Meath while falling occupancy rates has occurred in other areas such as Dun Laoghaire Rathdown. The ability to accurately forecast the future population of the GDA is difficult. Major changes have taken place to the housing market given our economic circumstances and new trends such as a reduction in housing completions and rising vacancy rates are evident. While the overall vacancy rate for the GDA is lower than the national average, falling occupancy rates within the GDA is an issue. Predicting accurate population forecasts impacts on future housing demand and issues such as age profiles (an ageing population), excess in housing stock and occupancy rates (falling at the moment) and migration must all be taken into account. Future housing demand and all of the services required to sustainably meet demand (e.g. health and sanitation services including waste collection, wastewater treatment and potable water supply, electricity, gas, telecommunications, transportation, education and amenity access) needs to be addressed in a planned manner.

#### 3.5.2.1 Health

The concept of health has been defined by the World Health Organisation as "... a state of complete physical, psychological and social well-being, and not simply the absence of disease or infirmity". Health is influenced by many factors in the social and built environment including housing, employment status, transport and access to fresh food, as well as the impacts of air quality, water quality, flooding and access to green space: these are all determinants of health.

Good planning can play an important role in reducing health inequalities. The World Health Organisation's Commission on the Social Determinants of Health (CSDH) states governments should 'Ensure urban planning promotes healthy and safe behaviours equitably, through investment in active transport, retail planning to manage access to unhealthy foods, and through good environmental design and regulatory controls, including control of the number of alcohol outlets'. The GDA is fortunate in that it has a wide variety of settlements and housing types, various employment sectors, good transport links, good air quality and water quality and access to green space. The population of the GDA also has access to a range of health facilities which improve the overall health and well being of the populace.

There are a number of interlinking environmental areas which the development of the RPGs influences, for example, the development of sustainable transport and sustainable communities. These policies will impact on health as well as on climate change mitigation strategies. It is also important to note that the RPGs can impact on a number of cross government strategies which affect human health e.g. the Sustainable Development strategy, Climate Change Strategy and the Smarter Travel strategy.

Given the strong links between income and health, it is recognised that sustainability of current and future economic activity is an important element in protecting and promoting population health across the GDA. However emphasising economic growth without due regard for social and environmental consequences of such growth can have negative impacts on health both for the population as a whole and for groups within the population. Even within areas of economic development, job creation does not necessarily 'trickle down' to job opportunities for the long-term unemployed, and is neither a sufficient, nor necessary, condition for reducing long-term unemployment.

Thus economic development needs to be targeted, geographically and within population groups to ensure that it reduces and does not exacerbate social inequalities. Cognisance must also be paid to environmental issues and sustainability endeavours to protect human health as the GDA economy develops. While employment is generally good for health, there can be negative impacts, usually related to the quality of the working environment and type of work undertaken. The groups which face the highest risk of experiencing the adverse effects of unemployment appear to be middle-aged men, youth who have recently left school, the economically marginal such as women attempting re-entry to the labour force and children in families in which the primary earner is unemployed.

The level of green space and access to the GDAs natural environment is extremely important for the populace health. The health and wellbeing of individuals is greatly affected by the communities in which they live and the nature of their physical environment. A key element of sustainable communities is access to space as environments which lack public gathering places can encourage sedentary living habits. Open space provision can improve levels of exercise in a community which can impact on obesity and can improve social interaction and community activities which can contribute to reducing stress-related problems.



## 3.6 Soils & Geology

### 3.6.1 Environmental baseline

#### 3.6.1.1 Soils

The principal soil types with the greatest distribution across the GDA are Grey Brown Podzolics, Gleys, Acid Brown Earths and Brown Podzolics (An Fóras Talúntais, 1980). Grey Brown Podzolics, Gleys, and Acid Brown Earths, which are found primarily in the lowlands of the GDA Region, are naturally fertile and well suited for productive agriculture. Basin peats are widespread, while Brown Podzolics and Peaty Podzols are located on the upper slopes of elevated areas. The mountainous area soil cover of the GDA generally comprises High Level Blanket Peats and Lithosols. Table 3.11 indicates the percentage land cover of the GDA these principal soils cover.

**Table 3.11 Percentage Land Cover of Principal Soils within the GDA**

Soil Type	% GDA Coverage
Grey Brown Podzolics	19.7
Gleys	21.0
Acid Brown Earths / Brown Podzolics	16.5
Peaty Podzolics	5.9
Blanket Peat	3.6
Lithosols	16.2

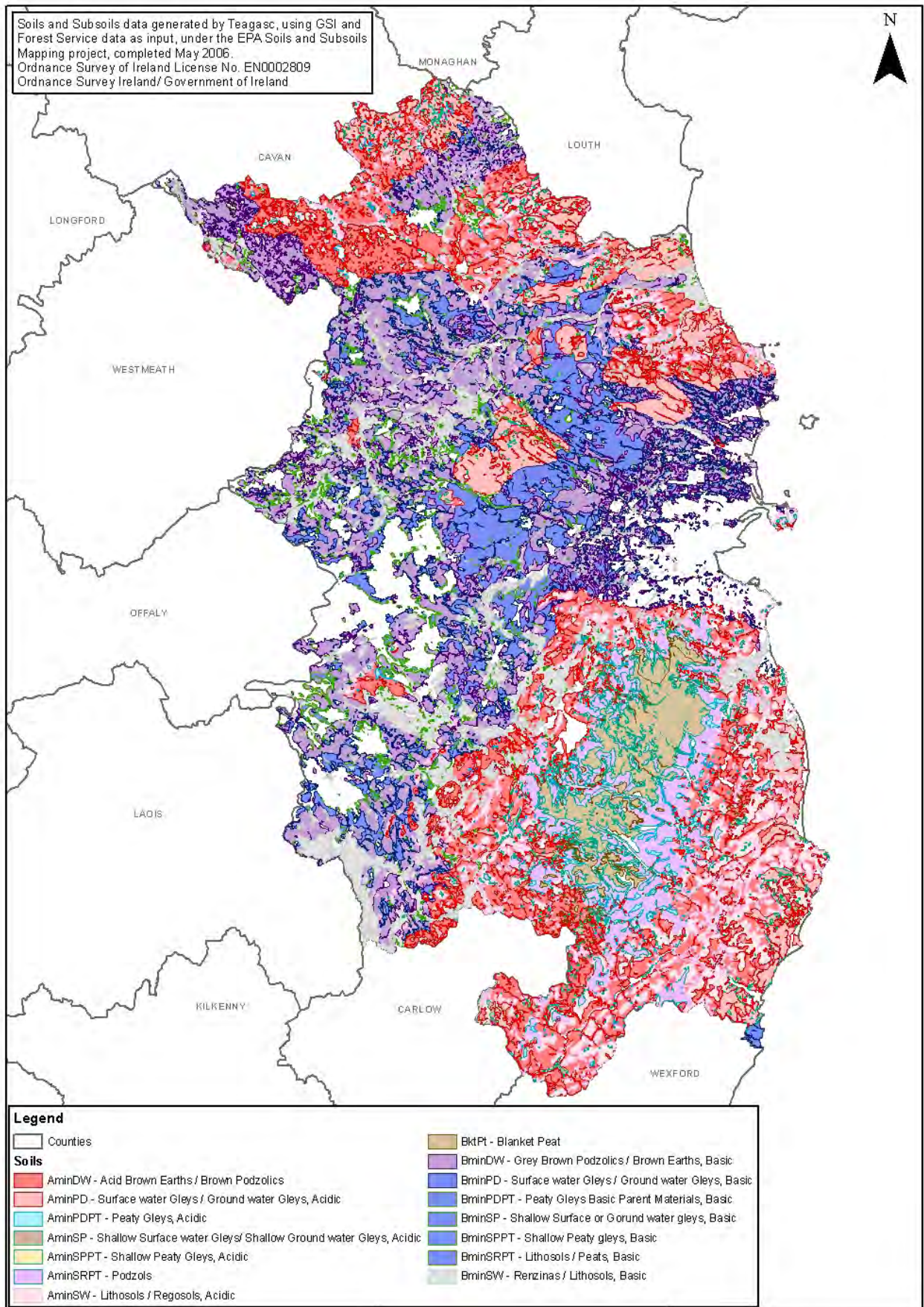
According to the National Soils Database, in general the GDA region is dominated by soils with drainage properties considered to be good but ranging to moderate and imperfect. The majority of the landscape of the GDA is considered to have a low risk of runoff (65% of the area), with 15% and 20% rated as having moderate and high risks of runoff, respectively. Fortunately soil stability in the GDA is not a significant issue. The GDA region is not considered to be a high-risk area for landslides, though landslides do occur, however infrequently, with the most occurrences in coastal, upland and peat bog areas. Though the potential for major destructive landslides is slight within the GDA, there have been instances of severe events in the past.

The GSI Irish Landslides Working Group (ILWG) is in the process of preparing a landslide database in order to assess the susceptibility of areas to landslide hazard in the future which will influence the regions sustainable landscape development in terms of housing, infrastructure etc. Consequently it is an important issue for the planning process.

Figure 3.3 indicates the principal soil cover contained within the GDA.



**Figure 3.3 Soil Cover**



### 3.6.1.1 Geology

The geology of the GDA primarily consists of a Palaeozoic stratigraphy ranging in age from Cambrian to Namurian (Carboniferous), containing 15 of the 28 bedrock groups represented on the national bedrock map. The older rocks occurring in the southern portion of the region in the Wicklow area are predominantly metasediments of Cambrian, Ordovician and Silurian age, and an extensive area of granites and other igneous intrusive rocks from the Caledonian Orogeny. These granites and surrounding metasediments comprise the principal upland massif (Wicklow Mountains) within the GDA. A belt of Silurian Metasediments also occurs along the northern border of the region. Younger Carboniferous sedimentary rocks underlay a majority of the GDA's low-lying areas. This system of sedimentary rock is principally composed of limestones containing strata of sandstones and shales or undifferentiated sediments.

The GDA has some suitable rocks hosting minerals of economic value. The Leinster Massif of Lower Palaeozoic metasediments and volcanics contains large low-grade copper-pyrite deposits at Avoca. There is sub-economic tungsten and lithium mineralization associated with the Leinster Granite, where there are also numerous minor vein-type copper and lead deposits. Also of note is the historically mined alluvial gold deposit at Gold Mines River. Within the GDA there is currently one active mine in Navan (zinc and lead).

Figure 3.4 indicates the geological strata of the GDA.

### 3.6.2 Relevant environmental issues

There is a need for increased awareness of geomorphical and geological sites and their importance as natural heritage or potential natural heritage areas. The GSI Irish Geological Heritage programme panels are currently looking at sites under 18 headings, e.g. Karst; Devonian to ascertain which sites might be worthy of further investigation.

The degradation of soils fertility and threats to conservation of high-quality soils (not just for agricultural purposes) through the loss of tree/vegetation cover and through urbanisation of the GDA has consequences for the sustainable development of rural activities as well as the sequestration of carbon.

Global warming modelling for Ireland predicts a change to wetter winters and drier summers (Sweeney, 1997). In addition there may be an increase in frequency of high intensity rainfall events. These rainfall events can have detrimental effects for slope stability and landslides and their resultant impacts on water management activities.

Eroded soil washed into rivers has the potential to increase nutrient content leading to alteration of surface water nutrient balances which can further lead to the eutrophication of rivers and lakes. If contaminated soils are eroded and transported to the sea, aquatic plants and animals can be severely damaged.

Geotechnical extraction activities, when not managed in an environmentally sustainable fashion results in further pressure on the hydrological environment. In particular, peat cutting can be damaging to vegetation, hydrology and landscape. While minor local cutting has a reduced long-term impact, commercial extraction uses up an irreplaceable resource. While the extractability of minerals, sand and gravel resources has been curtailed recently through the progression of residential development into rural areas previously available for extraction, the conflicts between people and the impacts associated with these activities, e.g. noise, traffic are still apparent.





### 3.7 Water Resources

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#### 3.7.1 Environmental baseline

The water resources of the GDA region are utilised for a wide range of uses from potable water to agriculture to industry to amenity (both visual and recreational) and to transport and importantly to sustain ecosystems. Consequently, they are extremely important to the sustainable development of the GDA. Water is not an infinite resource and needs to be managed appropriately to ensure that its quality is maintained and its availability is not compromised.

The water resources of the region are comprised of surface waters including rivers, lakes, transitional and coastal water, and groundwater.

##### 3.7.1.1 Surface Water

The longest river in the GDA Region is the Boyne (2,390 km). The other main rivers in the GDA include the Liffey and its tributaries of the Tolka and Dodder, Slaney, Barrow, Avoca, Vartry, Nanny and Delvin Rivers (see Figure 3.5). The GDA while primarily lying within the confines of the Eastern River Basin District also has a small portion contained within the South Eastern River Basin District along the Kildare and Wicklow borders, and smaller portions of the Shannon International River Basin District and Neagh-Bann International River Basin Districts in Meath. The River Basin Districts were delineated through the progression of the Water Framework Directive which aims to promote the sustainable use of water resources across Europe and achieve good status water quality in all water bodies ranging from rivers, lakes, groundwater, transitional and coastal marine waters.

According to the EPA's "Water Quality in Ireland" reports (2007 and 2005), while river water quality in Ireland between 2004 and 2006 showed some improvement over the 2001 to 2003 period, with 71.4% unpolluted, 18.1% slightly polluted, 10.0% moderately polluted and 0.6% seriously polluted, the river water quality in the GDA Region showed signs of slight deterioration between 1998-2005 which was followed by a subsequent improvement in river water quality in the region between 2004-2006. In general, the EPA has considered the water quality within the GDA as improving as it aims towards achieving good status for all waters by 2015 (EPA - Water Quality in Ireland 2007-2008). Each River Basin District which the GDA encompasses has a significant range of data regarding water quality and potential environmental issues associated with water resources. That information has been utilised to determine the water resource environmental baseline, but not in an equivalent level of detail as the River Basin District Authorities do in their consideration of strategic environmental impacts.

A range of surface water systems in the GDA have been anthropogenically modified in character to allow certain uses such as navigation, water storage, public supply, flood defence or arterial land drainage. As a consequence of the necessity for these modifications to be retained, these waters have been designated by the River Basin District Authorities as heavily modified water bodies (HMWB). The GDA's HMWBs include the Rivers Dodder, Liffey and Vartry, which are all subject to flow regulation through reservoirs. Other examples of heavily modified waterbodies include impoundments such as the Poulaphouca Reservoir and Dublin Port on the Liffey and Tolka Estuaries and the entrained channel of the Avoca Estuary at Arklow Port. There are also key hydrological features which are man-made; The Royal and Grand Canals have been part of the landscape of the region for over the last two hundred years. The Royal Canal leads from Dublin to Lough Ree and the main branch is over 145 km long, with 46 locks. The Grand Canal leads from Ringsend in Dublin to the River Shannon at Shannon Harbour in County Offaly, and is over 130km long with 43 locks. The Naas Branch of the Grand Canal is navigable to Naas Harbour.

There are approximately 500 natural standing waters throughout the region; however the majority of these are relatively small, with only 20 lakes exceeding 10 ha in size. Of the larger lakes in the region the majority occur in the in the northwest of the Boyne catchment, in the upper reaches of the Blackwater and Deel tributaries, while the remaining lakes occur in the Wicklow Mountains.

According to the River Basin Management Plan for the Eastern River Basin District the coastal zone for the GDA has in excess of 300 km<sup>2</sup>. Within the coastal zone there are shellfish areas off North County Dublin and off the Wicklow Coast north of Arklow. The 200 km coastline of the region contains the entire coastlines of Counties Meath, Fingal, Dublin, Dún Laoghaire/Rathdown and Wicklow as well as Dublin City. There are 13 transitional waterbodies in the region, including the major estuaries of the Boyne, Broadmeadow, Tolka, Liffey, Dargle, Vartry and Avoca, and eight coastal waterbodies. These estuaries and coastal areas in the majority are afforded protection for their ecological status.

According to up to date EPA online mapping and information from the River Basin District Reports the river water quality in the region is in the majority of moderate quality status (<50%) with high and good quality accounting for approximately one third of the rivers in the region. Conversely, nearly two thirds of lakes in the region are considered as of moderate quality, with nearly 20% of lakes considered to be bad quality. The transitional waters of the region, comprising of estuaries and coastal lagoons are in the majority (<75%) of moderate quality whereas nearly two thirds of coastal water achieve high status for their water quality.

#### 3.7.1.2 Groundwater

Groundwater is a very important resource for the GDA as an important source of drinking water but it also makes an important contribution to the hydrological balance of the regions river flows and lake levels. Figure 3.6 also illustrates the groundwater vulnerability distribution in the GDA. There are four groundwater body types identified in the region, based on flow regime of the aquifer, these are karstic, productive fissured bedrock, gravel and poorly productive bedrock. In the GDA groundwater status has been found to be generally good with in excess of 90% of the groundwater area achieving good chemical status and quantitative status. There are currently no definitive estimates available on how much each local authority within the GDA utilises groundwater as a source of drinking water. In order to satisfy the objectives of the WFD all groundwater bodies in the region must achieve good chemical and quantitative status.

#### 3.7.2 Relevant environmental issues

There are a range of existing pressures on the water resources of the region. Many of these pressures apply to biodiversity, flora and fauna, soils and geology, land use and landscape as well as water resources. In general these pressures apply directly to quality, quantity and supply and demand of water resources with indirect pressure on the other environmental features.

##### 3.7.2.1 Modification

Physical modifications have a direct impact on surface water systems through the alteration of habitats, and by indirectly affecting natural processes through the alteration of ecosystems, by reducing their diversity, distribution and population. Land use practices such as agriculture, forestry and urban expansion can have an indirect effect, manipulating the extent of water draining from the land, which can lead to an increased flood risk to properties and development.

In situ waterside infrastructure such, such as entraining walls for flood alleviation, ports and harbours, can also impact the extent of natural habitats. Consequently, the continued development of the GDA has created an extensive pressure on the estuarine and coastal shoreline, with in excess of 10% of its entire shoreline entrained in such a manner e.g. the Bull Wall, Tolka Walls, Liffey Walls, Dublin Port. Ringsend, Sandymount Strand and Dun Laoghaire Harbour exhibit a continuous man-made boundary extending from Clontarf in as far as the Islandbridge Weir and on to Dun Laoghaire.

There have also been a number of large-scale schemes in the region for the purpose of water supply involving physical modifications e.g. approximately 50% of Dublin City's water supply comes from Poulaphouca Lake on the Upper Liffey. A continuous abstraction quantity of 318 MI/d from Poulaphouca for treatment in Ballymore Eustace has been licensed as the maximum sustainable abstraction quantity for this plant.

There are proposals to construct a new port facility at Bremore near Balbriggan to supplement Dublin Port as well as to expand existing capacity of Dublin Port by reclaiming more land from Dublin Bay.

Transitional and coastal water bodies are also subject to pressures such as maintenance and capital dredging for navigation, reclamation and other disturbances to the coastal seabed such shellfish dredging, vessel movements, marine telecommunication and electricity cables, offshore wind farms and oil and gas pipelines). These developments can negatively impact coastal ecosystems if they are not managed appropriately.

#### 3.7.2.2 Agriculture & Forestry

Agriculture is a very important activity within the GDA, using about 75% of the land use. However, agriculture has known pressures on water resources, these are enrichment of water by nutrients (phosphorus and nitrogen) and organic pollution from livestock wastes (slurry/manure and silage effluent). Pesticide usage although not solely confined to agricultural practices, can lead to accumulation in waters and associated sediments, and bioaccumulate to toxic levels in the bodies of aquatic organisms, which can then biomagnify up the food chain or interfere with natural breeding processes. Intensive agriculture and increased urbanisation within the GDA, as well as the high proportion of industrial land uses, may potentially give rise to cumulative impacts in relation to the discharge of nutrients and dangerous substances leading to a deterioration of drinking water sources.

Afforestation has increased exponentially across the country in the last two decades. Forest cover now accounts for just over 10% of Ireland's land area, with an objective to expand cover to 17% in the next 30 years. Commercial forestry in the GDA covers less than 5% of the land area and affects only a small proportion of its water resources, which are mainly in Wicklow. Forests can have both positive and negative impacts on the environment. Negative impacts largely result from mismanagement or inappropriate siting and planting. As forestry becomes more advanced the current evident water problems which are generally associated with old practices, have been amended and thus the impact on waters should be reduced.

#### 3.7.2.3 Discharges

Inadequately treated effluents and spills or leakage from foul water sewer systems networks can lead to the pollution of the receiving waters. These pollutants can lead to a deterioration in water quality with subsequent downstream uses being impacted negatively e.g. water dependant ecosystems, potable water supplies, industrial or agricultural abstraction, fishing and aquaculture. Current estimates for the GDA indicate that the nutrient input into surface waters from direct industrial discharges produce approximately 60% of the yearly phosphorus load with the remainder arising from diffuse sources such as agriculture.

In the rural areas of the GDA many houses and businesses are not connected to public foul water collection and treatment systems, and rely mainly on on-site systems (conventional septic tanks or individual waste water treatment systems (IWWTS)) and via soil percolation areas. If these systems fail it can lead to accidental discharges to surface water and / or groundwater systems. As many rural properties are located dispersedly across GDA, provision of public sewerage systems, especially ahead of new development, can be logistically and financially challenging.

#### 3.7.2.4 Extraction

Waste disposal sites (including old un-lined landfills), quarries, mines, gasworks sites and industrial lands also produce direct and discharges (leachates) to both surface and groundwaters. According to an EPA 2005 report there was evidence of significant unauthorised landfilling of commercial and industrial waste and construction and demolition waste in the GDA (predominantly Wicklow but also Kildare and Meath) in the period between 1997 and 2002.

The lowering of water tables through groundwater extraction whether for drinking water, industrial use or through construction practices can cause problems in the context of the hydrological regime of groundwater dependant wetland sites of which the GDA has notable examples including Pollardstown Fen. The resulting physico-chemical processes in exposed geologies and rheologies can potentially lead to the mobilisation of contaminants following recovery of water tables when dewatering pumping operations are ceased. This also has the potential to significantly impact groundwater and subsequently surface quality.

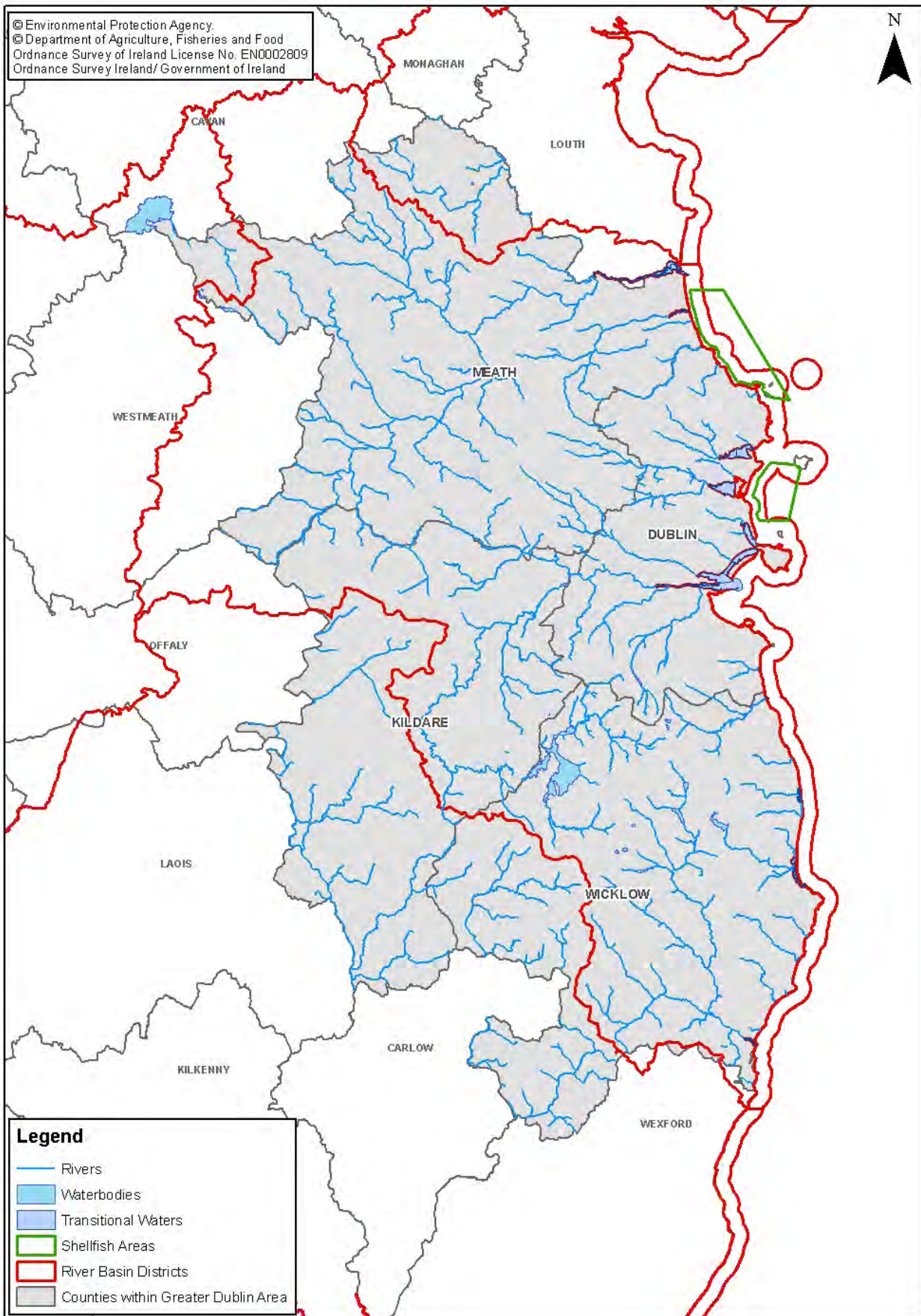
Another associated environmental issue in the region is the lowering of the groundwater table at some quarry sites which can negatively impact water dependant ecosystems and affect the water balance between groundwater and surface water. A specific example is the pollution from the abandoned Avoca mines, which significantly pollutes the Avoca River and the immediate coastline around Arklow.

#### 3.7.2.5 Climate Change

The effect of climate change on the hydrological regime of the planet is difficult to predict, even more so for a small region; however, within the GDA there is the potential for heavier and prolonged winter rainstorms to cause more flash flooding, which can lead to an increase in diffuse pollution loads from soil runoff and increasing demand for flood alleviation, control and relief schemes. Conversely, summer droughts are also considered likely in the GDA and recent research has indicated that the effects of climate change in Ireland will have serious consequences for water resources, resulting in a potential 40% reduction in drinking water supplies. Also, temperature fluctuations may give invasive alien water species a competitive advantage and alter aquatic ecosystems further.



Figure 3.5 River Network











## 3.8 Flooding

### 3.8.1 Environmental baseline

Flood risk and hazard is an important issue for all regions across the country. Climate change is increasing our susceptibility to heavier, intense and more sustained rainfall patterns throughout the year rather than just winter months. This increases the risks to the region from both fluvial flooding as river catchments become saturated and overflow, but also pluvial flooding when drainage systems can no longer cope with the quantities of water and allow for overland flow and surcharging in both urban and rural environments. Climate change is also inducing a change in sea level and accompanied by increasingly severe storms has increased the risk of coastal flooding.

The Office of Public Works (OPW) is the lead authority for river and coastal flooding and erosion management in the region and county. In terms of flood controls and flood relief schemes, the OPW are responsible for controlling river flooding in agricultural and urban areas, while the ESB are responsible for managing water level control in catchments modified by hydroelectric power schemes e.g. the Liffey and Vartry Rivers. In any lakes within the GDA used for abstraction, the relevant local authorities are responsible for maintaining certain levels in the lakes itself and in maintaining a compensation flow to the downstream catchment. The OPW are responsible for constructing and maintaining drainage works, emergency works to watercourses and sea defences. The local authorities and OPW are responsible for permitting of culverting and canalisation of watercourses.

Currently, the OPW and Local Authorities are initiating Catchment Flood Risk Assessment and Management Plans (CFRAMP) for all of the catchments across the country. Many are only in the very initial stages and some have yet to begin. Currently in the GDA, the only CFRAMP underway is the Fingal East Meath study. These CFRAMPs will map flood risk and hazard extents that will inform planning authorities which areas are at risk and which areas can be zoned for future sustainable development.

There needs to be significant alignment between the objectives of the Floods Directive and the Water Framework Directive to ensure that water resources are not environmentally impaired in any way across the GDA. It is recommended in the OPW 2009 Planning Guidelines (Section 2.33) and in Article 9 of the Floods Directive that coordination is required of the River Basin Management Plans and associated Programme of Measures for the Water Framework Directive which has a planning cycle aiming for 2015, to allow them to be synchronised with the development of the CFRAMPs by the OPW. Close coordination between the two different but compatible processes in cognisance of the GDA RPGs will ensure that by 2016 when the next iteration of the RPGs are assessed, there will be a coordinated approach to water resource management within the GDA which will reflect the objectives of the RPGs.

At the moment there are no flood risk maps available for the region. The region has had a history of coastal, pluvial and fluvial flooding due to severe storm events and many urban centres are at risk of flooding from at least one or all three forms of flooding. Arklow Town has been severely flooded in the last three decades due to extreme rainfall events affecting the Avoca River and coastal flooding at the same time. While Dublin is relatively safe due to the Liffey's controlled nature, the city is still susceptible from fluvial flooding from both the Tolka and Dodder Rivers, pluvial flooding from an inadequate stormwater drainage system and coastal flooding has also occurred particularly in the Dublin Docklands area and the coastal areas on Fairview and Clontarf. The Boyne River, the other major river of the GDA also suffers from flooding events which have affected many riverside urban centres and areas of agricultural land.

### 3.8.2 Relevant environmental issues

As outlined, climate change is the most significant factor affecting flooding in the region. However, there are a range of further issues which complicate flood risk and are a major concern when dealing with flood risk.

### 3.8.2.1 Biodiversity

Flooding can have a detrimental impact on aquatic and coastal habitats. Habitats can be damaged through both rapid and sporadic inundation as well as long term saturation. However, attempts to alleviate flooding through arterial drainage schemes or flood relief schemes can also have a detrimental effect on aquatic and coastal habitats through changes in morphology, current and sediment patterns.

### 3.8.2.2 Heritage

Flooding can also have a detrimental impact on archaeological, architectural and cultural heritage. Built heritage can be damaged through both rapid and sporadic inundation as well as long term saturation. However, in a similar fashion to the ecological environment, attempts to alleviate flooding through arterial drainage schemes or flood relief schemes can also have a detrimental effect on in situ built heritage if certain heritage features are known to exacerbate flood risk e.g., bridges, river walls and quay structures. These structures can entrain rivers and coastal water thus reducing the hydraulic capacity of river systems and forcing flood water into certain areas, while the removal of such structures would alleviate flooding, significant impacts to the built heritage would occur if they are removed.

### 3.8.2.3 Urban Development

Increasing the distribution of hard impermeable surfaces in the region through the development of residential and industrial land and infrastructure reduces the potential rainfall infiltration rates to groundwater and allows rainwater to enter river systems at a faster rate. This contributes to pluvial and flash flooding on a recurrent basis across the GDA during significant rainfall events.

Alteration of coastal infrastructure to protect beaches and to further develop port facilities can also lead to morphological change of the coastline which can increase coastal flood risk to low lying coastal areas.

## 3.9 Air & Climate

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### 3.9.1 Environmental baseline

#### 3.9.1.1 Air Quality

There are wide ranges of EU introduced legislation that have measures to address the issue of air quality management. The Air Quality Framework Directive (96/62/EC) sets out the principles of the approach, and sets out the limit values for pollutants in four "daughter" directives. The National Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002) transpose the first and second "Daughter" directives 1999/30/EC which relates to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air and 2000/69/EC which relate to limit values for benzene and carbon monoxide in ambient air.

Under the respective Regulations transposed into Irish Law, the EPA and Local Authorities are responsible for ambient air quality monitoring in Ireland through continuous monitoring at both fixed stations and mobile monitoring stations carried out throughout the island. Using the monitoring data the EPA compiles annual air quality reports for the nation. The EU has also recently adopted the CAFÉ Directive (2008/50/EC), which incorporates all the main air quality limits and measurements techniques into one Directive (in a similar fashion to the Water Framework Directive). In addition to the previous Directives, the CAFÉ Directive includes a target value for PM<sub>2.5</sub>. As yet, the Directive has not been transposed into Irish law.

Currently there are four zones across the country for the assessment and management of air quality. The zones relevant to the GDA (Zone B is excluded as it falls outside the GDA) are as follows:

- Zone A comprising Dublin City and Environs;



- Zone C comprising 16 Urban areas with populations greater than 15,000 (including Drogheda, Bray, and Naas within the GDA);
- Zone D comprises the remainder of the GDA area.

Air quality in Zones A and C are typical of major urban locations. In the city centre air pollution levels are higher primarily due to traffic-derived pollution. Results from the city centre monitoring stations indicate compliance with the relevant Air Quality Standards with concentrations of nitrogen oxides and particulate matter compliant but more elevated. Air quality in Zone D areas is generally very good with low concentrations of pollutants such as NO<sub>2</sub>, PM<sub>10</sub>, CO. Concentrations of ozone are higher in rural areas than in urban areas due to the absence of the nitrogen oxide in rural areas as an ozone scavenger.

Environmental nuisance such as dust deposition and odour can impact on amenity of the environment and affect communities. Nuisance can occur at a local level in the vicinity of industrial, waste and wastewater treatment facilities. The EC Waste Water Treatment (Prevention of Odours and Noise) Regulations 2005 (S.I. 787 of 2005) require that waste water treatment plants are designed, constructed and maintained as to avoid causing nuisance through odours and noise. The EPA audits the facilities to assess compliance with the Regulations and all treatment plants within the GDA must comply.

#### 3.9.1.2 Climate

The existing climate for the GDA corresponds with the general climatic conditions for the whole country which is dominated by the Atlantic Ocean and its air and oceanic currents. Consequently, the region does not suffer from the extremes of temperature. According to Met Eireann, average annual temperature is about 9°C. However, the GDA can tend to be somewhat more extreme than other parts of the country. For example, summer mean daily maximum is about 19°C and winter mean daily minimum is about 2.5°C in these areas. Mean annual wind speed varies between about 4 m/sec in the east midlands and 7 m/sec in the northwest. Strong winds tend to be more frequent in winter than in summer. Sunshine duration is highest in the south of the GDA. Average rainfall varies between about 800 and 2,800 mm. Rainfall accumulation tends to be highest in winter and lowest in early summer.

The United Nations International Panel on Climate Change (IPCC) has stated categorically that greenhouse gases (GHG) in the atmosphere (including carbon dioxide, methane, nitrous oxides and a number of gases that arise from both agricultural and industrial processes) are rising, as a result of human activity.

The IPCC latest report, which integrates the findings of three Working Groups of the IPCC in a single document, provides a comprehensive assessment on Climate Change as well as its impact and options for adaptation and mitigation. Global warming has been occurring at 0.2°C per decade in recent years, according to this report. As a result, ice and snow is disappearing worldwide, weather and rainfall patterns are changing, sea level is rising more rapidly and extreme weather events are occurring more frequently. The findings are supported by better observations and analysis of current climate and higher confidence in the ability of models to accurately reproduce past climate and predict future climate conditions since the last report was published in 2001.

The nation's Kyoto Protocol target is to limit emissions to 13% above 1990 levels over the five year period from 2008 to 2012, within the overall EU target to reduce emissions to 8% in the same timeframe. As the GDA is the most urbanised and industrialised region of the area, a significant portion of these targets will have to be met by the region. For the period beyond 2012, the EU Council of Ministers has committed to achieving at least a 20% reduction of Greenhouse gas emissions by 2020, compared to 1990 levels. The Council also agreed to extend this target to a 30% reduction if other developed countries commit to comparable reductions. Ireland's share of the reduction target has yet to be agreed while climate change target negotiations are ongoing.

As previously mentioned in the Water Resources Section, climate change will have an impact on the region's water resources and must be taken into account in all aspects of sustainable planning. According to the IPCC, in line with the global picture, Ireland's average temperature has increased by about 0.7°C over the last 100 years, and the rate of increase has been higher in the last couple of decades. The increase has not been uniform over time, with a warming period from 1910 to the 1940s, followed by a cooling period up to the 1960s. The current warming period commenced around 1980. 2006 was the warmest year on record at both Malin Head and Phoenix Park, which have observations dating back over 100 years, and also at Casement Aerodrome, Kilkenny and Rosslare. In line with the IPCC report, 10 of the 15 warmest years in the last century have occurred since 1990. In the last 100 years, 2006 was the second warmest year, 1945 being slightly warmer, and the last 10 years have been the warmest decade. Whilst we can be less categorical about wind speeds, there is some evidence of a reduction in annual average wind speeds, with a corresponding decrease in the frequency of high wind speeds and gusts. Increases in total annual rainfall in parts of the West and North have been observed, with some increase in the number of days with heavier rain but there is no clear pattern of change in other areas.

While the national scale of potential change is evident, translating the potential effects of climate change to the GDA region is a process of inference on what will happen to Ireland at large being reduced to a regional scale. Temperatures in Ireland and correspondingly the GDA are predicted to increase by 1.25-1.5°C by 2040 compared to 1961 to 2000. Rainfall is expected to increase in winter by about 15% and summer projections range from no change to a 20% decrease, potentially along the east coast of the country including the GDA the latter is forecast. As the climate changes, there will be the potential to alter agricultural practices to diversify crops which could strengthen the GDAs arable agricultural industry. In the more mountainous areas of the GDA the potential development of south west facing vineyards can lead to a new industry.

Studies have shown that extreme rainfall events associated with climate change show more marked changes with more events occurring in autumn and a 20% increase in 2-day extreme rain amounts, especially in northern areas. Taking the projected precipitation changes into account, there will be the potential for a significant increase in the number of extreme discharge events and a slight increase in their intensity, leading to an increased probability of flooding in the future.

The potential rise in global temperature might affect the intensity and frequency of storms in the North Atlantic. As a consequence of stormy weather there exists the potential for flash flooding and erosion which would affect a wide range of ecosystems and economic sectors including forestry and agriculture.

### 3.9.2 Relevant environmental issues

Currently there are no significant concerns with regard to air quality at the regional level. There are slightly elevated levels of vehicle emissions within the urban areas of the District; however, this is the same for all urban areas. Poor wastewater treatment infrastructure can lead to odour nuisance issues at specific plants. Dust and PM<sub>10</sub> can also be an issue locally during construction and operation.

The GDA faces a significant challenge to meet its GHG emissions targets both under the Kyoto Protocol in the period 2008–2012 and under the EU burden-sharing target for 2020 and beyond. Under the current economic conditions indications are that as a nation we may meet the GHG emissions standards sufficiently to reach the Kyoto target.

A recent EPA report (Ireland's Environment 2008) has found that Ireland is performing badly in terms of air quality, due to emissions from cars (particulate matter and nitrogen oxides). Traffic pollution is thus both a major health concern and a climate change concern. However, the prospects for compliance with targets under the EU National Emissions Ceilings (NEC) Directive are more positive.

With the exception of NO<sub>x</sub> emissions, emissions of acidifying gases are expected to achieve prescribed target emission levels within the next few years. NO<sub>x</sub> emissions are too expected to decline but are likely to remain considerably above the target limit.

As previously outlined in the Section 3.7 and the previous section, the most important climate change impacts that the GDA region will have to adapt to include changing rainfall patterns and rising sea levels. These changes will significantly affect water resources, ecosystems and agriculture, and increase the risk of flooding and coastal erosion. Goes into what Ireland can expect.

### 3.10 Cultural Heritage including Architectural and Archaeological Heritage

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#### 3.10.1 Environmental baseline

Historic environment includes cultural and natural landscapes/seascapes, habitats and wildlife, the ambience of villages, towns and cities, including Zones of Archaeological Potential, Architectural Conservation Areas and Protected Structures and their settings.

The GDA has been settled for millennia with evidence dating back to the Stone Age. The regions historic landscape is another feature which draws tourism from across the globe. Evidence of the course of Irish history is laid out across the region, and there are thousands of protected monuments and buildings and areas dating back thousands of years including;

- The Bronze Age settlements, tombs and historic landscape of the Boyne Valley;
- The influence of the Celtic Civilisation;
- The monastic settlements of Ireland's Golden Age in each county e.g. Glendalough Co. Wicklow;
- The Viking Settlement and foundation of Dublin;
- The Norman Settlement and the expansion of Dublin and foundation of many of the regions present day towns;
- The Tudor destruction of the monasteries and persecution of Catholics;
- The Cromwellian Invasion and resultant English Plantations of both the Cromwellian Era and the Monarchy Restoration;
- The great Georgian redesign and embellishment of Dublin as the nation's capital;
- The effect of the Great Famine and the Workhouse Institutions;
- The Victorian expansion of industrial and infrastructural development;
- The sites of the 1916 Rebellion and the Civil War;
- The expansion of Ireland into the modern era.

The region has a plethora of historic buildings and features of international renowned and importance located both in rural areas and in the urban landscapes. Some of these properties and areas are managed by cultural heritage groups within the GDA. These are structures or areas that have been passed to the care of responsible bodies for restoration, public access and amenity value. Two examples in the region include the Battle of the Boyne site on the south bank of the Boyne, with the recently restored 18th century Oldbridge House Boyne Visitor Centre and Brú na Bóinne Visitor Centre, Newgrange and Knowth Neolithic monuments of Newgrange, Knowth and Dowth, the centre at Newgrange on the South side of the River Boyne. All of the national monuments, protected structures and areas and buildings of significant architectural merit associated with these eras are accounted for the Register of Monuments and Places for each county and on the register with the National Inventory of Architectural Heritage.

There are a number of sites with international importance for heritage within the GDA region. Bull Island has been proposed as a UNESCO Biodiversity Site, and the Archaeological Ensemble of the Bend of the Boyne has been designated as a UNESCO world heritage site, and is Europe's largest and most important concentration of prehistoric megalithic art.

The distribution and extent of protected structures and monuments is illustrated on Figure 3.8.

#### 3.10.2 Relevant environmental issues

Continued development resulting from the unprecedented economic growth of the past decade and increasing population has increased pressure on sites or features of architectural, archaeological or cultural heritage interest. Individually these developments put direct pressure of architectural heritage, where it is in proximity, or increases the potential to interact with known or previously unknown archaeological sites and features. Cumulatively, this results in negative impacts on the overall cultural heritage resource of the GDA region.





### 3.11 Landscape

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#### 3.11.1 Environmental baseline

With land area of around 7000 km<sup>2</sup> the GDA Region covers about one tenth of the country and is comprised of a diverse and rich landscape ranging from agricultural land, forestry, bogs, mountains and river valleys, dramatic coastlines with cliffs and estuaries, the city of Dublin and an assortment of historic towns and villages founded in the last two millennia. Each county of the GDA Region demonstrates unique landscape characteristics; Meath is formed from undulated rich pasture land around the historic Boyne River Valley, Kildare while relatively flat has historic towns and plains of grassland and wetlands, whereas Wicklow is noted for its lush river valleys and forested mountains. Dublin too has an unique landscape that while highly urbanised retains much of its landscape character from the foothills of the Wicklow Mountains extending into the Liffey River Valley and Dublin Bay and its northern coastline of estuaries and islands. The landscape character is diverse and complex and is one of the key attractions for tourism to the region. The regions landscape is also under pressure from unsustainable development and urban expansion.

According to the Corrine database, the agricultural land cover within the GDA covers 23% of the total area. Forests cover approximately 8.2% of the GDA, with the majority being planted and managed coniferous forests. As previously mentioned wetlands cover some 9.6% of the GDA Region, the majority of which (90%) is peat bog. As expected a significant amount (in comparison to the rest of the nation); approximately 6.6% of the land cover of the GDA is considered as urban artificial surfaces.

As discussed in the Population and Human Health Section, the largest urban area within the GDA is Dublin City and its hinterland, which is located in the centre mid east of the study region. This city and surrounding area contain the highest density of population within the GDA. In addition, there are smaller urban centres in the towns of Trim, Navan, Naas, Newbridge, Kildare, Athy, Bray, Wicklow and Arklow.

The three dominant landscape features in the GDA are the Wicklow Mountains, the river valleys of the Boyne, Liffey and Avoca and the extensive coast along the Irish Sea;

- The Wicklow Mountains are located in the southern portion of the GDA and represent a relatively large contiguous area that remains in a natural or semi-natural (i.e. appropriately managed) state. The aforementioned Wicklow Mountains National Park comprises a significant portion of the mountain range and is afforded statutory protection. The area is considered to be an Area of Outstanding Natural Beauty and encompasses those areas which are most vulnerable and sensitive, and which are considered to be of the greatest scenic value in the GDA Region. These areas tend to be under severe development pressure.
- The Boyne, Liffey and Avoca Rivers are the principal rivers (smaller sub-catchments form part of these and are outlined in the Water Resources Section) in the GDA and each has a unique river valley system with protected views and landscapes inherent to each. Each of these river valley landscapes has combinations of established agriculture and urban development as they have been populated for millennia. These river systems also have various ecologically protected zones which assist in the protection of the landscape and the visual amenity associated with the rivers.
- The coastline, which comprises the eastern boundary of the GDA, is approximately 200 km long and includes a range of ecologically noted bays, estuaries, lagoons, sand dunes, beaches and portions of the Irish Sea. The coastline is a significant draw for tourism especially those considered to have scenic beauty and the beaches that have Blue Flag Status.

In terms of landscape and visual amenity which is a significant factor in attracting tourists to the region, the seven local authorities conserve and protect scenic value as Areas of High Amenity, Areas of Outstanding Natural Beauty and Protected Views.

Each local authority is responsible for the designation of these within their individual jurisdictions, with each Development Plan providing objectives to protect such views. Specific landscape features within the GDA counties are often not listed within these plans; as such it is difficult to provide a full list of these within this baseline.

#### 3.11.2 Relevant environmental issues

Existing pressures on landscape and visual resources are primarily related to impacts to sensitive views and landscapes resulting from the positioning of new development, infrastructure including road, rail, electricity and water-service infrastructure, without sensitivity to these resources.

### 3.12 Material Assets

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The region displays a diverse array of material assets ranging from natural assets to various types of infrastructure. The following is a summary of the baseline environment within the GDA in relation to Material Assets. The summary below includes material assets, such as coastal defences, harbours and ports, airports, roads, rail and transport infrastructure and utility infrastructure. Material assets could expand into many other areas but on a regional level the most pertinent assets in relation to the RPGs have been reviewed.

#### 3.12.1 Environmental baseline

##### 3.12.1.1 Road and Rail Infrastructure

There is approximately 7,000 km of road in the GDA region. Of these approximately 2% are classed as Motorway, 6% as Primary Routes, 3% are classed as National Secondary Routes or A Roads, and 25% are classed as Regional or B Roads. The remaining road infrastructure within the region is comprised of minor roads and unclassified urban roads.

In addition, there is approximately 500 km of existing rail infrastructure in the GDA, of which some 310 km are still in active use. The LUAS light-rail network is also present in Dublin City, and its suburbs, and is planned for future expansion along with provision of the fully segregated Metro mass transit system and the DART Underground Interconnector.

##### 3.12.1.2 Ports and Harbours

The GDA has a relatively large number of large ports and harbours in comparison to other regions, mainly due to busy sea traffic between Ireland and the UK mainland. The three main ports are Drogheda, Dublin and Dún Laoghaire, with Dublin and Dún Laoghaire operating as international ferry ports. In 2007, Dublin Port had a total trade throughput of 30.9 million tonnes, a throughput of 1.3 million ferry passengers and a turnover of €70.5 million. Over 80% of imports through Dublin Port are consumer goods destined for retail outlets in the city and surrounding areas. Dublin Port is planning to expand as previously mentioned and the potential addition of Bremore Port at Balbriggan will increase the regions international trading capacity. The road and rail infrastructure of the east coast also allows relatively fast linkage with the ports at Rosslare Europort and Belfast/Larne.

The GDA also has to six fishing ports; Balbriggan, Skerries, Howth, Dún Laoghaire, Wicklow and Arklow (Arklow has some minor commercial activity also).

As previously mentioned in the Water Resources Section there are a number of navigable water systems in the region including both canals and portions of the Boyne and Liffey Rivers.

##### 3.12.1.3 Airports

There are two international airports located within the region; Dublin Airport in Fingal and Casement Aerodrome at Baldonnel. Dublin Airport is Ireland's busiest and largest international airport. It is currently expanding to include a new terminal and third runway, greater facilities for passengers in the form of hotels and car parks and it will potentially be linked to the new Metro system subject to planning. The presence of this busy international airport is essential to the continued economic and social development of the region and the country.



Casement Aerodrome located on the south western fringes of Dublin City is a national facility for the states air force as well as a commercial airport for shipping and private passengers.

#### 3.12.1.4 Gas, Electricity and Telecommunications

The region is serviced by a well established electricity supply grid. There are a number of power stations, hydroelectric stations and wind farms located in the region supplying electricity. The majority of the region is connected to the national gas supply network which comes from a number of natural national resources, from the UK and in the near future from the Shannon Liquid Natural Gas Terminal in Limerick. The region also has the most well developed telecommunications network in the country which is seen as an important asset for sustainable business development and community/social infrastructure.

#### 3.12.1.5 Waste Management

The region is serviced by a range of private and public waste collection services and municipal and construction and demolition landfills. In the last decade the number of landfills has reduced through closure, capping and restoration at the end of their lifetimes. The Region currently has an array of modern and environmentally managed and sustainable landfills alongside a well developed recycling collection service. Ireland has had the fastest rate of recycling growth in the EU in the past decade.

Table 3.12 provides a summary of the number of licensed landfills and thermal treatment facilities currently within the GDA. It should be noted that some licences are for different aspects of the same facility. There are currently no hazardous waste landfills in the region which has an economic and environmental impact on the sustainable development of the region as such waste has to be region exported.

**Table 3.12 GDA Waste Licences for Landfills and Incinerators**

County	No. Landfill	No. Thermal Treatment
Dublin	6	1 (Not yet operational)
Kildare	14	0
Meath	9	1 (Not yet operational)
Wicklow	10	0

The sustainable management of biodegradable municipal waste (BMW) is recognised as one of the most pressing environmental problems currently facing the GDA. The anticipated increases in waste generation and associated infrastructure requirements bring into greater focus the magnitude of the challenges ahead facing the population of the GDA. In the case of BMW waste management, the Landfill Directive targets for 2013 and 2016 will prove significantly challenging. The recently published International Review of Waste Management Policy, by the DoEHLG, September 2009, has brought forward a number of policy recommendations in order to assist Ireland achieve its targets set out in the Landfill Directive and also to promote and improve more sustained and economically viable waste management in Ireland over the coming years.

#### 3.12.1.6 Flood and Coastal Defences

Flood alleviation works have taken place on the Tolka River and are planned on the Dodder subject to planning in the future. The Liffey River is controlled by the ESB so fluvial flooding is not an issue with this river. As previously mentioned, coastal defences within the GDA consist of a network of seawalls, embankments, revetments and boulders. These are primarily concentrated around Dublin Port (Dublin Bay), Drogheda (Boyne Estuary), Arklow and the coast between Greystones and Wicklow.

#### 3.12.1.7 Water Supply and Wastewater Treatment

There are eight impoundments in the region. These include locations at Golden Falls, Broadmeadow Rail Bridge, and the reservoirs at Vartry, Poulaphouca, Glenasmole and Leixlip. Abstractions within the region are taken from a mix of groundwater, lake and river sources and are used for both public and private water supplies.

There are eighty-six wastewater treatment plants (WWTP) within the region. The majority of these discharge directly to river systems; however, a few discharge to lakes, transitional and coastal waters. The locations of the WWTP within the region are shown on Figure 3.9.

#### 3.12.1.8 Recreational Amenity

While the rural landscape of the region can be described as a material asset for recreation, in the urban zones it is the parks and green belts which can truly be seen to be an asset for urban communities. In Dublin City a diverse range of parks exist ranging from small parks like Kenilworth Square and St. Stephen's Green, to the large parks of Fairview and Bushy Park to the extensive Phoenix Park with its Zoological Gardens and national monuments.

Twenty protected bathing waters are present in the GDA, ten of which are located between Malahide and Bray. Other large protected recreational water areas are near Laytown, Skerries and Brittas Bay South. The coastline of the GDA is also very busy with recreational sailing, with the main areas being around Dublin Bay from Dún Laoghaire to the Ben of Howth, then off the coast of Bray, Arklow and Greystones, where marinas are located. The lakes within the District are also used for recreational activities, such as salmon, trout and coarse fishing in Lough Ramor and sailing and windsurfing on Lough Lene.

#### 3.12.2 Relevant environmental issues

Increased development including residential and industrial expansion in the region especially within Dublin City exerts pressure on all existing material assets. For water resource management the availability of water supplies in the future is in doubt due to the identified need for a new water source for the Greater Dublin Area by 2016. If a new supply is not secured there would be increased pressure on existing sources to supply demand with the possibility of water shortages resulting in impacts on commercial and industrial operations in the region.

There are also several proposals for expansion or introduction of new commercial port facilities at Bremore in the north of the GDA region along with development and expansion of existing fishing ports, e.g. Greystones Harbour development, which while considered material assets may result in impacts to water quality and ecosystems. Dublin Airport continues to expand as a result of its international gateway status and the economic growth of the region and the country. The sustainability of air travel is an important issue in relation to climate change and air quality.

The transportation network of roads and rail are already at capacity, however the planning and development of further infrastructure should alleviate these problems over the next decade. The improvements of the inter urban rail links, the extension of the rail line back to Navan, the Metro system and extension of the LUAS and the DART Underground Interconnector will all provide new sustainable forms of transport providing greater connectivity for the region and internationally as they will connect to International Port and Airport international termini.



### 3.13 Interactions / Interrelationships

The interactions and interrelationships between the SEA environmental baseline topics is an important consideration for the environmental assessment. Table 3.13 outlines the key identifiable interrelationships arising in this SEA. These potential interrelationships are taken into account throughout the assessment process. While all environmental topics interact with each other to some extent only the significant relationships on a regional level were considered. Direct relationships are highlighted in red while indirect relationships are highlighted in blue.

**Table 3.13 Key Interrelationships between Environmental Topics**

	Biodiversity	Population & Human Health	Soils & Geology	Water Resources	Flooding	Air Quality & Climate	Cultural Heritage	Landscape	Material Assets
Biodiversity		Blue	Blue	Red	Blue	Blue	White	Blue	White
Population & Human Health	Blue		Red	Red	Red	Red	Red	Red	Red
Soils & Geology	Blue	Red		Blue	Blue	Blue	Blue	Red	Red
Water Resources	Red	Red	Blue		Red	Red	White	Red	Red
Flooding	Blue	Red	Blue	Red		White	Blue	Red	Red
Air Quality & Climate	Blue	Red	Blue	Red	White		White	White	Red
Cultural Heritage	White	Red	Blue	White	Blue	White		Red	White
Landscape	Blue	Red	Red	Red	Red	White	Red		Red
Material Assets	White	Red	Red	Red	Red	Red	White	Red	

Of particular note is the interrelationship between water (quality and quantity) and biodiversity, flora and fauna, soils and geology and human health and population. Flora and fauna rely directly on the aquatic environment as a habitat but the terrestrial environment can also be strongly influenced by the aquatic environment. A wide range of terrestrial habitats, such as callows and turloughs, rely on the aquatic environment, both surface and groundwaters for their formation and terrestrial fauna and birds can rely on it as a source of food. Water quality is also of particular importance with regard to human health as it provides a source of potable water and provides foodstuffs (e.g. fish and shellfish). Water is also used for leisure and recreational purposes, providing a material asset both for local populations and as part of the tourism economy.

A further principle interrelationship of note is between water resources and climate. Greenhouse gas emissions associated with energy use during water management activities, such as treatment of drinking water and wastewater, have the potential to negatively impact on climate through increased contribution to climate change. As a consequence, more frequent and more intense flooding and drought conditions can affect material assets and human health as well as biodiversity.

### 3.14 Mapping of Environmental Sensitivities

As previously stated, the purpose of the description of the existing environment is to identify its current state, against which the likely effects of implementing the RPGs can be assessed. The RPGs impacts can be estimated as the difference in environmental conditions with and without implementation of the plan.

Consequently, the compilation of the environmental baseline can indicate the sensitivity of areas of the GDA to change. As spatial information of the GDA was gathered, Geographical Information Systems (GIS) was utilised to overlay and compare spatial information and provide an indication of sensitivity. The following questions were asked when providing a sensitivity ranking for the natural features of the region;

In relation to those parts of the region likely to be significantly affected by implementation of the plan -

- Where is significant (scale and/or type) development likely to take place during the life of the RPGs? What kind of development will it be and what impact is it likely to have on the environment?
- Are there parts of the region (such as protected sites, areas with vulnerable water courses, or high amenity areas) which are more sensitive to development than others? How are such areas likely to be affected by the RPGs?
- Consider the requirement to identify environmental problems focused on identification of the nature, location and scale of development-related environmental problems in the area, such as water or air pollution, or problems that may arise from car-dependent land use patterns.

Arising from these questions, each type of spatial data was provided with a ranking e.g., a river was given a sensitivity ranking greater than that of urban land. Through the overlaying of layers and the provision of ranking a map of sensitive areas was constructed to indicate which parts of the GDA are most sensitive to development and importantly which areas should be avoided where possible to ensure that the GDAs development remains sustainable and does not impact the natural environment of the GDA.

A weighted overlay map was created using the GIS database to identify locations where a number of environmental sensitive factors co-existed. Figure 3.10 indicates the level of overlap between the Environmental Sensitivities which include:

- Biodiversity (Special Areas of Conservation, Special Protection Areas, National Heritage Areas, potential National Heritage Areas and Ramsar Sites);
- Water Resources (Rivers, Waterbodies, Flood points, Flood Extents, Floods predictive, Groundwater, Drinking Water Groundwater, Drinking Water line, Drinking water surface water poly, recreational water lines);
- Coastal and Marine Environment (Bathing waters, Habitat rivers, Nutrient Sensitive Areas, Nutrient Sensitive Waterbodies, Transitional Waters, Coastal developed areas, Licensed IPPC locations, Licensed waste water locations, Urban waste water treatment plant locations, Marina, Coastal and Fishing ports);
- Cultural Heritage (National Monuments, Architectural Heritage, Architectural Conservation Areas).

All of the above considerations were given an equal weighting of 5. The areas shaded in red and orange indicate areas where there is high vulnerability (large degree of overlap), green moderate vulnerability and blue low vulnerability (low degree of overlap between the above factors).





Where the sensitivity mapping indicates an elevated level of vulnerability future development could conflict with these cumulative environmental sensitivities and lead to a deterioration in environmental integrity.

The sensitivity mapping also includes for a range of factors which should be taken into account to ensure that the natural environment achieves a range of statutory environmental targets and that it is as protected as possible in the development of the GDA;

- mitigating the causes and effects of climate change;
- adapting to climate change impacts;
- preventing eutrophication and other water pollution;
- protecting natural habitats and species populations;
- remediation of contaminated land.

### 3.15 Evolution of Environmental Baseline in absence of Draft Plan

The 'do-nothing' scenario provides an outlook of what the future composition of the GDA might look like if most existing trends, behaviours and policies remain unchanged. However, it should be noted that in reality circumstances will change, as government policies are implemented (e.g. climate change, water and waste management and flood risk policies) and behaviours change (e.g. increased recycling). The benefit of assessing a do-nothing scenario is that it identifies the key pressure loci on the GDAs environment, some of which may be unknown, and as a consequence highlights the need for action.

The Economic and Social Research Institute (ESRI) has undertaken a three year research project which identifies national trends in the evolution of activity across the economy and society which affects waste generation and emissions of potential pollutants and can be used to ascertain the level of change in the GDA for the do-nothing scenario. While the report focuses on national trends, the same trends will apply to the GDA. The ESRI report was written as the economic situation nationally and internationally was beginning to reverse and as such does partially reflect the current situation, but is optimistic about growth nationally. However, it is likely that the expected growth listed below is unlikely to be achieved in the period forecast;

- GNP growth is expected to reach on average 3.5 per cent a year for the first half of the next decade, and GNP per capita to grow by 2.5 per cent a year;
- Personal consumption is expected to continue to grow strongly at over 3 per cent per annum beyond 2010;
- Employment, while currently undergoing a reducing trend, is expected to grow slowly by an average of 1.2 per cent per annum between 2010 and 2015 as the economy recovers. However, while the unemployment rate in the ESRI report was expected to average 6.2 per cent of the labour force, it is likely that this figure will be moderately higher for the duration of that five year period;
- The ESRI indicated that moderate output growth was expected from the industrial sector averaging 2.3 per cent per annum between 2010 and 2015;
- Output of the building and construction sector is anticipated to grow by less than 1 per cent per annum between 2010 and 2015. House completions are forecast to average 48,000 per annum, compared to an average of 63,000 in 2005–2010;
- While strong growth in the market services sector, in particular, was expected it is unlikely that the business and financial services will achieve the 6 per cent per annum average growth in output that was forecast by the ESRI for 2010–2015. Growth is expected but at present cannot be accurately forecast.

With this growth, there would be an expected reduction in available brown field sites to redevelop as well as a reduction in zoned land available for acceptable development. Pressures on the natural environment would also ameliorate as a result of the expansion if development were not progressed in a sustainable manner. The ensuing likely environmental deterioration if sustainable practices were not used would lead to an overall reduction to the quality of life of the GDA.

Associated with the expected growth, even in the current economic situation, the level of services required to provide for this growth will need further development and advancement to achieve a sustainable environment. Development of sustainable and environmentally acceptable energy generation, waste management, water and wastewater management practices and air emissions will be the key factors in determining the level of sustainability this growth can achieve.

Attempting to predict the rate and evolution of economic development within the GDA and its possible environmental impacts enables potential problems to be identified and solutions devised in advance to avoid deterioration of the natural and built environment. The MOLAND Modelling exercises conducted as part of the development of the RPGs has attempted to ascertain the evolution and distribution of the GDA under different scenarios and is considered in more detail in Chapter 6.

## 4 SEA OBJECTIVES, TARGETS & INDICATORS

### 4.1 Objective of this Environmental Report

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The SEA is designed to assess the potential environmental impact of the RPG draft policies and their associated recommendations against the environmental baselines established. The policies and associated recommendations are assessed against a range of established environmental objectives and targets. Indicators that are recommended in the SEA are utilised over the lifetime of the RPGs to quantify the level of impact over time of the draft policies and recommendations on the environment as a measure of the RPGs success or failure promoting the sustainable development of the GDA.

### 4.2 Environmental Objectives

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The formation of the environmental objectives required cognisance of the environmental protection objectives established at a range of levels through the legislation and guidelines outlined in Chapter 2. Global, EU and national level legislation, policy and associated environmental objectives were utilised to develop the environmental objectives for the GDA. The objectives outlined below are also placed in the context of and linked into the development of the RPG draft policies and recommendations to ensure that the objectives are appropriate for the GDA.

The environmental objectives are also linked to appropriate targets and indicators outlined in further sections 4.3 and 4.4.

The environmental objectives for the RPGs are outlined below;

#### Biodiversity, Flora and Fauna

Conserve the diversity of habitats and species while improving access for the appreciation and promotion of wildlife.

#### Population and Human Health

Improve people's quality of life based on high-quality residential, working and recreational environments and on sustainable travel patterns.

#### Soils and Geology

Safeguard soil and geological quality and quantity.

#### Water Resources and Flooding

Improve water quality, the management of all waters and coastal resources to comply with the standards of the Water Framework Directive and incorporate the objectives of the Floods Directive into sustainable planning and development.

#### Air Quality and Climate

Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency.

#### Cultural Heritage including Archaeological and Architectural Heritage

Promote the protection and conservation of the cultural, including architectural and archaeological, heritage through the sustainable integration of development with its surroundings in a coherent fashion to enhance the context into which it is placed.

#### Landscape

Conserve and enhance valued natural, developed and historic landscapes and features within them.

#### Material Assets

Make best use of existing infrastructure and promote the sustainable development of new infrastructure.

### 4.3 Environmental Targets

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Each of the Environmental Objectives has a range of Environmental Targets which the RPG Policies and Recommendations are aimed towards. These Targets need to be quantifiable to ensure that monitoring can be carried out effectively. The following targets have been proposed to direct the sustainable implementation of the RPG Policies and Recommendations and will be incorporated into the development of the GDA to ensure that the environment is maintained and / or improved where possible.

#### Biodiversity, Flora and Fauna

- Improve protection for protected sites and species;
- Improve protection for important wildlife sites, particularly urban wildlife corridors;
- Improve access for the appreciation and promotion of wildlife.

#### Population and Human Health

- Reduce population exposure to high levels of noise, vibration and air pollution;
- Increase modal shift to public transport;
- Co-ordination of land use and transportation policies;
- Reduction in journey to work (time/distance);
- Improve access to recreation opportunities.

#### Soils and Geology

- Maintain the quality of soils;
- Reduce soil contamination;
- Safeguard strategic mineral reserves;
- Re-use of brownfield lands, rather than developing Greenfield lands;
- Minimise the consumption of non-renewable sand, gravel and rock deposits.

#### Water Resources and Flooding

- Improve water quality in rivers, lakes, estuaries and groundwater;
- Protection of catchments / basins character and morphology;
- Sustainable management of zones vulnerable to flooding;
- Promote sustainable drainage practices to improve water quality and flow;
- Reduce emissions to the coastal and marine environments;
- Improve protection of intertidal zones (estuaries, lagoons and coast);
- Promote the adoption of Integrated Coastal zone Management practices;
- Restrict unnecessary development in the coastal zone.

#### Air Quality and Climate

- Reduce levels of air pollution;
- Minimise emissions of greenhouse gases;
- Reduce waste of energy, and maximise use of renewable energy sources.

#### Cultural Heritage including Archaeological and Architectural Heritage

- Regeneration of derelict and underutilised heritage sites;
- Improve appearance of areas with particular townscape character;
- Improve protection for protected archaeological sites and monuments and their settings, protected structures and conservation areas and areas of archaeological potential;



- Enhance access to sites of heritage interest.

#### Landscape

- Improve protection for landscapes and seascapes of recognised quality;
- Protect existing monuments to ensure their landscape context;
- Maintain clear urban/rural distinctions;
- Improve landscapes and streetscapes to provide a better setting for day to day life, pedestrian movement and social interaction;
- Enhance the design and provision of, and access to, green space in urban areas.

#### Material Assets

- Improve availability and accessibility of commercially provided facilities and public services;
- Increase local employment opportunities;
- Improve efficiencies of transport, energy and communication infrastructure;
- Improve waste water treatment infrastructure;
- Reduce the generation of waste and adopt a sustainable integrated approach to waste management and associated infrastructure.

#### 4.4 Environmental Indicators

The assessment of the RPG Policies and Recommendations against the Environmental Objectives and Targets is required to be measurable. The Environmental Indicators need to be capable of the following;

- describing trends in the baseline environment;
- demonstrating the likely significant impact of the implementation of the RPGs;
- being used in a monitoring programme;
- providing an early warning of significant unforeseen adverse effects;
- prioritising key environmental impacts;
- ensuring the number and range of environmental indicators are manageable in terms of time and resources.

Consequently a range of Environmental Indicators required to assess the level of impact of the RPGs on the environment are proposed and outlined below;

#### Biodiversity, Flora and Fauna

- Number and extent of Protected Sites;
- Areas actively managed for conservation;
- Population and range of Protected Species;
- Number and extent of sites at Favourable Conservation Status;
- Achievement of the Objectives of Biodiversity Plans.

#### Population & Health

- Census population data;
- Rates of Unemployment per area;
- % increase in housing (number and type);
- % change of commuter transport distances / times / range of public transport utilised;
- % of commuters using public transport;

- % change in education levels.

#### Soils & Geology

- Rates of re-use / recycling of construction waste;
- Rates of cement / concrete production;
- Rates of brownfield site and contaminated land reuse and development;
- Rates of greenfield development.

#### Water Resources and Flooding

- Compliance of potable water sources to water quality regulations;
- Compliance of surface waters with national and international standards;
- Percentage increase (or decrease) in numbers of water bodies at good status (surface water and groundwater taken separately);
- Potable and wastewater treatment capacities versus population;
- % of wastewater achieving tertiary treatment;
- Achievement of the Objectives of the River Basin Management Plans;
- Amount of new developments within the flood plain;
- Annual costs of damage related to flood events;
- Percentage of drinking water standard exceedences compared with previous year's returns;
- Achievement of the coastal and transitional waters objectives of the River Basin Management Plans;
- The number of flood risk management plans in place by 2015;
- Port and harbour navigation and activities remain unaffected.

#### Air & Climate

- Traffic, Transport and Vehicular survey data;
- National and region specific emission data;
- Compliance with national standards;
- Reduction in greenhouse gas emissions;
- Number and extent of emission licensed facilities;
- Number of energy / renewable energy production facilities;
- % of dwellings / businesses using renewable energies;
- Rates of energy / renewable energy consumption.

#### Cultural Heritage including Architectural and Archaeological Heritage

- Rate of loss of sites;
- Rate of delisting of sites;
- Updating of inventories to include new sites / features;
- Achieving the objectives of development plans regarding heritage protection;
- Range and extent of areas of heritage potential;
- Range and extent of areas of special planning controls.

### Landscape

- Range and extent of Amenity Landscapes / Seascapes;
- Rates of development within designated landscapes;
- Rates of urban expansion;
- Rates of deforestation;
- Rates of agricultural land re-development;
- Ratio of hard surfaces to soft surfaces and % loss of vegetated areas in relation to flooding;
- % change in the extent of public rights-of-way and walking routes in areas of high visual amenity;
- Level of public open space in areas with high ratings on National Deprivation Index;
- Expenditure per capita on parks and open spaces by each local authority;
- Expenditure per unit of development on public open space;
- % of institutional lands that are open space/undeveloped in each local authority and rate of loss of these lands;
- Provision of play facilities per capita;
- % change of land use from rural to urban;
- Range and extent of National Parks.

### Material Assets

- Location / level of Infrastructure;
- Achievement of development plan objectives;
- Rates of deprivation.
- Potable and wastewater treatment capacities versus population;
- % of wastewater achieving tertiary treatment;
- statistics
- Quantities of generation of main waste streams
- Rate of diversion of waste from landfill;
- Range and extent of recycling facilities and services;
- Rate of diversion of Biodegradable Municipal Waste (BMW) from landfill;
- Rates of recycling of main waste streams.

The above list of indicators is indicative only and is for discussion purposes only. The list may be amended following on from discussions with the relevant Government Departments and Agencies, the availability of resources and relevance of the indicators to monitor the environmental baseline.



## 5 ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

### 5.1 Introduction

The approach used for assessing the RPG Policies and Recommendations was an objectives led assessment. The assessment carried out was primarily qualitative in nature, with some based on expert judgement. This qualitative assessment compares the likely impacts against the Strategic Environmental Objectives to see which RPG Policies and Recommendations meet the Strategic Environmental Objectives and which, if any, contradict these.

Particular reference was made to the potential for cumulative effects in association with other relevant plans and programmes within the GDA area. As required for the SEA, the environmental team were cognisant of the legislation, plans and policies outlined in Table 1.1 throughout the assessment process. A range of GDA specific plans and policies that were extremely relevant to this assessment process included;

- The proposed 2030 Vision for Greater Dublin Transport (DTO);
- The Dodder and the Fingal East Meath Flood Risk Assessment and Management Studies;
- The Water Supply Project – Dublin Region Draft Plan; and
- The relevant River Basin Management Plans.

Ensuring that the RPGs did not contradict or go against the strategies and objectives in each of these plans was key to ensuring a compatible approach to the sustainable development of the GDA. The output of the assessment process ensures that the RPGs are complimentary to the existing and planned strategies and policies applicable to the GDA from these documents and also that the strategy for sustainable development of all sectors within the GDA is as robust as possible.

Particular regard was also paid to the need for the sustainable development of the GDAs ecological resources (including the conservation of fish and other species of fauna and flora, habitats and the biodiversity of inland and marine water ecosystems and commercial and natural fisheries) as economic resources. In conjunction with the Habitats Directive Assessment due consideration was given to potential significant impacts of the RPG policies and recommendations on ecological resources for the following areas:

- Surface and Ground Water quality;
- Surface water hydrology;
- Fish spawning and nursery areas;
- Passage of migratory fish;
- Areas of natural heritage importance including geological heritage sites;
- Designated marine protected areas;
- Biological Diversity;
- Ecosystem structure and functioning;
- Seabirds and marine mammals;
- Fish and shellfish cultivation;
- Sport and commercial fishing and angling;
- Amenity and recreational areas;
- Mineral and aggregate resources;
- Sediment transport and coastal erosion;

- Navigation;
- Other legitimate use of the sea.

The assessment process categorised environmental impacts using the following ratings based in the impact assessment criteria defined by the EPA for environmental impact assessment. While synergistic impacts are also included in the EPA assessment guidelines, giving the significant crossover and interaction between certain environmental topics as outlined in 3.13, it was considered that there is the potential for all impacts to be synergistic across the GDA and consequently a specific synergistic impact was not included. Cumulative impacts were considered to be any impacts which expand and compound over time e.g. the improvement of water quality over time would have a cumulative and positive impact on biodiversity as ecosystems improve which could also have a cumulative effect on landscape.

As the RPGs are for the GDA as a whole region, the strategic impacts across the region are assessed from a regional perspective in cognisance of the environmental sensitivities outlined in Section 3.14;

**Table 5.1 Impact Ratings**

Duration and Type of Impact	
S	Short-term - Impact lasting one to seven years
M	Medium-term - Impact lasting seven to fifteen years
L	Long-term - Impact lasting fifteen to sixty years
P	Permanent - Impact lasting over sixty years
T	Temporary - Impact lasting for one year or less
C	Cumulative – Impact that is ameliorated by other impacts
Significance of Impact	
	Major positive
	Positive
	Neutral
	Negative
	Major negative
	Uncertain

## 5.2 Iterative Process

The RPG Team and the Environmental Assessment Team proceeded through the development process of the draft RPG policies and recommendations together. As draft policies and recommendations were submitted for assessment the environmental team highlighted issues that required mitigation. Workshops were held between the RPG Team and the Environmental Team with a representative from the EPA to highlight initial environmental impact assessment findings. Internal workshops were held with a variety of environmental specialists and a major workshop was held between the RPG Team, Environmental Team and the Habitats Assessment Team to proceed through all of the identifiable environmental impacts and make mitigatory amendments as required.

Subsequent to the public consultation process of the draft RPGs and its associated Environmental Report, the RPGs were updated to reflect input from the public, statutory and non-statutory bodies and local representatives. The Environmental Team and the RPG Team worked together on this, continuing the iterative process. Each time a revision of wording of the RPGs was considered, the Environmental Team would consider each and adjust the assessment as required and provide input to the RPG team regarding mitigation that could be incorporated into the RPGs to ensure sustainability and reduce or remove potential environmental impacts to the GDA.

The iterative process will be described in more detail in the SEA Statement which will be produced subsequent to the publication of this Environmental Report of the Final RPGs.

### 5.2.1 RPG Policy versus Policy Assessment

The initial stage of the assessment considered the cumulative effects of the RPG Policies against each other to determine if certain policies working in combination could have an environmental impact. An assessment matrix was compiled to ascertain the level of environmental impact to the GDA arising from the cumulative effect of policies in combination. This matrix is included in Appendix A2.

As the RPG policies have been designed to incorporate sustainability and are cognisant of the GDAs environment, the overall environmental impacts arising through the interaction of policies was positive. While a range of impacts were considered to have uncertain impacts at this stage the potential negative impacts were relatively few. These potential negative impacts were discussed with the RPG development team so that mitigation could be included in the wording of policies and formation of strategic recommendations.

The potential negative impacts arising from a cumulative effect of policy interaction is as follows;

#### **Policies PIP1 versus GIP4 and GIP5**

Policy PIP1 conflicts with policies GIP4 and 5 as the creation or upgrading of transportation corridors and facilities can have a detrimental effect on the landscape of the GDA. However, mitigation measures are included as part of the Green Infrastructure strategic recommendations.

#### **Policy GIP1 versus FRP1**

Policy GIP1 and policy FRP1 are in conflict as the protection of built heritage can have negative impacts on preventing / reducing flood risk. Protected river side and coastal built heritage has the capacity to contribute to or exacerbate flood risk. Continued protection of these features could prevent flood risk alleviation. The environmental team recommended that the RPG team include a new strategic recommendation that recognises the need for a balance between public safety and the necessity to protect built heritage.

### 5.2.2 RPG Policy and Recommendation versus Environmental Objectives Assessment

Each of the RPG strategic policies and recommendations were assessed against the environmental objectives by the environmental team. The assessment process was completed using an environmental assessment matrix. This matrix is located in Appendix A3. For the draft RPGs, any negative impacts that arose from the assessment process were commented on to provide the RPG Team with environmental recommendations. Negative and uncertain environmental impacts were then further discussed through workshops with the RPG Team and Habitats Assessment Team to provide mitigation measures or to provide extra recommendations to ensure environmental integrity.

The matrix for the final RPGs largely indicates positive or neutral impacts with a reduction in uncertainty and negative impacts that were previously indicated in the draft RPG assessment. Any negative impacts that remain arise from conflict between the sustainable development of the GDA in line with the RPGs and the any other plans and programmes relevant to the GDA and the preservation of environmental heritage and existing GDA infrastructure and assets which may be impacted upon. It is not possible to mitigate at a regional level all the potential negative impacts. Potential negative impacts, where possible, will have to be mitigated at the county development plan or project level as they arise.

## 5.3 Principal Environmental Impacts

As the RPG strategic policies and recommendations have been designed to promote sustainability and to protect the environment, the majority of policies and recommendations have positive impacts when assessed against the environmental objectives. The matrix outlined in Appendix A3 highlights these potential impacts. The principal uncertain and negative impacts are summarised in the following sections.

### 5.3.1 Biodiversity, Flora and Fauna

The majority of potential impacts for Biodiversity, Flora and Fauna are positive or neutral. There are however some potential minor negative impacts. These impacts arise from the potential expansion of development into undeveloped and rural areas of the GDA. However, these impacts will be mitigated on a project basis through the environmental impact assessment process.

### 5.3.2 Population & Human Health

The majority of potential impacts for Population and Human Health are positive or neutral. There are no potential minor negative impacts.

### 5.3.3 Soil & Geology

The majority of potential impacts for Soils and Geology are currently neutral or uncertain. There are a range of potential negative impacts. As the sustainable development of the GDA requires the use of aggregates for building materials there will always be an impact on the geological resources of the region. However as quarries require an EIA, environmental impact will be addressed at application stage.

### 5.3.4 Water Resources & Flooding

The RPG strategic policies and recommendations promote the sustainable use and management of the GDAs water resources in line with the objectives and measures of the relevant River Basin Management Plans. The future planning and development of the GDA is required to be in line with the OPWs guidance of planning and flood risk and will be informed by the development of a range of Catchment Flood Risk Assessments and Management Plans which will also be subject to their own SEA process.

A negative impact associated with water resources of the GDA is the potential for impact to groundwater through the use of geological resources. As previously stated such projects will require an EIA and environmental impacts will be assessed in more detail at application stage. A further potential impact is the development of flood risk alleviation measures in river catchments. Such flood relief measures can have negative impacts on catchment character, morphology and habitats. However, it should be noted that such developments eventually integrate into the catchment through adaptation and the mitigation measures provided will minimise potential environmental impacts.

### 5.3.5 Air & Climate

The majority of potential impacts for Air and Climate in general range from positive to uncertain. The principal potential negative impact arises from the further expansion of air traffic into and out of the region's airports, primarily Dublin Airport. It should be noted however that improvements in aircraft emissions through modern aircraft design and fuel efficiency will reduce the level of impact on climate and human health.

### 5.3.6 Cultural Heritage including Architectural and Archaeological Heritage

The majority of potential impacts for Cultural Heritage including Architectural and Archaeological in general range from positive to uncertain. However, it is noted that particularly regard should be paid to potential localised impacts which can become cumulative impacts across a range of projects in an area subject to large development. This should be addressed throughout the relevant EIA and SEA processes for infrastructure and future developments across the GDA.

### 5.3.7 Landscape

The majority of potential impacts for Landscape are positive or neutral. However, there are a number of potential minor negative impacts. These negative environmental impacts to landscape arise from the continued urban expansion of the region. It is essential that the region undergoes expansion in a sustainable and environmentally friendly fashion. However, as the populace is predicted to expand the necessary services and infrastructure are required to expand and improve as necessary. This in turn increases the pressure on the landscape both rural and urban.

There are a range of strategic policies and recommendations designed to protect the landscape however and mitigation measures have been proposed throughout the assessment to ensure that the integrity of the GDAs landscape is not compromised.

The landscape is also adaptable and can integrate new developments and infrastructure over time through the inclusion of landscape and visual mitigatory measures. Of particular note in this regard is the necessity for water and wastewater treatment and storage facilities which by their nature have to be located in river valleys adjacent to water features. Flood alleviation measures can also alter the landscape of river valleys through morphological change to the river and alteration of flood plains with protective structure. While these are essential facilities required for the sustainable development of the GDA they can comprise the landscapes integrity.

It is also noted that the EIA process will include landscape assessments and recommendations on a project by project basis at application stage.

#### 5.3.8 Material Assets

The majority of potential impacts for the GDAs Material Assets are positive or neutral. There are however some potential negative impacts arose through the assessment process in relation the green space in urban areas as well as buffers between the urban and rural landscapes as a material asset. It is advisable for detailed local areas plans to seek avoidance of developing areas of high sensitivity within the zoned lands. Also priority should be given for the development of existing serviced and sequential land. Habitats Directive Assessments shall identify the potential negative impacts on such ecological amenity assets and mitigate appropriately.

## 6 CONSIDERATION OF ALTERNATIVES

### 6.1 Introduction

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As part of the process for the SEA contact was established between the Urban Environment Project and the Dublin & Mid East Regional Authority. Using the MOLAND model the Urban Environment Project team evaluated four scenarios describing four possible future development patterns. The following scenarios were evaluated as part of the SEA:

1. Baseline/Continued Trends Approach.
2. Finger Expansion of Metropolitan Footprint
3. Consolidation of Key Towns & the City
4. Consolidation & Sustainability and some expansion at nodes on Transport Corridors.

Full details regarding the MOLAND model and the methodology employed can be found in Appendix A4.

The consolidation and sustainability of development is a primary theme of both the National Spatial Strategy (NSS) (Department of Environment and Local Government 2002) and the RPGs (Dublin Regional Authority and Mid-East Regional Authority 2004). The following three indicators were used in the study to assess sustainability:

- Encroachment on protected areas (SPAs/SACs/NHAs);
- Development proximity to public transport corridors;
- Metropolitan Area vs. Hinterland Population Split.

Full details regarding the results on the impact of the four scenarios against the sustainability indicators can be found in Appendix A4.

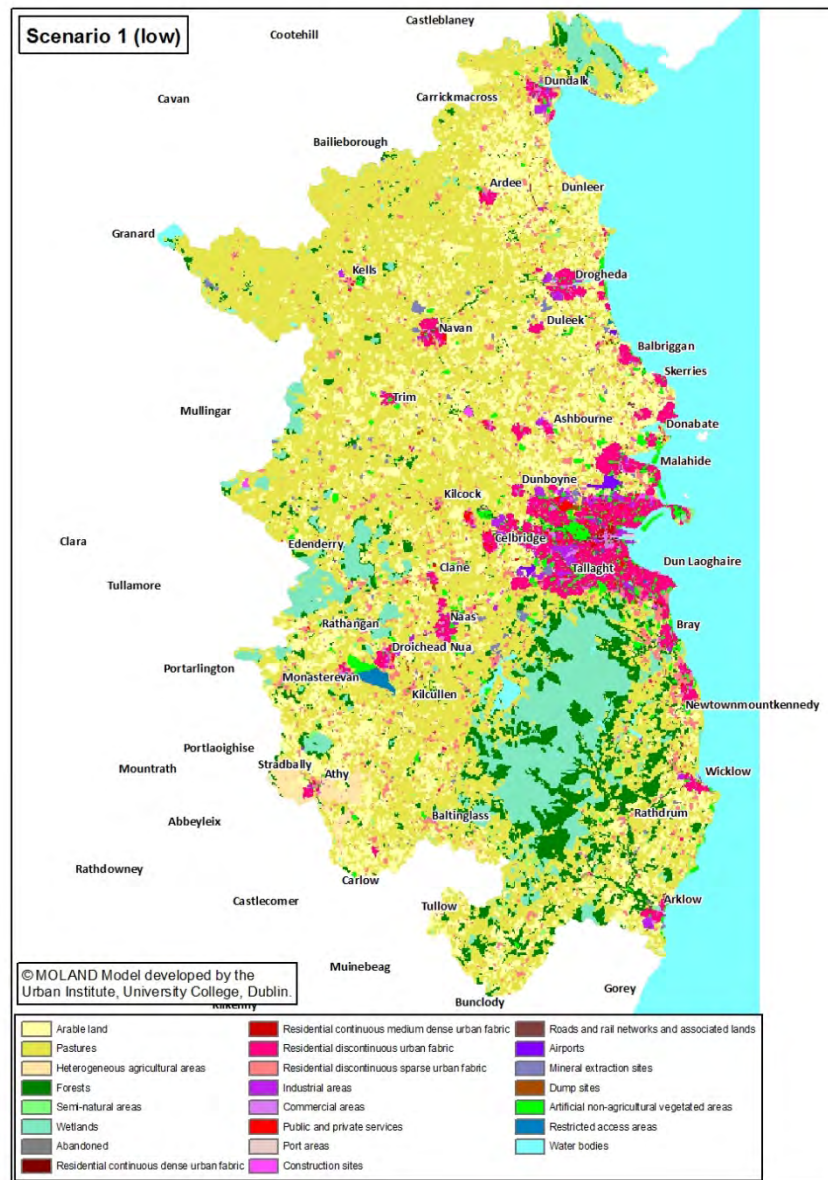
### 6.2 Scenario 1 – Baseline/Continued Trends Approach

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Scenario 1 explores a continuation of the current, dispersed settlement patterns. Although both Strategic Planning Guidelines for the Greater Dublin Area (SPGs) in 1999 and the subsequent RPGs in 2004 emphasised a move toward a consolidated settlement pattern, strong green belt policy and improved transport links (Department of Environment and Local Government 2002); (Dublin Regional Authority and Mid-East Regional Authority 2004); a number of recent studies have suggested that there has been a divergence between policy and practice (Convery et al. 2006, Scott et al. 2006). The Scenario 1 therefore simulates a “business as usual” future, whereby implementation of the SPGs/RPGs has been weak in places. Reflecting the current economic climate delivery of Transport 21 projects were delayed: Metro North and the DART Interconnector are not in place until 2020; the opening of Dunboyne Spur by 2012. With the divergence of policy and practice concerning Green Belts in mind, Scenario 1 does not contain a special greenbelt layer. The decision not to include a special greenbelt layer was taken to explore what the current trend of developer led settlement patterns might lead to if left unchecked. Those areas that enjoy legal protection (NHAs, SPAs, SACs and to a lesser extent pNHAs) were zoned such that development was prohibited from occurring within them.



Figure 6.1 Alternatives Scenario 1



Should development proceed as simulated, i.e. dispersing to a greater or lesser degree across the region, it would imply a continuation of current unfavourable trends (Scott et al. 2006). These trends imply increased isolation of residents within urban centres from the surrounding natural areas and relatively less green space within the urban centres (Brennan et al. 2009). This could lead to negative social effects such as increased crime rates, increased stress, decreased physical activity and decreased longevity (Frumkin 2001, Kuo and Sullivan 2001, Humpel et al. 2002, De Vries et al. 2003).

Commuting in the GDA is already a stressful experience (O'Regan and Bickley 2003), with time lost due to congestion costing the economy an estimated €640 m (DTO (Dublin Transportation Office) 2001). An increase in car dependency implied by the dispersed nature of the forecasts would likely exacerbate the situation.

Waste water provision over such a dispersed area would be extremely difficult and expensive, necessitating septic tank use in a large number of dwellings. Even though technology is improving, this higher number of tanks can be expected to increase the rates of groundwater contamination (Yates 1985, Jamieson et al. 2002). Furthermore, work has already been carried out that suggest that growth in the several areas across GDA will outpace future wastewater treatment provision (Shahumyan et al. In Press).

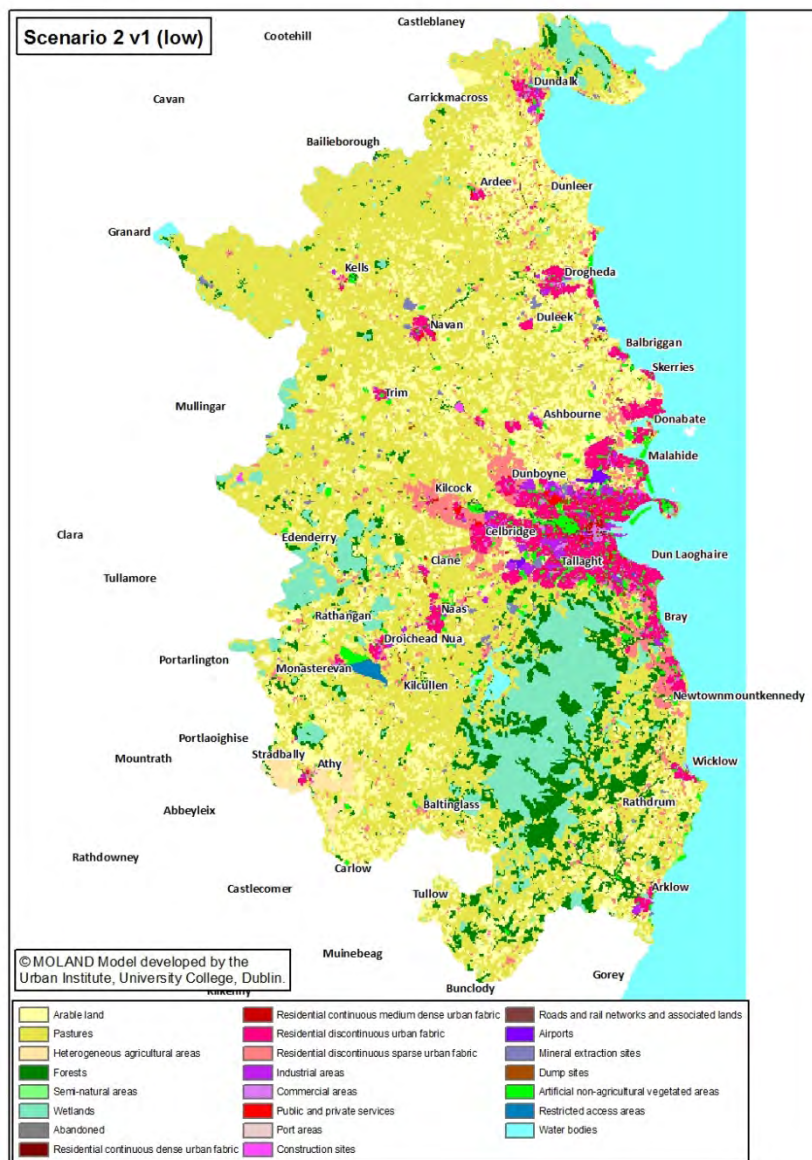


Similar deficiencies could be expected for other services such as waste disposal, education, health provision and emergency service response time.

### 6.3 Scenario 2 – Finger Expansion of Metropolitan Footprint

In this scenario the effects of a firm policy of consolidation are explored. Development is strongly directed toward an expanded metropolitan footprint, which is extended along key transport corridors. In support of this stance on consolidation, all Transport 21 are included and two sub-scenarios were explored for the timing of T21 project delivery; projects were delivered in 2016 and 2020 in sub-scenarios 1 and 2 respectively. The Outer Orbital Route (OOR) was not included and large, strictly enforced Strategic Green Belts are used to discourage excessive development in rural areas and link protected areas. Since the theme of this scenario was to focus development in an expanded metropolitan footprint and along key corridors, large Green Belts were placed between the major roads to encourage development adjacent to transport links. Two types of Green Belts were created; large Outer Green Belts designed to designate areas where development should be kept to a minimum; and smaller Connector Green Belts, designed to preserve links between urban green space and rural areas. The area around the airport and Rush/Lusk is poor in green areas as this area was incorporated into the metropolitan footprint.

**Figure 6.2 Alternatives Scenario 2 Version 1**





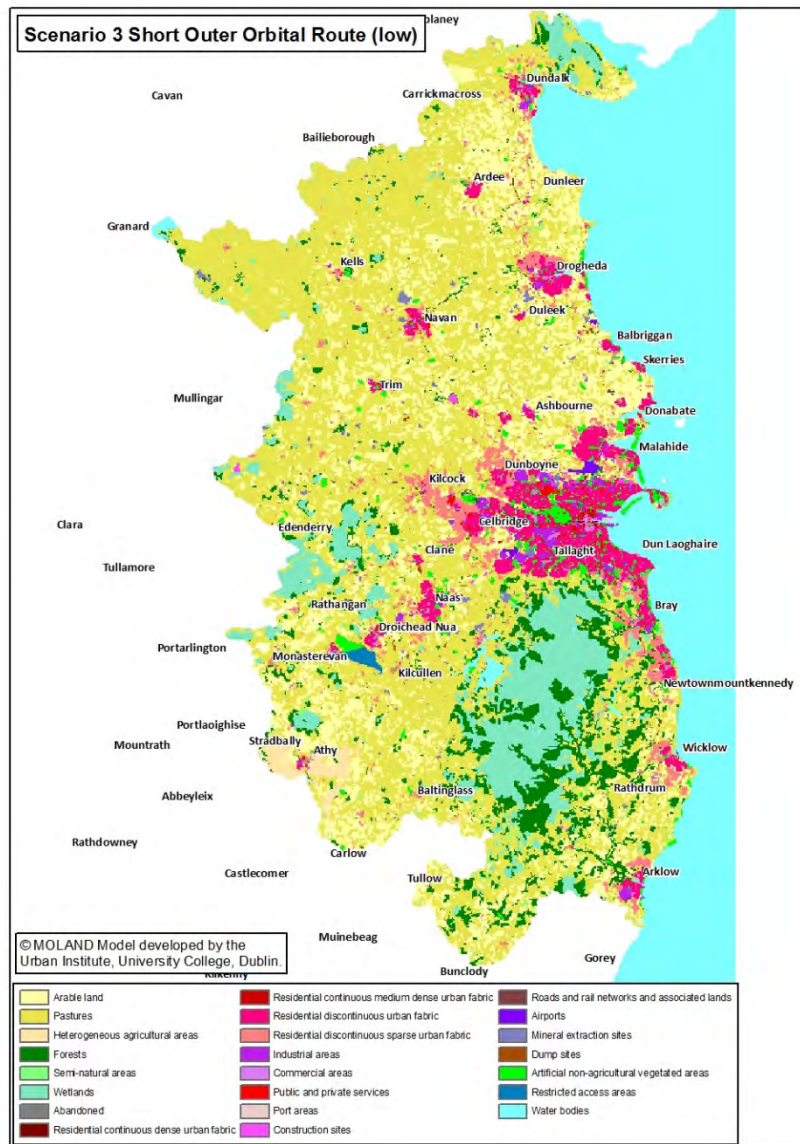
In addition while encroachment upon protected areas is lower overall than in Scenario 1 the SPAs and SACs located on in the coastal areas of the region are more heavily impacted than in Scenario 1. This has not only ecological effects (Burton et al. 2002, Northern Ireland Executive 2003, Burton et al. 2006) but has implications upon Ireland's European obligations under the Birds & Habitats Directives.

#### 6.4 Scenario 3 – Consolidation of Key Towns & the City

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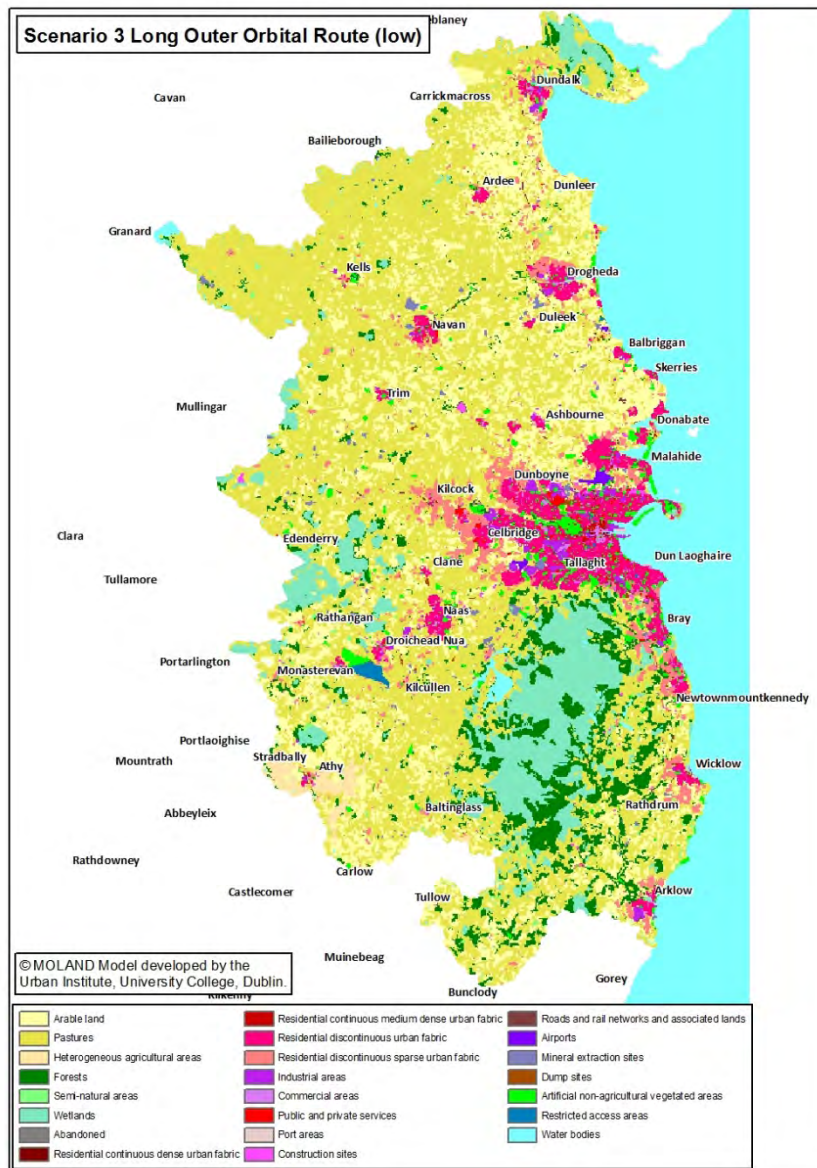
The original SPGs published in 1999 called for future development to be consolidated within the existing metropolitan footprint and development centres along major transport routes (Dublin Regional Authority and Mid-East Regional Authority 1999). Scenario 3 simulates a similar pattern of development. This scenario explored a strong consolidation policy, whereby growth was focused within the existing envelope of the MA and towards a limited number of key towns in the Hinterland. The key towns were Drogheda, Navan, Naas, Wicklow and Arklow. Key Transport 21 projects which facilitated public transport to the City from key towns were included in this scenario (see table 2). In consultation with Dublin & Mid East Regional Authority, two versions of the Outer Orbital Route (short- and long-OOR) were implemented as sub-scenarios. Increased densities were delivered by infilling areas within the metropolitan footprint and in main towns of the Hinterland. The metropolitan footprint was not expanded. Green Belts are more extensive than in Scenario 2, the Green Belts promoting consolidated development and to reinforce brownfield focus except in key identified expansion locations. Some connector Green Belts do penetrate the metropolitan footprint, again to preserve links between urban green space and rural areas.

Figure 6.3 Alternatives Scenario 3 Version 1





**Figure 6.4 Alternatives Scenario 3 Version 2**

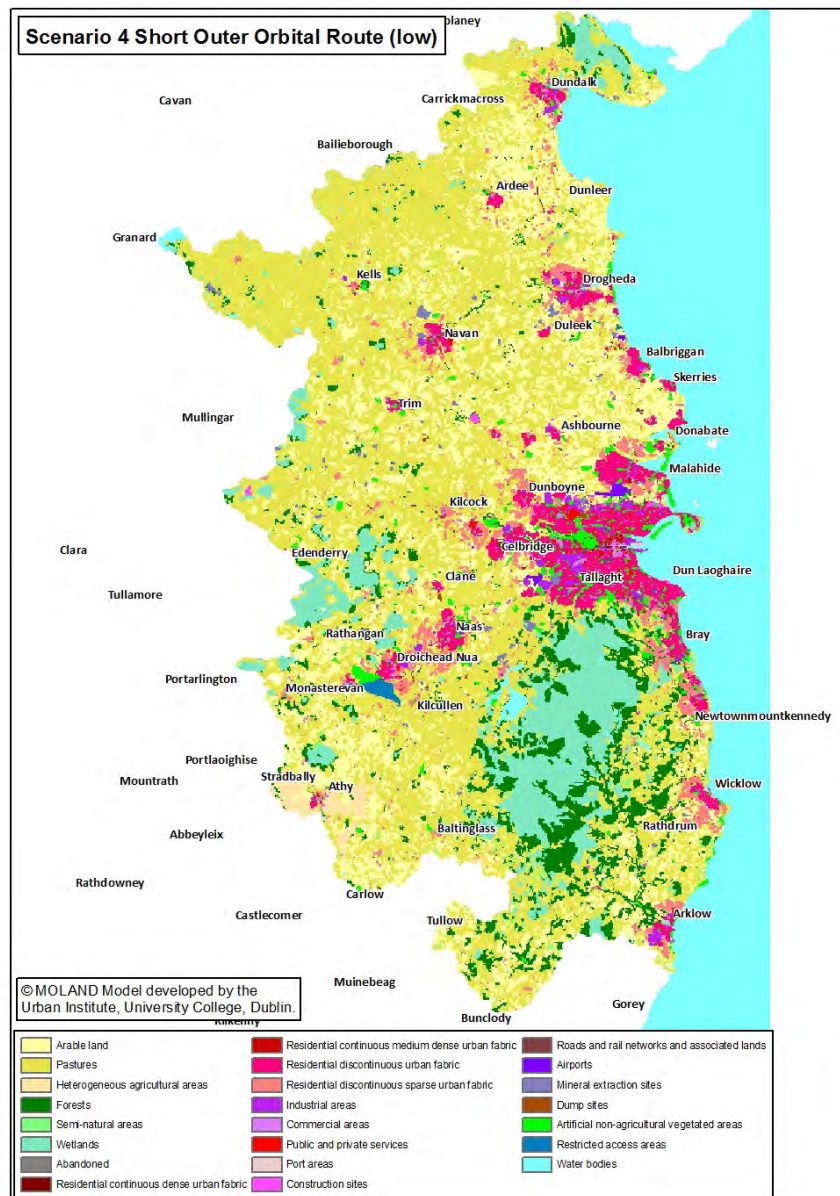


In Scenario 3 consolidation is also examined, but in contrast to Scenario 2 where all growth was focused toward the metropolitan footprint, here a small number of key towns also act as growth nuclei. This is in line with the NSS, RPGs and government policies of decentralisation. While the same questions remain regarding “Compact City” settlement patterns discussed above, Scenario 3 addresses these somewhat with the addition of the key towns. From an ecological perspective protected areas are encroached upon least in this Scenario, while in terms of promoting settlement near transport nodes it is on a par with Scenario 4. Both underperform in terms of promoting settlement near transport compared to Scenario 2.

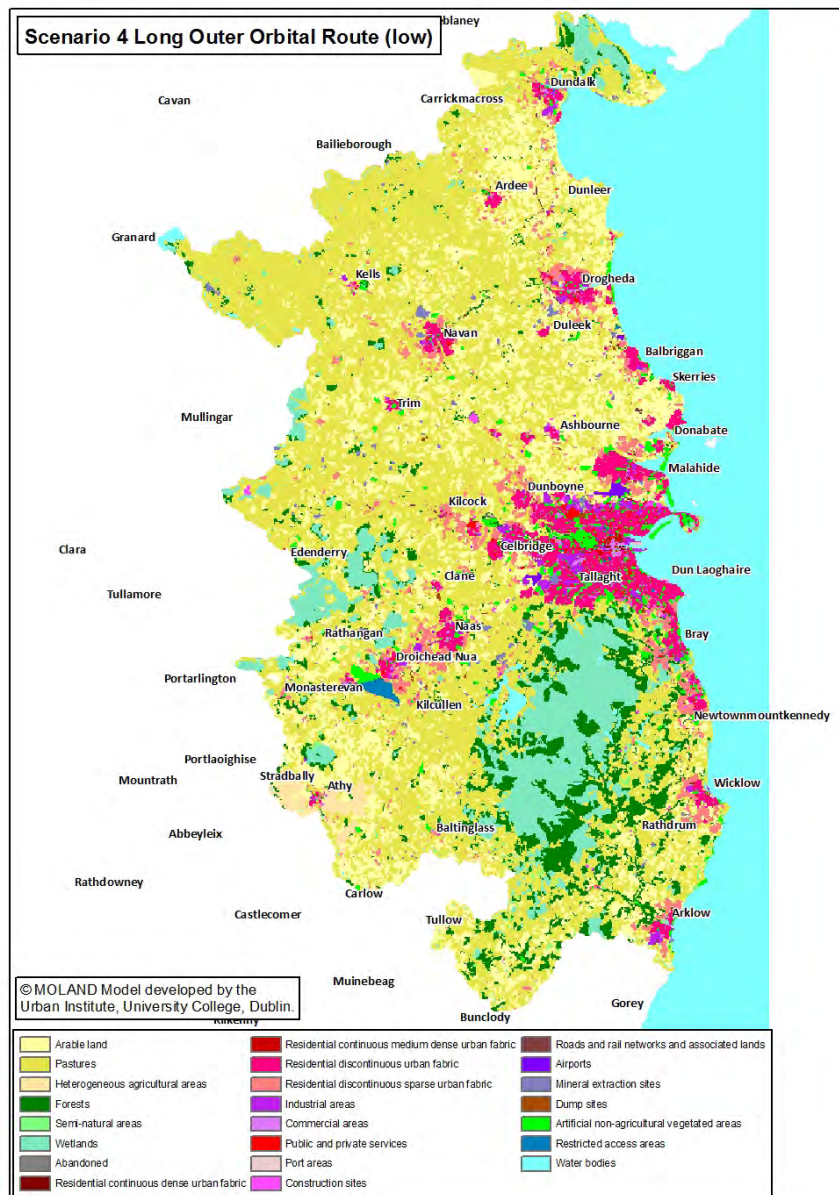
6.5 Scenario 4 - Consolidation & Sustainability and some expansion at nodes on Transport Corridors

In Scenario 4 simulation consolidation is once again promoted; development is focused within the existing metropolitan footprint and development centres. Growth in the Mid-East at public transport nodes within the metropolitan footprint (Dunboyne, Maynooth, Kilcock, Leixlip, Bray, Greystones) and in designated towns on high quality public transport routes (Swords, Blanchardstown, Lucan, Clondalkin, Tallaght, Dundrum, Cherrywood, Dun Laoghaire Bray, Navan, Naas, Wicklow, Newbridge, Greystones, Arklow, Balbriggan, Drogheda) and also continuing to build the critical mass of county towns in each Council area (Wicklow, Tallaght, Dun Laoghaire, Naas, Navan, Swords). To enhance connectivity between development centres and the metropolitan footprint several key Transport 21 projects are included. Although consolidation within the existing metropolitan footprint was a focus of this scenario, there was a drive to keep towns distinct from one another. With this taken into consideration several strictly enforced Strategic Green Belts are included in Scenario 4 whose function is to prevent the merger of towns/areas distinct in 2006.

Figure 6.5 Alternatives Scenario 4 Version 1



**Figure 6.6 Alternatives Scenario 4 Version 2**



Scenario 4 represents an intermediate between the unregulated sprawl of Scenario 1 and the strong consolidation policies of Scenarios 2 & 3. While development in this Scenario does occur across the region the goals of the RPGs (i.e. consolidation within the existing metropolitan footprint and development centres along major transport routes and limiting the uncoordinated sprawl that had become a feature of the Celtic Tiger era) are realised. As noted in the literature there has been divergence between policy and practice (MacLaran and Williams 2003, Convery et al. 2006); Scenario 4 may represent a settlement pattern that is an achievable goal, marrying the objectives of sustainability, development and shared prosperity across the region. The indicator analysis performed shows that the Scenario 4 settlement pattern is a substantial improvement on continued trends (Scenario1) with development in both the metropolitan footprint and Hinterland adopting a denser form, which is comparable to the other Scenarios in certain aspects. Finally, it could be argued that Scenario 4 is the most “equitable”, in that development is divided more evenly between the counties while still addressing the goals of the RPGs and NSS.

## 6.6 Conclusion and Evaluation

The four Scenarios presented here represent hypothetical end points of different policy directions. The scenarios were assessed using the same criteria outlined in Table 5.1.



From a strategic environmental perspective Scenario 3 is considered to be the most sustainable and beneficial for the GDA without compromising existing environmental integrity. The review of the final RPGs was cognisant of this environmental assessment and incorporated the findings into the development of the revised RPGs.

There are associated costs and benefits with following any of these paths and the exact direction pursued will be decided by the interaction between planners, policy makers and the public working together. As the Greater Dublin Area has undergone such massive change in the recent past (McInerney and Walsh 2009) and recent literature has noted a divergence between policy and practice (MacLaran and Williams 2003, Scott et al. 2006) it would be useful to simulate development into the future, expose potential issues before they occur and structure policy accordingly.

**Table 6.1 Environmental Assessment of Alternative Scenarios**

RPG Strategic Policies & Recommendations	SEA Environmental Objectives							
	Biodiversity, Flora & Fauna	Population & Human Health	Soils & Geology	Water Resources	Air & Climate	Cultural Heritage	Landscape	Material Assets
<b>Scenario 1: Continued Trend</b>	P	P	P	P	P	P	L	P
<b>Scenario 2: Finger Expansion</b>	P	P	P	P	P	P	L	P
<b>Scenario 3: Consolidation of Key Towns &amp; Metropolitan Footprint</b>	P	P	P	P	P	P	L	P
<b>Scenario 4: Managed Growth</b>	P	P	P	P	P	P	L	P

## 7 MITIGATION MEASURES

Mitigation measures are measures envisaged and designed to prevent, reduce and as fully as possible offset any significant adverse impacts on the environment of implementing the RPGs.

The assessment process was completely iterative between the team developing the RPG Policies and Recommendations and the environmental team. As a consequence, policies and recommendations were reworded and changed where necessary to accommodate mitigation of environmental impacts.

This final Environmental Report has highlighted the range of significant potential positive and negative environmental impacts from the implementation of the RPGs (including cumulative impacts). The Environmental Report for the draft RPGs outlined a number of negative environmental impacts. Subsequent to consultation, the RPGs have been refined to ensure that the development of the GDA is as environmentally sustainable as possible. While there still remain potential negative environmental impacts, the following mitigation measures have been identified to reduce these negative impacts. Appropriate Assessment required for the Habitats Directive Article 6 report is also noted as being relevant to the measures outlined for Biodiversity, Flora and Fauna, Water Resources, Soils and Geology and Landscape.

The overriding objective of the RPGs is for the environmentally sustainable development of the region, as a consequence, the RPGs strategic recommendations and policies are cognisant of environmental issues from their original inception, through the iterative interaction process of the SEA and throughout the consultation process. This has resulted in the RPGs themselves being as positive for the environment as considered possible

The primary mitigation measure relevant to the GDA is to ensure the sustainable and appropriate development of the GDA in full cognisance of the RPG policies and recommendations. The policies and recommendations are designed to ensure sustainable development without compromising the integrity of the GDAs natural and built environment.

All new development requiring an Environmental Impact Statement will need to address the range of environmental objectives, indicators and targets, associated environmental mitigation measures and incorporate them into the detailed project specific mitigation measures.

It is considered that due to the regional scale of the RPGs the following mitigation measures are considered to be key strategic level recommendations applicable to the region as a whole.

### Biodiversity, Flora and Fauna

- Ensure that appropriate measures for conservation and enhancement of the natural and built environment are incorporated into all relevant development and action plans and development programmes of each of the GDAs local authorities;
- Ensure that each local authority prepares a biodiversity assessment and that all new development plans incorporate the findings of the assessment into all relevant plans and programmes;
- Ensure the suitable protection of ecological resources that have economic benefits e.g. ecological zones that draw tourism and areas of shellfish production;
- Compliance with the zoning of the SACs, NHAs, SPAs, Ramsar Sites, National Parks, Urban Green Space areas and additional land adjoining as open space & amenity which prohibits non-compatible developments.

### Population and Human Health

- Ensure that access to adequate health and education facilities to meet the demand of the GDAs current and projected populace are included by local authorities in development plans;

- Encourage the further development of regional public transport infrastructure including rail, light rail and bus corridors.

#### Soils and Geology

- Perform a survey of obsolete urban renewal areas and facilitate and promote the re-use and regeneration of brownfield sites, derelict land and buildings in and around urban centres;
- Promote the recycling of construction and demolition waste and the reuse of aggregate and other materials in order to reduce the quantities of virgin material being extracted.
- Ensure that the 'polluter pays principle' is adhered to in full cooperation with the EPA.

#### Water Resources and Flooding

- Ensure that the objectives and the programme of measures outlined the River Basin Management Plans are fully implemented;
- Provide adequate capacity at water and wastewater treatment and storage facilities for the GDAs current and projected populace;
- Prevent the alteration of natural drainage systems and in the case of development works require the provision of acceptable mitigation measures in order to minimise the risk of flooding and negative impacts on water quality;
- Comply with the objectives and policies of the Greater Dublin Strategic Drainage Study;
- Promote SuDS principles for all drainage including the integration of storm water attenuation facilities for new developments and existing catchment areas;
- Ensure that all new developments should not be subject to an inappropriate risk of flooding nor should it cause or exacerbate such a risk at other locations;
- Preserve and protect the water quality of the natural wetlands and flood plains of the GDAs river systems where these help to regulate stream flow, recharge ground water and screen pollutants;
- Ensure the production of Integrated Coastal Zone Management Plans by the relevant local authorities within the GDA;
- Comply with the OPW guidance on development and flood risk through the control of development in any flood plain. Development will only be permitted when the local authorities are satisfied that new and existing developments are not exposed to increased risk of flooding and that any loss of flood storage is compensated for elsewhere in the river catchment.

#### Air Quality and Climate

- Ensure that the objectives and policies of the forthcoming EU Directive on Ambient Air Quality and Cleaner Air for Europe is incorporated into local authority plans and programmes upon implementation into national law;
- Promote the reduction of emissions of Greenhouse Gases within the GDA to ensure Ireland's compliance with our national Kyoto Protocol Targets.

#### Cultural Heritage including Archaeological and Architectural Heritage

- Ensure the protection of all features of architectural and archaeological merit;
- Promote the designation of areas of architectural merit throughout the GDA;
- Promote the integration of suitably designed developments into existing urban and rural landscapes;
- Prevent inappropriately designed developments in designated areas of architectural merit.

### Landscape

- Ensure that each local authority prepares a landscape character assessment and that all new development plans incorporate the findings of the assessment into all relevant plans and programmes.

### Material Assets

- Protect the hydrological environment from adverse effects of the wastewater discharges by ensuring that there is suitable wastewater treatment to meet the demands of the GDA before it is discharged to the environment;
- Promote the development of sustainable transportation infrastructure where considered feasible within the GDA.
- Promote the implementation of the Regional Waste Management Plans together with any future National or Regional Waste Management Plans;
- Encourage waste prevention, minimisation, reuse, recycling and recovery as methods of managing waste. Where waste management is not being carried out properly, the Waste Management Acts, 1996 to 2001 will be used as a means to ensuring specific national policies and regulations are adhered to;
- Promote and facilitate community awareness and involvement in community-based recycling initiatives or environmental management initiatives that will lead to local sustainable waste management practices;
- Promote the development of sufficient energy resources to meet the needs of the GDA and promote the use of renewable energies to meet those needs.

## 8 SEA MONITORING

Article 10 of the SEA Directive requires that monitoring should be carried out in order to identify at an early stage any unforeseen adverse impacts for effects due to implementation of the RPGs Policies and Recommendations, with the view to taking remedial action where adverse effects are identified through monitoring. A monitoring programme is developed based on the indicators selected to track progress towards achieving strategic environmental objectives and reaching targets, enabling positive and negative impacts on the environment to be measured. As previously described, the environmental indicators have been developed to show changes that would be attributable to implementation of the Plan.

Chapter 10 of the Review of the RPGs provides a detailed proposed monitoring programme required for the duration of the RPGs lifetime. Incorporated into the RPG monitoring programme are the environmental indicators. The monitoring proposals required for the Implementation of the RPGs are very comprehensive and reflect a proactive approach to the ongoing review of the RPGs. The frequency of reporting on the monitoring is also considered to be sufficient for accurate assessment of environmental conditions.

The RPG Monitoring Programme has been designed to be flexible to take account of the various stages of the Guidelines and also capable of dealing with specific environmental issues as they arise throughout the GDA. The monitoring programme is also capable of addressing potential cumulative effects between environmental topics. A recommendation arising from the SEA process which would be prudent to address environmental issues arising from the monitoring programme would be the establishment of a Steering Committee within the Regional Authority that is tasked with overseeing the implementation of mitigation measures and monitoring programme and reporting to the relevant local authorities at regular intervals.

The SEA carried out on the draft RPG Policies and Recommendations has ensured that any potential significant environmental impacts have been identified, given due consideration, and taken into account in the development of the RPGs. The proposed monitoring programme will be carried out as implementation of the RPGs progresses and, depending on monitoring results, adjustments to targets and indicators may be made to ensure the continued effectiveness of the monitoring programme in the interest of optimal environmental protection.



## Appendices

ARUP



Arup Consulting Engineers

Appendix A

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**Appendices A1 - A4**

# A1 Scoping Consultation Responses

Ref	Organisation	Comments
a.	DoEHLG / Irish Landscape Institute	Section 7.1. Amend objective to improve access for the appreciation and promotion of wildlife as has potential to impact negatively on wildlife.
b.	DoEHLG	The regional planning guidelines should intend that any new development should integrate with its surroundings in a coherent fashion thereby enhancing the context into which it is placed. It is therefore recommended that the Draft Targets included under the heading of Draft Objectives for Cultural Heritage, including Architectural and Archaeological Heritage, should be expanded to encompass the manner in which policies and objectives in new regional planning guidelines will guide and shape development within the present built environment.
c.	Irish Landscape Institute	<p>With regard to Draft Targets for Travel Patterns the following comments were made</p> <p>“Urban Pedestrian travel patterns – reduce number of road crossings along key routes and improve ease of pedestrian movement in urban areas”</p> <p>Rural lifestyles have become overly dependant on car use, to the detriment of human health and social interaction. Therefore the landscape targets should include: “improve opportunities for non-car based transport in rural areas e.g. off-road walkways and cycleways.”</p> <p>Support the Draft Targets for Cultural Heritage, particularly the need to protect settings of sites and monuments. The integration of conservation measures for historic built and landscape structures could be further targeted by a review of existing monuments to determine if their landscape context is under threat.</p>
d.	Irish Landscape Institute / DCPD	<p>The specific category of Landscape was welcomed. It was noted the target to enhance provision of and access to green space in urban areas (p. 18). It was suggested that this be amended to ‘design and provision’ to reflect the need to ensure standards for quality, not just quantity, of open space. The traditional quantity-based approach is not suitable in urban areas. Mere accessibility does not indicate whether or not is useful or beneficial to the community. It was requested that the wording be changed from ‘urban areas’ to the wider community, to include landscapes which affect the quality of life of citizens of Dublin’s suburbs and villages.</p> <p>The European Landscape Convention stresses the need for careful approaches to the design and management of everyday landscapes as well as those that are considered special or distinctive. Everyday or ordinary landscapes are those in which people live most of their lives and vary greatly in terms of quality. It was proposed that a target to “improve everyday or ordinary landscapes and streetscapes to provide a better setting for day to day life, pedestrian movement and social interaction” be set out.</p> <p>Landscape character is threatened by the loss of urban/rural distinctions – we support this target.</p>

Ref	Organisation	Comments
e.	Irish Landscape Institute / DCPD	<p>With regard to Draft SEA Indicator additional indicators are suggested;</p> <ul style="list-style-type: none"> <li>• Population growth rates compared to increase/decrease of hectares of designated landscapes.</li> <li>• Amount of public parks and open spaces in hectares per capita.</li> <li>• Distance and modes of travel to access community (public/private) open space.</li> <li>• Rates of hedgerow loss in rapidly-developing areas.</li> <li>• Ratio of hardscape to softscape and % loss of vegetated areas in relation to stormwater management and flooding.</li> <li>• Loss of public rights-of-way and walking routes in areas of high visual amenity.</li> <li>• Provision of public open space in areas with high ratings on National Deprivation Index.</li> <li>• Spend per capita on parks and open spaces by each local authority.</li> <li>• Spend/contribution per unit of development on public open space.</li> <li>• % of institutional lands that are open space/undeveloped in each local authority and rate of loss of these lands.</li> <li>• % of river frontage in public and private ownership and nature of land uses by %.</li> <li>• Provision of play facilities per capita.</li> <li>• Pedestrian ease of movement – width of pavements, number and nature of road crossings in urban areas (cities, towns and villages) along key routes.</li> </ul>
f.	Lynch & Fegan	<p>Draft Soils &amp; Geology Objective - Safeguard soil and geological quality and quantity.  Due consideration must be given to: Heavy Metals, Emerging Contaminants, especially endocrine disrupting compounds, antibiotics, antidepressants and nano compounds. The cumulative effect of this must be carefully noted.</p>
g.	Lynch & Fegan	<p>Soil and water are important material assets. Plasma Arc Technology has to be given serious consideration as a treatment method to protect these.</p>
h.	Lynch & Fegan	<p>While it is good to note the emphasis on Protected species it would be more reassuring to see a proactive concept of ensuring that species would not need to be on a protected list.</p>
i.	Lynch & Fegan	<p>Agricultural soil and water suffer deprecation, as does the agricultural industry, by the spreading of treated sewage. It is recommended that this stop as it merely passes the problem on not solve it.</p>
j.	Lynch & Fegan	<p>Assessment of Alternative Solutions.  Some of the main problems arise either in the non-treatment of material or the residue of treatment. Again Plasma Arc Technology needs to be seriously considered so that the various cycles are not inhibited.</p>

## A2 RPG Strategic Policy versus Policy Matrix

RPG Strategy		RPG Strategy																				Flood Risk Appraisal
		Economic Strategy		Settlement Strategy	Rural Development		Physical Infrastructure						Green Infrastructure, Heritage & Environment						Social Infrastructure		Flood Risk Appraisal	
		EP1	EP2	SP1	RP1	RP2	PIP1	PIP2	PIP3	PIP4	PIP5	GIP1	GIP2	GIP3	GIP4	GIP5	GIP6	SIP1	SIP2			
Economic Strategy	EP1	EP2	SP1	RP1	RP2	PIP1	PIP2	PIP3	PIP4	PIP5	GIP1	GIP2	GIP3	GIP4	GIP5	GIP6	SIP1	SIP2	FR1			
Settlement Strategy		P & C	P & C	P	P	P & C	P & C	P & C	P & C	P & C	L	P	P	P	P	P	P	P	P	P		
Rural Development				P	P	P	P	P	P	P	L	P	P	P	P	P	P	P	P	P		
Physical Infrastructure											P	P	P	P	P	P	P	P	P	P		
Green Infrastructure, Heritage & Environment											P	P & C	P & C	P	P	P	P	P	P	P		
Social Infrastructure											P	P	P	P	P	P	P	P	P	P		
Flood Risk Appraisal																						

Strategies highlighted in red were added subsequent to environmental workshops.

Key:

Duration and Type of	
S	Short-term
M	Medium-term
L	Long-term
P	Permanent
T	Temporary
C	Cumulative
Significance of	
Major positive	
Positive	
Neutral	
Negative	
Major negative	
Uncertain	



## A3 RPG Strategic Policies and Recommendations versus Environmental Objectives Matrix



	Biodiversity, Flora & Fauna	Population & Human Health	Soils & Geology	Water Resources	Air & Climate	Cultural Heritage	Landscape	Material Assets	Comment
<b>Physical Infrastructure</b>									
Strategic Policy PIP1	P	P	P	P	P	P	L	P	EIA will examine issues at project level. SEA of county development plans should initially identify any issues and potential impacts for road and rail.
Strategic Policy PIP2	P	P	P	P	P	P	P	P	
Strategic Policy PIP3	P	P	P	P	P	P	P	P	
Strategic Policy PIP4	P	P	P	P	P	P	P	P	This assumes significant investment in renewables
Strategic Policy PIP5	P	P	P	P	P	P	P	P	
Strategic Recommendations:									
PIR1	P	P	P	P	P	P	P	P	
PIR2	P	P	P	P	P	P	P	P	
PIR3	P	P	P	P	P	P	P	P	
PIR4	P	P	P	P	P	P	L	P	SEA of the DTA plan will identify their environmental issues.
PIR5	P	P	P	P	P	P	L	P	
PIR6	P	P	P	P	P	P	P	P	
PIR7	P	P	P	P	P	P	L	P	Improvements in aircraft emissions will reduce the impact on climate and human health.
PIR8	P	P	P	C&L	C&P	P	L	C&P	
PIR9	P	P	P	P	P	P	P	P	
PIR10	P	P	P	P	P	P	P	P	
PIR11	P	P	P	P	P	P	P	P	
PIR12	P	P	P	P	P	P	P	P	Updated post consultation
PIR13	P	P	P	P	P	P	P	P	
PIR14	P	P	P	P	P	P	P	P	
PIR15	P	P	P	P	P	P	P	P	
PIR16	P	P	P	P	P	P	P	P	
PIR17	P	P	P	C	P	P	P	P	Detailed SEA and EIA will identify environmental impacts and mitigation.
PIR18	P	P	P	P	P	P	P	P	
PIR19	P	P	P	P	P	P	P	P	
PIR20	P	P	P	P	P	P	P	P	
PIR21	P	P	P	P	P	P	P	P	
PIR22	P	P	P	P	P	P	P	P	
PIR23	C	C	P	C	P	P	P	C	Uncertain as wording says "address the relationship" as opposed to protect, minimise, etc.. Change wording to "between significant land, arterial drainage and navigation" and "...possible impact to protect and where appropriate minimise possible impact on both large ...."
PIR24	P	P	P	P	P	P	P	P	Addition at the final stage of approval post consultation.
PIR25	P	P	P	P	P	P	P	P	Uncertain due to lack of knowledge of siting and types of technologies. Project specific impacts will be addressed though EIA as appropriate.
PIR26	P	P	P	P	P	P	P	P	The policy outlines that plans and policies should support the targets for renewable energy so that renewable energy targets for 2020 are met. However, the lifespan of these guidelines are 2022. The recommendation should therefore be reworded to recognise further targets that may come on board during the lifetime of this plan.
PIR27	P	P	P	P	P	P	P	P	Through consultation with the EPA sustainable renewable energy was included in text.
PIR28	P	P	P	P	P	P	P	P	On assumption that mitigation measures are followed in the noted guidance documents.
PIR29	P	P	P	P	P	P	P	P	Arose post consultation.
PIR30	P	P	P	P	P	P	P	P	
PIR31	P	P	P	P	P	P	P	P	
PIR32	P	P	P	P	P	P	P	P	Addition at the final stage of approval post consultation.
PIR33	P	P	P	P	P	P	P	P	Addition at the final stage of approval post consultation.
PIR34	P	P	P	P	P	P	P	P	Addition at the final stage of approval post consultation. Appropriate siting of projects will be key to ensure the reduction of potential environmental impacts.
PIR35	P	P	P	P	P	P	P	P	Addition through directors motions.
PIR36	P	P	P	P	P	P	P	P	
PIR37	P	P	P	P	P	P	P	P	
PIR38	P	P	P	P	P	P	P	P	Updated post consultation
PIR39	P	P	P	P	P	P	P	P	Updated post consultation
PIR40	P	P	P	P	P	P	P	P	Arose post consultation.
PIR41	P	P	P	P	P	P	P	P	Updated post consultation





## A4 MOLAND Alternatives Report



## **Regional Planning Guideline review: using MOLAND as part of the Strategic Environmental Assessment Process**

### **Overview:**

The Dublin and Mid East Regional Authority (D&MERA) are currently conducting the Review of the Regional Planning Guidelines (RPG). The D&MERA have completed their pre draft consultations and Strategic Environmental Assessment (SEA) scoping processes as legally required and in conjunction with hired consultants are currently gathering and analysing baseline data and developing alternatives. As part of the process for the SEA element contact was established between the Urban Environment Project (UEP) and the D&MERA. Using the MOLAND model the UEP team evaluated four scenarios describing four possible future development patterns.

The following scenarios were evaluated as part of the SEA:

1. Baseline/Continued Trends Approach.
2. Finger Expansion of the footprint of the Metropolitan Area
3. Consolidation of Key Towns & the City
4. Consolidation & Sustainability and some expansion at nodes on Transport Corridors.

In this report we will outline how the MOLAND model operates, the particulars of the Scenarios evaluated, how each Scenario performs in terms of several indicators of sustainability and a discussion of the implications of the results.

### **The MOLAND model:**

Rather than give full details of the MOLAND model, which can be found elsewhere (Barredo et al. 2003) we will summarise the model's requirements and outputs.

MOLAND comprises two sub-models working at different scales. At the macro (Regional) scale, the model takes as inputs the population and the economic activity (number of jobs) in a region, this population and activity is then split between the sub-regions encapsulated in the model area. In the Greater Dublin Area (GDA) application, the sub-regions are the administrative counties within the region. At the micro scale (Local) the provision for population and economic activities is translated into a number of land uses; for example, estimates of the population will be provided for within residential land use types and estimates of the economic activity generated will be provided for within commercial, industrial and service land uses. The micro model is based on the cellular automaton algorithm. The land use type assigned to any given cell is determined by an algorithm which aims to satisfy the demands for land use in each time step (Engelen et al. 2007)

At the Regional level, the model requires socio-economic data for each of the modelled counties. This includes population, job data by place of work and additional distance measures. Most of these data for GDA were obtained from CSO Census 1991, 1996, 2002 and 2006 datasets.

At the Local level the detailed allocation of economic activities and people is modelled by means of a Cellular Automata<sup>1</sup> based on land use model. To that effect, the area modelled is represented as a mosaic of grid cells of 4ha each (200m on the side). Together they constitute the land use pattern of the area. Land use is classified in 24 categories for GDA, 8 of which are land use functions, 7 are vacant land uses and 9 are land use features. This model is driven by the demand for land per region generated at the regional level. Four elements determine whether a piece of land (each 4ha cell) is taken in by a particular land use function or not:

- the accessibility for each land use function calculated relative to the transport network;
- physical suitability determining the physical, ecological and environmental appropriateness of cell to support a land use function and associated activity;
- zoning status or institutional suitability (e.g. legal constraints);
- dynamics at the Local level representing the reality on the ground. For each location, the model assesses the quality of its neighbourhood: a circular area with a radius of 8 cells. For each land use function, a set of rules determines the degree to which it is attracted to, or repelled by, the other functions present in the neighbourhood.

Based on these elements, the model calculates for every simulation step, typically 1 year in a land use change model (White and Engelen 2000), the transition potential for each cell and each function. In the course of time and until regional demands are satisfied, cells will change to the land use function for which they have the highest potential.

Calibration is achieved by running simulations over a known historical period (in this case 2000–2006). The simulations are initiated using the historical dataset (2000) in order to test the simulation results using the reference dataset (2006). Subsequently the simulations are validated by running the model forward (to 2050) and checking the consistency of the resulting map. The future simulation of land-use can then be performed using the parameters of the already calibrated model assuming, however, that the calibrated factors will remain relatively stable during the studied period. Detailed description of the calibration technique and used datasets for GDA is presented in a separate paper (Shahumyan et al. 2009).

## **Methodology:**

### **Calculating populations for the region in 2026:**

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<sup>1</sup> Simplified mathematical models of spatial interactions, in which sites or cells on a landscape are assigned a particular state, which then changes stepwise according to specific rules conditioned on the states of neighbouring cells.

D&MERA provided population projections to 2022, with a high/low range which were used in all scenarios. For use in MOLAND these were extrapolated to 2026 based on the linear projection of the growth from 2006 to 2022. In consultation with D&MERA and in light of the current economic downturn it was decided to present results for scenarios run with the low projection in this paper. This population was used in all Scenarios.<sup>2</sup>

**Greater Dublin Area (GDA) versus MOLAND study area:**

The GDA, comprising the Mid-East region and the Dublin region, is of similar, though not identical extent to the MOLAND study area named Greater Dublin Region (GDR). The GDA consists of the Dublin counties, Meath, Kildare and Wicklow. The GDR consists of the Dublin counties, Meath, Kildare, Wicklow and *Louth*. Thus it was necessary to estimate the population for Louth in 2026 and add it to projected GDA population in 2026. This was done as follows:

Louth’s population in 2006 was known from CSO data at 111267 people. To estimate Louth’s population in 2022 under each scenario we used the formula:

$$2022 \text{ population} = (\text{Border region 2022 population} / \text{Border region population 2006}) * (\text{Louth 2006 population})$$

The resulting values for each scenario were added to the corresponding GDA population projections (see table1).

Table 1. Projected populations in the GDR by 2022 under the four regional population projections.

	<b>2022 Population (Low)</b>	<b>2022 Population (High)</b>
Border 2022 population	595,000	611,400
Louth Multiplier	1.26	1.30
Louth 2022 population	140859	144741
GDA 2022 population	2103900	2161700
GDR 2022 population	2244759	2306442
Linearly extrapolated GDR 2026 population	2362498	2439596

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<sup>2</sup> Regional Planning Guidelines Review, Gateway and Hub Population Targets, October 2009, DoEHLG

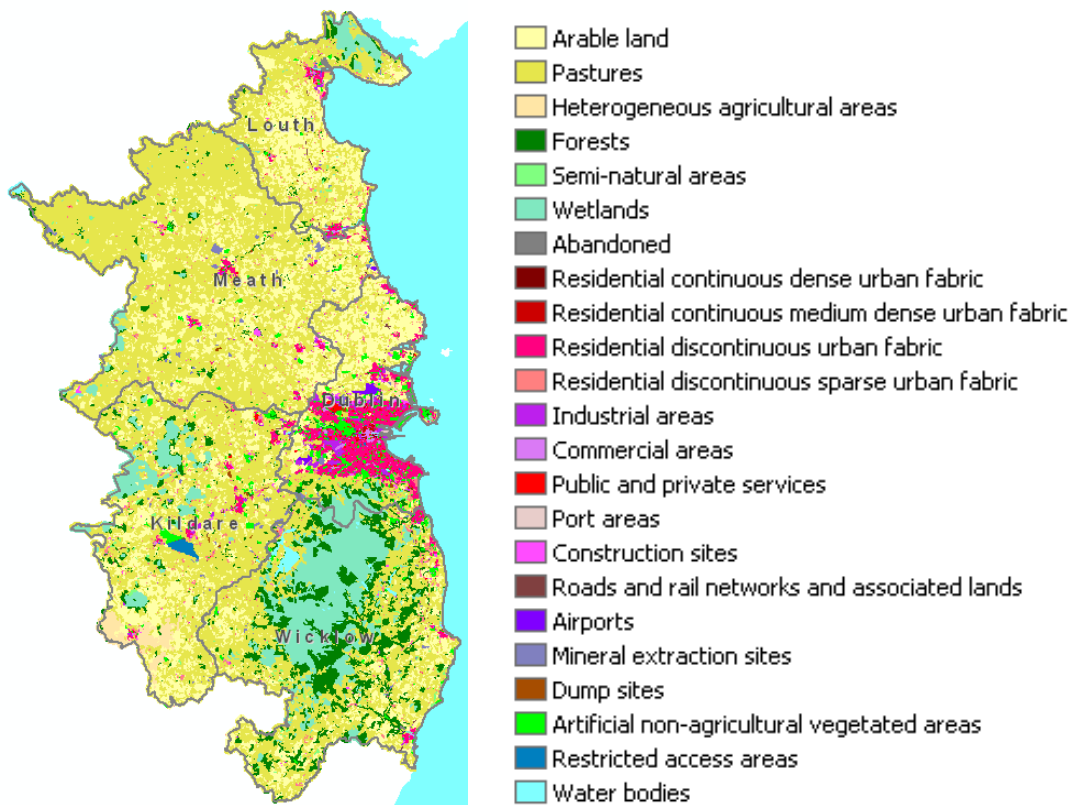


Figure 1: Actual 2006 land use map of GDR used in MOLAND model.

**Implementing transport networks for each Scenario:**

Each four scenarios required different transportation networks to be derived from existing road and rail datasets. The existing road and rail datasets along with future proposed Transport 21 network (Figure 2) datasets were obtained from the Dublin Transportation Office and the National Roads Authority. Using the ArcGIS platform these datasets were manipulated to suit the required transportation network for each individual scenario.

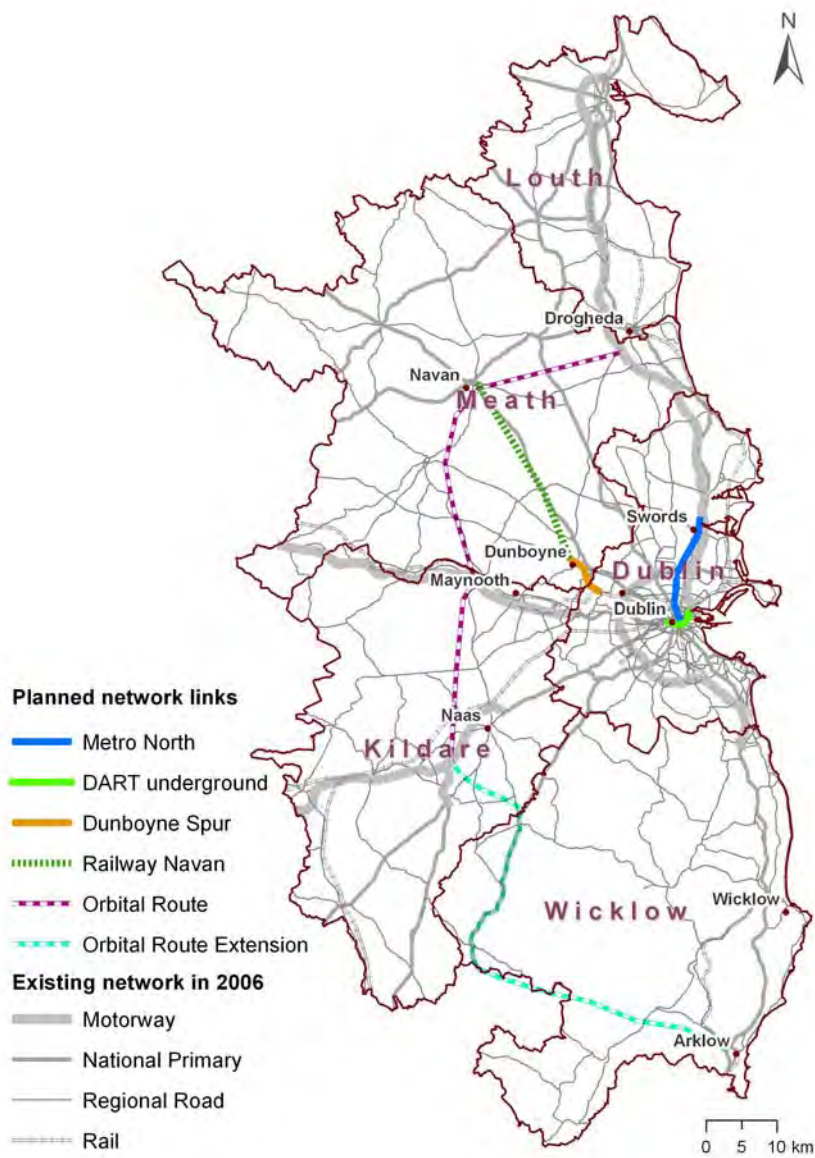


Figure 2: Transport 21 purposed network used for scenario development

The following network links were used in scenario development;

1. Dunbooyne Spur (rail)
2. Metro North
3. DART underground
4. Navan Rail
5. Outer Orbital Route

Each proposed network change was added in to each modelled scenario at the approximate date it was would be implemented.

**Implementing Strategic Green Belts for each Scenario:**

For each scenario a specific Strategic Green Belt design was employed, which are detailed in the Scenario descriptions. Strategic Green Belts were constructed using ArcGIS software. They consisted of polygons which were used to create restricted zoning maps for the MOLAND model. As a result, within the area covered by the Strategic Green Belts development was prohibited from occurring. Strategic Green Belts for each scenario are shown in figure 3.

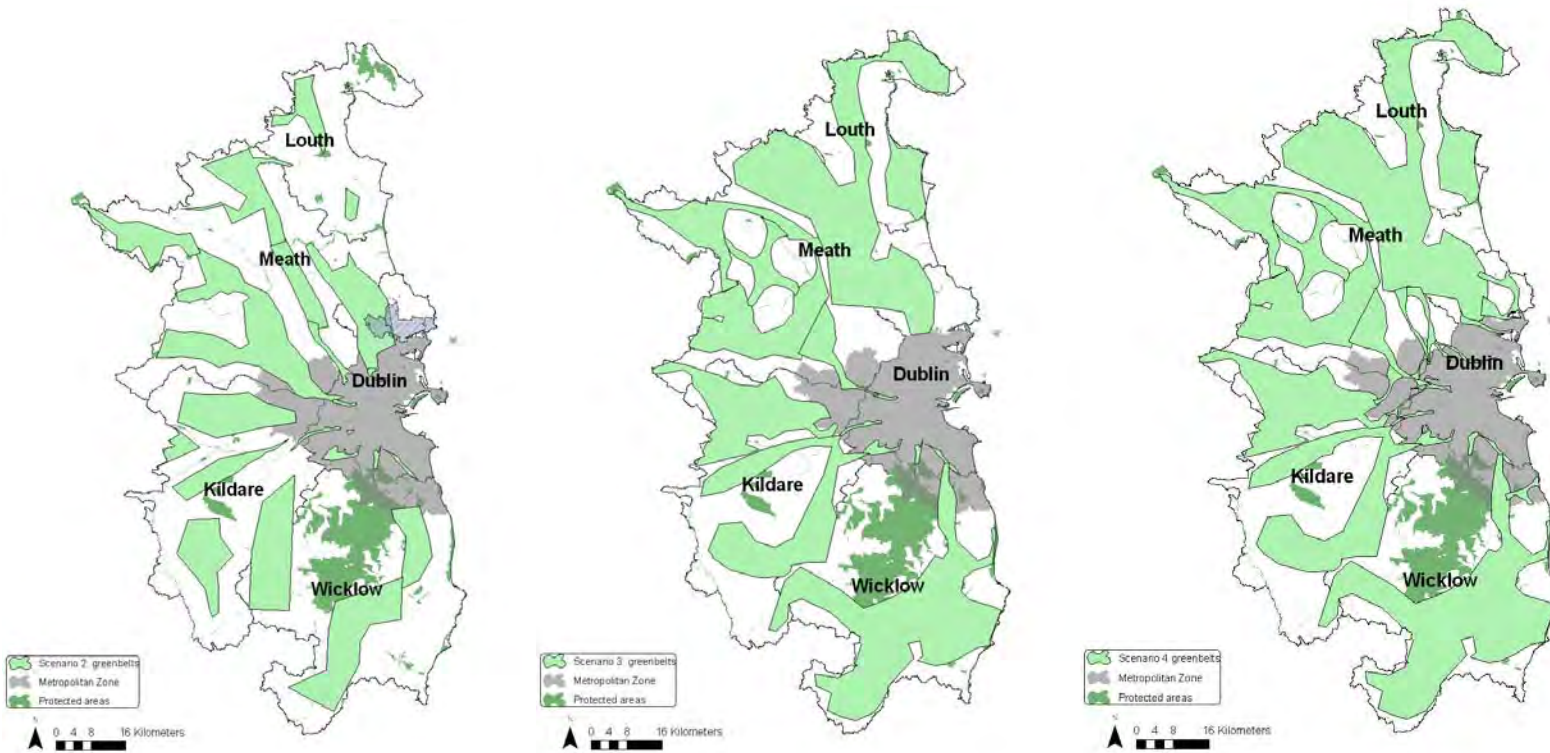


Figure 3. Strategic Green Belts as implemented for Scenario 2, 3 & 4 from left to right respectively. Strategic Green Belts, protected areas and Metropolitan Areas (MA) are represented by light green, dark green and grey polygons respectively. Note the expanded MA in scenario 2.



## **Creation of Metropolitan Area and Designated Growth Centres layers:**

### **Metropolitan Area**

The boundary of the MA is based on that defined in the existing Regional Planning Guidelines. The MA includes all of Dublin City Council, substantial parts of South Dublin and Dun Laoghaire Rathdown and certain District Electoral Division (DEDs) in Fingal, Kildare, Meath and Wicklow. The methodology employed here is based on Electoral Division (ED) boundaries. Therefore parts of a number of EDs in South Dublin and Dun-Laoghaire Rathdown officially excluded from the MA (Dublin Regional Authority and Mid-East Regional Authority 2004), are included here. These townlands are located in the Dublin mountains area. For the same reasons, all of Kilmacanogue ED is included within the MA, although only certain townlands are officially included.

Scenario 2 allows for expansion of the Metropolitan footprint<sup>3</sup> to include Rush, Lusk and an unspecified area to the north of Swords. For this purpose a separate 'Metropolitan footprint expansion' layer has been created including Rush, Lusk and Ballyboghil EDs. Other areas of proposed expansion (Pace, Hazelhatch, Fassaroe) are already included within the designated MA.

The layers described above were created in ArcGIS using ED boundary data provided through the Ordnance Survey and freely available online, through the Central Statistics Office website ([www.cso.ie](http://www.cso.ie)). A table listing all EDs in the UEP study area was generated in MS Excel with an additional column indicating the status of each ED with regard to the MA boundary as shown below:

- 0 Hinterland Area plus Louth
- 1 Metropolitan Area
- 2 Additional EDs for proposed MA footprint expansion

A categorical map layer was produced based on the data in this column.

### **Designated Growth Centres**

The primary data source for geographical location of the towns designated as growth centres was the 'Places' geodatabase, located on the URBIS spatial database system at UCD Urban Institute Ireland. In a small number of cases the locations of urban centres were determined through use of additional sources including official planning documents (in the case of Cherrywood) and Google Maps (<http://maps.google.com>). Point locations for Pace, Fassaroe and Hazelhatch were also included. The

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<sup>3</sup> The Metropolitan Area of the GDA is fixed however, under scenario analysis future growth patterns may result in the expansion of the footprint of the MA.

'Buffer' function in ArcGIS was used to create a map layer with 5 km radius buffers, defined for each urban centre.

It is proposed that the strength of the designation of each category of urban centre and the MA can be simulated and varied to create differentiated scenarios, through incorporation in the 'suitability' function within the MOLAND model, which operates on a probability basis, rather than the standard 'zoning' function which is limited to absolute permitted/non-permitted designations.

## **The Scenarios:**

### **Scenario 1: Continued Trends**

As the name suggests, Scenario 1 explores a continuation of the current, dispersed settlement patterns. Although both Strategic Planning Guidelines for the Greater Dublin Area (SPGs) in 1999 and the subsequent RPGs in 2004 emphasised a move toward a consolidated settlement pattern, strong green belt policy and improved transport links ((Department of Environment and Local Government 2002); (Dublin Regional Authority and Mid-East Regional Authority 2004)), a number of recent studies have suggested that there has been a divergence between policy and practice (Convery et al. 2006, Scott et al. 2006). The Scenario 1 therefore simulates a "business as usual" future, whereby implementation of the SPGs/RPGs has been weak in places. Reflecting the current economic climate delivery of Transport 21 projects were delayed: Metro North and the DART Interconnector are not in place until 2020; the opening of Dunboyne Spur by 2012. With the divergence of policy and practice concerning Green Belts in mind, Scenario 1 does not contain a special greenbelt layer. The decision not to include a special greenbelt layer was taken to explore what the current trend of developer led settlement patterns might lead to if left unchecked. Those areas that enjoy legal protection (NHAs, SPAs, SACs and to a lesser extent pNHAs) were zoned such that development was prohibited from occurring within them.

For this scenario MOLAND default suitability and zoning maps were used presented in Figure 3 (Shahumyan et al, 2009). The default transport network of 2006 was updated in 2012 adding the Dunboyne Spur.

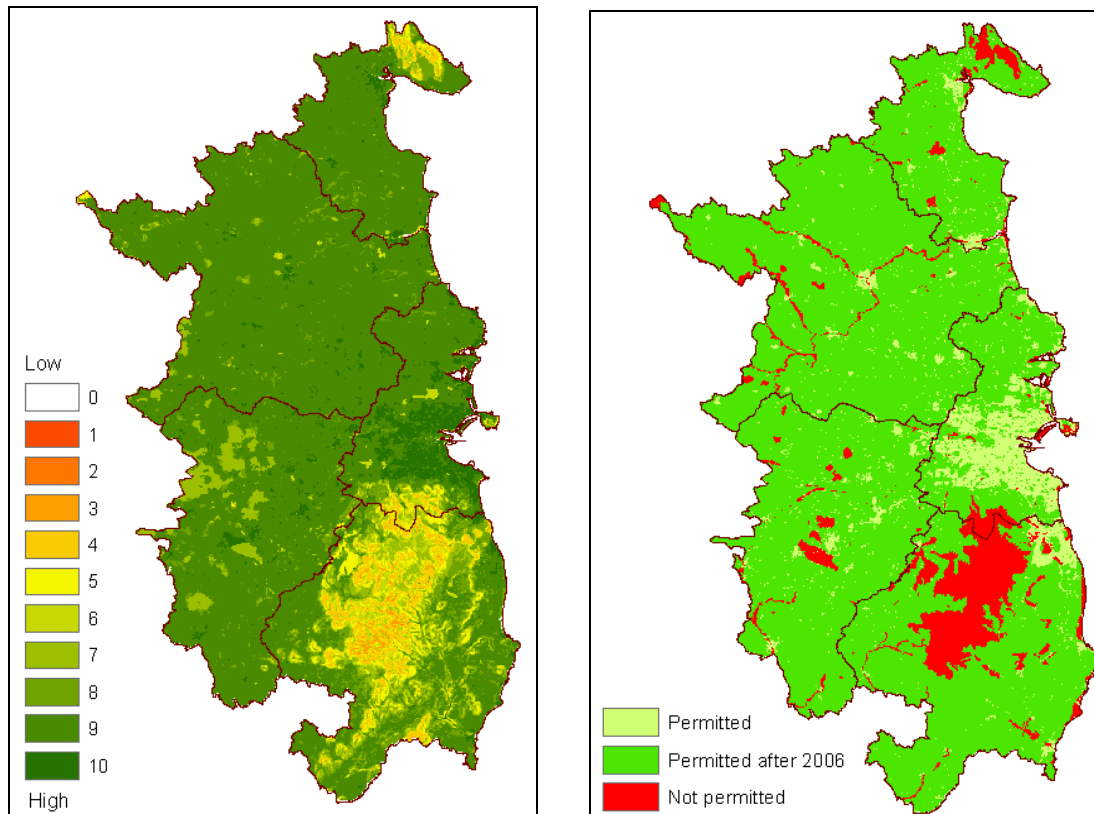


Figure.3: Default suitability (left) and zoning (right) maps for urban land uses in the MOLAND model

### Scenario 2: Finger Expansion

In this scenario the effects of a firm policy of consolidation are explored. Development is strongly directed toward an expanded Metropolitan Area (MA), which is extended along key transport corridors. In support of this stance on consolidation, all Transport 21 are included and two sub-scenarios were explored for the timing of T21 project delivery; projects were delivered in 2016 and 2020 in sub-scenarios 1 and 2 respectively. The Outer Orbital Route (OOR) was not included and large, strictly enforced Strategic Green Belts are used to discourage excessive development in rural areas and link protected areas. Since the theme of this scenario was to focus development in an expanded MA and along key corridors, large Green Belts were placed between the major roads to encourage development adjacent to transport links. Two types of Green Belts were created; large Outer Green Belts designed to designate areas where development should be kept to a minimum; and smaller Connector Green Belts, designed to preserve links between urban green space and rural areas. The area around the airport exclusion area and Rush/Lusk is reduced in green area extent due to the expansion of the metropolitan footprint under the parameters incorporated into the model for Scenario 2.

Suitability and zoning maps used for this scenario are presented in Figure 4. The default transport network of 2006 was updated in 2016 (1<sup>st</sup> sub-scenario) or 2020 (2<sup>nd</sup> sub-scenario) adding all Transport 21 links presented in Figure 2.

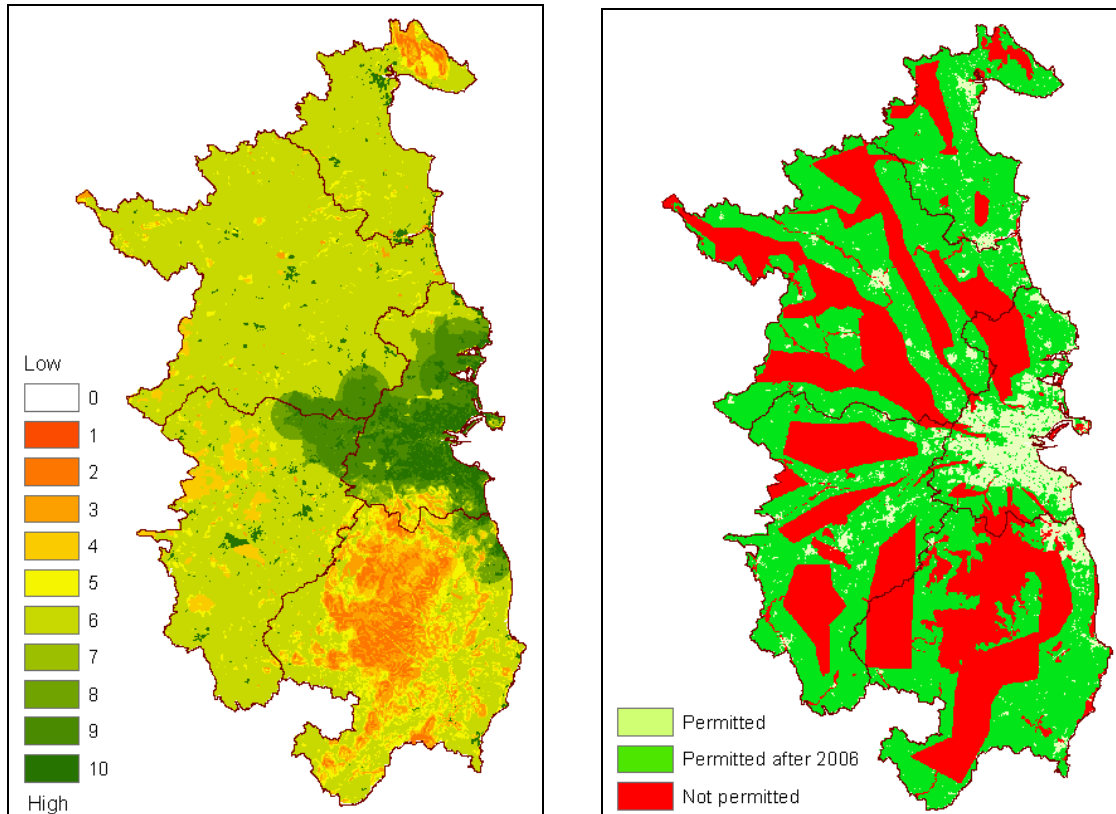


Figure 4: Scenario 2 suitability (left) and zoning (right) maps for urban land uses in the MOLAND model

### Scenario 3: Consolidation of Key Towns & Metropolitan Area.

The original SPGs published in 1999 called for future development to be consolidated within the existing MA and development centres along major transport routes (Dublin Regional Authority and Mid-East Regional Authority 1999). Scenario 3 simulates a similar pattern of development. This scenario explored a strong consolidation policy, whereby growth was focused within the existing envelope of the MA and towards a limited number of key towns in the Hinterland. The key towns were Drogheda, Navan, Naas, Wicklow and Arklow. Key Transport 21 projects which facilitated public transport to the City from key towns were included in this scenario (see table 2). In consultation with D&MERA, two versions of the OOR (short- and long-OOR) were implemented as sub-scenarios.

Table 2. List of Transport 21 projects included in Scenario 3.

Type	Project name	Date Implemented
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<b>Rail</b>	Dunboyne Spur	2012
	Navan railway	2016
	Metro North	2016
	DART Underground/Interconnector	2016
<b>Road</b>	Outer Orbital Route: sub-scenario 1 (short OOR) links Drogheda, Navan, Naas	2021
	Outer Orbital Route: sub-scenario 2 (long OOR) links Drogheda, Navan, Naas & Wicklow , Arklow	2021

Increased densities were delivered by infilling areas within the MA and in main towns of the Hinterland. The MA was not expanded. Green Belts are more extensive than in Scenario 2, the Green Belts promoting consolidated development and to reinforce brownfield focus except in key identified expansion locations. Some connector Green Belts do penetrate the MA, again to preserve links between urban green space and rural areas (Figure 5).

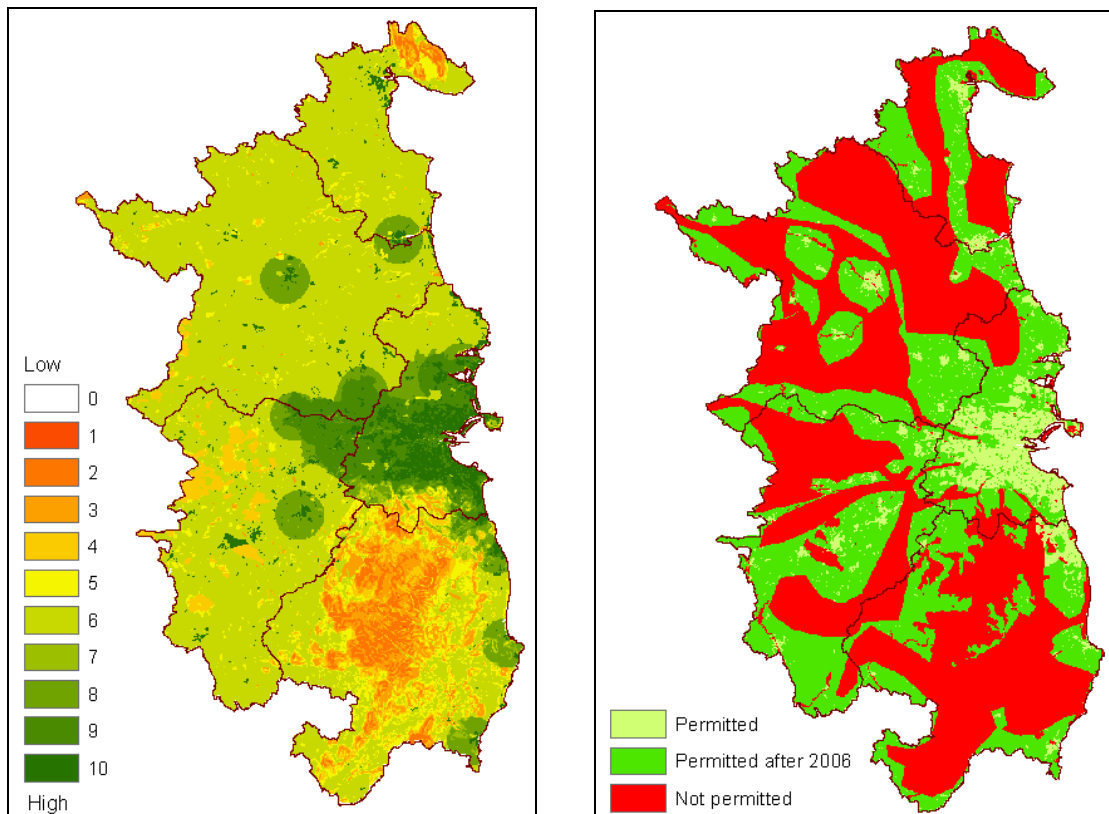


Figure 5: Scenario 3 suitability (left) and zoning (right) maps for urban land uses in the MOLAND model

**Scenario 4: “Managed Growth”**

In Scenario 4 simulation consolidation is once again promoted; development is focused within the existing MA and development centres. Growth in the Mid-East at public transport nodes within the MA (Dunboyne, Maynooth, Kilcock, Leixlip, Bray , Greystones ) and in designated towns on high quality public transport routes (Swords, Blanchardstown, Lucan, Clondalkin, Tallaght, Dundrum, Cherrywood, Dun Laoghaire Bray, Navan, Naas, Wicklow, Newbridge, Greystones, Arklow, Balbriggan, Drogheda) and also continuing to build the critical mass of county towns in each Council area (Wicklow, Tallaght, Dun Laoghaire, Naas, Navan, Swords). To enhance connectivity between development centres and the MA several key Transport 21 projects are included (table 3). Although consolidation within the existing MA was a focus of this scenario, there was a drive to keep towns distinct from one another. With this taken into consideration several strictly enforced Strategic Green Belts are included in Scenario 4 whose function is to prevent the merger of towns/areas distinct in 2006.

Table 3. List of Transport 21 projects included in Scenario 4.

<b>Type</b>	<b>Project name</b>	<b>Date Implemented</b>
<b>Rail</b>	Dunboyne Spur	2012
	Metro North	2016
	DART Underground/Interconnector	2016
	Navan railway	2019
<b>Road</b>	Outer Orbital Route: sub-scenario 1 (short OOR) links Drogheda, Navan, Naas	2021
	Outer Orbital Route: sub-scenario 2 (long OOR) links Drogheda, Navan, Naas & Wicklow, Arklow	2021

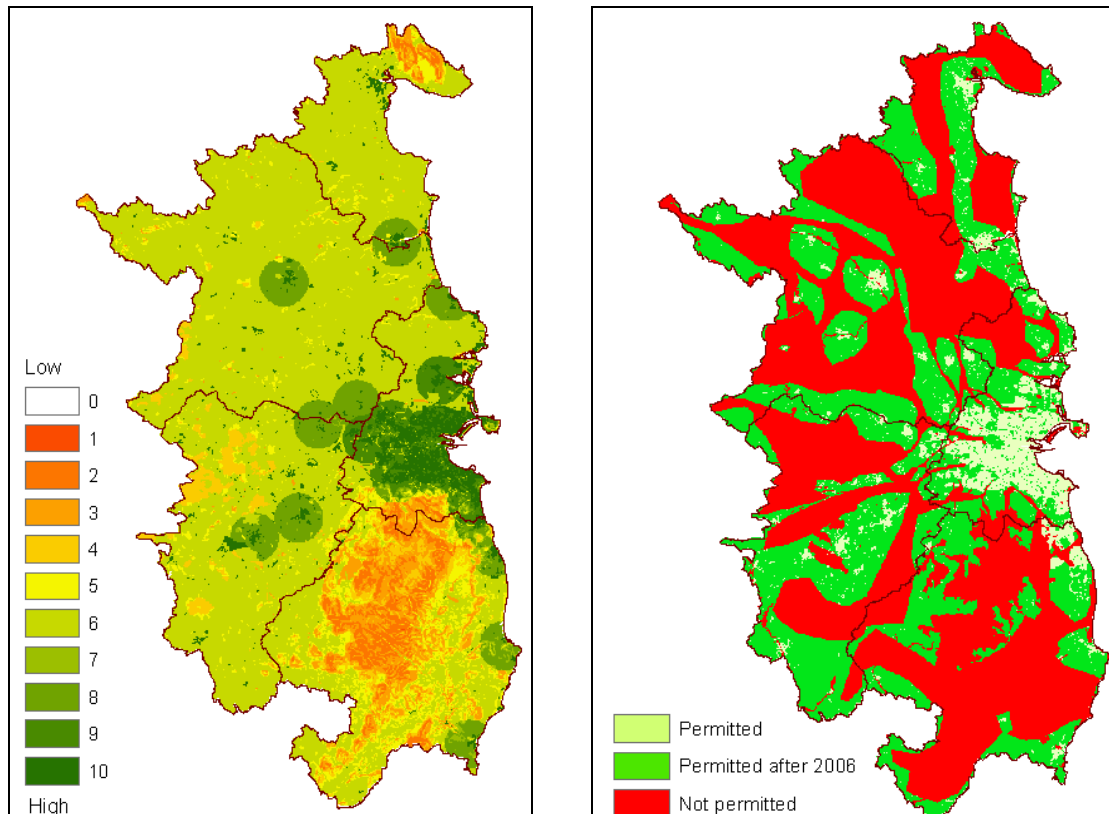


Figure 6: Scenario 4 suitability (left) and zoning (right) maps for urban land uses in the MOLAND model

**Indicators of sustainability:**

1) Encroachment on protected areas (SPAs/SACs/NHAs):

To investigate the extent of encroachment upon protected areas all SPAs/SACs/NHAs within the study area were merged using GIS. To allow a per county analysis this polygon was intersected with a County shape file to produce five polygons, representing the protected areas of each county. A special tool (UEP Cell Count Tool) was developed by ArcGIS Model builder to calculate cell statistics within these buffers. The results were compared using MS Excel.

2) Development proximity to public transport corridors

One of the goals of the RPGs in to promote sustainability with improved transport efficiency being a major priority. To assess this a 1km buffer was created around the transport nodes for each scenario. Cell counts within these buffers were found using the UEP Cell Count Tool. The results were compared using MS Excel. Since the different scenarios used different patterns of transport nodes (motorway junctions or railway stations) it was decided to find what percentage of urban cells was within 1km of nodes for each scenario.



### 3) Metropolitan Area vs. Hinterland Population Split:

It was decided to find the approximate proportion of the population occupying the MA and the hinterland (i.e. all areas outside the MA) in each scenario. The MA was merged into a single raster layer in GIS and cell counts for Residential Continuous Dense, Residential Continuous Medium Dense, Residential Discontinuous and Residential Discontinuous Sparse within the MA and for the entire study area were found using the *UEP Cell Count Tool* for each scenario. To find cell counts for the hinterland, MA cell counts were subtracted from total cell counts for the region. Since MOLAND treats Residential Continuous Dense, Residential Continuous Medium Dense, Residential Discontinuous cells identically for the purposes of distributing population these cell counts were aggregated. We will refer to these aggregations as ResOther and to Residential Discontinuous Sparse as ResSparse in the following text. The percentage of ResOther, ResSparse and total residential cell counts in the MA and hinterland were then found.

The 2026 activity outputs “Population (Other)” and “Population (Sparse)” for each scenario were found using MOLAND. Population (Other) refers to the population that is distributed by the model among ResOther cells and Population (Sparse) is distributed ResSparse cells.

For each scenario the percentage of ResOther and ResSparse cells within the MA were multiplied by the 2026 activity outputs “Population (Other)” and “Population (Sparse)” to find the approximate number of people within the MA. The process was repeated for the hinterland.

These estimates were then compared to population projections for the MA supplied by the RPA. The RPA provided projections to 2022 which were linearly extrapolated to 2026 to facilitate comparison.

#### **Results:**

#### **Landuse:**

Visually, the differences between the Scenarios are clear. In Scenario 1 by 2026 development has dispersed across the region in many small clusters and formerly separate urban areas have merged (figure 7). The situation is different in the other Scenarios; here development by 2026 is concentrated within the MA and key towns, with little of the small pockets of development found under the Scenario 1 simulation (figures 8-10). In Scenarios 2-4, but particularly in Scenario 2, development to the West of Dublin city is heavy. Coastal development close to Dublin city is also more pronounced in Scenarios 2-4 compared to Scenario 1.

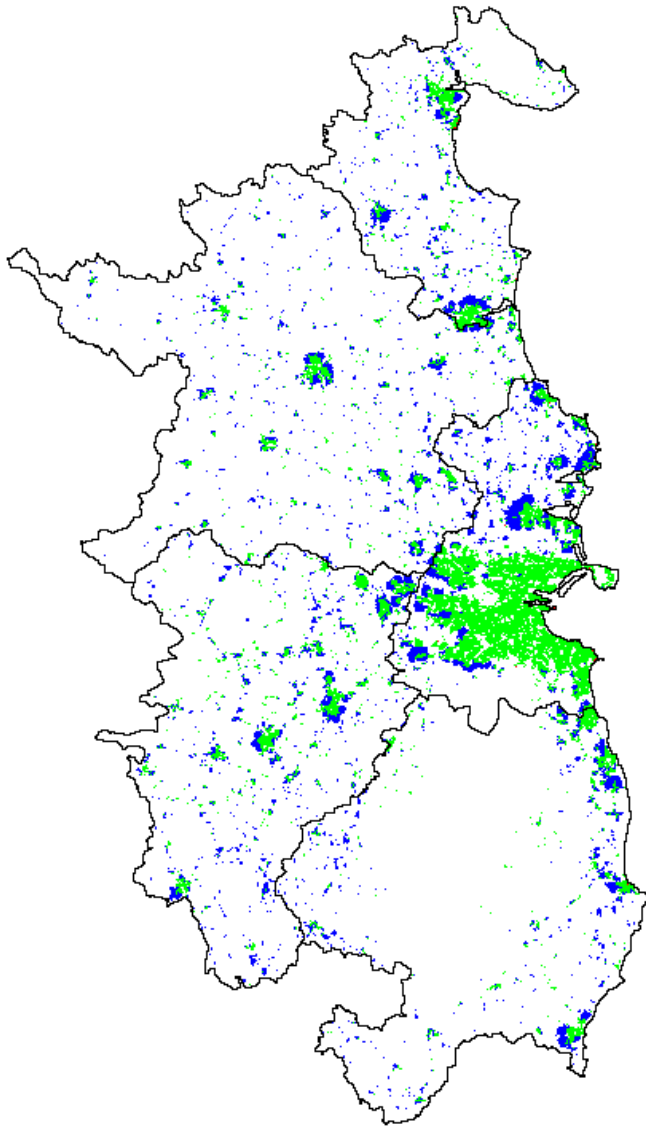


Figure 7. Comparison of actual GDR landuse in 2006 with simulated 2026 landuse under Scenario 1 conditions. Actual landuse in 2006 is in green, simulated additional urban development by 2026 is in blue. Note the dispersed settlement pattern and merger of formerly separate urban areas.

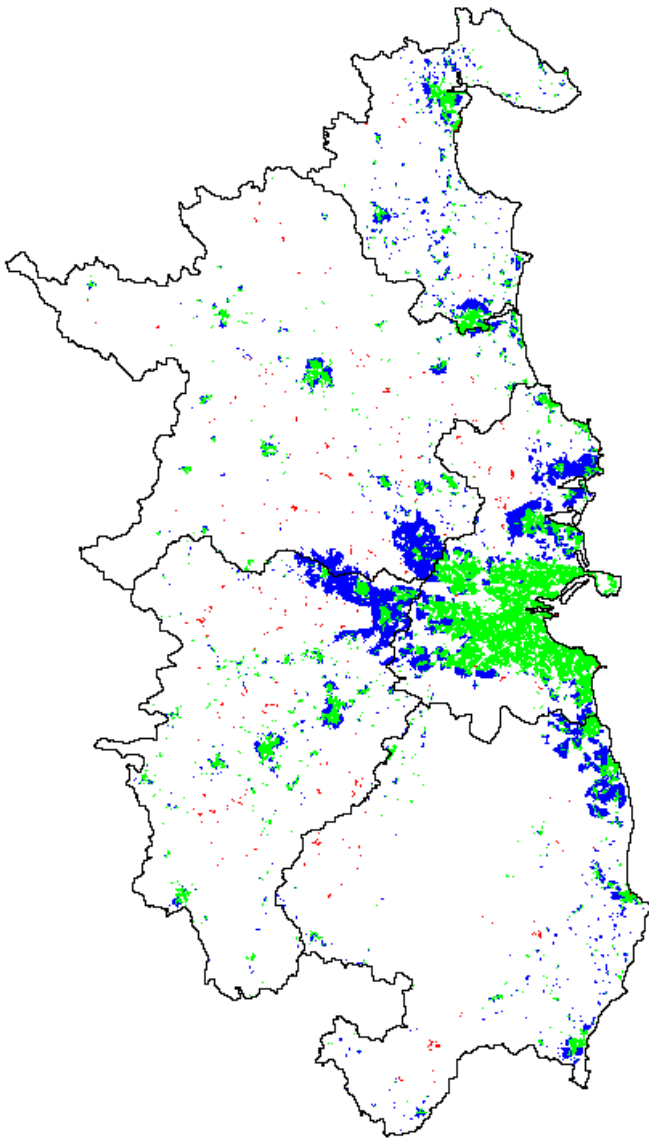


Figure 8. Comparison of actual GDR landuse in 2006 with simulated 2026 landuse under Scenario 2 (sub-scenario1) conditions. Actual landuse in 2006 is in green; simulated additional urban development by 2026 is in blue and red is reduced rural settlements. Development is extensive to the West of Dublin city and North and South coasts.

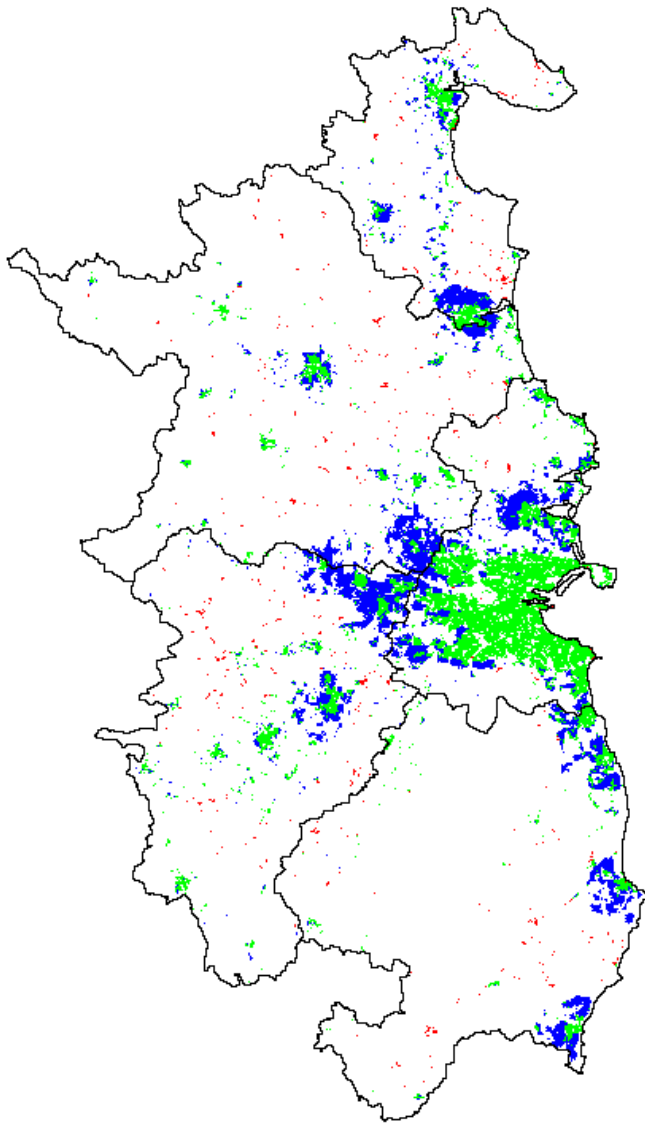


Figure 9. Comparison of actual GDR landuse in 2006 with simulated 2026 landuse under Scenario 3 (sub-scenario1) conditions. Actual landuse in 2006 is in green; simulated additional urban development by 2026 is in blue and red is reduced rural settlements. Development to the West of the city is less intense than in Scenario 2, with this development focused into the growth centres of Drogheda, Navan, Naas, Wicklow and Arklow.

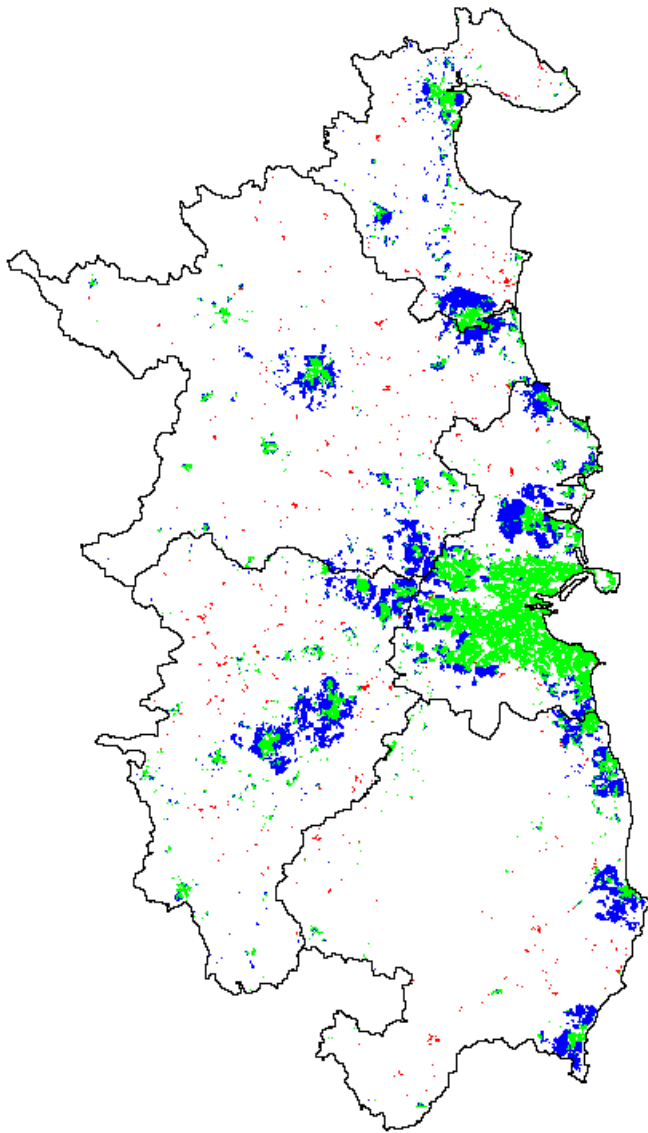


Figure 10. Comparison of actual GDR landuse in 2006 with simulated 2026 landuse under Scenario 4 (sub-scenario1) conditions. Actual landuse in 2006 is in green; simulated additional urban development by 2026 is in blue and red is reduced rural settlements. While development is dispersed across the region, it is consolidated into several growth centres of Arklow, Balbriggan, Drogheda, Navan, Naas, Newbridge and Wicklow. This contrasts with Scenario 1 where development is widely dispersed in small pockets across the region.

**Indicators of sustainability:**

The consolidation and sustainability of development is a primary theme of both the National Spatial Strategy (NSS) (Department of Environment and Local Government 2002) and the RPGs (Dublin Regional Authority and Mid-East Regional Authority 2004), and while Scenarios 2, 3 & 4 outperform Scenario 1, their performance with regard to indicators of sustainability was not uniform..

1) Encroachment on protected areas (SPAs/SACs/NHAs):

Encroachment was most pronounced in Scenario 1, least in Scenario 3 while Scenarios 2 & 4 performed similarly (see figures 11).

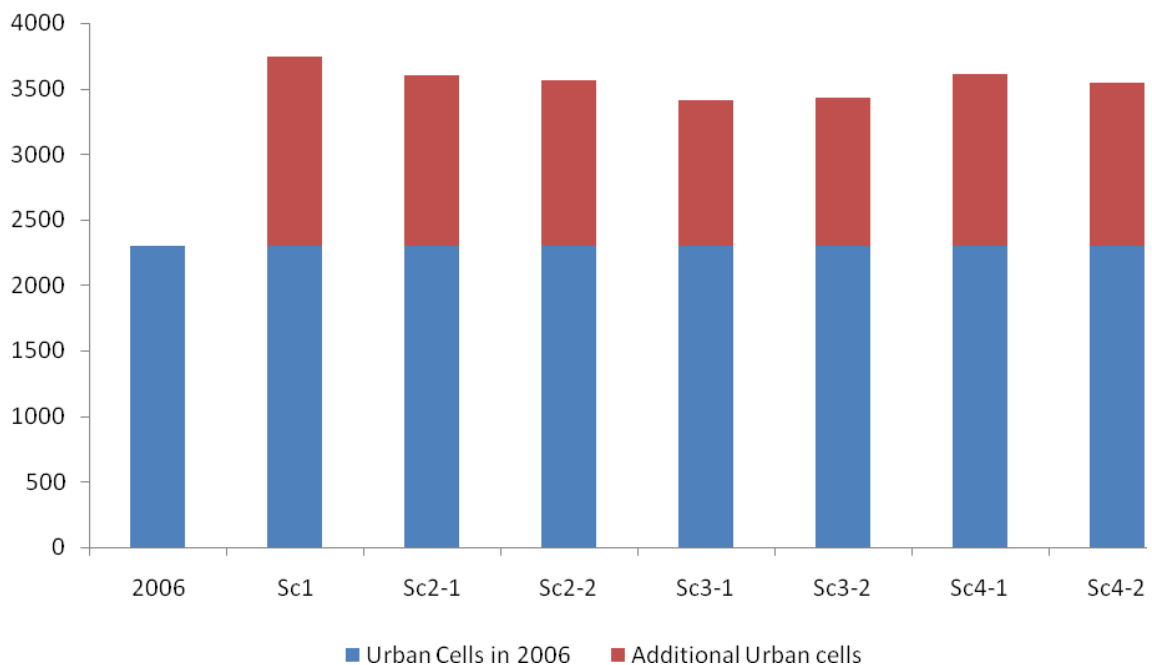


Figure 11. Encroachment of development within 1km of protected areas by scenario. Results are in cell counts

When compared on a county by county basis further differences between Scenarios became evident.

In Scenario 1 encroachment is most pronounced in Meath and Wicklow. This pattern is shared in Scenario 4, but to a lesser degree. In Scenario 2 & 3 it is Dublin and Wicklow that experience the most encroachment, particularly in Scenario 2. Here protected areas in Dublin and Wicklow experienced almost double the level of encroachment than those in Meath, Louth and Kildare (figure 12).

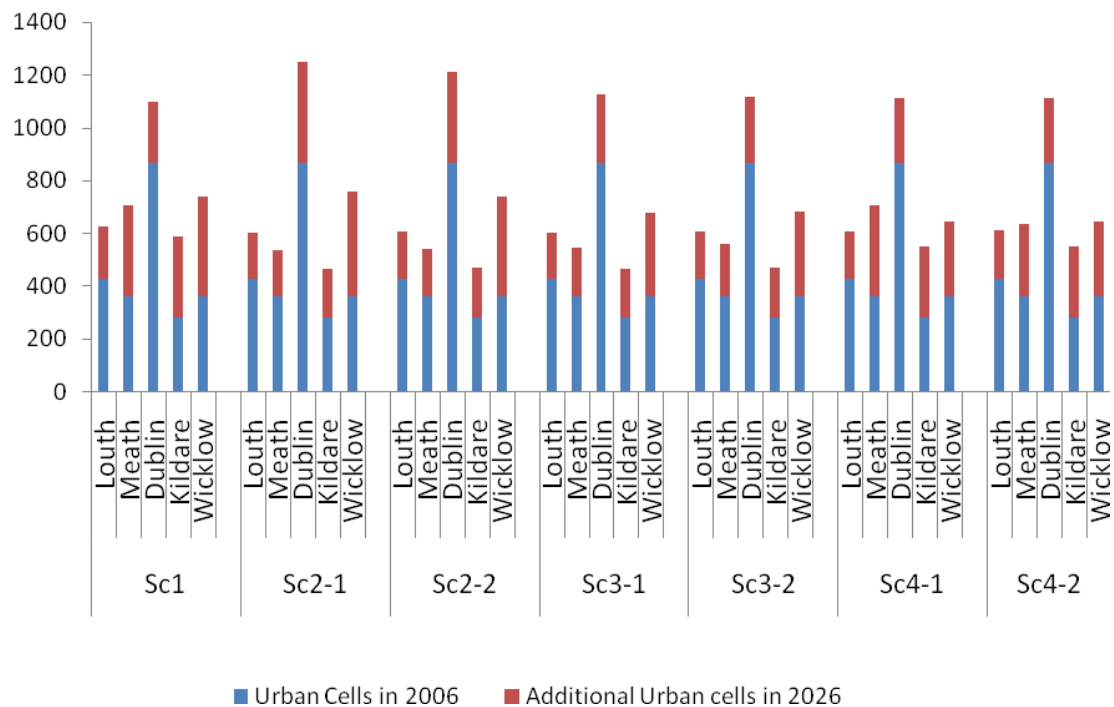


Figure 12. Encroachment of development within 1km of protected areas by scenario and county. Results are in cell counts.

## 2) Development proximity to public transport corridors

By 2026 all scenarios showed an increase in urban cells within 1km of transport nodes compared to 2006. The greatest gain of urban cells was in scenario 2 and least in scenario 1 (figures 13). When percentage of urban cells was compared this pattern was repeated, however the percentage of urban cells within 1km of a transport node fell in all scenarios compared to 2006 indicating the occurrence of at least some dispersed development (figure 14).



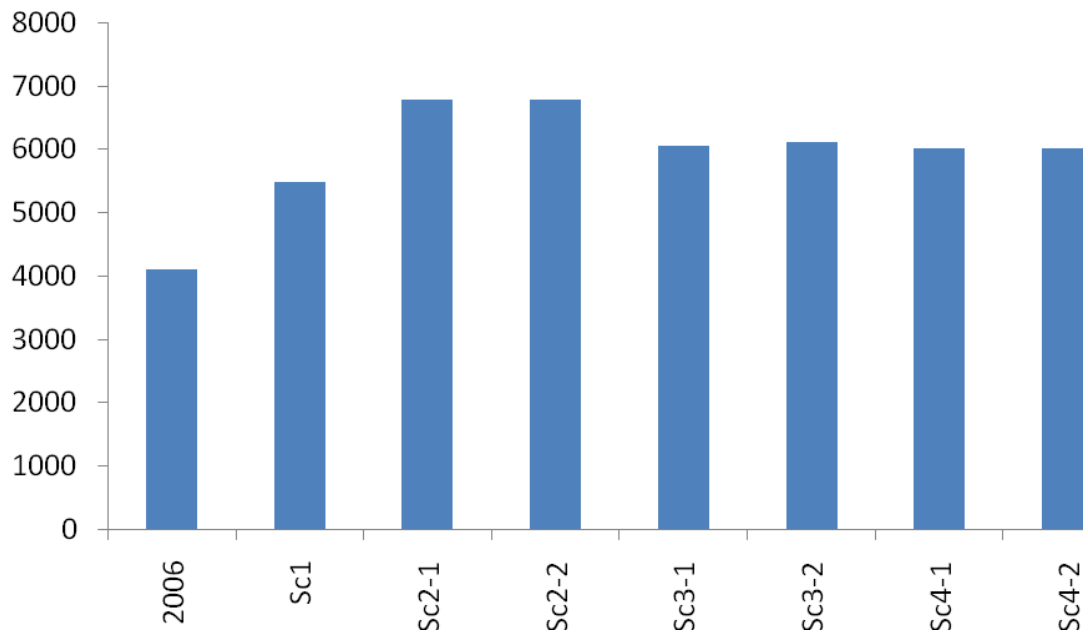


Figure 13. Urban cell counts within 1km of transport nodes for 2006 and each 2026 scenario.

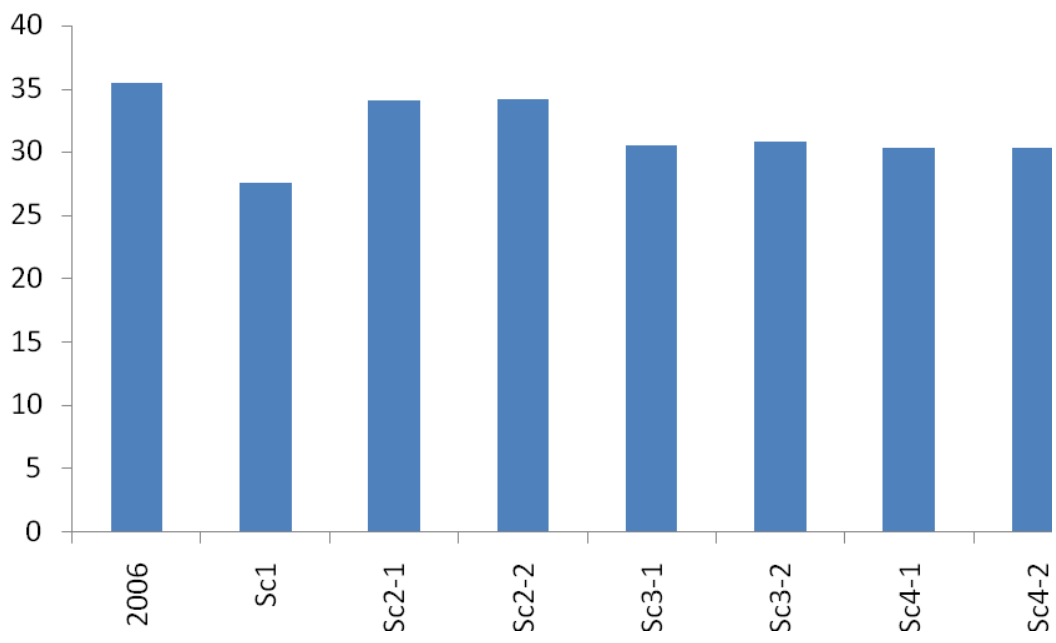


Figure 14. Percentage of urban cell counts within 1km of transport nodes for 2006 each 2026 scenario.

### 3) Metropolitan Area vs. Hinterland Population Split:

The RPA estimated the population of the MA in 2022 would be 1,486,800. By extrapolating this figure to 2026 we find that the estimated population for the MA is 1,547,823. When compared to the Scenarios we find each differed from this target (see table 4). Scenarios 2 & 3 were closest to the RPA target; in fact in all but Scenario 2 (sub-scenario 1) the MA populations in these Scenarios exceeded the RPA provided value. The MA populations of Scenarios 1 & 4 fell below the RPA target though Scenario 4 performed substantially better than Scenario 1. Overall the divergence in estimated MA population and the RPA target was highest in Scenario 1 (-196,014) and lowest in Scenario 2 (sub-scenario 2) (+3,603).

Table 4. Population division between MA and hinterland by scenario.

Population Scenario	MA_Towns		Total Population
	Population allocated to ResOther cells	Population allocated to ResSparse cells	
Sc1	1268455	83355	1351809
Sc2-1	1324583	207059	1531642
Sc2-2	1344720	206705	1551425
Sc3-1	1352647	215967	1568614
Sc3-2	1344078	212722	1556800
Sc4-1	1296733	147832	1444565
Sc4-2	1294162	150133	1444295

Scenario	Hinterland		Total Population
	Population allocated to ResOther cells	Population allocated to ResSparse cells	
Sc1	645474	365214	1010689
Sc2-1	589346	241510	830856
Sc2-2	569209	241864	811072
Sc3-1	561282	232602	793884
Sc3-2	569851	235847	805698
Sc4-1	617196	300737	917933
Sc4-2	619767	298436	918203

### Discussion:

#### Scenario 1:

Should development proceed as simulated, i.e. dispersing to a greater or lesser degree across the region, it would imply a continuation of current unfavourable trends (Scott et al. 2006). These trends imply increased isolation of residents within urban centres from the surrounding natural areas and relatively less green space within the urban centres (Brennan et al. 2009). This could lead to negative social effects such as increased crime rates, increased stress, decreased physical activity and decreased longevity (Frumkin 2001, Kuo and Sullivan 2001, Humpel et al. 2002, De Vries et al. 2003).

Commuting in the GDA is already a stressful experience (O' Regan and Buckley 2003), with time lost due to congestion costing the economy an estimated €640m (DTO (Dublin Transportation Office) 2001). An

increase in car dependency implied by the dispersed nature of the forecasts would likely exacerbate the situation.

Waste water provision over such a dispersed area would be extremely difficult and expensive, necessitating septic tank use in a large number of dwellings. Even though technology is improving, this higher number of tanks can be expected to increase the rates of groundwater contamination (Yates 1985, Jamieson et al. 2002 ). Furthermore, work has already been carried out that suggest that growth in the several areas across GDA will outpace future wastewater treatment provision (Shahumyan et al. *In Press*). Similar deficiencies could be expected for other services such as waste disposal, education, health provision and emergency service response time.

#### Scenario: 2

This Scenario represents the result of a strict enforcement of consolidation within the MA, which is expanded along key transport corridors, and improved transport links both within the MA and to adjacent urban centres. This is in-line with current European policy promoting the “compact city” (Commission of the European Communities 1990). Compact Cities have been advocated as a way of increasing space for city dwellers while at the same time reducing transport, energy and material consumption (Katz 1994). Development within an existing urban centre benefits from pre-existing infrastructure (drinking and waste water pipes, electricity, street lighting, etc.) and easier is extend to adjacent areas, in this case the towns along key transport routes (e.g. Drogheda, Greystones, Rush, Maynooth, Dunboyne, etc.). In addition numerous studies have tested hypotheses regarding the relationship between urban structure, especially density, and energy consumption in the transportation system. Under these hypotheses, raising urban densities is expected to lead to a decrease in energy consumption (e.g. (Newman and Kenworthy 1989). From the indicator analysis we can see that, compared to Scenario 1, Scenario 2 performs better in all categories. In fact Scenario 2 performs better than any other Scenario in terms of promoting settlement near transport nodes.

There are a number of factors that should be born in mind however. A number of authors have raised questions as to whether or not the “Compact City” is more sustainable than a sprawl situation (summarised in (Neuman 2005)). Since this question is at present uncertain, pursuing a strict policy of consolidation may not advisable. In addition while encroachment upon protected areas is lower overall than in Scenario 1 the SPAs and SACs located on in the coastal areas of the region are more heavily impacted than in Scenario 1. This has not only ecological effects (Burton et al. 2002, Northern Ireland Executive 2003, Burton et al. 2006) but has implications upon Ireland’s European obligations under the Birds & Habitats Directives.

#### Scenario 3:

In Scenario 3 consolidation is also examined, but in contrast to Scenario 2 where *all* growth was focused toward the MA, here a small number of key towns also act as growth nuclei. This is in line with the NSS, RPGs and government policies of decentralisation. While the same questions remain regarding “Compact City” settlement patterns discussed above, Scenario 3 addresses these somewhat with the

addition of the key towns. From an ecological perspective protected areas are encroached upon least in this Scenario, while in terms of promoting settlement near transport nodes it is on a par with Scenario 4. Both underperform in terms of promoting settlement near transport compared to Scenario 2.

#### Scenario 4:

Scenario 4 represents an intermediate between the unregulated sprawl of Scenario 1 and the strong consolidation policies of Scenarios 2 & 3. While development in this Scenario does occur across the region the goals of the RPGs (i.e. consolidation within the existing MA and development centres along major transport routes and limiting the uncoordinated sprawl that had become a feature of the Celtic Tiger era) are realised. As noted in the literature there has been divergence between policy and practice (MacLaran and Williams 2003, Convery et al. 2006); Scenario 4 may represent a settlement pattern that is an achievable goal, marrying the objectives of sustainability, development and shared prosperity across the region. The indicator analysis performed shows that the Scenario 4 settlement pattern is a substantial improvement on continued trends (Scenario1) with development in both the MA and Hinterland adopting a denser form, which is comparable to the other Scenarios in certain aspects. Finally, it could be argued that Scenario 4 is the most “equitable”, in that development is divided more evenly between the counties while still addressing the goals of the RPGs and NSS.

#### Conclusion:

The four Scenarios presented here represent hypothetical end points of different policy directions. There are associated costs and benefits with following any of these paths and the exact direction pursued will be decided by the interaction between planners, policy makers and the public working together. As the Greater Dublin Area has undergone such massive change in the recent past (McInerney and Walsh 2009) and recent literature has noted a divergence between policy and practice (MacLaran and Williams 2003, Scott et al. 2006) it would be useful to simulate development into the future, expose potential issues before they occur and structure policy accordingly. As shown above the MOLAND model allows diverse policy options to be evaluated before concrete decisions are made and provide a useful basis for discussion on the issues facing planners.

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## **Appendix A6**

### **Habitats Directive Assessment.**



**HABITATS DIRECTIVE  
ASSESSMENT OF THE REGIONAL  
PLANNING GUIDELINES FOR THE  
GREATER DUBLIN 2010- 2022**

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# 1 INTRODUCTION

Habitats Directive Assessment (HDA) is an assessment of the potential effects of a proposed plan or project, on its own or in combination with other plans or projects, on one or more Natura 2000 site (Special Protection Areas (SPA) for birds, Special Areas of Conservation (SAC) for habitats and species). The HDA findings must be taken into account by the competent authority, the Regional Authority, in reaching its decision to authorise the RPG. A final statement on whether or not the Development Plan, on its own or in combination with other plans or projects, will affect the integrity of Natura 2000 sites is also required, prior to adoption of the plan.

## 1.1 RELATIONSHIP TO STRATEGIC ENVIRONMENTAL ASSESSMENT

Habitats Directive Assessment specifically aims to ensure that the plan, in this case the Regional Planning Guidelines (RPGs) will not have an adverse effect on the integrity of European sites, whereas Strategic Environmental Assessment (SEA) has a broader objective to ensure land-use plans contribute to sustainable development by integrating social, environmental and economic considerations into plan preparation and incorporating the requirements of the SEA Directive (2001/42/EC). A comparison between the HDA and SEA process is set out in Table 1

**Table 1 Comparison of AA and SEA**

	<b>AA</b>	<b>SEA</b>
<b>Aim of process is to:</b>	Maintain the integrity of the Natura 2000 network and its features: SPA for birds, cSAC for habitats and species,	Provide for a high level of protection of the environment
<b>Emphasis on:</b>	Prevent activities that could harm Natura 2000 sites  'Protection led',	Provide information on environmental impacts, consultation, documenting decisions,  'Baseline led'
<b>Detail:</b>	Narrow focus on a few sites	Focus on the environment 'rebalancing in favour of the environment'

Adapted from 'Appropriate Assessment of Plans, September 2006', Authors: Scott Wilson, Levett – Therivell Sustainability Consultants, Treweek Environment Consultants and Land Use Consultants, p14 (based on Therivel, 2006)

## 1.2 LEGISLATIVE REQUIREMENTS

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora better known as "The Habitats Directive" provides the framework for legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network. The Habitats Directive and the Birds Directive and sites designated under them form this network of European protected sites that are better known as the Natura 2000 network. This consists of;

- Special Areas of Conservation (SACs) for flora, fauna and habitats of Community interest under the EU Habitats Directive;

- 
- Special Protection Areas (SPAs) for rare, vulnerable or migratory birds under the EU Birds Directive:

Article 6 sets out provisions which govern the conservation and management of Natura 2000 sites. Article 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites. Article 6(3) establishes the requirement for Appropriate Assessment:

*“Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In light of the conclusions of the assessment of the implication for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public”*

In February 2008, the requirement for an AA of all land use plans was outlined in a circular letter issued by the Department of the Environment, Heritage and Local Government (DoEHLG)<sup>1</sup>.

### 1.3 OBJECTIVES OF HABITATS DIRECTIVE ASSESSMENT

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures to be addressed in the AA process.

1. Firstly, a plan should aim to **avoid** any negative impacts on Natura 2000 sites by identifying possible impacts early in plan making, and writing the plan in order to avoid such impacts.
2. Secondly, **mitigation measures** should be applied during the AA process to the point where no adverse impacts on the site(s) remain.
3. In a worst-case scenario, a plan may have to undergo an assessment of alternative solutions. Under this stage of the assessment, **compensatory measures** are required for any remaining adverse effects, but they are permitted only if (a) there are no alternative solutions and (b) the plan is required for imperative reasons of overriding public interest (the ‘IROPI test’). European case law highlights that consideration must be given to alternatives outside the plan boundary area in carrying out the IROPI test. It is a rigorous test which plans are generally considered unlikely to pass.

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<sup>1</sup> Circular letter SEA 1/08 & NPWS 1/08

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## 2 METHODOLOGY

### 2.1 INTRODUCTION

The four stages of the Habitats Directive Assessment process are set out in Table 2.

The aim of the screening process (Stage 1) is to determine whether or not an AA is required. The aim of the AA (Stage 2) is to: identify potential impacts of the plan on its own or in combination with other plans or projects; identify policy and objectives that will avoid and mitigate any negative impacts on Natura 2000 sites; and avoid the need to progress to Stages 3 and 4.

Plan adoption may only proceed if the plan will not affect the integrity of a Natura 2000 site. Progression to the third stage would result in changes to the plan in its current form, and would require the implementation of compensatory measures for impacts on Natura 2000 sites. If the recommendations of Stage 2 are incorporated into the Development Plan, then Stages 3 and 4, relating to alternative solutions and compensatory measures, will not be required.

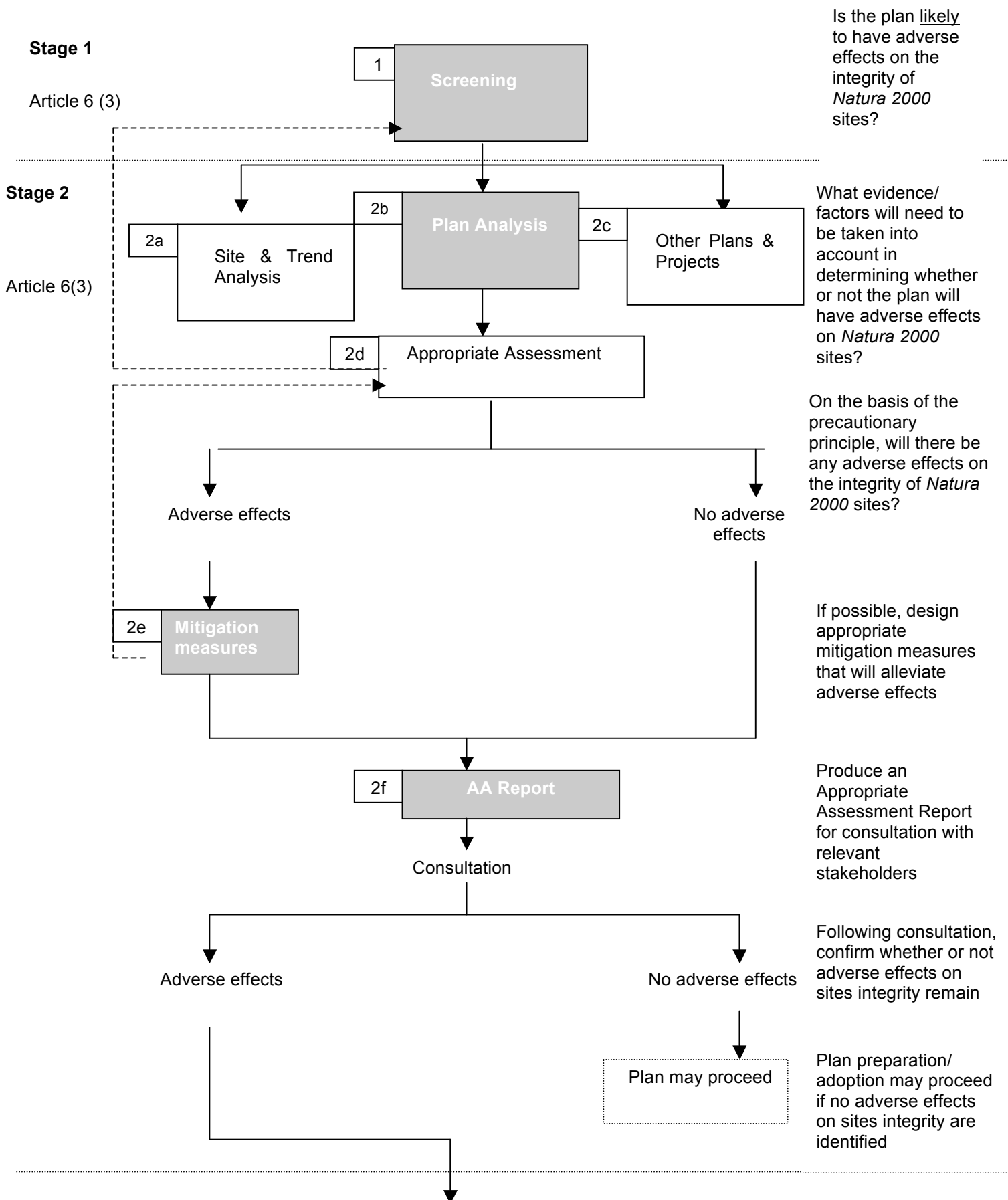
In addition to the Habitats Directive and the European Communities (Natural Habitats) Regulations, SI 94/1997, there are a number of guidance documents outlining the approach to undertaking an appropriate assessment. The following are the main guidance documents that will be referred to.

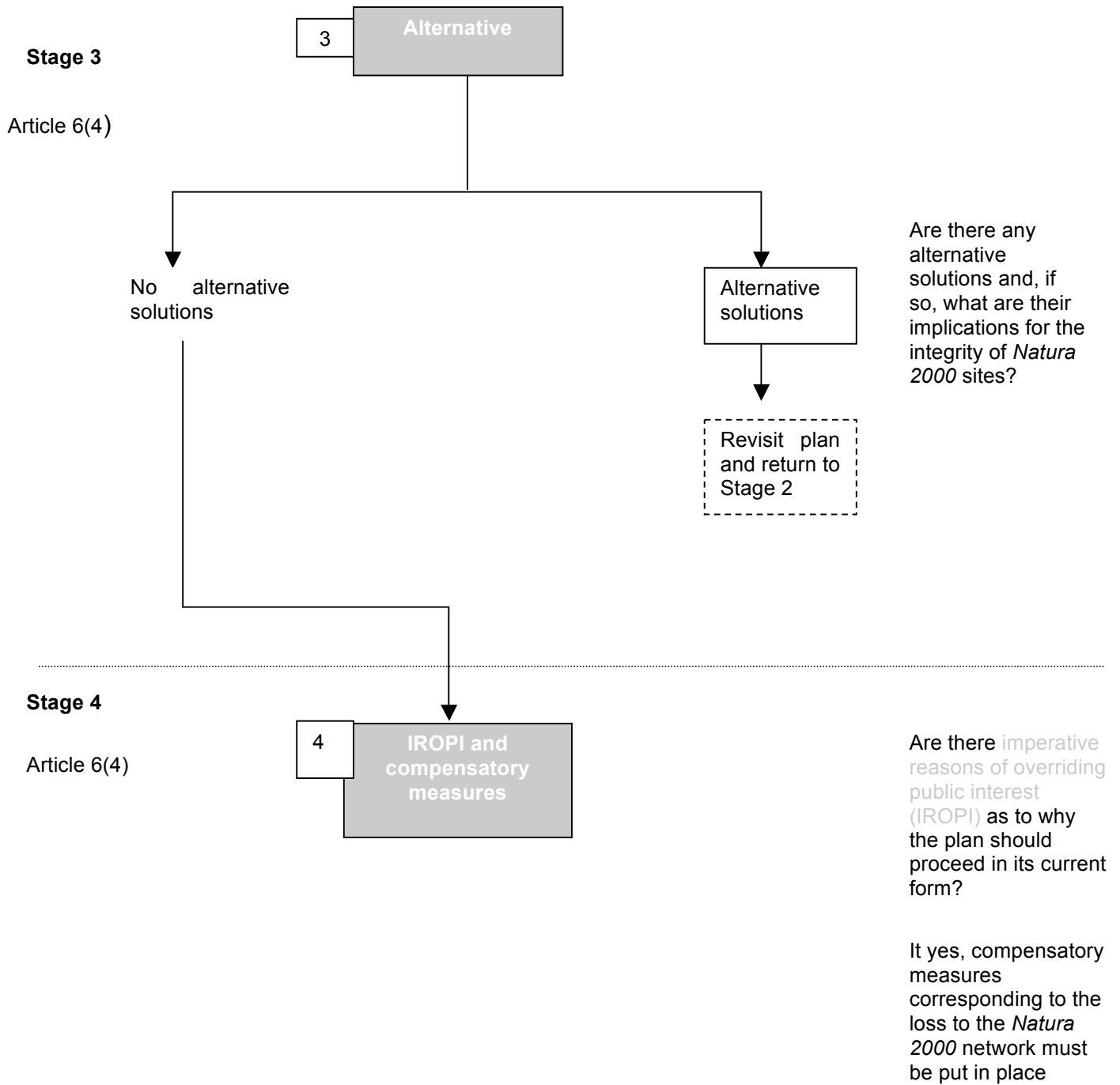
- Managing Natura 2000 Sites - The provisions of Article 6 of the Habitats Directive 92/43/EEC. European Commission (2000).
- Assessment of Plans and Projects Significantly Affecting Natura 2000 sites - Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. European Commission (2001).
- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC - Clarification of the Concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission. European Commission (January 2007).
- Appropriate Assessment of Plans. Authors: Scott Wilson, Levett-Therivel Sustainability Consultants, Treweek Environmental Consultants and Land Use Consultants (September 2006).

### 2.2 PRECAUTIONARY PRINCIPLE

Due to the large scale and strategic nature of the Guidelines, some impacts on Natura 2000 sites are uncertain and in line with the requirements of the Habitats Regulations the precautionary principle is applied. Thus the onus is on the Relevant Authority, Regional or Local, as the proponents of the plan, to show that there is not likely to be an impact, rather than there is a likely impact, and that avoidance/mitigation measures are likely to work.

**Table 2: Summary of Habitats Directive Assessment Process:**





Source: **Appropriate Assessment of Plans, September 2006, Authors: Scott Wilson, Levett – Therivell Sustainability Consultants, Treweek Environment Consultants and Land Use Consultants, p10**



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## **3 STAGE 1 – SCREENING**

### **3.1 INTRODUCTION**

Stage 1: Screening involves four steps:

1. Determining whether the project or plan is directly connected with the management of the site;
2. Describing the project or plan and the description and characterisation of other projects or plans that in combination have the potential for having significant effects on the Natura 2000 site;
3. Identify the potential effects on the Natura 2000 site;
4. Assessing the significance of any effects on the Natura 2000 site.

Where the project or plan is not directly connected with or necessary to the site's management for nature conservation, it must be determined if it is likely to have significant effects on a Natura 2000 site. If the answer is yes, then the assessment advances to Stage 2.

As the RPGs are not directly connected with or necessary to the site's management for nature conservation, the process can proceed to step 2: Description of the project or plan.

### **3.2 DESCRIPTION OF THE PLAN**

The Regional Planning Guidelines (RPGs) cover the Greater Dublin Area, comprising the geographical area of Dublin City, Dun Laoghaire-Rathdown, Fingal, South Dublin, Kildare, Meath, and Wicklow and incorporates the regions of both the Dublin Regional Authorities. The Planning and Development Act, 2000 requires these regional authorities to make Regional Planning Guidelines in respect of the whole of the combined area of their regions, to provide a strategic planning framework for the long-term sustainable development of the area for the 12 year period up to 2022. The Planning Act also requires the RPGs to be reviewed again in 2016. The RPGs inform and direct the City and County Development Plans of each of the Councils in the Greater Dublin Area. They provide the clear policy link between national policies -the National Development Plan and the National Spatial Strategy and other national policy documents and guidance; and Local Authority planning policies and decisions.

The key elements of the plan relate to Economic Development, Settlement Strategy, Rural development, Physical infrastructure, Green infrastructure, Heritage and Environment, Social infrastructure and Flood Risk Appraisal. The physical changes resulting from the plan include direct impacts such as habitat loss and fragmentation, and indirect impact including habitat degradation, hydrological alterations to the quality and quantity of water and disturbance to wildlife. These are discussed in more detail below. The resource requirements of the plan will relate to land take for development and its associated physical infrastructure of transport, waste management and water requirements.

### **3.3 SITE IDENTIFICATION**

Screening requires a review of all Natura 2000 sites that could potentially be subject to impacts. It involves identifying whether sites should be included in Stage 2 of the AA.

A list of Natura 2000 sites potentially affected by the plan was drawn up, which included all sites within the GDA and within 15km from its boundary, in accordance with standard guidelines (NPWS pers comm., Scott Wilson *et al.*, 2006). Details of the Natura 2000 sites are shown in Table 3 and 4.

**Table 3. List of candidate Special Areas of Conservation (cSAC) within the GDA or within 15km of the GDA.**

Site ID	Site Name
000006	Killyconny Bog (Cloghbally) SAC
000199	Baldoyle Bay SAC
000202	Howth Head SAC
000204	Lambay Island SAC
000205	Malahide Estuary SAC
000206	North Dublin Bay SAC
000208	Rogerstown Estuary SAC
000210	South Dublin Bay SAC
000391	Ballynafagh Bog SAC
000396	Pollardstown Fen SAC
000397	Red Bog, Kildare SAC
000582	Raheenmore Bog SAC
000685	Lough Ennell SAC
000713	Ballyman Glen SAC
000714	Bray Head SAC
000716	Carriggower Bog SAC
000717	Deputy's Pass Nature Reserve SAC
000719	Glen of the Downs SAC
000725	Knocksink Wood SAC
000729	Buckroneys-Brittans Dunes and Fen SAC
000733	Vale of Clara (Rathdrum Wood) SAC
000770	Blackstairs Mountains SAC
000781	Slaney River Valley SAC
000925	The Long Derries, Edenderry SAC
001209	Glenasmole Valley SAC
001387	Ballynafagh Lake SAC
001398	Rye Water Valley/Carton SAC
001459	Clogher Head SAC
001742	Kilpatrick Sandhills SAC
001757	Holdenstown Bog SAC
001766	Magherabeg Dunes SAC
001810	White Lough, Ben Loughs and Lough Doo SAC
001957	Boyne Coast and Estuary SAC
002120	Lough Bane and Lough Glass SAC
002121	Lough Lene SAC
002122	Wicklow Mountains SAC
002141	Mountmellick SAC
002162	River Barrow and River Nore SAC
002193	Ireland's Eye
002249	The Murrough Wetlands SAC
002256	Ballyprior Grassland SAC
002274	Wicklow Reef SAC
002299	River Boyne and River Blackwater SAC
002331	Mouds Bog SAC
002340	Moneybeg and Clareisland Bogs SAC
002342	Mount Hevey Bog SAC

**Table 4. List of candidate Special Protection Areas (SPAs) within the GDA or within 15km of the GDA.**

Site ID.	Site Name
002122	Wicklow Mountains SPA
004006	North Bull Island SPA
004014	Rockabill SPA
004015	Rogerstown Estuary SPA
004016	Baldoyle Bay SPA
004024	South Dublin Bay and River Tolka Estuary SPA
004025	Broadmeadow/Swords Estuary SPA
004040	Wicklow Mountains SPA
004043	Lough Derravaragh SPA
004044	Lough Ennell SPA
004061	Lough Kinale and Derragh Lough SPA
004063	Poulaphouca Reservoir SPA
004065	Lough Sheelin SPA
004069	Lambay island SPA
004080	Boyne Estuary SPA
004085	Kilcoole Marches SPA
004091	Stabannan-Braganstown SPA
004102	Garriskill Bog SPA
004113	Howth Head Coast SPA
004117	Ireland's Eye SPA
004122	Skerries Island SPA
004127	Wicklow Head SPA
004158	River Nanny Estuary and Shore SPA
004186	The Murrough Wetlands SPA



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### 3.4 ASSESSMENT OF EFFECTS ON NATURA 2000 SITES

The RPGs define policy for a number of areas:

- Economic Strategy
- Settlement Strategy
- Rural Development
- Physical Infrastructure
- Green Infrastructure, Heritage and Environment
- Social Infrastructure
- Flood Risk Assessment

These policies and recommendations set out the long-term sustainable development of the area up to 2022 and have far reaching consequences on the physical environment. The implementation of the policies and recommendations at the County and Local levels will determine the precise nature of the impacts. An initial assessment of the impacts indicated that impacts can be divided into three main types as described below:

**Direct impacts** refer to habitat loss or fragmentation arising from land-take requirements. This impact is likely to arise from many policy areas including economic and settlement strategies, rural development and infrastructural development.

- *Habitat loss and fragmentation:* Habitat loss is caused by the complete removal of a habitat type. Fragmentation results in the incremental loss of small patches of habitat from within a larger site. Fragmentation can also result from impediments to the natural movements of species. This is relevant to any plan or project that is within or adjacent to a Natura 2000 site or where important corridors for movement or migration are likely to be disrupted. All sites are vulnerable.

**Indirect and secondary impacts** do not have a straight-line route between cause and effect and it is potentially more challenging to ensure that all the possible indirect impacts of the plan – in combination with other plans and projects - have been established.

- *Habitat degradation:* The diminishment of habitat quality and a loss of important habitat functions, such as its ability to support associated species or regulate water quality or flow. It can arise from a number of ways such as the introduction of invasive species to a habitat, toxic contamination with chemicals or the loss of mature trees from woodland. All sites are vulnerable

- *Alteration to water quality or quantity:* Deterioration in water quality can occur as an indirect consequence of development through point source or diffuse pollution, which in turn changes the aquatic environment and reduces its capacity to support certain plants and animals. Alteration to water quantity can arise when, for example, a development alters the hydrology of a catchment area, through increased hard standing or alteration to flow patterns, which in turn affects the movement of surface or groundwater to a site. This leads to potential negative consequences for the qualifying interests that rely on the maintenance of water levels within the Natura 2000 site. These impacts are relevant to any plan or project that has a hydrological connection to a Natura 2000 site or could impact on it and should be considered on case-by-case bases for each development. All coastal sites, surface water sites and groundwater dependant sites are vulnerable.

- *Disturbance:* Development can cause disturbance to the species supported within the Natura 2000 site through activity, noise, lights and vibration. This is relevant to any plan or project that is likely to increase activity levels or other forms of disturbance within or adjacent to designated areas. All sites supporting fauna are potentially affected by disturbance. SPA

sites supporting wild birds are particularly vulnerable and it is important that known sensitive areas, such as roosts, are protected.

**Cumulative Impacts** refer to a series of individually modest impacts that may in combination produce a significant impact. The underlying intention of this in combination provision is to take account of cumulative impacts from existing or proposed plans and projects and these will often only occur over time. It may be appropriate to consider the effects of already completed plans and projects if they have continuing effects on the site and point to a pattern of progressive loss of site integrity (EC, 2000a). Where there is a series of small, but potentially adverse impacts occurring within or adjacent to a Natura 2000 site, consideration of their cumulative impacts should be considered.

Each Natura 2000 site has been reviewed to establish whether or not the plan is likely to have a significant effect on the integrity of the site as defined by its structure and function and its conservation objectives. The qualifying interests of each Natura 2000 site was identified and set out in Appendix 1 Tables A and B.

Table 5 and 6 below sets out the final screened list of sites, which includes those sites within or adjacent to the boundary of the plan. As it is not clear where specific impacts will occur all sites must be carried forward to Stage 2 Appropriate Assessment to assess whether there will be a significant negative effect on the structure and function of the Natura 2000 site and consequently, on its conservation objectives and to allow mitigation to be prescribed.

Assessment criteria	
Describe the individual elements of the plan (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 sites.	<ul style="list-style-type: none"> <li>▪ The individual elements of the Guidelines have been identified that may result in impacts on Natura 2000 sites. The individual elements are the strategic policy and recommendations set out in:               <ul style="list-style-type: none"> <li>– Economic Strategy</li> <li>– Settlement Strategy</li> <li>– Rural Development</li> <li>– Physical Infrastructure</li> <li>– Green Infrastructure, Heritage and Environment</li> <li>– Social Infrastructure</li> <li>– Flood Risk Assessment</li> </ul> </li> </ul> <p>(See Appendix I Table E for details of Strategic Policy and Recommendations)</p>
Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of: <ul style="list-style-type: none"> <li>▪ Size and scale;</li> <li>▪ Land-take;</li> <li>▪ Distance from Natura 2000 site or key features of the site;</li> <li>▪ Resource requirements;</li> <li>▪ Emissions;</li> <li>▪ Excavation requirements;</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Guidelines cover the GDA which includes, or is immediately adjacent to, a number of Natura 2000 sites. There is potential for a direct loss or fragmentation of habitats arising from land-take requirements. Impacts arise directly through inappropriate siting of development within a Natura 2000 site or immediately adjacent to its boundary, which causes deterioration in the factors that support the favourable conditions of the site. Consequently, there is potential for a significant adverse effect on all sites identified in the screening process from direct habitat loss and fragmentation.</li> <li>▪ The GDA supports or is immediately adjacent to a number of Natura 2000 sites that are marine water, surface water or groundwater dependant and whose favourable conservation status is determined by the quality and quantity of water supply and the hydrological regime. All of these sites are at risk of indirect impacts through altered hydrological regimes or contamination.</li> </ul>

<ul style="list-style-type: none"> <li>▪ Transportation requirements;</li> <li>▪ Duration of construction, operation etc.;</li> <li>▪ Others.</li> </ul>	<p>The qualifying interests of coastal sites are dependant on the tidal regime and have varying sensitivities to hydrological change. They are adversely affected by inappropriate development or deterioration in water quality standards. There is the potential for contamination of marine water in Dublin, Wicklow and Meath coastal sites during construction or operation of developments, through diffuse runoff, direct outfalls from development, wastewater emissions or through connected freshwater features.</p> <p>Surface water sites such as rivers and lakes are located throughout the GDA. There is potential for contamination of freshwater sites, such as River Boyne and the River Barrow, through runoff from development during the construction or operational phases, through point source contamination from residential, commercial and infrastructural developments, and through agricultural runoff and other diffuse sources within the wider catchment.</p> <p>Groundwater-dependant features are primarily located within sites in Co. Kildare, however some are also associated with other features such as rivers, and occur throughout the GDA. All developments and agriculture operations have the potential to contribute to groundwater aquifer contamination. Groundwater conduits are often unclear and there is potential for development to cause alterations to groundwater composition or supply which could negatively impact on groundwater dependent features.</p> <p>Contamination may arise from in all waters through poor working practices, leakages or accidental spillage of materials if efficient pollution control measures are not fully implemented and maintained during the construction and operation phase of development. At the strategic level this results in a lack of compliance with the Water Framework Directive, and measures prescribed in the relevant River Basin Management Plans.</p> <p>Due to the dispersed nature of development activities throughout the GDA, there is potential for a significant adverse effect on the integrity of marine, surface and groundwater dependant sites and their conservation objectives.</p> <ul style="list-style-type: none"> <li>▪ There is potential for disturbance to wildlife from development and recreational activities associated with the individual elements of the plan. Sites that are within the GDA, or immediately adjacent, are significantly at risk of disturbance through inappropriate development. Sources of disturbance include noise, vibration, light, construction and operation activities or other sources of disturbance arising from recreation and amenity or from the inappropriate timing of works.</li> </ul> <p>Consequently, there is potential for a significant adverse effect on the integrity of sites with faunal interest, particularly wild birds, and their conservation objectives.</p>
<p>Describe any likely changes to the site arising as a result of:</p> <ul style="list-style-type: none"> <li>▪ Reduction of habitat area;</li> <li>▪ Disturbance of key species;</li> </ul>	<p><b>The Coastal Zone:</b></p> <ul style="list-style-type: none"> <li>▪ The coastal zone is an area of high biodiversity and supports a range of protected habitat and species, which require certain environmental conditions to be maintained. Loss of habitat, alteration to the hydrological regime, contamination events or disturbance would limit the extent of suitable habitat available to support the habitats and species for which these sites are</li> </ul>



<ul style="list-style-type: none"> <li>▪ Habitat or species fragmentation;</li> <li>▪ Reduction in species density;</li> <li>▪ Changes in key indicators of conservation value;</li> <li>▪ Climate change.</li> </ul>	<p>designated. It is also likely that these events would alter the natural food chain, resulting in likely alterations to the distribution of species. These changes could negatively affect the structure and function of the site, and impact on the long-term distribution of species for which the site is designated.</p> <ul style="list-style-type: none"> <li>▪ Wild birds and mammals are susceptible to disturbance, which can alter their distribution and densities. There is potential for disturbance from a range of settlement and physical infrastructural development and recreation and amenity use. The sensitivity of the location of any proposed development and the types of disturbance inherent to the development (increased activity, noise, vibration, light etc.) will require individual assessment to determine whether the conservation objectives of the sites would be adversely affected.</li> <li>▪ Climate change will result in an increase in sea levels, reducing the extent of habitat available to species dependent on intertidal areas.</li> </ul> <p><b>Freshwater Zones:</b></p> <ul style="list-style-type: none"> <li>▪ Direct habitat loss or an alteration to the hydrological regime could cause deterioration in the extent and quality of associated habitats such as wetlands, which would in turn reduce the extent of habitat available to dependant wetland and aquatic species.</li> <li>▪ A reduction in water quality through sedimentation or contamination by pollutants would directly affect all aquatic plants and animals. This would have knock-on effects throughout the food chain on invertebrates, birds, fish and mammals.</li> <li>▪ Wild birds and mammals are susceptible to disturbance, which can alter their distribution and densities. There is potential for disturbance from a range of development types such as residential and commercial development and recreation and amenity use.</li> </ul> <p><b>Groundwater Dependiant Sites:</b></p> <p>Many of the associated habitats and species are dependant on high water quality. Runoff and contamination events would have negative consequences for qualifying interests and the conservation objectives of many sites.</p> <ul style="list-style-type: none"> <li>▪ An alteration to the water chemistry of sites could affect the key habitats such as calcareous and alkaline fen.</li> <li>▪ It is estimated that climate change will result in more extended but less frequent wet and dry periods and warmer water temperatures, as rainfall patterns in Ireland are changing. This could result in precipitation increases of over 10% in the winter months, and decreases of approximately 25% in the summer, and annual temperature increases. However, there is insufficient information to predict the effects on the site as these will be more closely related to localised rainfall events.</li> </ul> <p><b>Upland Zone:</b></p> <p>The Natura 2000 sites in the upland zone are relatively isolated and undisturbed. Direct loss of habitat and fragmentation will potentially alter the distribution of species and reduce population densities. Wild birds and mammals are susceptible to disturbance, there is potential for loss of</p>
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	<p>habitat, fragmentation or disturbance from a range of development types such as infrastructure or energy development, recreation and amenity use.</p>
<p>Describe any likely impacts on the Natura 2000 site as a whole in terms of:</p> <ul style="list-style-type: none"> <li>▪ Interference with the key relationships that define the structure of the site;</li> <li>▪ Interference with key relationships that define the function of the site.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The coastal Natura 2000 sites form part of the extensive coastal and marine ecosystem encompassing Dublin Bay, and running south to Co. Wicklow and north to Co. Meath. Water quality, tidal regime, salinity and the extent and quality of habitats are the key environmental conditions that support the sites integrity. The plan could result in an alteration or deterioration of any of these factors. This could alter the structure and function of the sites and could negatively impact on the habitats and species for which the sites are designated.</li> <li>▪ Surface water Natura 2000 sites <b>River Boyne, River Barrow, River Slaney</b> support a diversity of freshwater, wetland and terrestrial ecosystems. The relationship between water quantity and quality and habitats is the key relationship that defines the structure and function of these sites. Diffuse or point source contamination resulting from any proposed development could adversely affect the long-term distribution of the habitats and species for which the sites are designated.</li> <li>▪ The relationship between the hydrology and habitats in groundwater dependant sites is the key relationship that defines the structure and function of the site. Impacts on the quality and quantity of groundwater entering these sites, as described above, have the potential to affect the long-term distribution of the wetland habitats and species for which the sites are designated.</li> </ul>
<p>Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale of magnitude of impacts is not known.</p>	<ul style="list-style-type: none"> <li>▪ The RPGs are strategic in nature with far reaching consequences for the development of the Greater Dublin Region in the period 2010-2022. The exact nature and location of development is largely undefined or the subject of individual plans and projects, which will themselves require individual consideration to determine the extent and type of impacts. Following a review of the individual elements of the plan and other plans and projects it is considered that there is potential for significant effects on individual Natura 2000 sites as set out in the Screening matrix (Tables 5 and 6). For the purpose of screening, these have been defined only in broad scale terms and are classified as the following: <ul style="list-style-type: none"> <li>- There is potential for the loss of habitat arising from land-take requirements associated with the individual elements of the plan and the cumulative impacts of other plans and projects.</li> <li>- There is potential for significant impact to water quality and quantity arising from the individual elements of the plan and the cumulative impacts of other plans and projects. This including marine waters, surface water and groundwater quality through contamination with sediments, hydrocarbons, faecal coliforms and other contaminants.</li> <li>- There is potential for disturbance of species in Natura 2000 sites arising from the individual elements of the plan and the cumulative impacts of other plans and projects.</li> </ul> </li> </ul> <p>It has been concluded that the RPGs, alone or in combination with other plans and projects, are likely to have significant impacts upon the Natura 2000 sites listed in Table 5 and 6. A detailed review of the individual strategic policies and recommendation and suitable mitigation measures</p>

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	will be required which will require a Stage 2. Appropriate Assessment to be carried out.
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**Table 5: Screened list of Natura 2000 cSAC Sites located within 15km of RPG Boundary**

Site ID	Site Name	Is there potential for:				
		Direct impact e.g. habitat loss or fragmentation	Indirect impacts e.g. alteration to hydrological regime	Surface or groundwater contamination	Disturbance to protected species (Habitats Directive Annex II or IV)	AA required
000006	Killyconny Bog (Cloghbally) SAC	Yes	Yes	Yes	No	Yes
000199	Baldoyle Bay SAC	Yes	Yes	Yes	No	Yes
000202	Howth Head SAC	Yes	No	No	No	Yes
000204	Lambay Island SAC	Yes	Yes	Yes	Yes	Yes
000205	Malahide Estuary SAC	Yes	Yes	Yes	No	Yes
000206	North Dublin Bay SAC	Yes	Yes	Yes	Yes	Yes
000208	Rogerstown Estuary SAC	Yes	Yes	Yes	No	Yes
000210	South Dublin Bay SAC	Yes	Yes	Yes	No	Yes
000391	Ballynafagh Bog SAC	Yes	Yes	Yes	No	Yes
000396	Pollardstown Fen SAC	Yes	Yes	Yes	Yes	Yes
000397	Red Bog, Kildare SAC	Yes	Yes	Yes	No	Yes
000582	Raheenmore Bog SAC	No	Yes	Yes	No	Yes
000685	Lough Ennell SAC	No	No	No	No	No
000713	Ballyman Glen SAC	Yes	Yes	Yes	No	Yes
000714	Bray Head SAC	Yes	No	No	No	Yes
000716	Carriggower Bog SAC	Yes	Yes	Yes	No	Yes
000717	Deputy's Pass Nature Reserve SAC	Yes	No	No	No	Yes
000719	Glen of the Downs SAC	Yes	No	No	No	Yes
000725	Knocksink Wood SAC	Yes	Yes	Yes	No	Yes
000729	Buckronev-Brittis Dunes and Fen SAC	Yes	Yes	Yes	No	Yes
000733	Vale of Clara (Rathdrum Wood) SAC	Yes	No	No	No	Yes
000770	Blackstairs Mountains SAC	No	No	No	No	No
000781	Slaney River Valley SAC	Yes	Yes	Yes	Yes	Yes
000925	The Long Derries, Edenderry SAC	Yes	No	No	No	Yes
001209	Glenasmole Valley SAC	Yes	Yes	Yes	No	Yes
001387	Ballynafagh Lake SAC	Yes	Yes	Yes	Yes	Yes
001398	Rye Water Valley/Cartron SAC	Yes	Yes	Yes	Yes	Yes
001459	Clogher Head SAC	Yes	No	No	No	Yes
001742	Kilpatrick Sandhills SAC	Yes	Yes	Yes	No	Yes

Site ID	Site Name	Is there potential for:				
		Direct impact e.g. habitat loss or fragmentation	Indirect impacts e.g. alteration to hydrological regime	Surface or groundwater contamination	Disturbance to protected species (Habitats Directive Annex II or IV)	AA required
001757	Holdenstown Bog SAC	Yes	Yes	Yes	No	Yes
001766	Magherabeg Dunes SAC	Yes	Yes	Yes	No	Yes
001810	White Lough, Ben Loughs and Lough Doo SAC	Yes	Yes	Yes	Yes	Yes
001957	Boyne Coast and Estuary SAC	Yes	Yes	Yes	No	Yes
002120	Lough Bane and Lough Glass SAC	Yes	Yes	Yes	No	Yes
002121	Lough Lene SAC	Yes	Yes	Yes	No	Yes
002122	Wicklow Mountains SAC	Yes	Yes	Yes	No	Yes
002141	Mountmellick SAC	Yes	No	No	Yes	No
002162	River Barrow and River Nore SAC	Yes	Yes	Yes	Yes	Yes
002193	Ireland's Eye	Yes	No	No	No	Yes
002249	The Murrough Wetlands SAC	Yes	Yes	Yes	No	Yes
002256	Ballyprior Grassland SAC	No	No	No	No	No
002274	Wicklow Reef SAC	No	Yes	Yes	No	No
002299	River Boyne and River Blackwater SAC	Yes	Yes	Yes	Yes	Yes
002331	Mouds Bog SAC	Yes	Yes	Yes	No	Yes
002340	Moneybeg and Clareisland Bogs SAC	Yes	Yes	Yes	No	Yes
002342	Mount Hevey Bog SAC	Yes	Yes	Yes	No	Yes

**Table 6: Screened list of Natura 2000 SPA Sites located within 15km of RPG Boundary**

Site ID	Site Name	Is there potential for:				
		Direct impact e.g. habitat loss or fragmentation	Indirect impacts e.g. alteration to hydrological regime	Indirect impacts e.g. Surface or groundwater contamination	Disturbance to protected species (Habitats Directive Annex II or IV)	AA required
004006	North Bull Island SPA	Yes	Yes	Yes	Yes	Yes
004014	Rockabill SPA	Yes	No	No	Yes	Yes
004015	Rogerstown Estuary SPA	Yes	Yes	Yes	Yes	Yes
004016	Baldoyle Bay SPA	Yes	Yes	Yes	Yes	Yes
004024	South Dublin Bay and River Tolka Estuary SPA	Yes	Yes	Yes	Yes	Yes
004025	Broadmeadow/Swords Estuary SPA	Yes	Yes	Yes	Yes	Yes
004040	Wicklow Mountains SPA	Yes	No	No	Yes	Yes
004043	Lough Derravaragh SPA	No	No	No	No	No
004044	Lough Ennell SPA	No	No	No	No	No
004061	Lough Kinale and Derragh Lough SPA	No	No	No	No	No
004063	Poulaphouca Reservoir SPA	Yes	Yes	Yes	Yes	Yes
004065	Lough Sheelin SPA	Yes	Yes	Yes	Yes	Yes
004069	Lambay island SPA	Yes	No	No	Yes	Yes
004080	Boyne Estuary SPA	Yes	Yes	Yes	Yes	Yes
004085	Kilcoole Marches SPA	Yes	Yes	Yes	Yes	Yes
004091	Stabannan-Braganstown SPA	No	No	No	No	No
004102	Garriskill Bog SPA	No	No	No	No	No
004113	Howth Head Coast SPA	Yes	No	No	Yes	Yes
004117	Ireland's Eye SPA	Yes	No	No	Yes	Yes
004122	Skerries Island SPA	Yes	No	No	Yes	Yes
004127	Wicklow Head SPA	Yes	No	No	Yes	Yes
004158	River Nanny Estuary and Shore SPA	Yes	Yes	Yes	Yes	Yes
004186	The Murrough Wetlands SPA	Yes	Yes	Yes	Yes	Yes

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## 4 STAGE 2 – APPROPRIATE ASSESSMENT

### 4.1 INTRODUCTION

Stage 2: Appropriate Assessment (AA)

The second stage is to determine if the plan or project will adversely affect the integrity of the Natura 2000 sites. This involves the identification of potentially affected sites and their location in relation to Natura 2000 sites. It involves the identification of the habitats and species within these sites, and an assessment of the significance of impacts on their conservation status. An assessment of cumulative impacts should be carried out, and mitigation measures proposed for potential impacts if possible. Any negative impacts on the integrity of these sites will require the implementation of avoidance or mitigation measures in the form of amendments to the Guidelines to avoid progression to Stages 3 and 4 of the Appropriate Assessment process.

Stage two Appropriate Assessment involves:

- Gathering information required for the assessment;
- Impact prediction;
- Conservation objectives ;
- Mitigation measures prescription.

### 4.2 INFORMATION REQUIRED FOR THE ASSESSMENT

Desk top research and a literature review were carried out and key references are given in section 5 of this report. This assessment takes into account consultation with the NPWS and the DoEHLG, regarding the methodology. Information on Natura 2000 Sites was accessed from Site Synopses available on <http://www.npws.ie/en/ProtectedSites/>. Information on qualifying interests and conservation objectives was accessed through NPWS research staff. This assessment was informed by, and gratefully acknowledges the contribution of, simulated urban encroachment modelling using the MOLAND model provided by **Michael Brennan** of UCD Urban Institute Ireland.

### 4.3 IMPACT PREDICTION ON THE INTEGRITY OF THE NATURA 2000 SITES

The individual elements of the RPGs are identified and assessed in terms of their potential effects on Natura 2000 sites (Appendix 1 Table E. Strategic Policy and Recommendations). The assessment has been carried out according to the Cause – Pathway – Effect model. The assessment show that potential impacts on Natura 2000 sites arise from the following areas: urban growth and development, housing, physical infrastructure including transportation corridors, water supply and waste water treatment facilities, communication and energy supply and associated infrastructure, port and airport extensions and development, rural development, recreation, leisure and tourism development, drainage and aggregate exploitation. These impacts are presented as direct, indirect and cumulative impacts as outlined in section 3.4 of this assessment.

The MOLAND model indicates that under all scenarios there will continue to be pressure on the coastal sites in particular. Coastal cSACs tended to be more heavily encroached upon than non-coastal cSACs, for example Rogerstown Estuary, Malahide Estuary, Dundalk Bay, Baldoyle Bay, the Murrrough Wetlands and Coastal sections of the River Boyne. It is



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important, for the protection of coastal sites, which are and will continue to be under pressure from the sources identified above, that planning controls and integrated coastal zone systems are implemented, which clearly recognised the status of coastal sites and are consistent with the requirements of Article 6 of the Habitats Directive.

The MOLAND model also indicates that some inland cSAC sites will also experience increased development pressure. Two cSACs consistently experienced heavy encroachment in all scenarios; these were the River Boyne and River Blackwater cSAC and Rye Water Valley/Carton cSAC. The River Boyne and River Blackwater cSAC passes through both Drogheda and Navan towns, while the Rye Water Valley/Carton cSAC is proximate to Leixlip in particular and the Dublin Metropolitan Area in general. Other inland cSACs experiencing pressure are Pollardstown cSAC and Glen of the Downs cSAC.

The pattern of encroachment upon SPAs was dissimilar to that seen in cSACs. Scenarios 3 & 4 perform similarly to each other and better than Scenario 2 – a compact model. The model indicates that encroachment is least in Scenario 1. Irrespective of the Scenario under consideration, two SPAs were consistently in the top three most heavily encroached sites; these were The Murrough SPA and Broadmeadow/Swords Estuary SPA. Similarly to the most heavily encroached cSACs, these are coastal sites, which are proximate. This again indicates heavy pressure on coastal sites from all scenarios.

#### **4.4 CONSERVATION OBJECTIVES**

Article 6 of the Habitats Directive states that:

*'Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications of the site in view of the site's conservation objectives'*

The generic conservation objectives for cSACs are set out below. (See Appendix 1, Table C for site specific conservation objectives for cSACs).

- To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status
- To maintain the Annex II species for which the cSAC has been selected at favourable conservation status
- To maintain the extent, biodiversity and species richness of the site
- To establish effective liaison and co-operation with landowners, legal users and relevant authorities.

The conservation objectives for SPAs are set out below (See Appendix 1, Table D for site specific conservation objectives for SPAs).

- To maintain the special conservation interests for the SPA at favourable conservation status

#### **4.5 POTENTIAL 'IN COMBINATION' IMPACTS**

Table 7 sets out the key legislation, policy and plans that have the potential to produce in combination impacts.

**Table 7. Other Plans and Projects**

<b>Planning and Nature Conservation</b>
National Development Plan National Spatial Strategy SEA Directive EIA Directive Habitats Directive Birds Directive
<b>Water Quality</b>
EU Water Framework Directive Eastern River Basin District, South Eastern River Basin District
<b>Physical infrastructure</b>
The Greater Dublin Strategic Drainage Study Floods Directive Groundwater Directive Water Supply Project - Dublin Region Dublin Bay Project Urban Waste Water Treatment Directive The Eastern Bypass Smart Travel and Transport 21 Sustainable Transport Action Plan Energy Policy Framework 2007-2020 The National Energy Efficiency Action Plan 2009-2020 Eirgrid 25
<b>Climate change</b>
National Climate Change Strategy (2007 – 2012)

Many of these are strategic in nature with far-reaching influence and overlapping objectives. For example, the National Development Plan sets out the strategy for development throughout Ireland in the areas of economic and social infrastructure, transport, energy, housing, water, education and health, which is inclusive of environmental considerations. Transport 21 provides for capital funding to implement the transport strategy including heavy investment in public transport, particularly in the major urban areas. The strategy aims to encourage less energy intensive forms of transport such as public transport, with positive consequences for the environment, particularly in the area of climate change targets and air quality. Many of the individual elements of the transport strategy, including investment in the expansion of the Luas system, DART extensions and two Metro lines, which are all identified within the RPGs as critical strategic projects. Some of these projects are currently within the planning system and have undergone or will undergo individual Habitats Directive Assessments. In light of the scale and nature of these plans and projects, the possible extent and character of in combination effects is uncertain. However, it is clear from a review of the strategic policies and recommendations of the RPGs, in combination with these plans and projects that there will be certain areas where there is likely to be conflict between Natura 2000 sites and the growth of urban centres and the associated infrastructure, which are discussed below.

### **Habitat loss and fragmentation**

Incremental habitat loss, fragmentation and disturbance could arise as a series of individually modest impacts may, in combination, produce a significant impact. This is particularly important in the coastal areas of Dublin, Wicklow and Meath, which support a concentration of

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Natura 2000 sites, and are likely to come under sustained pressure from development during the lifetime of the RPGs both within and adjacent to the Natura 2000 sites, as indicated by the MOLAND model. An integrated method of cumulative assessment is required that takes into consideration the combined impacts of all development and sets out limits and criteria for habitat loss, fragmentation and disturbance. Integrated Coastal Zone Management provides a possible mechanism for such assessment.

### **Water quality**

Natura 2000 sites are part of the Water Framework Directive's register of protected areas. The Water Framework Directive (WFD) sets out core objectives to be achieved by 2015. The Eastern River Basin Management Plan (ERBMP) and South Eastern River Basin Management Plan (SERBMP) set out the measures that must be met in order to achieve the core objectives. This provides an integrated mechanism for setting standards and achieving objective for water quality in relation to the Natura 2000 sites. This will ultimately have a major positive impact on the water quality within the entire catchment and on Natura 2000 sites that are marine, surface or groundwater dependant.

### **Physical Infrastructure**

The lack of adequate physical infrastructure can negatively impact on Natura 2000 sites by, for example, allowing inadequately treated waste water to discharge to surface or marine water sites. The inappropriate siting of infrastructure that does not adequately take into account the sensitivities of Natura 2000 site can also result in negative impacts through direct or indirect means. In planning for physical infrastructure it is therefore important that adequate consideration of the ecological requirements of Natura 2000 sites is taken early in the planning process to allow for sufficient flexibility in the planning and design of infrastructural development.

### **Climate change**

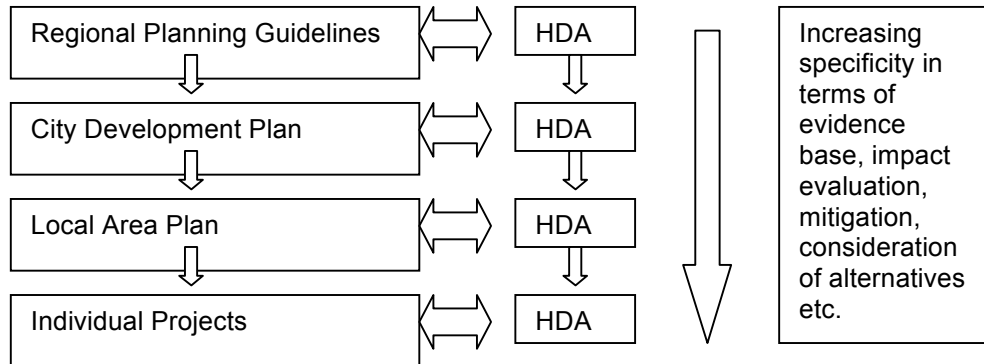
The process of climate change requires that we manage flood risk in the planning process. As many Natura 2000 sites are linked to marine, surface and groundwater supply, it is likely that these could be negatively impacted through flood risk management measures. It is important that in defining management measures, ecological requirements are taken into consideration at an early stage.

Of key importance for the protection of a Natura 2000 site is that:

- Natura 2000 sites are fully considered at the initial stages of planning and development and appropriate measures are taken to inform future development and avoid impacts at this stage of the process.
- HDA process is incorporated into all areas of policy, including economic and settlement strategies, rural development, physical infrastructure, green infrastructure, social infrastructure and flood risk assessment, where there is potential for negative impacts.
- HDA is undertaken at all stages of the planning and development process and for all plans and projects with the potential to adversely impact on the integrity of a Natura 2000 site.
- Ecological considerations are not outweighed by economic or other considerations where there is a conflict of interest between competing land uses. The full process

from Stage 1 to Stage 4 must be properly adhered to during the course of planning and development. Therefore in the event of a negative assessment at Stage 2, alternatives solutions must be fully considered as defined by Article 6(4) of the Habitats Directive and EC Guidance (E.C., 2001).

**Figure 2. Tiering in Habitat Directive Assessment (Source: Adapted Scott Wilson and Levett-Therivel, 2006).**



## 4.6 MITIGATION MEASURES

Development, by its nature, necessitates land use change generally from a vegetated area dominated by agricultural or semi-natural land cover to a built environment fulfilling the residential, commercial and physical infrastructural requirements of society. The RPG set out strategic policies and recommendations that direct this development and translate National strategies and policies to a county and local level.

Initial reviews of the strategic policies and recommendations indicated that there is a risk of adverse effects on the integrity of many Natura sites unless appropriate mitigation is undertaken. Mitigation measures in the form of amendments to the strategic policy and recommendations are provided to ensure compliance with the Habitats Directive Article 6 requirements by integrating measures for the protection of Natura 2000 sites into all policy areas covered by the proposed plan. Mitigating strategic policies and recommendations clearly indicate that where any physical development, such as housing, commercial development, roads, ports, service infrastructure or any other form of development, has the potential to significantly impact on a Natura 2000 site, it will be subject to an individual HDA process, as defined by Article 6(3) and (4) of the Habitats Directive. Where it is found that the plan or project has the potential to directly or indirectly impact on the integrity of a Natura 2000 site, the appropriate mitigation will be through avoidance. If avoidance is not possible, mitigation in the form of alternatives to the proposed plan or project must be sought. In considering alternative solutions the conservation objectives and status of the Natura 2000 site will outweigh any considerations of cost, delays or other aspects of an alternative solution. The competent authority should not, therefore, limit its consideration of alternative solutions to those suggested by the project or plan proponents. It is the member state's responsibility to consider alternative solutions, which could be located within different regions or counties (EC, 2001).

Recommendations have also been made in relation to cross-compliance with other relevant plans, such as the Water Framework Directive Eastern River Basin Management Plan and South Eastern River Basin Management Plan, where such plans clearly facilitate the protection of Natura 2000 sites.

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The mitigation arising from Stage 2 Appropriate Assessment and incorporated into the strategic policy and recommendations is:

**GIP2; GIR2; GIR12:** Direct and indirect impacts on Natura 2000 sites can result from the inappropriate siting of development as a result of lack of material consideration of the ecological sensitivities of the Natura 2000 site at the outset of the planning and development process. It is important to undertake ecological assessment at preliminary stages of site selection, plan and project design to inform subsequent stages of planning and development. This will ensure that ecological considerations are fully taken into account and that any adverse impacts on the integrity of Natura 2000 sites are avoided. This is critical in relation to the protection of Natura 2000 sites, habitats and species protected under the Habitats and Birds Directives, other protected sites and biodiversity resources in general. In cases where preliminary site selection and design has not ruled out potential impacts through avoidance or appropriate mitigation it will be necessary to proceed to Stage 3 of the HDA process and consider alternative locations or designs at a later stage in the development.

**GIP2; SR5:** Ensure that development takes place in tandem with the provision of appropriate services such as transport, water supply or treatment. Development in the absence of investment in infrastructure will have negative consequences on the environment and should be avoided.

**GIP2; SR6; PIR20:** Ensure that settlement strategies and housing developments do not take place until sufficient infrastructure is put in place to facilitate the proposed development and prevent any significant impact on the integrity of the Natura 2000 site. This is particularly important in the area of waste water treatment.

**GIP2; RR9:** Ensure that plans and projects associated with rural development are assessed according to Article 6 of the Habitats Directive.

**GIP2; PIR10:** Ensure that plans and projects associated with the provision of transport, airport or port development, leisure or recreation are assessed according to Article 6 of the Habitats Directive.

**GIP2; PIR19:** Ensure that plans and projects associated with the provision of water supply or waste water and surface water treatment are assessed according to Article 6 of the Habitats Directive.

**GIP2; PIR33:** Ensure that energy supply and communication network plans and projects are adequately assessed at an early stage in development to avoid or mitigate negative impacts on Natura 2000 sites.

**GIP2; PIR41:** Ensure that plans and projects associated with the waste management are assessed according to Article 6 of the Habitats Directive.

**GIP2; SIR6:** Ensure that plans and projects relating to recreational, leisure or tourism activity which have the potential to negatively impact on Natura 2000 sites undergo a HDA in the early stages of planning. Where mitigation is feasible, measures should be prescribed to actively manage visitor access and ensure that sensitive areas are protected. Where such measures are not feasible or uncertain, mitigation is through avoidance.

**GIP2; GIP3; GIP4; PIR18; GIR21; GIR22, GIR23:** Ensure protection of coastal waters and coastal sites, which have been identified as particularly vulnerable to increased pressure, through integrated coastal zone management and early consideration of Article 6 requirements for all plans and projects potentially impacting on Natura 2000 site.

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**GIP2; GIP3; GIP4; PIR18; GIR16; GIR18:** Ensure protection of coastal water standards by adherence to water quality standards as defined by the ERBMP and SERBMP.

**GIP2; GIP3; RR5; PIR18; GIR16; GIR18:** Ensure protection of inland surface water standards as defined by the Water Framework Directive and by the ERBMP and SERBMP.

**GIP2; GIP3; RR5; PIR22; GIR19; GIR21:** Ensure protection of groundwater dependant Natura 2000 sites which rely on the continued supply of groundwater resources to secure the key environmental conditions that support the integrity of the site and through protection of groundwater standards as defined by the ERBMP and SERBMP.

**GIP2; GIP3; GIR16; GIR18:** Ensure cross-boundary cooperation and consistency in relation to policy and planning for the protection of water dependant Natura 2000 sites, inland surface water systems and coastal and transitional waters and groundwater resources that cross one or more administrative boundaries.

**GIP2; FRI; FR4:** Ensure protection of Natura 2000 sites supporting rivers or streams by avoiding development on floodplains and ensure that flood risk assessment policies, plans or projects are compliant with Article 6 of the Habitats Directive and avoid or mitigate negative impacts on Natura 2000 sites.

**GIP2; FR4:** Catchment Flood Risk Management Plans (CFRMP) establish a prioritised set of flood risk management measures for each area, including the use of physical and management responses. Ensure that CFRMP and management measures have the potential to impact negatively on Natura 2000 sites are subject to a HDA process.

**GIP2; PIR20; GIR17; FR3:** Ensure that Sustainable Drainage Systems are incorporated into development to protect and enhance biodiversity and support ecological processes.

**GIP2; PIR23:** Ensure aquatic habitats and Natura 2000 sites are protected against possible impacts of arterial drainage or other works and changes in use or possible impacts.

**GIP2; GIR26:** Develop and implement a Green Infrastructure Strategy that will promote ecological coherence of the Natura 2000 network.

The RPGs are responsible for setting out strategic policy and recommendations and it is in this context that appropriate mitigation is defined. For any meaningful results to be achieved it is important that the considerations are carried through to the subsequent levels of planning in the form of County Development Plans and subsequent plans and projects.

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## 5 REFERENCES

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## APPENDIX I

**Table A. Qualifying Interests SAC**

Site ID	Site Name	Qualifying interest
000006	Killyconny Bog (Cloghbally)	Active raised bogs
		Degraded raised bogs still capable of natural regeneration
000199	Baldoyle Bay	Mudflats and sandflats not covered by seawater at low tide
		Salicornia and other annuals colonizing mud and sand
		Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> )
		Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )
		Spartina swards ( <i>Spartinion maritima</i> )
000202	Howth Head	Vegetated sea cliffs of the Atlantic and Baltic coasts
		European dry heaths
000204	Lambay island	Vegetated sea cliffs of the Atlantic and Baltic coasts
000205	Malahide Estuary	<i>Halichoerus grypus</i>
		Fixed coastal dunes with herbaceous vegetation (grey dunes)
		Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)
		Mudflats and sandflats not covered by seawater at low tide
		Salicornia and other annuals colonizing mud and sand
		Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> )
		Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )
000206	North Dublin Bay	Spartina swards ( <i>Spartinion maritima</i> )
		Mudflats and sandflats not covered by seawater at low tide
		Salicornia and other annuals colonizing mud and sand
		Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> )
		Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )
		Annual vegetation of drift lines
		Embryonic shifting dunes
		Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)
		Fixed coastal dunes with herbaceous vegetation (grey dunes)
		Humid dune slacks
000208	Rogerstown Estuary	<i>Petalophyllum ralfsii</i>
		Estuaries
		Mudflats and sandflats not covered by seawater at low tide
		Salicornia and other annuals colonizing mud and sand
		Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )
		Fixed coastal dunes with herbaceous vegetation (grey dunes)
		Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)
		Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> )
000210	South Dublin Bay	Spartina swards ( <i>Spartinion maritima</i> )
		Mudflats and sandflats not covered by seawater at low tide
000391	Ballynafagh Bog	Active raised bogs
		Degraded raised bogs still capable of natural regeneration
		Depressions on peat substrates of the Rhynchosporion
000396	Pollardstown Fen	Calcareous fens with <i>Cladium mariscus</i> and species of the Caricion <i>davalliana</i>
		Petrifying springs with tufa formation ( <i>Cratoneurion</i> )
		Alkaline fens
		<i>Vertigo moulinsiana</i>
		<i>Vertigo geyeri</i>
000397	Red Bog, Kildare	<i>Vertigo angustior</i>
		Transition mires and quaking bogs
		Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation
		Active raised bogs



Site ID	Site Name	Qualifying interest
000582	Raheenmore Bog	Active raised bogs Degraded raised bogs still capable of natural regeneration Depressions on peat substrates of the Rhynchosporion
000685	Lough Ennell	Alkaline fens Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. <i>Lampetra planeri</i> <i>Lutra lutra</i>
000713	Ballyman Glen	Alkaline fens Petrifying springs with tufa formation (Cratoneurion)
000714	Bray Head	Vegetated sea cliffs of the Atlantic and Baltic coasts European dry heaths Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia)(*important orchid sites)
000716	Carriggower Bog	Transition mires and quaking bogs
000717	Deputy's Pass Nature Reserve	Old sessile oak woods with Ilex and Blechnum in British Isles
000719	Glen of the Downs	Old sessile oak woods with Ilex and Blechnum in British Isles
000725	Knocksink Wood	Petrifying springs with tufa formation (Cratoneurion) Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)
000729	Buckronev-Brittas Dunes and Fen	Fixed coastal dunes with herbaceous vegetation (grey dunes) Annual vegetation of drift lines Embryonic shifting dunes Shifting dunes along the shoreline with Ammophila arenaria (white dunes) Atlantic decalcified fixed dunes (Calluno-Ulicetea) Humid dune slacks Mediterranean salt meadows (Juncetalia maritimi) Perennial vegetation of stony banks Alkaline fens Dunes with Salix repens ssp.argentea (Salix arenariae)
000733	Vale of Clara (Rathdrum Wood) SAC	Old sessile oak woods with Ilex and Blechnum in British Isles
000770	Blackstairs Mountains	European dry heaths Northern Atlantic wet heaths with Erica tetralix
000781	Slaney River Valley	Estuaries Mudflats and sandflats not covered by seawater at low tide Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) Old sessile oak woods with Ilex and Blechnum in British Isles <i>Alosa fallax</i> <i>Lampetra fluviatilis</i> <i>Lampetra planeri</i> <i>Petromyzon marinus</i> <i>Alosa alosa</i> <i>Salmo salar</i> <i>Lutra lutra</i> <i>Margaritifera margaritifera</i>
000925	The Long Derries, Edenderry	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia)(*important orchid sites)
001209	Glenasmole Valley	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia)(*important orchid sites) Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) Petrifying springs with tufa formation (Cratoneurion)
001387	Ballynafagh Lake	Alkaline fens Transition mires and quaking bogs

Site ID	Site Name	Qualifying interest
		<i>Vertigo moulinsiana</i>
		<i>Euphydryas aurinia</i>
001398	Rye Water Valley/Cartron	Petrifying springs with tufa formation (Cratoneurion)
		<i>Vertigo angustior</i>
		<i>Vertigo moulinsiana</i>
001459	Clogher Head	Vegetated sea cliffs of the Atlantic and Baltic coasts
		European dry heaths
001742	Kilpatrick Sandhills	Annual vegetation of drift lines
		Embryonic shifting dunes
		Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)
		Fixed coastal dunes with herbaceous vegetation (grey dunes)
		Atlantic decalcified fixed dunes (Calluno-Ulicetea)
001757	Holdenstown Bog	Transition mires and quaking bogs
		Active raised bogs
		Degraded raised bogs still capable of natural regeneration
001766	Magherabeg Dunes	Annual vegetation of drift lines
		Embryonic shifting dunes
		Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)
		Fixed coastal dunes with herbaceous vegetation (grey dunes)
		Atlantic decalcified fixed dunes (Calluno-Ulicetea)
		Petrifying springs with tufa formation (Cratoneurion)
001810	White Lough, Ben Loughs and Lough Doo	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.
		<i>Austropotamobius pallipes</i>
001957	Boyne Coast and Estuary	Fixed coastal dunes with herbaceous vegetation (grey dunes)
		Embryonic shifting dunes
		Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)
		Estuaries
		Mudflats and sandflats not covered by seawater at low tide
		Salicornia and other annuals colonizing mud and sand
		Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> )
		Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )
		<i>Spartina</i> swards ( <i>Spartinion maritimae</i> )
002120	Lough Bane and Lough Glass	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.
		<i>Austropotamobius pallipes</i>
002121	Lough Lene	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.
		<i>Austropotamobius pallipes</i>
002122	Wicklow Mountains	Blanket bog (*active only)
		Northern Atlantic wet heaths with <i>Erica tetralix</i>
		European dry heaths
		Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in British Isles
		Siliceous rocky slopes with chasmophytic vegetation
		Calcareous rocky slopes with chasmophytic vegetation
		Siliceous scree of the montane to snow levels ( <i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i> )
		Alpine and Boreal heaths
		Natural dystrophic lakes and ponds
		Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i>
		Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)
002141	Mountmellick	<i>Vertigo moulinsiana</i>
002162	River Barrow and River Nore	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in British Isles
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )
		Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation
		Salicornia and other annuals colonizing mud and sand

Site ID	Site Name	Qualifying interest
		Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> )
		Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )
		European dry heaths
		Petrifying springs with tufa formation ( <i>Cratoneurion</i> )
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels
		<i>Spartina</i> swards ( <i>Spartinion maritimae</i> )
		Mudflats and sandflats not covered by seawater at low tide
		Estuaries
		<i>Petromyzon marinus</i>
		<i>Lampetra planeri</i>
		<i>Lampetra fluviatilis</i>
		<i>Alosa fallax</i>
		<i>Salmo salar</i>
		<i>Alosa alosa</i>
		<i>Lutra lutra</i>
		<i>Austropotamobius pallipes</i>
		<i>Margaritifera margaritifera</i>
		<i>Margaritifera durrovensis</i>
		<i>Vertigo moulinsiana</i>
		<i>Trichomanes speciosum</i>
002193	Ireland's Eye	Perennial vegetation of stony banks
		Vegetated sea cliffs of the Atlantic and Baltic coasts
002249	The Murrough Wetlands	Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> )
		Annual vegetation of drift lines
		Perennial vegetation of stony banks
		Alkaline fens
		Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )
		Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>
002256	Ballyprior Grassland	Semi-natural dry grasslands and scrubland facies on calcareous substrates ( <i>Festuco Brometalia</i> )(*important orchid sites)
002274	Wicklow Reef	Reefs
002299	River Boyne and River Blackwater	Alkaline fens
		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )
		<i>Salmo salar</i>
		<i>Lampetra fluviatilis</i>
		<i>Lutra lutra</i>
002331	Mouds Bog	Active raised bogs
		Degraded raised bogs still capable of natural regeneration
		Depressions on peat substrates of the <i>Rhynchosporion</i>
002340	Moneybeg and Clareisland Bogs	Degraded raised bogs still capable of natural regeneration
		Active raised bogs
		Depressions on peat substrates of the <i>Rhynchosporion</i>
002342	Mount Hevey Bog	Active raised bogs
		Degraded raised bogs still capable of natural regeneration
		Depressions on peat substrates of the <i>Rhynchosporion</i>

**Table B. Qualifying Interests SPA**

Site ID	Site Name	Proposed Special Conservation Interests	Additional Special Conservation Interests
004006	North Bull Island SPA	Light-bellied Brent Goose, Shelduck, Pintail, Shoveler, Oystercatcher, Grey Plover, Knot, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Redshank, Turnstone, 20,000 wintering waterbirds	Teal, Ringed Plover, Golden Plover, Sanderling, Curlew, Black-headed Gull, Wetland & Waterbirds
004014	Rockabill SPA	Purple Sandpiper, Roseate Tern, Common Tern	Arctic Tern
004015	Rogerstown Estuary SPA	Light-bellied Brent Goose, Shelduck, Oystercatcher, Ringed Plover, Knot	Greylag Goose, Shoveler, Grey Plover, Dunlin, Black-tailed Godwit, Redshank, Wetland & Waterbirds
004016	Baldoyle Bay SPA	Light-bellied Brent Goose, Ringed Plover, Bar-tailed Godwit	Shelduck, Golden Plover, Grey Plover, Wetland & Waterbirds
004024	South Dublin Bay and the River Tolka Estuary SPA	Light-bellied Brent Goose, Knot, Sanderling, Bar-tailed Godwit, Redshank, Roseate Tern, Common Tern, Arctic Tern	Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Dunlin, Black-headed Gull, Wetland & Waterbirds
004025	Broadmeadow/Swords Estuary SPA	Light-bellied Brent Goose, Goldeneye, Black-tailed Godwit	Great Crested Grebe, Shelduck, Pintail, Red-breasted Merganser, Oystercatcher, Golden Plover, Grey, Plover, Knot, Dunlin, Bar-tailed Godwit, Redshank, Wetland & Waterbirds
004040	Wicklow Mountains SPA	Merlin, Peregrine	
004043	Lough Derravaragh SPA	Pochard, Tufted Duck, Coot	Whooper Swan, Wetland & Waterbirds
004044	Lough Ennell SPA	Pochard, Tufted Duck	Coot, Wetland & Waterbirds
004061	Lough Kinale and Derragh Lough SPA	Pochard	Tufted Duck, Wetland & Waterbirds
004063	Poulaphouca Reservoir SPA	Greylag Goose	Lesser Black-backed Gull, Wetland & Waterbirds
004065	Lough Sheelin SPA	Pochard, Goldeneye	Great Crested Grebe, Tufted Duck, Wetland & Waterbirds
004069	Lambay island SPA	Cormorant, Shag, Lesser Black-backed Gull, Herring Gull, Kittiwake, Guillemot, Razorbill	Fulmar, Greylag Goose, Puffin
004080	Boyne Estuary SPA	Golden Plover, Knot, Black-tailed Godwit, Turnstone	Shelduck, Oystercatcher, Grey Plover, Lapwing, Sanderling, Redshank, Little Tern, Wetland & Waterbirds
004091	Stabannan-Braganstown SPA	Greylag Goose	
004102	Garriskill Bog SPA	Greenland White-fronted Goose	
004113	Howth Head Coast SPA	Kittiwake	
004117	Ireland's Eye SPA	Cormorant	Herring Gull, Kittiwake, Guillemot, Razorbill
004122	Skerries Island SPA	Cormorant, Light-bellied Brent Goose, Purple, Sandpiper, Turnstone, Herring Gull	Shag, Herring Gull
004158	River Nanny Estuary and Shore SPA	Ringed Plover, Knot, Sanderling	Oystercatcher, Golden Plover, Black-headed, Herring Gull, Wetland & Waterbirds
004186	The Murrough Wetlands SPA	Light-bellied Brent Goose, Little Tern	Red-throated Diver, Greylag Goose, Wigeon, Teal, Black-headed Gull, Herring Gull

**Table C. Conservation Objectives SAC**

Site ID	Site Name	Conservation Objectives
000006	Killyconny Bog (Cloghbally) SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Active raised bogs; Degraded raised bogs still capable of natural regeneration.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000199	Baldoyle Bay SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Mudflats and sandflats not covered by seawater at low tide; <i>Salicornia</i> and other annuals colonising mud and sand; Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> ); Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ).
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000202	Howth Head SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Vegetated sea cliffs of the Atlantic and Baltic coasts; European dry heaths.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000204	Lambay Island SAC	To maintain the Annex I habitat for which the cSAC has been selected at favourable conservation status: Vegetated sea cliffs of the Atlantic and Baltic coasts.
		To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: <i>Halichoerus grypus</i> .
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000205	Malahide Estuary SAC	To maintain the Annex I habitats for which Malahide Estuary cSAC has been selected at favourable conservation status: Fixed coastal dunes with herbaceous vegetation (grey dunes); Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes); Mudflats and sandflats not covered by seawater at low tide; <i>Salicornia</i> and other annuals colonising mud and sand, Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> ); Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) and <i>Spartina</i> swards ( <i>Spartinion maritimae</i> ).
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000206	North Dublin Bay SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Mudflats and sandflats not covered by seawater at low tide; Annual vegetation of drift lines; <i>Salicornia</i> and other annuals colonising mud and sand; Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> ); Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ); Embryonic shifting dunes; Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes); Fixed coastal dunes with herbaceous vegetation (grey dunes); Humid dune slacks.
		To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: <i>Petalophyllum ralfsii</i> .
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000208	Rogerstown Estuary SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Estuaries; Mudflats and sandflats not covered by seawater at low tide; <i>Salicornia</i> and other annuals colonizing mud and sand; Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> ); Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ); Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes); Fixed coastal dunes with herbaceous vegetation (grey dunes)
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.

Site ID	Site Name	Conservation Objectives
000210	South Dublin Bay SAC	To maintain the Annex I habitat for which the cSAC has been selected at favourable conservation status: Mudflats and sandflats not covered by seawater at low tide.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000391	Ballynafagh Bog SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Active raised bogs; Degraded raised bogs still capable of natural regeneration; Depressions on peat substrates of the Rhynchosporion.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000396	Pollardstown Fen SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Calcareous fens with <i>Cladium mariscus</i> and species of the Caricion davallianae; Petrifying springs with tufa formation (Cratoneurion); Alkaline fens.
		To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: <i>Vertigo geyeri</i> , <i>Vertigo angustior</i> , <i>Vertigo moulinsiana</i> .
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000397	Red Bog, Kildare SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Transition mires and quaking bogs.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000582	Raheenmore Bog SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Active raised bogs; Degraded raised bogs still capable of natural regeneration; Depressions on peat substrates of the Rhynchosporion.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000685	Lough Ennell SAC	To maintain the Annex I habitat for which the cSAC has been selected at favourable conservation status: Alkaline fens.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000713	Ballyman Glen SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Petrifying springs with tufa formation (Cratoneurion); Alkaline fens.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000714	Bray Head SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Vegetated sea cliffs of the Atlantic and Baltic coasts; European dry heaths
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000716	Carriggower Bog SAC	To maintain the Annex I habitat for which the cSAC has been selected at favourable conservation status: Transition mires and quaking bogs.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000717	Deputy's Pass Nature Reserve SAC	To maintain the Annex I habitat for which the cSAC has been selected at favourable conservation status: Old sessile oak woods with Ilex and Blechnum in British Isles
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000719	Glen of the Downs SAC	To maintain the Annex I habitat for which the cSAC has been selected at favourable conservation status: Old sessile oak woods with Ilex and Blechnum in British Isles.
		To maintain the extent, species richness and biodiversity of the entire site.

Site ID	Site Name	Conservation Objectives
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000725	Knocksink Wood SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Petrifying springs with tufa formation (Cratoneurion); Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae).
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000729	Buckroneys-Brittas Dunes and Fen SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Annual vegetation of drift lines; Perennial vegetation of stony banks; Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ); Embryonic shifting dunes; Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes); Fixed coastal dunes with herbaceous vegetation (grey dunes); Atlantic decalcified fixed dunes (Calluno-Ulicetea); Dunes with <i>Salix repens</i> ssp. <i>argentea</i> ( <i>Salix arenariae</i> ); Humid dune slacks; Alkaline fens
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000733	Vale of Clara (Rathdrum Wood) SAC	To maintain the Annex I habitat for which the cSAC has been selected at favourable conservation status: Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in British Isles
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000770	Blackstairs Mountains SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Northern Atlantic wet heaths with <i>Erica tetralix</i> ; European dry heaths.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000781	Slaney River Valley SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in British Isles; Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae); Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation; Estuaries; Mudflats and sandflats not covered by seawater at low tide
		To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: <i>Alosa fallax</i> , <i>Lampetra fluviatilis</i> , <i>Lampetra planeri</i> , <i>Petromyzon marinus</i> , <i>Salmo salar</i> , <i>Margaritifera margaritifera</i> , <i>Lutra lutra</i>
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
000925	The Long Derries, Edenderry SAC	To maintain the Annex I habitat for which the cSAC has been selected at favourable conservation status: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia).
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
001209	Glenasmole Valley SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia); Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae); Petrifying springs with tufa formation (Cratoneurion).
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
001387	Ballynafagh Lake SAC	To maintain the Annex I habitat for which the cSAC has been selected at favourable conservation status: Alkaline fens.
		To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: <i>Vertigo moulinsiana</i> , <i>Euphydryas aurinia</i> .
		To maintain the extent, species richness and biodiversity of the entire site.



Site ID	Site Name	Conservation Objectives
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
001398	Rye Water Valley/Carton SAC	To maintain the Annex I habitat for which the cSAC has been selected at favourable conservation status: Petrifying springs with tufa formation (Cratoneurion).
		To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: <i>Vertigo angustior</i> ; <i>Vertigo moulinsiana</i> .
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
001459	Clogher Head SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Vegetated sea cliffs of the Atlantic and Baltic coasts; European dry heaths.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
001742	Kilpatrick Sandhills SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Annual vegetation of drift lines; Embryonic shifting dunes; Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes); Fixed coastal dunes with herbaceous vegetation (grey dunes); Atlantic decalcified fixed dunes (Calluno-Ulicetea).
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
001757	Holdenstown Bog SAC	To maintain the Annex I habitat for which the cSAC has been selected at favourable conservation status: Transition mires and quaking bogs.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
001766	Magherabeg Dunes SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Annual vegetation of drift lines; Embryonic shifting dunes; Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes); Fixed coastal dunes with herbaceous vegetation (grey dunes); Atlantic decalcified fixed dunes (Calluno-Ulicetea); Petrifying springs with tufa formation (Cratoneurion).
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
001810	White Lough, Ben Loughs and Lough Doo SAC	To maintain Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.
		To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: <i>Austropotamobius pallipes</i> .
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
001957	Boyne Coast and Estuary SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Estuaries; Mudflats and sandflats not covered by seawater at low tide; <i>Salicornia</i> and other annuals colonising mud and sand; Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> ); Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ); Embryonic shifting dunes; Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ); Embryonic shifting dunes; Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes); Fixed coastal dunes with herbaceous vegetation (grey dunes)
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
002120	Lough Bane and Lough Glass SAC	To maintain the Annex I habitat for which the cSAC has been selected at favourable conservation status: Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.
		To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: <i>Austropotamobius pallipes</i> .
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.



Site ID	Site Name	Conservation Objectives
002121	Lough Lene SAC	To maintain the Annex I habitat for which the cSAC has been selected at favourable conservation status: Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.
		To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: Austropotamobius pallipes.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
002122	Wicklow Mountains SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea; Natural dystrophic lakes and ponds; Northern Atlantic wet heaths with Erica tetralix; European dry heaths; Alpine and Boreal heaths; Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe); Blanket bog; Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani); Calcareous rocky slopes with chasmophytic vegetation; Siliceous rocky slopes with chasmophytic vegetation; Old sessile oak woods with Ilex and Blechnum in British Isles.
		To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: Lutra lutra.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
002141	Mountmellick SAC	To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: Vertigo moulinsiana.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
002162	River Barrow and River Nore SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Estuaries; Mudflats and sandflats not covered by seawater at low tide; Salicornia and other annuals colonising mud and sand; Atlantic salt meadows (Glauco-Puccinellietalia maritima); Mediterranean salt meadows (Juncetalia maritimi); Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation; European dry heaths; Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels; Petrifying springs with tufa formation (Cratoneurion); Old sessile oak woods with Ilex and Blechnum in British Isles; Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)
		To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: Vertigo moulinsiana; Margaritifera margaritifera; Austropotamobius pallipes; Petromyzon marinus; Lampetra planeri; Lampetra fluviatilis; Alosa fallax; Salmo salar; Lutra lutra; Trichomanes speciosum; Margaritifera durrovensis
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
002193	Ireland's Eye SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Perennial vegetation of stony banks; Vegetated sea cliffs of the Atlantic and Baltic coasts.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
002249	The Murrough Wetlands SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Annual vegetation of drift lines; Perennial vegetation of stony banks; Atlantic salt meadows (Glauco-Puccinellietalia maritima); Mediterranean salt meadows (Juncetalia maritimi); Calcareous fens with Cladium mariscus and species of the Caricion davallianae; Alkaline fens.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
002256	Ballyprior Grassland SAC	To maintain the Annex I habitat for which the cSAC has been selected at favourable conservation status: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia).
		To maintain the extent, species richness and biodiversity of the entire site.

Site ID	Site Name	Conservation Objectives
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
002274	Wicklow Reef SAC	To maintain the Annex I habitat for which the cSAC has been selected at favourable conservation status: Reefs.
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
002299	River Boyne and River Blackwater SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Alkaline fens; Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> ).
		To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: <i>Lampetra fluviatilis</i> , <i>Salmo salar</i> , <i>Lutra lutra</i> .
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
002331	Mouds Bog SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Active raised bogs; Degraded raised bogs still capable of natural regeneration; Depressions on peat substrates of the <i>Rhynchosporion</i> .
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
002340	Moneybeg and Clareisland Bogs SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Active raised bogs; Degraded raised bogs still capable of natural regeneration; Depressions on peat substrates of the <i>Rhynchosporion</i> .
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
002342	Mount Hevey Bog SAC	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Active raised bogs; Degraded raised bogs still capable of natural regeneration; Depressions on peat substrates of the <i>Rhynchosporion</i> .
		To maintain the extent, species richness and biodiversity of the entire site.
		To establish effective liaison and co-operation with landowners, legal users and relevant authorities.

**Table D. Conservation Objectives SPA**

Site ID	Site Name	Conservation Objectives
004006	North Bull Island SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Light-bellied Brent Goose, Shelduck, Pintail, Shoveler, Oystercatcher, Grey Plover, Knot, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Redshank, Turnstone, 20,000 wintering waterbirds, Teal, Ringed Plover, Golden Plover, Sanderling, Curlew, Black-headed Gull, Wetland & Waterbirds.
004014	Rockabill SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Purple Sandpiper, Roseate Tern, Common Tern, Arctic Tern.
004015	Rogerstown Estuary SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Light-bellied Brent Goose, Shelduck, Oystercatcher, Ringed Plover, Knot, Greylag Goose, Shoveler, Grey Plover, Dunlin, Black-tailed Godwit, Redshank, Wetland & Waterbirds.
004016	Baldoyle Bay SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Light-bellied Brent Goose, Ringed Plover, Bar-tailed Godwit, Shelduck, Golden Plover, Grey Plover, Wetland & Waterbirds.
004024	South Dublin Bay and River Tolka Estuary SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Light-bellied Brent Goose, Knot, Sanderling, Bar-tailed Godwit, Redshank, Roseate Tern, Common Tern, Arctic Tern, Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Dunlin, Black-headed Gull, Wetland & Waterbirds.
004025	Broadmeadow/Swords Estuary SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Light-bellied Brent Goose, Goldeneye, Black-tailed Godwit, Great Crested Grebe, Shelduck, Pintail, Red-breasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Knot, Dunlin, Bar-tailed Godwit, Redshank, Wetland & Waterbirds.
004040	Wicklow Mountains SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Merlin, Peregrine.
004043	Lough Derravaragh SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Pochard, Tufted Duck, Coot, Whooper Swan, Wetland & Waterbirds.
004044	Lough Ennell SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Pochard, Tufted Duck, Coot, Wetland & Waterbirds.
004061	Lough Kinale and Derragh Lough SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Pochard, Tufted Duck, Wetland & Waterbirds.
004063	Poulaphouca Reservoir SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Greylag Goose, Lesser Black-backed Gull, Wetland & Waterbirds.
004065	Lough Sheelin SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Pochard, Goldeneye, Great Crested Grebe, Tufted Duck, Wetland & Waterbirds.
004069	Lambay island SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Cormorant, Shag, Lesser Black-backed Gull, Herring Gull, Herring Gull, Kittiwake, Guillemot, Razorbill.
004080	Boyne Estuary SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Golden Plover, Knot, Black-tailed Godwit, Turnstone, Shelduck, Oystercatcher, Grey Plover, Lapwing, Sanderling, Redshank, Little Tern, Wetland & Waterbirds.
004091	Stabannan-Braganstown SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Greylag Goose
004102	Garriskill Bog SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Greenland White-fronted Goose.

Site ID	Site Name	Conservation Objectives
004113	Howth Head Coast SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Kittiwake.
004117	Ireland's Eye SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Cormorant, Herring Gull, Kittiwake, Guillemot, Razorbill.
004122	Skerries Island SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Cormorant, Light-bellied Brent Goose, Purple Sandpiper, Turnstone, Herring Gull, Shag.
004158	River Nanny Estuary and Shore SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Ringed Plover, Knot, Sanderling, Oystercatcher, Golden Plover, Black-headed Gull, Herring Gull, Wetland & Waterbirds.
004186	The Murrough Wetlands SPA	To maintain the special conservation interests for this SPA at favourable conservation status: Light-bellied Brent Goose, Little Tern, Red-throated Diver, Greylag Goose, Wigeon, Teal, Black-headed Gull, Herring Gull.

## APPENDIX I

**Table E Strategic Policies and Recommendations**

	<b>Strategic Policies and Recommendations</b>	<b>Potential Effects/Impacts</b>	<b>Mitigation required</b>	<b>Mitigation Strategic Policy and recommendation</b>
<b>Economic Development Strategy</b>				
CLIP1	While recognising the broad extent of processes which impact on the dynamics of climate change, planning authorities, in so far as possible, should nonetheless seek to provide for the integration of climate change considerations, based on best scientific evidence, into all policy areas relevant to them, including development plans, flood risk assessments, biodiversity and heritage plans and application of relevant particulars of associated plans and projects such as the River Basin Management Plans and ICZM. The development of Local Climate Change Strategies and/or associated Energy Action Plans by the local authorities is supported by the Regional Planning Guidelines.	The development of Local Climate Change Strategies may negatively impact directly or indirectly on the integrity of Natura 2000 sites.	Ensure that any plan or project associated with, Local Climate Change Strategies which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2

	<b>Strategic Policies and Recommendations</b>	<b>Potential Effects/Impacts</b>	<b>Mitigation required</b>	<b>Mitigation Strategic Policy and recommendation</b>
EP1	That the Dublin Gateway is recognised as an international driver of enterprise within the GDA and is supported by regionally designated strategic employment centres, serving the urban and rural hinterlands. These economic growth areas which take advantage of nationally important transport hubs and corridors, and shall provide the focal point for diverse regional enterprise and economic clustering activity, by: steering population growth and economic critical mass to designated RPG strategic growth centres of the identified economic areas or gateway region; capacity building in skills, innovation and education; critical infrastructural investment in ICT, public transport, water services; integrating high quality social and amenity provisions to create an attractive landscape and working environment; providing energy security supported by green and renewable technologies; rationalised planning approaches to employment based land use zoning and enterprise objectives.	The development of economic growth areas may negatively impact directly or indirectly on the integrity of Natura 2000 sites.	Ensure that any plan or project associated with the expansion of economic growth areas, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6

	<b>Strategic Policies and Recommendations</b>	<b>Potential Effects/Impacts</b>	<b>Mitigation required</b>	<b>Mitigation Strategic Policy and recommendation</b>
EP2	To seek sustainable economic growth across the GDA, by the promotion of identified core economic areas across the GDA to facilitate new employment opportunities for existing populations and seek to reduce the volume of unsustainable long distance commuting.	The development of economic growth areas may negatively impact directly or indirectly on the integrity of Natura 2000 sites.	Ensure that any plan or project associated with the expansion of economic growth areas, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6
ER1	Deliver the GDA as an attractive international destination for business, with the city region and identified strategic economic growth centres as focal points for regional critical massing and employment growth, in order to sustain, promote, develop and attract economic activity.	The expansion of city regions and strategic economic growth centres may negatively impact directly or indirectly on the integrity of Natura 2000 sites.	Ensure that any plan or project associated with the expansion of city regions and strategic economic growth centres, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6
ER2	Support the development of linkages between strategic urban employment centres and rural based settlements in terms of skills, promotion of business links, communications infrastructure and transport corridors to ensure balanced regional development and employment opportunities for dispersed settlements.	The development of linkages, such as infrastructure and transport corridors, between strategic urban employment centres and rural based settlements may negatively impact directly or indirectly on the integrity of Natura 2000 sites.	Ensure that any plan or project associated with the development of linkages, such as infrastructure and transport corridors, between strategic urban employment centres and rural based settlements, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR10

	<b>Strategic Policies and Recommendations</b>	<b>Potential Effects/Impacts</b>	<b>Mitigation required</b>	<b>Mitigation Strategic Policy and recommendation</b>
ER3	Encourage mixed use settlement forms and sustainable centres, in which employment and residency are located in close proximity to each other and strategic multi-modal transport corridors, which promote a choice of sustainable travel modes, green travel choices and to arrest long distance commuter trends and congestion.	The expansion or new development of existing centres as mixed use settlement forms with multi-modal transport corridors may negatively impact directly or indirectly on the integrity of Natura 2000 sites.	Ensure that any plan or project associated with the expansion or new development of existing centres as mixed use settlement forms with multi-modal transport corridors, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6, PIR10
ER4	Support entrepreneurship and enterprise at appropriate locations which incorporate best practices in reducing greenhouse gas emissions and which endorse responsible environmental and social practices.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
ER5	Develop the GDA as regional leader in the 'Smart Economy' and the Dublin Gateway as a :-'SMART City' by:			
	Supporting the recommendations of the Economic Development Action Plan for the Dublin City Region and related 'strands' of the Action Plan, as adopted.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	



	<b>Strategic Policies and Recommendations</b>	<b>Potential Effects/Impacts</b>	<b>Mitigation required</b>	<b>Mitigation Strategic Policy and recommendation</b>
	Supporting the provision of a Mid East Economic Development Action Plan, developed and branded in association with the local authorities and national and local enterprise agencies, taking account of the locational behaviour and requirements of the next generation of FDI projects, infrastructure capabilities, and importance of critical massing and capacity building in skills and education.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
	Supporting innovations in knowledge and technology flows through such initiatives developed between NUIM and Intel; the UCD/Trinity Innovative Alliance, and Enterprise Irelands Technology Transfer Strengthening Initiative and other forums.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
	Developing and promoting regional specialisms and centres of excellence with the Gateway region and in the primary economic growth towns and their clusters	The possible expansion or new development of Gateway region and in the primary economic growth towns and their clusters may negatively impact directly or indirectly on the integrity of Natura 2000 sites.	Ensure that any plan or project associated with the possible expansion or new development of Gateway region and in the primary economic growth towns and their clusters, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6

	<b>Strategic Policies and Recommendations</b>	<b>Potential Effects/Impacts</b>	<b>Mitigation required</b>	<b>Mitigation Strategic Policy and recommendation</b>
	Support the social economy in the areas of arts, culture and tourism, together with community enterprise, which contribute to the quality of life of the GDA population.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
ER6	Support the development of economic clusters and sectoral opportunities around the RPG strategic growth towns and core economic areas and policies which facilitate opportunities for clustering activities which have a tangible locational requirement outside these centres including those relating to green economy projects such as renewable energies through wind energy and bio fuel crop production; innovation and eco parks; food production and agri-business; horticulture and rural based tourism.	Possible expansion or new development of strategic growth towns and core economic areas and green economy projects may negatively impact directly or indirectly on the integrity of Natura 2000 sites.	Ensure that any plan or project associated with the expansion or new development of strategic growth towns and core economic areas and green economy projects, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6, PIR19, PIR41
ER7	Promote and support the role of Dublin Airport as the primary gateway to Ireland and the GDA and as an important employment hub and business location in the GDA through land use planning which facilitates future airport capacity needs and by improved transport linkages to the city and region.	Expansion of Dublin Airport and associated transport linkages may negatively impact directly or indirectly on the integrity of Natura 2000 sites.	Ensure that any plan or project associated with the provision of green economy projects and their associated infrastructure, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6, PIR10

	<b>Strategic Policies and Recommendations</b>	<b>Potential Effects/Impacts</b>	<b>Mitigation required</b>	<b>Mitigation Strategic Policy and recommendation</b>
ER8	Develop policies which support opportunities within the Green Economy, consistent with best planning practices.	Green economy projects may negatively impact directly or indirectly on the integrity of Natura 2000 sites.	Ensure that any plan or project associated with the provision of green economy projects and their associated infrastructure, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR33
ER9	Promote factors of competitiveness and exploit opportunities and mechanisms for the realisation of entrepreneurship and sustainable businesses including diversification of services and manufacturing sectors through the provision of suitably zoned, serviced lands and soft and hard infrastructural investments in a planned and strategic manner.	The provision of suitably zoned, serviced lands and soft and hard infrastructural investments may negatively impact directly or indirectly on the integrity of Natura 2000 sites.	Ensure that any plan or project associated with the provision of suitably zoned, serviced lands and soft and hard infrastructural investments, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6, PIR10, PIR14, PIR19, PIR33, PIR41
ER10	Work with employment and enterprise agencies to identify and deliver strategic employment sites for development at suitably identified locations as advocated in this strategy, such as Intellectual Enterprise Zones, SDZ's and IDA supported sites and examine regional consistencies in land use zoning for enterprise. Current employment related land use objectives in Development Plans should be reviewed to take account of the RPG	The provision of strategic employment sites may negatively impact directly or indirectly on the integrity of Natura 2000 sites.	Ensure that any plan or project associated with the provision of new strategic employment sites, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6

	<b>Strategic Policies and Recommendations</b>	<b>Potential Effects/Impacts</b>	<b>Mitigation required</b>	<b>Mitigation Strategic Policy and recommendation</b>
	economic strategy.			
ER11	Continue emphasis on enhancing sustainable transport connectivity through the region and the city, including the operational programme of works advocated under Transport 21.	The provision and enhancement of sustainable transport may negatively impact directly or indirectly on the integrity of Natura 2000 sites.	Ensure that any plan or project associated with the provision and enhancement of sustainable transport, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR10
ER12	Continue emphasis on the development of broadband infrastructure and services in conjunction with DCNMR and the Private Sector for the GDA.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
ER13	Recognise that ports play an important role in support of export led growth. In order to ensure that port capacity constraints do not hamper growth in the export sector, sufficient port capacity is required in the GDA.	The provision of sufficient port capacity may negatively impact directly or indirectly or the integrity of Natura 2000 sites.	Ensure that any plan or project associated with the development of sufficient port capacity, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR10

	<b>Strategic Policies and Recommendations</b>	<b>Potential Effects/Impacts</b>	<b>Mitigation required</b>	<b>Mitigation Strategic Policy and recommendation</b>
ER14	Direct new retail floor space into existing centres with significant population bases and those centres selected for additional population growth. Future provision of significant retail developments within the GDA should be consistent with the policies and recommendations of the Retail Planning Guidelines for Planning Authorities and with the Retail Planning Strategy for the Greater Dublin Area 2008 (and as updated).	The provision and development of new retail floor space into existing centres with significant population bases and those centres selected for additional population growth may negatively impact directly or indirectly on the integrity of Natura 2000 sites.	Ensure that any plan or project associated with the new retail floor space into existing centres with significant population bases and those centres selected for additional population growth, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR10
ER15	Promote sustainable tourism practices and leisure activities at appropriate locations and the delivery of a high quality built environment to support the attractiveness of the region for commerce.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

	<b>Strategic Policies and Recommendations</b>	<b>Potential Effects/Impacts</b>	<b>Mitigation required</b>	<b>Mitigation Strategic Policy and recommendation</b>
ER16	Seek proactively the delivery of new sustainable water supply, waste water treatment and waste management infrastructure without which the future development of the GDA will be impossible.	The provision of water supply and waste water treatment infrastructure may negatively impact on directly or indirectly on the integrity of Natura 2000 sites. Insufficient waste water treatment capacity for existing or new development within the GDA may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the water supply and waste water treatment infrastructure or any new development requiring additional water supply or waste water treatment infrastructure, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site. Ensure adequate water supply and waste water treatment capacity is in place for existing or new development within the GDA prior to new development commencing.	GIP2, PIR14, PIR19,
ER17	Encourage and facilitate new employment opportunities within hinterland towns with high levels of long distance commuting amongst the existing population to provide new local employment opportunities and assist in reducing long distance commuting patterns and build up the local economy to a more locally sustainable level.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

	Strategic Policies and Recommendations	Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
ER18	In achieving sustainable and balanced employment within the GDA, the Regional Planning Guidelines support the improvement of jobs ratio levels in each of the constituent local authorities of the region and each local authority should include an objective or series of measures, compliant with the RPG economic strategy, to foster employment creation and maximise the jobs potential in growth towns. <b>The RPGs also support opportunities to promote the growth of service employment and enterprise in designated economic growth centres complementary to the role of the Dublin Gateway.</b>	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
<b>Settlement Strategy</b>				
SP1	The delivery of new housing in the GDA shall support the NSS, Smarter Travel and the DoEHLG Guidelines on Sustainable Residential Development. The RPG Settlement Strategy encourages the focusing of new housing development on (i) consolidation within existing built footprint with particular focus on the metropolitan area; (ii) supporting the achievement of sustainable towns; (iii) supporting national investment in public transport services by focusing new development areas to key locations to achieve the integration of landuse and high quality public transport provision, and (iv) build up economics of scale for services in identified growth towns.	The provision of new housing may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the provision of new housing, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6, PIR10, PIR14, PIR19, PIR33, PIR41
SR1	Each Council shall address through the Core Strategy and associated tables and text how the Development Plan meets the housing requirements described in the RPGs. This may involve the prioritisation of lands within Local Area Plans and Towns Plans in phasing arrangements to ensure that development is prioritised in its delivery in line within RPG	Housing requirements as addressed in Core Strategies may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project including Development Plans and Local Area Plans, associated with housing requirements, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6



Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
	policies.			
SR2	Future expansion in housing land areas in all towns should follow a clear sequential approach in accordance with the Development Plan Guidelines and the Sustainable Residential Development in Urban Area Guidelines , with options and opportunities for brownfield/regeneration sites prioritised, and any large designation of new housing lands expanding the current built up footprint of the Metropolitan Area should be directly linked to provision of new, existing or upgraded high quality rail based public transport services.	The future expansion in housing land areas and associated infrastructure may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the future expansion in housing land areas and associated infrastructure, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6, PIR10,PIR14, PIR19, PIR33, PIR41
SR3	The allocation and prioritisation of future housing lands provided though the life of the Development Plan and sub-ordinate Local Area Plans shall ensure that the required provision of lands is made in the metropolitan areas of each Council as set out in the tables ** above. For the hinterland areas each Council should aim for the majority of new housing provided for through zoning and policies to be directed towards the Growth Towns, weighted towards the Large Growth towns and also particularly towards towns with rail based public transport, in the settlement hierarchy to achieve the identified vision and policy of the RPGs. It is the aim of the RPGs that during the life of the RPGs that this	The allocation and prioritisation of future housing lands provided though the life of the Development Plan and sub-ordinate Local Area Plans may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the allocation and prioritisation of future housing lands provided though the life of the Development Plan and sub-ordinate Local Area Plans, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6, PIR10, PIR14, PIR19, PIR33, PIR41,

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
	percentage of lands directed to the upper tiers of the hierarchy increases by 20% by 2022.			
SR4	Towns and lands zoned outside of key priority locations shall be managed through phasing policies in Local/Town/County Development Plans to ensure that limited amounts over a longer time period are developed to allow for natural increase and local needs, without undermining the settlement strategy of the RPGs and to ensure that focused growth in designated growth towns can be achieved during the life of the County Development Plan.	The provision of housing in towns and lands zoned outside of key priority locations may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the provision of housing in towns and lands zoned outside of key priority locations, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6, PIR10, PIR14, PIR19, PIR33, PIR41
SR5	The expansion and growth of towns in the GDA is predicated on the delivery of suitable and necessary infrastructure. Local Area and Developments Plans need to take into account the current and future infrastructure needs of zoned lands and ensure that future development is only permitted where necessary water services have been provided to avoid causing a risk to the environment and is in accordance with existing and future discharge licences for waste water facilities.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
SR6	Plans and projects associated with zoned expansions needed to meet the Economic Development and Settlement Strategy that have the potential to negatively impact on Natura 2000 sites will be subject to a Habitats Directive Assessment (HDA) according to Article 6 of the habitats directive and in accordance with best practice and guidance. Where limits may be emerge in certain locations, immediate future growth should directed to more environmentally suitable locations, whilst also keeping within and re directing to other areas designated as growth locations within the Settlement Strategy.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
SR7	Local Authorities should assess the levels of brownfield land potential as part of the Development Plan review process, and in preparing Core Strategies, include suitable brownfield lands as part of the provision of lands to meet future housing needs.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
<b>Rural Development</b>				
RP1	To protect and support rural villages and countryside through careful management of physical and environmental resources and appropriate sustainable development; recognising and responding through appropriate Development Plan policies to the strong urban driven demand for resources within rural areas of the GDA, and also the importance of protecting and encouraging the necessary social infrastructure needed to sustain rural communities.	Increased rural development may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the rural development strategies, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, RR9, PIR10, PIR14, PIR19, PIR33, PIR41
RP2	To support the continuing viability of agriculture, horticulture and other rural based enterprises within rural areas and to promote investment in facilities supporting rural innovation and enterprise with special emphasis on the green economy, within the context of sustainable development, appropriateness and the management of environmental resources.	The growth of rural enterprise, facilities and green economy developments may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the growth of rural enterprise, facilities and green economy developments, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, RR9, PIR33

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
RR1	Rural housing policies within Development Plans and Local Area Plans take account of and are tailored to meet the differing types of rural housing demands and management needs in varying rural contexts such as rural areas under strong urban influence, rural areas in strong rural areas and rural areas which are structurally weak and/or dispersed settlement areas, and to distinguish between urban and rural generated housing demands as defined in the 'Sustainable Rural Housing Guidelines for Planning Authorities April, 2005.	Rural housing policies within Development Plans and Local Area Plans may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any Development Plan or Local Area Plan, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, RR9
RR2	Council produce policy documents promoting high quality design and layout for rural development through the provision of rural housing guidelines, village design statements and clear guidance within Development Plans regarding infrastructural and other technical requirements and through the development management and enforcement procedures.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
RR3	Development plans should include and promote proactive measures and policies to address infrastructural deficits and to support rural based communities in terms of access to and provision of: education, employment, health care, local retail provision, childcare, day care, public transport, targeted or specific community facilities aimed at the vulnerable and other necessary services to ensure the continued longevity of rural living. The EPA code of practice for wastewater treatment and disposal systems for single houses (p.e. 10 or less) 2009 should also be adhered to in order to safeguard individual and group water schemes.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
RR4	Rural public transport and connectivity to larger urban settlements and higher tier services should be considered as part of the sustainable development of rural areas.	The provision of rural public transport may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the provision of rural public transport, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, RR9, PIR10

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
RR5	Needs of leisure and rural tourism be addressed in a multi-disciplinary manner in high pressure locations, taking into account natural, economic, social and cultural policy objectives and plans. Balance is required between the need to preserve the natural environment; the needs of modern farming and also making the countryside and natural areas accessible to those who wish to avail of it. Feasibility studies and best scientific evidence can be utilised to ensure that this balance is achieved.	The development of leisure and rural tourism may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the development of leisure and rural tourism, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, RR9, SIR6
RR6	Rural development planning must continue to incorporate wider environmental issues into decision making such as ecosystem functioning; water management, as outlined through the Water Framework Directive and associated Plans; soil quality; the growing of crops for the production of biomass fuels; other alternative energies; and, sustainable transport options. In particular, there is need to protect, maintain and enhance the quality of groundwater and surface water across the river basins districts within the GDA, predominantly the ERBD and SERBD. It is consequently important that monitoring data is consulted wherever possible to ensure that development in rural areas does not negatively impact on the quality of groundwater and its subsequent extraction as drinking water, and on areas of rivers with	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
	pristine water quality.			
RR7	Development plans policy to be supportive towards rural entrepreneurship and the development of micro-businesses where environmental impact is minimal, and does not generate significant or undue traffic. This action will need to be supported through improved ICT provision, uptake, training and assistance in adapting to market oriented agriculture.	The growth of rural entrepreneurship and the development of micro-businesses may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the rural entrepreneurship and the development of micro-businesses, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, RR9
RR8	Development Plans map key natural aggregate resources and protect these where feasible from inappropriate development; and include policies regarding requirements for assessing applications for aggregate extraction which require the addressing of key environmental, traffic and social impacts and details of rehabilitation.	The development of natural aggregate resources exploitation may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the development of natural aggregate resources exploitation, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, RR9
RR9	Plans and projects associated with rural development, including the provision of housing and associated infrastructure and resource exploitation, which have the potential to negatively impact on Natura 2000 sites, will be subject to a Habitats Directive Assessment (HDA) according to Article 6 of the habitats directive and in accordance with best practice	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	



Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
	and guidance.			
Physical Infrastructure				
PIP1	Future investment in transport in the GDA shall serve the needs of the GDA by: (i) providing efficient and effective and sustainable means of moving people and goods for business, family and leisure purposes which minimises the environmental impact and the social and economic cost to users; (ii) allows for the development of a landuse strategy that supports sustainable development; and (iii) supports growth and efficiencies in economic activity for both the GDA and the State.	The provision of transport may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the provision of transport, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR10
PIP2	Protect and work to improve water quality in and impacted by the GDA and seek that investment in water supply projects/programmes is prioritised to support the delivery of the economic and settlement strategy for the GDA through the coordinated and integrated delivery of all essential services supporting national investment.	The delivery of essential services may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the delivery of essential services, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, GIP3, PIR14, PIR19, PIR22, GIR16, GIR21,

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
PIP3	Protect and work to improve water quality in and impacted by the GDA and seek that investment in waste and surface water treatment and management projects is prioritised to support the delivery of the economic and settlement strategy for the GDA through the coordinated and integrated delivery of all essential services supporting national investment.	The delivery of essential services may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the delivery of essential services, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, GIP3, PIR14, PIR19, PIR22, GIR16, GIR21,
PIP4	That the ICT and energy needs of the GDA shall be delivered through the time of the RPGs though investment in new projects and corridors to allow economic and community needs to be met, and to facilitate sustainable development and growth to achieve a strong and successful international GDA Gateway.	The delivery of energy needs and investment in new projects and corridors may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the delivery of energy needs and investment in new projects and corridors, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR33
PIP5	To ensure, from environmental, business and public health needs, that waste management remains a priority for local authorities and waste management regions in continuing to invest in promoting and facilitating reuse and recycling by residential and commercial sources and that high standard options for treatment and final disposal of waste are available within the GDA.	The provision of recycling and waste disposal facilities may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the recycling and waste disposal facilities, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR41

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
PIR1	Council should continue and develop further the policy of consolidation of regional population growth and employment in areas best served by public transport and a range of transport modes which support the transport initiatives indicated within 'Transport 21' and the Dublin Transport Authority strategy and to promote higher densities/trip intensive uses in such areas, subject to normal planning criteria.	The consolidation of the regional population leading to increased housing demands and the development of transport corridors may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the consolidation of the regional population leading to increased housing demands and the development of transport corridors, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6, PIR10
PIR2	Development Plans should include policies and provisions which are consistent with and facilitate the implementation of the Smarter Travel Documents 'A Sustainable Transport Future A -New Transport Policy for Ireland 2009 – 2020' and 'National Cycle Policy Framework (NCPF) 2009 –2020'.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
PIR3	That Land Use and Transport Strategies (LUTS), where completed for towns in the GDA, inform future planning decisions for sustainable future growth in key development areas.	The Land Use and Transport Strategies may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any Land Use and Transport Strategies, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6, PIR10

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
PIR4	Local Authorities shall abide with the recommendations of with the Dublin Transport Authority (DTA) and as relevant other transport bodies in relation to the preparation of future Development and Local Area Plans and that Councils should actively identify with the DTA and relevant transport bodies to reserve lands and corridors for the future development and delivery of strategic transport infrastructure that will be required to serve the GDA.	The development of lands and corridors for the delivery of strategic transport infrastructure may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the future development and delivery of strategic transport infrastructure, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR10
PIR5	Plans and policies should identify and protect strategic road corridors and their principle function as arterial routes for the movement of goods, services and people between settlement areas within and outside the GDA. Long term junction capacity and carrying capacity should not be adversely affected by inappropriate and dispersed development. Plans and policies need also to be cognisant of the challenges and needs where such roads bisect urban areas identified for growth in the RPGs and the need for strong connectivity within the urban fabric.	The development of lands and corridors for the delivery of strategic transport infrastructure may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the future development and delivery of strategic transport infrastructure, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR10

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
PIR6	Councils should encourage the targeting of rural transport investment towards those who would otherwise have difficulty accessing services, access to employment and other key provisions by supporting measures such as those outlined in the Rural Transport Programme.	The development of lands and corridors for the delivery of strategic transport infrastructure may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the future development and delivery of strategic transport infrastructure, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR10
PIR7	Relevant Councils should include provisions and zoning policies which support the delivery of high quality transport links to Dublin Airport; ensure that suitable lands are suitably zoned to allow future expansion and restrict (and where appropriate, prohibit) development in public safety zones and approach zones of all GDA airports and airfields, and noise zones associated with airport flight operations.	The development of transport links to Dublin Airport and expansion of development around all GDA airports and airfields may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the transport links to Dublin Airport and expansion of development around all GDA airports and airfields, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR10
PIR8	To make provisions in future Plans that examine the growth of Dublin Port and the possibility of a new Port facility on the coast of the GDA to facilitate future long term growth needs of the State, in accordance with the planning and environmental processes and Authorities should liaise with Port and Harbour Authorities in their area to identify key issues and support the role of smaller ports and	The growth of Dublin Port and a possible new Port facility on the coast may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the expansion of Dublin Port or development of Port facilities in the GDA, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR10

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
	harbours in the GDA.			
PIR9	Support through policies, development management and actions of the Council a culture for walking and cycling in the GDA through a series of proactive measures including infrastructure and design provisions which support and encourage walking and cycling, priority provisions within urban areas and education programmes. Furthermore the national target of 10% of all trips by bicycle by 2020 within the National Cycle Policy Framework (NCPF) 2009 –2020’ should be viewed as a minimum standard to be exceeded, particularly within the metropolitan area of the GDA.	The provision of walking and cycle routes, particularly in coastal regions, may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the walking and cycle routes, particularly in coastal regions, which have the potential to significantly effect a Natura 2000 site, are fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SIR6
PIR10	Plans and projects associated with the provision of transport, airport or port development, leisure or recreations that have the potential to negatively impact on Natura 2000 sites will be subject to a Habitats Directive Assessment (HDA) according to Article 6 of the habitats directive and in accordance with best practice and guidance.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
PIR11	GDA Local Authorities and the DoEHLG continue and prioritise investment in the identification of a major new long-term source of water for the GDA, and planning and development for the required infrastructure to store and distribute large volumes of water in the Dublin Water Region continues.	The provision of new long-term source of water for the GDA and its associated infrastructure may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the provision of long term source of water for the GDA and its associated infrastructure, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR14
PIR12	All Councils, supported by the DoEHLG, continue rolling programmes of investment in water conservation and demand management so that the short-terms needs can be met through better use of existing resources and to sustain a continuing policy of achieving long term goals of water conservation and environmental good practice. This will involve (i) significant additional investment in pipe renewal and repair to increase available capacity by reducing water leakage and (ii) support and promote integration and retro-fitting of water management measures, including increasing the use of grey or rain water as a substitute for use of treated water in suitable buildings and settings.	No likely significant impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
PIR13	Investment is made in improving water storage, distribution, supply and quality in all locations across the GDA where required to ensure that public health is maintained and that lack of water does not restrict the expansion and development of identified growth towns in the GDA, and so that the future needs of industry can be met.	The upgrading of water storage, distribution and supply infrastructure may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the upgrading of water storage, distribution and supply infrastructure, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR14, PIR19,
PIR14	Plans and projects associated with water supply and water management that have the potential to negatively impact on Natura 2000 sites will be subject to a Habitats Directive Assessment (HDA) according to Article 6 of the habitats directive and in accordance with best practice and guidance.	No likely significant impact on the integrity of Natura 2000 sites	No mitigation required	
PIR15	Need for continued investment in Waste Water Treatment facilities and networks to meet the needs of the River Basin Management Plans and to achieve the targets for good water status for river, coastal and transitional waters in the Water Framework Directive.	The expansion and upgrading of waste water treatment facilities may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the expansion and upgrading of waste water treatment facilities, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR19



Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
PIR16	Ensure that future capacity is provided in growth towns through expansion and upgrading of facilities where necessary and/or exploration of alternatives such a connecting to adjoining drainage systems or changes to catchments to enable growth towns to provide for the population growth envisaged in the settlement strategy and thus enable a more sustainable settlement pattern to be supported.	The expansion and upgrading of waste water treatment facilities may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the expansion and upgrading of waste water treatment facilities, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6, PIR18, PIR19
PIR17	Identification and development of a suitable site for the Regional Coastal plant in the north coast of the GDA to enable the continued population and economic growth and the physical consolidation of the metropolitan area, by reducing the catchment size for Ringsend and providing new treatment capacity through network connections.	The provision of a new Regional Coastal plant may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the Regional Coastal plant, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR18, PIR19
PIR18	The management of landuse and policies of Development Plans, Local Area Plans and Development Management decisions shall ensure that the scale of development is managed to achieve compliance with the waste water discharge licences of waste water treatment facilities. Breach of compliance is now a criminal offence under the EU Directives 2006/11/EC and 2000/60/EC given effect in	Lack of compliance with waste water discharge licences of waste water treatment facilities may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with increasing discharge from existing facilities, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6, PIR18, PIR19

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
	the Waste Water Discharge Regulations 2007.			
PIR19	Plans and projects associated with the provision of waste water and surface water treatment that have the potential to negatively impact on Natura 2000 sites will be subject to a Habitats Directive Assessment (HDA) according to Article 6 of the habitats directive and in accordance with best practice and guidance.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
PIR20	Full implementation of new development and environmental management policies developed in the GSDSDS project, including Sustainable Urban Drainage systems.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
PIR21	Integration within urban areas of pluvial and drainage models to achieve an integrated response and mutually supportive actions to prevent pluvial flooding and pollution of receiving waters.	The provision of pluvial and drainage models may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with pluvial and drainage models, which have the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR20, PIR23, GIP3, GIR16, FR3, FR4

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
PIR22	Provision of ground water protection schemes/plans in accordance with Groundwater Protection Schemes Guidelines and other necessary measures, including the Water Framework Directive and Habitats Directive, in order to maintain and where appropriate, improve the quality of ground water.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
PIR23	Policies within Development Plans must address the relationship between significant land, arterial drainage and navigation and other works or changes in use and the possible impact to protect and where appropriate minimise possible impact on both large scale flood risk, aquatic habitats and Natura 2000 sites from individual works and also cumulative effects from a number of developments within a river catchment.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
PIR24	All water management plans should take account of the possible impact of climate change in the future in relation to changes to volumes of rainfall, river flows, sea level rise and frequency of storm events.	Water management plans may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with water management, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR14

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
PIR25	That reinforcements and new infrastructure are put in place by the key agencies, and their provision is supported in Local Authority policies, to ensure the energy needs of future population and economic expansion within designated growth areas and across the GDA can be delivered in a sustainable and timely manner and that capacity is available at local and regional scale to meet future needs.	Reinforcements and new infrastructure to ensure the energy needs of future population and economic expansion may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with reinforcements and new infrastructure, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6, PIR19, PIR33
PIR26	Development Plans and Local Authorities support, through policies and plans, the targets for renewable generation so that renewable energy targets for 2020, and any further targets beyond 2020 which become applicable over the duration of the RPG's, are met.	Renewable energy generation projects may negatively impact directly or indirectly on the integrity of Natura 2000 sites.	Ensure that any plan or project associated with the renewable energy generation and their associated infrastructure, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR33
PIR27	That low carbon sustainable renewable energy systems, bio-energy and energy conservation potentials are exploited to their full potential through the advancement of EU and national policy at regional level and the promotion of existing and emerging green technologies.	Renewable energy generation projects may negatively impact directly or indirectly on the integrity of Natura 2000 sites.	Ensure that any plan or project associated with the renewable energy generation and their associated infrastructure, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR33

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
PIR28	To ensure that planning policy at City and County Level reflects and adheres to the principles and planning guidance set out within Department of the Environment Heritage and Local Government publications relating to 'Telecommunications Antennae and Support Structures', 'Wind Energy Development' and any other guidance which may be issued in relation to communications and sustainable energy provisions.	The provision of communication and energy infrastructure may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the provision of communication and energy infrastructure, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR33
PIR29	Ensure that when reviewing County and City Development Plans that an Energy Action Plan is developed to provide an evidence base to identify the opportunities for decentralised energy reduced energy consumption, increased energy conservation and improvements to low carbon energy provision and to future proof sustainable energy provision and practices for local communities.	Strategic planning of energy provision in the form of energy masterplans may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the provision of energy, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR33
PIR30	Continued promotion of opportunities by, and cooperation between, all relevant agencies and stakeholders to achieve an internationally competitive ICT sector is developed putting the GDA on a par with leading European regions by investment in broadband.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
PIR31	Future corridors for energy transmission or pipelines should avoid creating sterile lands proximate to key public transport corridors, particularly rail routes.	The provision energy transmission and pipeline corridors may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the energy transmission and pipeline corridors, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR33
PIR32	Seek the delivery of the necessary integration of transmission network requirements to facilitate linkages of renewable energy proposals to the electricity transmission grid; and continued support by all key stakeholders of energy conservation measures.	The provision of transmission network requirements to facilitate linkages of renewable energy proposals to the electricity transmission grid may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the transmission network requirements to facilitate linkages of renewable energy proposals to the electricity transmission grid, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR33
PIR33	Plans and projects associated with the generation or supply of energy or telecommunication networks that have the potential to negatively impact on Natura 2000 sites will be subject to a Habitats Directive Assessment (HDA) according to Article 6 of the habitats directive and in accordance with best practice and guidance.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
PIR34	That a study is undertaken on wind energy potential by local authorities jointly in the GDA focusing on suitable areas for larger wind energy projects, role of micro wind energy in urban and rural settings and the potential for wind energy within industrial areas with the outcome presenting regionally consistent new land-use policies and objectives and associated development management guidance to potential projects.	The planning of wind energy projects may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with wind energy projects and associated facilities, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, PIR33
PIR35	To maximise the potential of the ICT sector it is strongly recommended that: open access fibre connections are included in new developments; that carrier neutral ducting is installed during significant public infrastructure works such as roads, water and sewerage and that all ductings are recorded and mapped; that existing ducting along publicly owned infrastructure is considered to provide backhaul connections where possible; and that reasonable broadband speed and access is provided to each citizen and business within the GDA to ensure a competitive service and in order to facilitate an evolutionary, globally competitive, efficient and sustainable society and economy in line with the "Digital Agenda for Europe	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
PIR36	The new waste management strategy across the regions of the GDA should seek to facilitate a balanced use of resources and greater adaptability and robustness of services. Integrated waste management should be considered from the perspective of the GDA as one singular functioning economic and spatial unit and to increase economies of scale.	The implementation of a waste management strategy and associated facilities may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with implementation of a waste management strategy and associated facilities, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	
PIR37	Encourage the expansion of increased levels of diversion of biodegradable waste from landfill through provision of or support for biological treatment facilities and home composting.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
PIR38	Ensure that developments include adequate space for domestic recyclable waste storage both within and outside dwellings; and ensure that larger development proposals, masterplans and local area plans incorporate bring banks and recycling facility requirements to facilitate sustainable development and optimal rates of recycling.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	



Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
PIR39	The reuse of waste should be encouraged and reinforced through encouragement of business clustering across the GDA. Opportunities to facilitate source reduction, the reuse of wastes, by-products and associated energy throughout the GDA should be examined as part of economic policies. Development of these opportunities shall not compromise the integrity of ecologically sensitive areas, in particular infilling with inert materials which can result in loss and fragmentation of wetlands.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
PIR40	Waste management facilities should be appropriately managed and monitored according to best practice to maximise efficiencies and to protect human health and the natural environment.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
PIR41	Plans and projects associated with waste management that have the potential to negatively impact on Natura 2000 sites will be subject to a Habitats Directive Assessment (HDA) according to Article 6 of the habitats directive and in accordance with best practice and guidance.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
<b>Green Infrastructure, Heritage &amp; Environment</b>				
GIP1	To ensure that all aspects of the built heritage including archaeological, industrial, and architectural heritage, and those buildings which are home to protected species, are suitably protected, enhanced, sensitively reused/ integrated into new development works and incorporated in development plans, records of protected structures, heritage plans and site specific projects & developments.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIP2	To protect and conserve the natural environment, including in particular nationally important and EU designated sites such as Special Protection Areas, Candidate Special Areas of Conservation and proposed Natural Heritage Areas, protected habitats and species, and habitats and species of local biodiversity value. This policy also includes new or extended ecological sites that are notified or designated in the lifetime of the RPGs. Appropriate measures to protect Natura 2000 sites should be identified at the initial stages of all planning processes and included as a material consideration in order to inform future development.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
GIP3	To ensure alignment between the core objectives of the Water Framework Directive, (including River Basin Management Plans and POMS affecting the Greater Dublin Area) and other related plans such as County Development Plans and related Local Area Plans; Habitat and Species Protection Plans under the Habitats Directive, Water Services Investment Programme, Nitrates Action Programme; and Flood Management Plans, in relation to the protection, improvement and sustainable use of inland surface waters, transitional waters, coastal waters and groundwater.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIP4	Promote the development of cross boundary Integrated Coastal Zone Management with all coastal local authorities in the GDA area so that future Development Plans can be guided in relation to the management of coastal areas drawing from a mutually supported plan for marine and coastal areas which has engaged with key stakeholders.	The provision of Coastal Zone Management may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with Coastal Zone Management, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIR21, GIR22,

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
GIP5	Adopt policies and measures at county level to protect, manage and plan landscapes through the provision of Landscape Classification and Character Assessments in accordance with adopted European (and contemporary National) Landscape Guidance Documents such as 'Guidelines for the Implementation of the European Landscape Convention, February 2008'	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIP6	To ensure the protection, enhancement and maintenance of the natural environment and recognise the economic, social, environmental and physical value of green spaces through the development of and integration of Green Infrastructure (GI) planning and development in the planning process.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR1	Continue to protect through Development and Local Area Plan policy and zoning, design frameworks and other planning documents and through the development management process, all national sites and monuments identified on the national record and also other archaeological sites that emerge through investigative or construction works in cooperation with the Department of Environment, Heritage and Local Government.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
GIR2	Adopt plan policies and objectives to manage, protect, enhance, and/or sensitively integrate, where appropriate, all areas of heritage, as defined within the Heritage Act.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR3	Carry out thematic heritage audits, including those relating to industrial heritage, in order to inform policy and decision making in the planning process and where appropriate, inclusion in the Record of Protected Structures. Continue to actively protect through development plan policy and development management decisions, ACA's, protected structures and vernacular buildings.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR4	Through actions such as school and education programmes, heritage plan actions, and interaction between statutory bodies, local authorities and local communities in the form of workshops and resource programmes to promote awareness and increased stewardship of built heritage within the community.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR5	Promote, where appropriate, settlement identity through traditional plot sizes, street patterns, street furniture and building scales in the development of towns, villages and hamlets.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
GIR6	Continue to provide Local Authority grant assistance to individuals in relation to specific conservation projects, where practical.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR7	Promote sensitive retrofitting of established building stock, where appropriate.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR8	Improve the appearance and character of areas with particular townscape character by actively protecting their distinctive identities	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR9	Seek protection, enhancement and sensitive integration/re-use, as may be appropriate of heritage transport corridors, including rail, road and water corridors, to ensure their long term future and their role in relation to access provision, tourism development, biodiversity space and development buffers.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR10	Undertake research to identify key historic landscapes and possible World Heritage Sites within Council areas which merit protection and support outcomes through policies and objective in Development Plans.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
GIR11	To protect the intrinsic natural, built and cultural heritage of the GDA whilst ensuring that any future development of tourist and recreational uses are facilitated in a manner which complements and protects the intrinsic heritage features of the region	The future development of tourist and recreational uses of natural heritage resources may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated future development of tourist and recreational uses of natural heritage resources, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SIR11
GIR12	Local Authorities should continue to support the development and renewal of Local Authority Heritage Plans in each Council area working with all key stakeholders to identify and deliver a range of actions and programmes to support heritage in the Council area and to support the Heritage Plan through other plans and programmes.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR13	Development and delivery of Biodiversity Action Plans in each Council area, including protection of local features and species of biodiversity value and identify biodiversity resources at the initial stages of all planning processes and include them as a material consideration to inform future development.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
GIR14	Expansion of the programme to protect important individual or groups of trees through greater use of tree protection orders through the undertaking of an inventory of the Council area where funding allows.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR15	Continued use of policies to protect view and prospects in the Development Plan and local area plan process to facilitate passive enjoyment of the heritage of the landscape.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR16	Local authorities incorporate the issues from the River Basin Management Plans in their jurisdiction into the plan making process so that the implications of development on water quality is a key driver in identification of suitable locations for new development.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR17	Development Management objectives and guidance places strong emphasis on the need for Sustainable Urban Drainage Systems and water management to reduce both flood risk, overflows and the washing of pollutants from surface areas into receiving waters and to support ecological processes.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	



Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
GIR18	Areas of high ecological status in the River Basin Management Plans are identified in Development Plans and specific policies to protect their status are incorporate in the Plans, including restrictions on types of development which impact on water quality.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR19	To promote awareness and protection of, shellfish and non invasive molluscs, including their breeding and feeding areas (Shellfish Growing Areas), from on-site and external sources of pollution, referencing Pollution Reduction Programmes.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR20	Include ground water protection measures, including the adequate protection of groundwater vulnerability, in Development and Local Area Plans in accordance with, the recommendations of, consultation with the DoEHLG, EPA, GSI and any other relevant licensing bodies.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR21	Plans and projects that have the potential to negatively impact on Natura 2000 sites, which are surface waters, transitional waters, coastal waters or groundwater dependent, will be subject to a Habitats Directive Assessment (HDA) according to Article 6 of the habitats directive and in accordance with best practice	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
	and guidance			
GIR22	The completion of an ICZM for Dublin Bay, building on research and working collaboratively to achieve an agreed framework Plan incorporating land and marine planning and policies in an integrated manner and with regards to Article 6 of the Habitats Directive.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR23	The expansion of collaborative ICZM for similar cohesive coastal landscape blocks to Dublin Bay along the eastern seaboard, taking account of the Water Framework Directive and Flood Risk Assessment studies and Article 6 Habitats Directive requirements.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR24	That the concept of coastal parks is considered in future planning as a means of enhancing coastal habitats marine protection and sustainable marine based tourism and of integrating coastal (blue) infrastructure with green infrastructure.	The provision of coastal parks may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with coastal parks, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, GIR21,

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
GIR25	Develop a shared methodology and classification for Landscape Classification And Character Assessments (LACCA) in the Greater Dublin Area, through a multi disciplinary approach, identify short coming in existing landscape character assessments and GIS mapping data and update accordingly, carefully consider landscape character issues in the planning process and use LACCA to inform Historic Landscape Character Assessments (HLCA).	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR26	Examination of suitable locations for designation of Special Amenity Area Orders within each Council Area.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR27	Recognise the function and role of carbon sinks, heat sinks, soil management, and carbon sequestration in landscape management including forestry programmes and peat bog management.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
GIR28	Expand the use of geological and soil mapping to inform planning decisions relating to settlement, flooding, food production value and carbon sequestration, to identify prime agricultural lands (for food production), degraded/contaminated lands (which may have implications for water quality, health, fauna), and those which are essential for habitat protection, or have geological significance.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR29	Use available GSI data and other reliable data sources to map landslide hazard areas, to inform Seas and Weiss and formulate policies and responses to areas where landslide hazard is a known problem and promote awareness of landslide hazards through workshops, seminars and information publications.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR30	Each Council should prepare a county based Green Infrastructure Strategy linking to adjoining areas and following regional connections, and implement GI strategies in local area plans and development management processes.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
GIR31	GI development should be identified at the initial stages of all planning processes and included as a material consideration in order to inform future development.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR32	As part of the GI Strategy local authorities are recommended to carry out			
	(i) A 'stock take' of existing data available, studies and survey works and identify areas for further work.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
	(ii) Identify threats to habitats and green spaces as part of GI development and provide appropriate responses, obviation and mitigation measures as part of the process.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
	(iii) Identify priority areas for investment and pilot projects, including long and short term objectives and have clear designation of responsibility of process ownership for delivery of particular aims.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
	(iv) Engage with private landowners, relevant agencies (governmental and NGO's), community groups to build partnerships for development, delivery and maintenance of green infrastructure strategies and action	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
	plans.			
	(v) Adhere to the provisions of Article 6 of the Habitats Directive and promote ecological coherence of the Natura 2000 network, in accordance with Article 10 of the Habitats Directive.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR33	Councils should apply the principles of GI development and county GI strategies to inform the development management process in terms of the design and layout of new residential areas, business/industrial development and other relevant projects.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR34	Recognise the importance and contribution of green infrastructure throughout the region for the maintenance of biodiversity and ensuring that the region will be able to, or be ecologically robust enough to, adapt and respond to climate change issues.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
GIR35	Local authorities shall, on the basis of cooperation with landowners, recreational users and other relevant stakeholders, take a positive approach to the promotion of <i>agreed and managed access</i> in the countryside and to the coast for people, including agreed and managed walking/cycling routes. The feasibility of such access provisions and routes	The promotion of access to the countryside and coast may impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with promotion of access to the countryside and coast, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000	GIP2, SIR6, RR9, GIR21

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
	shall be informed by legislative responsibilities to designated sites of special amenity, ecological sensitivities and heritage value and shall be delivered on the basis of sustainability, consultation and consensus building		site.	
Social Infrastructure				
SIP1	That Local Authorities work with the relevant state agencies in ensuring that an integrated approach is taken to both planning for the communities who live within the GDA either in planning for growth, for change or regeneration in communities; that the needs of particular elements of society are identified and responded to and that the most vulnerable are valued as part of the community. That quality of life forms a central part of planning policy in supporting good spaces, good places and that social activities and the arts form a core part in making good places.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
SIP2	That quality of life forms a central part of planning policy in supporting good spaces, good places and that social activities and the arts form a core part on making good places.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
SIR1	The delivery of housing needs to follow sustainable models through avoiding low density car based development forms and be focussed on medium densities which will support and be integrated with a range of community facilities within accessible walking distances. Where lands are close to public transport nodes/stations or QBC corridors the density and connectivity of developments should directly support increased population being able to benefit from good transport links.	The provision of housing may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the delivery of housing and associated services, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6, PIR10, PIR14, PIR19, PIR33, PIR41
SIR2	Councils should require that all residential development be of high quality in design, layout and space provision, and create a mix of typologies and tenure within residential areas, inline with the Departmental Guidelines.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	



Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
SIR3	Where significant new housing is proposed in an area or community, an assessment of need regarding schools provision should take place; and local area plans (and/or Development Plans or Master Plans) should designate new school sites at accessible, pedestrian friendly locations.	The provision of housing and associated services may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the housing and associated services, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SR5, SR6, PIR10, PIR14, PIR19, PIR33, PIR41
SIR4	Planning authorities should work with the health services with regard to provision for community based primary care centres and hospital care in key centres, supporting their integration into new and existing communities.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
SIR5	Councils should continue to promote the integration of quality childcare facilities in newer communities, in line with the Department Guidelines on childcare facilities.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
SIR6	Plans and projects associated with the provision of recreation, leisure and tourism activities that have the potential to negatively impact on Natura 2000 sites will be subject to a Habitats Directive Assessment (HDA) according to Article 6 of the habitats directive and in accordance with best practice and guidance.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
SIR7	Identify the importance of the development of recreational and leisure programmes and facilities in a balanced fashion across the GDA, where facilities are planned and provided for appropriate to the local community needs. It is recommended that an audit of recreational facilities with the purpose of identifying needs and new policy direction is undertaken prior to commencing a review of the County/City or Town Development Plan.	The provision of recreational and leisure facilities may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with the recreational and leisure facilities, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, SIR6
SIR8	That the role of Arts and Culture in supporting sustainable and multi-faceted communities is recognised and that arts and culture facilities throughout the regions are promoted and are accessible to the communities they serve.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
SIR9	That Development Plans and Local Area Plans are prepared so that important issues of social inclusion, ethnicity, minority groups and those with disabilities are fully considered and that social inclusion forms part of considering the policies set out for the growth and development of the Council area for the future.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

<b>Strategic Policies and Recommendations</b>		<b>Potential Effects/Impacts</b>	<b>Mitigation required</b>	<b>Mitigation Strategic Policy and recommendation</b>
SIR10	Local Area Plans and Development Plans should specifically examine the needs of the elderly or infirm in planning for existing, new or expanded communities and set out objectives to ensure that appropriate provision is made for assisted housing and/or specialised facilities at accessible locations that clearly integrate into the community to meet current and future needs.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
SIR11	The importance of managing and enhancing recreational facilities, including publicly owned lands associated with regionally important assets (such as the Dublin Mountains) is recognized and should be supported by the relevant bodies in line with environmental compatibilities in association with plans and/or measures to protect important habitats within or proximate to these locations.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
<b>Flood Risk Appraisal</b>				
FP1	That flood risk be managed pro-actively at all stages in the planning process avoiding development in flood risk areas where possible and by reducing the risks of flooding to and from existing and future development.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
FR1	New development should be avoided in areas at risk of flooding. Alongside this, the RFRA recognises the need for continuing investment and development within the urban centres of flood vulnerable designated growth towns and the City and for this to take place in tandem with the completion of CFRAM Studies and investment in comprehensive flood protection and management.	The provision of flood protection and management may negatively impact directly or indirectly on the integrity of a Natura 2000 site.	Ensure that any plan or project associated with flood protection and management, including CRFAM studies, which has the potential to significantly effect a Natura 2000 site, is fully assessed to avoid adverse impacts on the integrity of that Natura 2000 site.	GIP2, FR4
FR2	Development and Local Area Plans should include a Strategic Flood Risk Assessment and all future zoning of land for development in areas at risk of flooding should follow the sequential approach set out in the Departmental Guidance on Flood Risk Management. All Flood Risk Assessments and CFRAM studies should take place in coordination and consultation with adjoining local authorities and regions and in coordination with the relevant River Basin Management Plans.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	
FR3	Local authorities should take the opportunities presented to optimise improvements in biodiversity and amenity when including policies and actions in development plans / LAPs (such as flood plain protection and SUDS) for existing and future developments.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

Strategic Policies and Recommendations		Potential Effects/Impacts	Mitigation required	Mitigation Strategic Policy and recommendation
FR4	Plans and projects associated with flood risk management that have the potential to negatively impact on Natura 2000 sites will be subject to a Habitats Directive Assessment (HDA) according to Article 6 of the habitats directive and in accordance with best practice and guidance.	No likely significant negative impact on the integrity of Natura 2000 sites	No mitigation required	

## **Appendix A7**

### **Background Papers for Regional Economic Strategy**

*Forfás Regional Competitiveness Agenda : Volume II -Realising Potential : East*

*Economic Development Action Plan for the Dublin City Region*

*Mid East Regional Authority Economic Development Strategy.*

**REGIONAL COMPETITIVENESS AGENDA**

**Volume II - Realising Potential**

**East**





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# 1. Background & Context

Ireland is facing unprecedented challenges against the backdrop of a world recession, and is now operating within tough budgetary conditions and fiscal constraints. We have already seen the impacts in terms of a decline in economic activity and increases in unemployment. The more recent downturn in employment is particularly marked in both the construction and manufacturing sectors and has greater implications for the regions outside of the Greater Dublin Area (GDA) in the medium term.

The Government's 'Building the Smart Economy' document identifies the fundamental importance of returning to export-led growth. Returning to export-led growth requires that we create an environment that is conducive to attracting foreign direct investment (FDI), stimulating entrepreneurship and enabling companies to grow and serve global markets from an Irish base.

In this context, Forfás, together with the development agencies, has developed a suite of **Regional Competitiveness Agendas (RCAs)** for each of the regions at NUTS III Level<sup>1</sup>. The RCAs take an enterprise perspective, recognising that enterprise is a key driver for regional growth and national economic development. The document does not seek to suggest how immediate term issues might be addressed as these are being addressed through other channels<sup>2</sup>. It takes a longer term view, recognising that at the same time, it is vital that we prioritise and make strategic investments now that pump-prime the potential of each of the regions to position them as contributors to Ireland's national growth when this downward economic cycle comes to an end.

This report should be read in conjunction with:

*Regional Competitiveness Agenda: Volume I : Baseline Data and Analysis : East Region* which provides an overview of the region today based on an analysis of quantitative and qualitative indicators across a range of competitiveness factors; and

A final report: *Regional Competitiveness Agendas: Overview, Findings and Actions*. This report highlights findings arising from our analysis of all regions, differentiating factors for the regions, and priorities for regional enterprise development.

**The Objective of the RCAs is to:**

Provide an economic overview to inform the updates of the Regional Planning Guidelines and specifically to:

- Highlight opportunities to build on each region's distinctive strengths
- Identify barriers to achieving objectives and/or issues specific to the region together with actions to address them
- Identify infrastructure priorities relevant to future enterprise needs within the regions.

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<sup>1</sup> East (Mid-East & Dublin), Border, Midlands, West, Mid-West, South-West, South-East

<sup>2</sup> Refer to National Competitiveness Council's *Annual Competitiveness Report 2009* (<http://www.competitiveness.ie/>)

The RCAs take a broader interpretation of infrastructures to include ‘softer’ factors such as innovative capacity, leadership and quality of life factors.

## Methodology

Desk-based research and one-to-one consultations with a range of stakeholders were undertaken to outline the current status of the region and highlight opportunities and challenges specific to it. A regionally based workshop was held to identify the areas where the region can build from its strengths to realise its potential over the coming years. These areas are not intended to be exhaustive, but provide indications of what is possible, and they serve to prioritise the infrastructures and supporting activities required to build on the region’s assets and to address barriers to enterprise development.

## Report Structure

The report outlines:

- Global Drivers of Change that impact on enterprise needs
- The Competitiveness Factors that provided the framework for analysis
- A Summary of the Current Status of the Region - Strengths and Challenges
- Realising Future Potential - Identifying areas of opportunity:
  - Sectors and activities at firm level
  - Business environment factors
- Priority Actions

## 2. Regional Competitiveness

### Global Drivers of Change

It is never easy to predict how enterprise is likely to evolve over a given time, and within the context of the current economic downturn, it is even more challenging. Having said that, there are a number of global drivers that will continue to have implications for how companies will do business in the future<sup>3</sup>, and in turn, inform the needs of the business environment and factors of competitiveness.

**Globalisation:** The pace and extent of global competition has intensified significantly over recent years. Globalisation enables companies to reach new untapped markets. The supply chain is increasingly disaggregated so that companies tend to outsource non-core activities or to off-shore them to locations where it makes business sense. Even firms serving the domestic market are facing international competition (e.g. in retail, pharmacy, supermarkets). People are also more mobile and high-value talent is scarce relative to global demand. People can and will choose where they want to live and work. Quality of life factors take on a new dimension in this context.

**Advances in Technology** have a significant impact, not only on the ICT industry itself, but on almost every business, regardless of the nature of its activities. Technology advances have enabled companies to manage multi-site operations across the world. ICT has been, and will continue to be, a key enabler for the remote delivery of services. Increased convergence of technologies has seen companies from formerly discrete sectors enter into partnerships to provide end solutions to customers. Changes in business models, the convergence of formerly discrete sectors and increased mergers & acquisition (M&A) activity call for a work-force with multi-disciplinary skills and a flexible and problem-solving attitude.

**Rising Concerns About the Environment:** The increased focus on environmental (and energy related) issues presents opportunities for companies to innovate with alternative sources of energy, new solutions and services. Consumers will drive all companies to reconsider aspects of their business from an environmental perspective. For companies, this involves considering their own production and business processes, carbon footprint, materials and waste.

**Shift Toward Services:** Services contribute a higher proportion to GDP in developed economies driven by consumer demand, increased disposable incomes and a demand for 'personalised' solutions. Within the business to business (B2B) sector, companies are responding to the disaggregated supply chain model, and providing services which had been formerly managed 'in-house', including e.g. laboratory and testing services, R&D, logistics, supply chain management, and customer technical support. Manufacturing firms are 'bundling' services with their products to provide a more tailored and higher value solution to their customers. Competitively priced, high-speed resilient broadband networks and services are now a basic requirement to underpin future economic development.

**The Importance of Dynamic Urban Areas:** Ireland's economic structure is shifting towards a higher proportion of services exports, balanced with a core of high-value added manufacturing activities - although this is more immediately apparent in the city of Dublin

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<sup>3</sup> Forfás (2008) *Sharing our Future*, IBM (2008) *Drivers of Change*, Enterprise Strategy Group (2004) *Ahead of the Curve*

and to a lesser extent in the urban centres of Cork, Limerick, Galway and Waterford. International evidence shows that high-value added services are attracted primarily to urban areas, and that today, internationally, cities are competing with cities for enterprise investment. It also points to the fact that urban areas play a key role in driving the development of their hinterlands, and successful regions have a dynamic and vibrant city at their core. The RCAs acknowledge the importance of gateways and their role as drivers of regional economic development, and the need for strategic planning and development to optimise the inter-relationship between gateways and their immediate hinterlands.

## Competitiveness Factors

The global drivers highlighted above have implications for where and how companies do business. As companies respond to these global drivers of change they make location decisions based on economic and business imperatives. Higher value activities generally depend upon an educated and skilled workforce. Locations are not only considered in terms of (relative) cost, but in terms of access to skills and talent, access to markets and customers (whether physical or virtual), an innovative capacity and capability and a dynamic environment offering an attractive quality of life - basically a good place to work, live and to do business.

In this context it is important that a location or region provides a competitive environment that stimulates entrepreneurship, enables companies to grow and evolve, and attracts and retains foreign investment. The following factors of competitiveness were developed to facilitate analysis of the regions, incorporating a suite of both quantitative and qualitative indicators<sup>4</sup>.

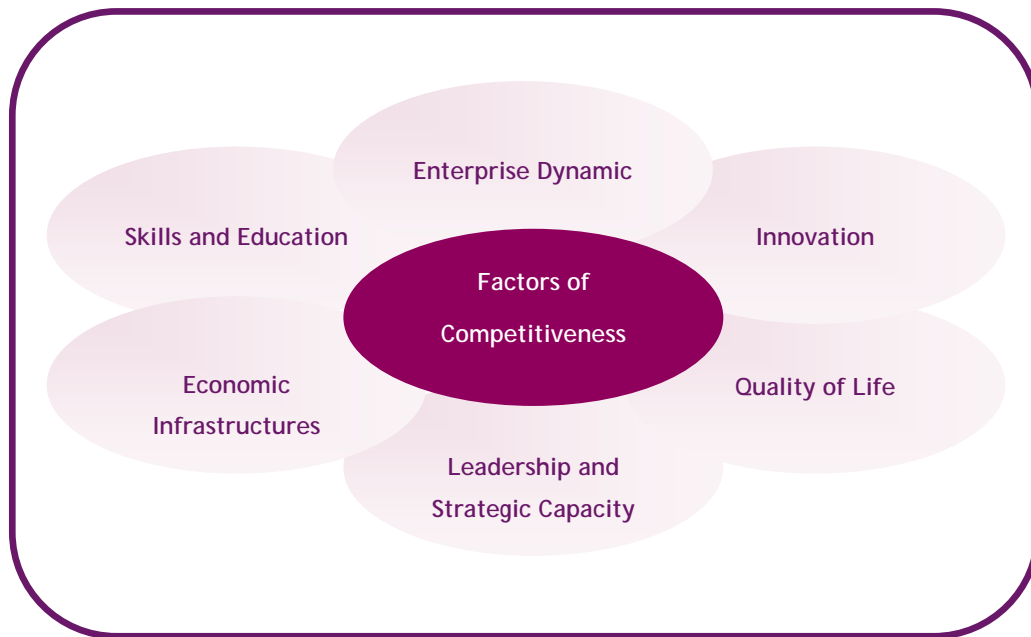
### Competitiveness Factors

<b>Enterprise Dynamic</b>	assessing the enterprise structure, employment and GVA, the contribution from agency supported enterprises, and sectoral diversity and/or clustering
<b>Skills &amp; Education</b>	an analysis of the skills, educational attainment and education resources
<b>Innovation</b>	research and development investment and activity, collaborations and inter-linkages between HEIs and firms, between firms and customers
<b>Economic Infrastructures</b>	transport and broadband infrastructures - recent investments and ongoing infrastructure needs
<b>Quality of Life</b>	based on factors relevant to the attraction of mobile investment and labour/talent
<b>Leadership and Strategic Capacity</b>	outlining relevant organisations and indications of locally driven initiatives and outcomes

<sup>4</sup> Forfás, DOEHLG & Fitzpatrick Associates (2006) *Implementing the NSS: Gateway Investment Priorities Study*; NCC (2009) *Our Cities: Drivers of National Competitiveness*; Fitzpatrick Associates (2009) *Preparation of a Gateway Development Index* (Stages 1&2)

### 3. The East Region Today - A Summary

This summary highlights aspects that indicate the differentiating elements for the East Region<sup>5</sup> based on the findings in the *Regional Competitiveness Agenda: Volume I: Baseline Data and Analysis* for the region.



#### Overview - Population and Growth

With well over a third of Ireland's population<sup>6</sup>, the East region, comprising counties Dublin, Wicklow, Meath and Kildare, is the most populous and densely populated region in Ireland. The region has experienced strong levels of population growth in recent years, which has been most pronounced in the Mid-East. In-migration has been a large factor in the region's population dynamics and has had the greatest impact in areas outside the city. The metropolitan core does however attract younger population cohorts who move to the region for education and early career progression.

Overall, the pattern of population growth and settlement strongly reflects the influence of Dublin City far beyond its administrative boundaries and underlines the need for coordination of planning policies region-wide, including a focus on achieving higher residential densities in the face of accelerating urban sprawl.

<sup>5</sup> The 'East' region is an amalgam of the two NUTS III regions: Dublin (i.e. Co. Dublin) and the Mid-East (Meath, Kildare and Wicklow). This report makes reference to the constituent sub-regions on occasion. In addition, the names: 'East region' and 'Greater Dublin Area' (GDA) are used interchangeably

<sup>6</sup> Estimated at over 1.7 million people in 2009 (CSO *Population & Migration Estimates, 2009*)

## Enterprise Dynamic

There are some 870,000 people at work in the East region (in mid 2008), representing over 40% of the total employment overall in Ireland, while the region accounts for almost half of total GVA<sup>7</sup> nationally. Both statistics indicate the importance of the region as an economic driver in the national context. The region has a diverse employment base, and has proportionally more people involved in services sector activities than elsewhere in the country - reflective of its role as host to the national Capital. Key exporting sectors are ICT services, financial services and food/drinks production.

Manufacturing activity has declined in importance in the region; however there has been growth in some sub-sectors, notably pharmaceuticals. After a period of sustained growth, the construction sector has experienced recent decline although the impact is not as severe as in other regions nationally. Dublin City continues to attract the majority of FDI investment in Ireland, with the activity profile dominated by ICT services and financial services (many of them European Headquarter operations).

## Skills, Education & Regional Innovation Capacity

Educational attainment to third level in the East region is above the average nationally and higher than all other regions. In fact, more than half of the total population possessing a degree qualification or higher resides in the region (the Dublin sub-region accommodates the vast majority of these). The concentration of highly skilled people in the region reflects the presence of the Capital city and the much higher concentration of higher education institutes (HEIs), research activity, research expenditure (by business and HEIs) in the Dublin area. The UCD/Trinity innovation alliance is a progressive initiative which recognises the need to 'raise the bar' in terms of the city region and Ireland's ability to compete in an international context.

## Economic Infrastructures

National road and rail services radiate through the region from Dublin city, and the Port and Airport in Dublin represent the principal international gateways for travel in/out of the State. On the whole therefore, the region enjoys the benefit of a relatively good quality transport infrastructure. Significant levels of investment have occurred in the region's transport infrastructure in recent years leading to a considerable improvement in connectivity within the city and throughout the region. Nonetheless, major shortcomings remain, evidenced by serious levels of congestion and a less than adequate and weakly integrated public transport system.

Congestion and poor transport networks are considered internationally as one of Dublin and the wider region's main competitiveness weaknesses<sup>8</sup>. Resolving the range of issues involved will require a more integrated, coordinated and environmentally sustainable approach to land

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<sup>7</sup> GVA - Gross Value Added - the value of the region's output less intermediate materials and services used in its production. Latest available date is 2006

<sup>8</sup> An analysis of European Cities by Cushman and Wakefield (European Cities Monitor, 2008) ranked Dublin 19th out of 34 European cities for quality of internal transport connections, and 25th out of 34 for external transport connectivity



use and transport policy in the city region. The Dublin Transportation Office (and planned Dublin Transport Authority) will have an extremely important role to play in this respect.

The broadband offering in the region needs to be improved to reflect the importance of the Capital City and its hinterland as an ICT hub of European and Global significance and to keep pace with the now basic needs of business and individuals. The National Competitiveness Council has highlighted the fact that while broadband speeds of up to 100 mbps are being offered over fibre in many parts of Amsterdam, Copenhagen, Cologne and Paris, the fastest speed available in Dublin City is 24 mbps. Along with the transport issues mentioned above, the regional broadband performance remains in 'catch-up' mode and continues to be a significant competitiveness issue in the international context.

## Leadership and Governance

The dominant influence of the Dublin metropolitan area within the region, its economic importance nationally, and the fact that its physical imprint transcends various local authority administrative boundaries requires that a coordinated approach be taken to tackle the issues faced by the wider city region. The forthcoming updated Region Planning Guidelines (RPGs) for the GDA, the planned establishment of the Dublin Transport Authority and the proposed introduction of a directly elected mayor for Dublin by 2011 presents an opportunity to strengthen governance structures and enhance coordination in the planning and development of the entire region. Other initiatives such as the Creative Dublin Alliance and the Economic Development Action Plan for Dublin (both currently focused on the Dublin sub-region) have brought about increased focus and concerted action in support of enterprise development in the city region and involve a strengthening coalition of relevant stakeholders.

## Quality of Life

As the location of Ireland's capital and only city of international scale, and in view of Dublin's pivotal role in driving national economic growth and prosperity, the region needs to have a strong focus on monitoring and enhancing the region's attractiveness as a location to do business in and to live and work. The region has many qualities that accommodate diversity and creativity, both essential characteristics of competitive cities<sup>9</sup>. Key challenges to the quality of life within the region include those transport and connectivity issues mentioned above. Social exclusion and disadvantage also remain key issues and are set to intensify in more difficult economic conditions.

The region has access to a multiplicity of heritage attractions, scenic rural areas and amenities. Protection and sustainable development of these sensitive resources is paramount.

## Conclusion

With 40% of the population of Ireland, generating just under half of Ireland's Gross Value Added (GVA), and containing Ireland's only city of international scale, the East region is the 'power-house' of the national economy. The GDA plays a leading role as a focus for knowledge generation, knowledge dissemination and innovative activity - essentially what

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<sup>9</sup> National Competitiveness Council (2009) *Our Cities: Drivers of National Competitiveness*

NESC (2008) have termed a 'theatre of experimentation'<sup>10</sup>. Its success and, in particular the success of Dublin city, is critical to the future performance of the entire economy and continued investment is necessary to address current issues, and to enhance its competitiveness.

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<sup>10</sup> NESC (2008) *The Irish Economy in the Early 21st Century* (p. 197)

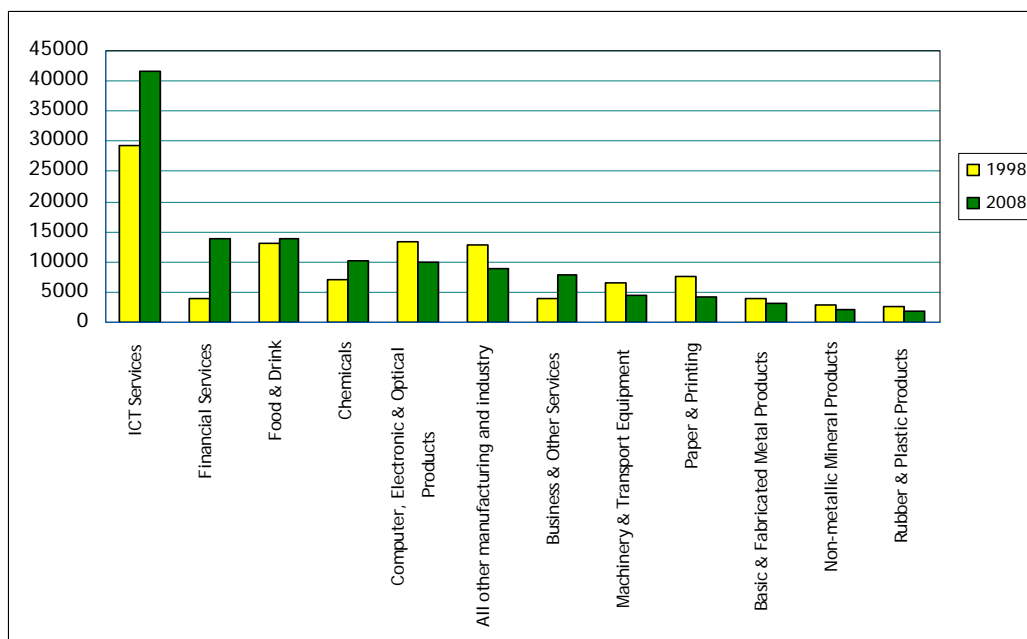
## 4. Realising Future Potential: Enterprise Development

The GDA has a distinctive economic profile and enterprise dynamic within Ireland, reflective of its role as the key driver within the national economy. It is vital that investments are prioritised that enhance the competitiveness of the city region internationally, to ensure that it plays a leading role in Ireland’s return to sustainable economic growth.

Increasing level of international trade is the only sustainable basis for growth in the long term, requiring measures that will help to drive expansion in the productive sectors of the economy. The enterprise agencies play a key role encouraging new enterprise development and investment. However, actions that can be taken to stimulate investment from companies are directly intertwined with the quality of the business environment - one cannot happen without the other. In the case of the GDA, its business environment needs to support an enterprise base both within and beyond its confines - as the city fulfils its dual role, that of national capital and international gateway for the remainder of the country, and as a self sustaining functional region.

The purpose of the Regional Competitiveness Agenda is to provide a focus on the strategically important aspects of the business environment that need to be supported by the RPGs so that the optimum conditions are present to realise the full enterprise potential within the region. To achieve Ireland’s ambition as outlined in the Smart Economy, the business environment needs to continuously evolve to meet the changing needs of companies - it needs to be a dynamic environment that is supportive of early start-ups and entrepreneurial activity, that stimulates company engagement in innovation and R&D, and that ensures that companies have access to the high quality skills and supports they require.

Figure 1: Enterprise Agency Assisted Employment - East Region, 1998 & 2008



Source: Annual Employment Survey, 2008

## The Growing Importance of Services

Ireland's enterprise structure is shifting where services take on a greater role as a contributor to overall economic growth. Indeed Ireland has now established itself as one of the world's leading services economies and it is well understood that services will be the most likely avenue to sustainable growth in the future<sup>11</sup>. International evidence shows that high-value added services are attracted primarily to cities<sup>12</sup>. The GDA is already playing a critical role in this context; providing a supportive environment facilitating the rapid growth of international financial services and ICT services in particular.

More than three-quarters of employment provided in the region is now in various services activities and growth in services employment accounted for almost 90% of overall growth in employment in the region over the past 10 years. The GDA accounted for 56% of overall output (as measured by GVA) contributed by services in the State in 2006<sup>13</sup>. A key challenge for the city region is to enhance its attractiveness and competitiveness that will continue to drive growth in a wide range of advanced international services activities.

### Software Development & Services - Global trends

A new environment is emerging for software companies globally in what has been called 'The New Software Economy'. This new context sees a number of key trends and structural changes that provides both opportunities and challenges for software companies, and small to medium sized companies and start-ups in particular. Some of these trends and changes include:

- Increasing end-user demand for less expensive, more efficient ways of paying for software, for example through seeking best of breed, plug-compatible solutions
- Vendors responding to these demands by embracing new delivery and pricing models, such as software as a service (SaaS), infrastructure as a service (IaaS), platform as a service (PaaS); and software on demand
- The emergence of the globally networked value chain, a distributed business model where different value adding activities are carried out where they can be done most efficiently and cost-effectively
- The emergence of new software technologies (such as Services Oriented Architecture - SOA, Open Source, Web 2.0 and Mash-ups) are continuing to drive the development of new applications and business models

An over-riding feature of the New Software Economy is the shift in computing activity towards being a utility-like system, underpinned by the internet. This phenomenon is most widely referred to as 'cloud computing' - a reference to the ever-shifting cloud of data, software and devices that make up a global computer network.

<sup>11</sup> Forfás/Services Strategy Group (2008) *Catching the Wave - A Services Strategy for Ireland*

<sup>12</sup> OECD (2006) *Competitive Cities in the Global Economy, Territorial Review*

<sup>13</sup> Latest available data

### Financial Services - Recent Trends

The rapid slow-down in the global economy and the ongoing international financial crisis has placed considerable pressure on the sector. Risk and collateral management have become increasingly important. However there have been some signs of a return to confidence within the sector. A recent survey of 75 global international financial service centres found confidence had returned to levels last achieved prior to the collapse of Lehmann Brothers (City of London, Global Financial Services Index, September, 2009). The same survey found that Dublin was among only three locations to have recorded a decline in its ranking between March and September 2009, from 10<sup>th</sup> to 23<sup>rd</sup>. However, in Ireland, many segments within the sector remain strong, including insurance and reinsurance, investment and treasury management - where Ireland (and the GDA in particular) has built a depth of expertise.

The Services Strategy Group considered the key services activities in Ireland, including internationally traded, locally traded and non-market services (public sector). It underlined the importance of continuing to support our key exporting activities, ICT and Financial Services. It also highlighted the potential for further diversifying the export base across a range of sectors and activities, such as e-commerce, supply chain management, shared and outsourced business processes, European headquarters and electronic data management.

Existing strengths in the GDA's enterprise base will be the platform for further development and diversification of services, and Dublin city will host many of the leading players. However, there is no room for complacency. Dublin is a small city by international standards (the second smallest out of 78 cities examined in the 2006 OECD review<sup>14</sup>) and is competing with these cities for FDI and for services exports.

The enterprise agencies will continue to focus on developing opportunities in new areas of the services economy and there have been a number of important studies undertaken to inform policy development in support of those endeavours<sup>15</sup>. For example, there is potential to 'green' the financial services sector - green investment funds and carbon trading markets are growing in size and sophistication<sup>16</sup>. A green IFSC cluster and brand, incorporating green investment vehicles and associated professional services may offer growth opportunities in the financial services sector in the region<sup>17</sup>.

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<sup>14</sup> OECD (2006) *Competitive Cities in the Global Economy, Territorial Review*

<sup>15</sup> For example: the above referenced Services Strategy Report (2008), The various Expert Group on Future Skills Needs (EGFSN) reports including: *High Level ICT Skills* (2008), *International Financial Services Industry* (2007) and *National Skills Strategy* (2007); the Forfás/INI (2008) report on *Environmental Goods & Services Sector on the Island of Ireland*; and Enterprise Ireland's (2009) software strategy, *Best Connected - Software from Ireland*

<sup>16</sup> In 2007, green investment funds invested \$148 billion in sustainable energy. In 2008, \$30 billion was under management in clean energy funds, with a further \$26.4 billion in funds with a significant exposure to clean energy (Source: Report of the High level Group on Green Enterprise, 2008)

<sup>17</sup> The IFSC Banking and Treasury group has recently set up a sub-group to explore the opportunities available from the establishment of a green IFSC at the Dublin Docklands

Future success depends on how well the business environment in the region and the metropolitan core also evolves to keep pace with the needs of the most advanced services activities.

#### Services - Skills Requirements

The changing nature of services in an increasingly globalised economy brings with it changing skills requirements. In all service industries, the proportion of high-skill employment has increased significantly. The challenge for the GDA will be to generate, attract and retain appropriately skilled people who can support the needs of the internationally traded sector and global business models into the future. The recent Report of the Services Strategy Group highlighted the range of skills and skills combinations that are now in high demand from the sector:

- Generic skills (personal/inter-personal skills - team-working, customer service, problem solving, planning etc.)
- Humanities (including languages) and social science skills
- Science, technology and innovation Skills
- Creative skills, design skills, and skills for innovation
- Hybrid technical and business skills (combining discipline-specific technical knowledge (ICT, financial services etc. with entrepreneurial skills)
- Mathematics.

## Sustaining High Value Manufacturing

The baseline data for the region highlighted the decline in manufacturing employment in the GDA over the past 10 years. The scale of the activity has substantially reduced relative to other sectors in the overall employment base of the region - down from 17% in 1998 to just under 11% in 2008. The trend is also present in agency supported employment where, apart from food and drink production and life sciences (i.e. pharmaceuticals and medical technologies), all other sectors of manufacturing activity recorded employment declines (incl. ICT hardware, engineering/metal fabrication, paper and printing). While net job losses have been concentrated mainly in more traditional sectors and reflect on-going restructuring in the economy and increased competition from lower cost locations, the current down-turn will also likely lead to further consolidation and reviews of global operations by multinational corporations across a range of sectors with possible implications for Irish based subsidiaries<sup>18</sup>.

Acknowledging that there are immediate term issues and competitiveness challenges (which are well documented and currently being pursued through other mainly national level interventions)<sup>19</sup>, there are issues to be considered and influenced at the regional level. Key to this is to recognise the changing nature of manufacturing globally, placing new challenges on locations for new investment by both indigenous and foreign firms and their subsequent

<sup>18</sup> National Competitiveness Council (2008:8) *Annual Competitiveness Report Vol 2: The National Competitiveness Challenge*

<sup>19</sup> Refer to NCC *Annual Competitiveness Report 2008* ([www.ncc.ie](http://www.ncc.ie))

growth and development. The boxes summarise some of the global trends in the GDA's most prominent internationally trading manufacturing sectors; Life Sciences<sup>20</sup> and the Food Sector.

The High Level Group on Manufacturing (2008) summarised the key elements that constitute a supportive business environment for high value manufacturing firms:

*'The availability of a highly skilled and innovative work-force, an environment that encourages and stimulates investment in research and development, entrepreneurship and continuous learning, a cost base that is in line with other developed economies, an agile and responsive Government, supportive fiscal and regulatory structures and a high quality of life are all factors that will position Ireland as a 'good place to do business''<sup>21</sup>*

### Life Sciences - Global Trends

The Life Sciences sector is operating within a fast changing global environment where aging demographics and increases in chronic illnesses, more informed consumers, and a focus on 'wellness' provide high growth opportunities. Technological advances and convergence across the life sciences sub-sectors and with other sectors such as engineering and ICT are enabling a shift towards convergent medical products and personalised healthcare.

In this context, manufacturing processes will become increasingly complex, coupled with the need for firms to focus on continuous improvement and engage in process R&D. Expertise in the area of Quality by Design (QbD), Process Analytical Technology (PAT) and Quality Risk Management (QRM) are critical if Ireland is to build on its track record in high value added production. The future lifesciences manufacturing environment will require inter-disciplinary approaches to problem solving and will require flexible approaches that deliver on smaller batch sizes and product variations in multi-product manufacturing facilities. Process design and development for new and innovative products requires a greater understanding of the range of potential delivery mechanisms and package design, interactions between different materials under different environments, testing and quality control and validation processes. Core skills need to be complemented so that people are equipped with multi-disciplinary skills, or at the very minimum, demonstrate an ability to work effectively and proactively in multi-disciplinary teams.

Over time, although large scale single-product sites will still exist, there will be an increasing emphasis within the industry globally on manufacturing facilities and processes that can be adapted and/or retooled to facilitate new products. Multinational companies in the sector are now tending to focus on activities where they have strengths and to outsource non-core activities (such as late stage manufacturing, clinical trials processes etc) to contract research organisations (CROs) and contract manufacturing organisations (CMOs). The increased disaggregation of value chain activities is creating opportunities for smaller companies to position themselves within the global supply chain with innovative, technology intensive solutions and partnering opportunities.

<sup>20</sup> Including pharmaceuticals, biopharma, medical technologies, nutraceuticals/functional foods and related services

<sup>21</sup> Forfás, DETE (2008:xiv) *The Report of the High Level Group on Manufacturing*

The GDA, by virtue of its location offers many advantages for high value manufacturing: access to a large skilled workforce; international accessibility; proximity to leading third level education institutes and research organisations; a critical mass of economic activity allowing the emergence of business networks; and concentrations of activity across a range of sectors.

#### Food Sector - Global Trends

The dynamic for the food industry has changed significantly in recent years, transitioning from being largely production-led, to now being led by market demands. As well as the growing demand for health enhancing functional foods, the aspects of standards, quality and traceability are paramount. Branding and labelling play a particularly important role as consumers look for products they feel they can trust. There is an increasing focus by leading retailers and manufacturers on the issue of sustainability which in turn informs more environmentally friendly requirements they set for their suppliers. Retailers too are consolidating and there is evidence of moves to international structures and centralised procurement.

The sector runs to very tight margins and increasing efficiencies and productivity are key objectives for the sector in Ireland, as is the EI supported agenda to broaden access to a wider range of eurozone markets.

## Convergence

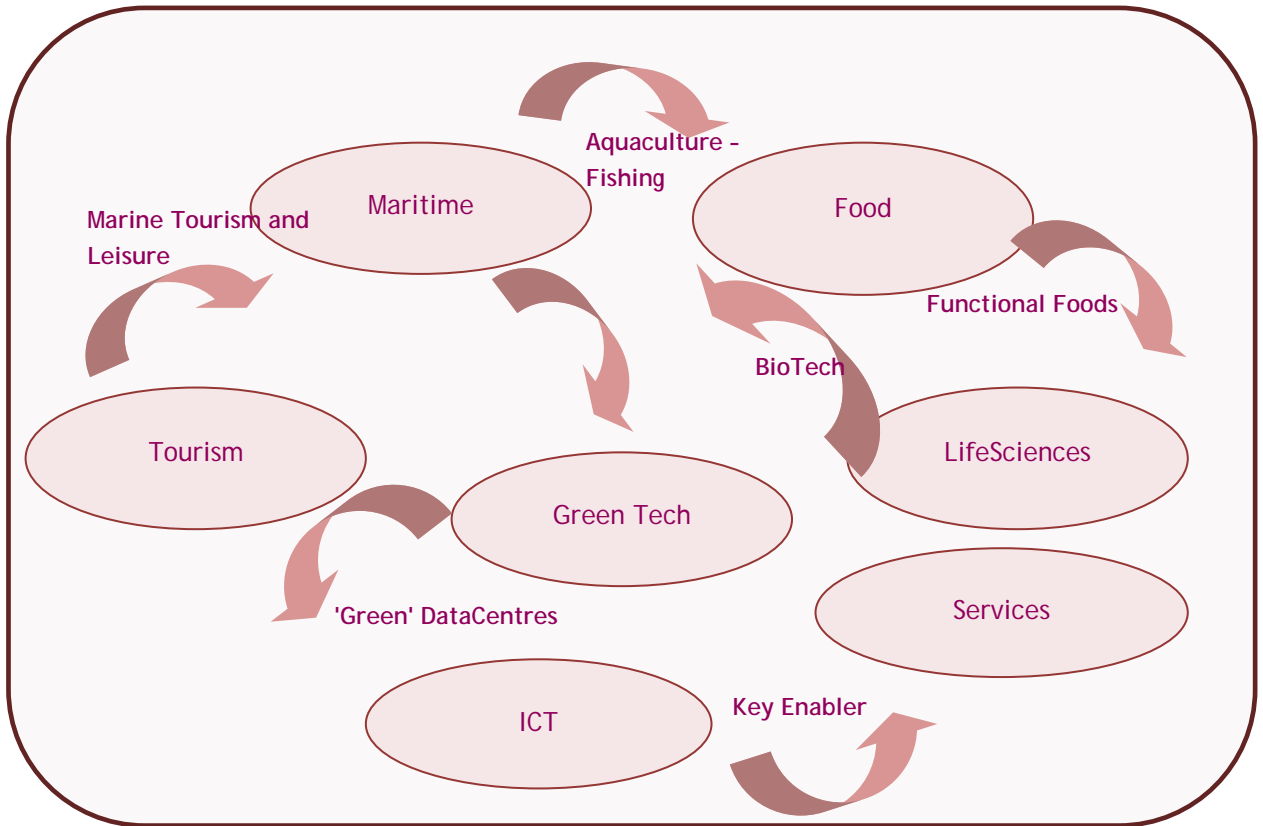
With a strong base of companies and research capabilities across a number of key sectors and activities, the GDA is well positioned to take advantage of the increasing convergence of technologies (see Figure 2 overleaf). This convergence is leading to new opportunities, new types of business, new products and services, an increased blurring between formerly discrete sectors and new customer markets for many of the more traditional sectors.

Advances in the food sector toward functional foods bring the clinical trial and production processes closer to those in the biopharma sector. Electronics, micro- and nano-technologies will play a stronger role in the life sciences sector as new drug delivery mechanisms are developed. The use of sensors embedded in construction materials and wireless communications creates a very different environment for new buildings, energy efficiencies, and facilities management.

Capabilities in maths, sciences, engineering and electronics are relevant across a range of sectors and activities. A depth in these core capabilities, coupled with an ability to work in multi-disciplinary teams, would prepare Ireland and the GDA to take advantage of emerging trends.



Figure 2: Increasing Sectoral Convergence and Blurring



## 5. Realising Future Potential: Enhancing the Business Environment

From an enterprise perspective, the development of the East region and particularly that of its gateway city Dublin, is in large measure, self-perpetuating. As has been demonstrated over many years, the performance and ambition of the enterprise sector in the region over time has acted as a powerful reinforcement and reference seller for new investment. The challenge is to maintain a supportive business environment (both hard and soft) that can facilitate the sustainable growth and development of key internationally trading sectors and activities.

### Leadership and Governance

Strong leadership and effective governance mechanisms are an integral part of achieving competitive regions. From an enterprise development and competitiveness perspective, key challenges for the GDA which will require strong governance mechanisms and clear leadership are:

- Facilitating sustainable growth of the metropolitan core, while arresting urban sprawl, easing congestion and implementing effective land-use and transportation plans region-wide in an integrated manner; and
- Adopting collaborative approaches to strengthening the 'softer' aspects of the business environment, by optimising the impact of many drivers and sources of innovation in the region, education providers, enterprise support agencies and others.

In the Irish context, long established local authority structures and administrative boundaries have been superseded by the growth of our cities and an evolving enterprise dynamic. As regards the GDA, Dublin's four local authorities share responsibility for Dublin city's development and success with neighbouring Meath, Kildare, Wicklow and Louth, requiring coordination and collaborative approaches amongst relevant stakeholders (with varying degrees of effectiveness to date) and underlying the key importance of the Regional Planning Guidelines (RPGs) process and outcome.

The proposed introduction of a directly elected mayor for Dublin by 2011 presents an opportunity to strengthen leadership structures and enhance co-ordination in the development of the metropolitan area. The RPGs themselves provide a framework for enhanced region-wide coordination and to build on emerging collaborative initiatives such as the Creative Dublin Alliance or the Economic Development Action Plan for Dublin.

The National Competitiveness Council has recently highlighted the importance of adopting a more 'entrepreneurial' approach to governance, in contrast to the traditional 'managerial' model which is primarily focused on effective provision of services. In the entrepreneurial system, policy-makers from different administrative institutions work in partnership with each other and a range of public and private stakeholders to promote economic development and drive competitiveness. The RPGs represent a call to action in this respect.

## Stimulating and Supporting Entrepreneurship

The GDA generates the largest number of Enterprise Ireland supported high potential start-ups (HPSU) <sup>22</sup> of all the regions in Ireland (33 out of a total of 72 nationally in 2008). The vast majority of these emerge in County Dublin (30 out of 33 in 2008). While this is reflective of its share of the national population and concentration of HEIs and enterprise generally, there is capacity for increased levels. The GEM Entrepreneurship Monitor<sup>23</sup> notes that the relative proportion of the adult population in County Dublin engaged in entrepreneurial activity is below the average across all the regions, and in this regard is out of step with trends typically seen in city regions worldwide. In relation to the remainder of the GDA, the GEM report describes a more positive performance and entrepreneurial potential in Meath, Kildare & Wicklow.

A strengthened focus on entrepreneurship and on enabling indigenous industries to access international markets takes on heightened importance if we are to increase the contribution from indigenous enterprises to Ireland's future economic growth. The current economic environment, while difficult, can also serve to increase interest by individuals in starting their own companies, and indeed EI and the CEBs record intensified activity in this regard. It is important that prospective entrepreneurs can emerge from and develop their business ideas in the right environment and can access appropriate supports delivered in an efficient manner.

There are a number of factors that can influence where new companies establish:

### Physical Infrastructures

- The availability of competitively priced properties and attractive business and industrial parks that accommodate mixed-use businesses in a planned, strategic and discerning way that recognises the different needs of business activities (e.g. office, industrial, warehousing)
- Serviced office / business locations, that enable companies to access core support services such as reception, secretariat, accounting, HR, facilities management etc
- Car parking and/or effective public transport networks
- Broadband capacity , competitive pricing structures and availability in business premises and in the home
- Quality of life - housing infrastructures, travel to work times etc.

### 'Softer' factors

- Access to regionally based skills
- Business management development, mentoring support and training
- Facility to harness the capabilities of HEIs and support to invest in in-firm innovation

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<sup>22</sup> Enterprise Ireland defines a 'High Potential Start Up' as a company which is: based on technological innovation; likely to achieve significant growth in 3 years (sales of €1m per annum and employment of 10+); export oriented; ideally led by an experienced team with a mixture of technical and commercial competence. The definition can include early stage, product-led R&D companies

<sup>23</sup> Fitzsimons & O'Gorman (2008) *Entrepreneurship in Ireland 2008 - Global Entrepreneurship Monitor* (GEM)

- Access to markets and to market intelligence
- Facilitated networking, introductions and access to shared learning opportunities (e.g. through business networks, workshops, seminars).

There is a multiplicity of agencies involved in providing supports to small enterprises and potential entrepreneurs in the GDA, including EI, the CEBs, BICs, HEIs (Campus Incubation) etc. From an individual/company perspective this is a busy space and may result in confusion as to which agency to approach. In order to maximise the impact of the supports available, an increased level of coordination is required. The Dublin City Enterprise Board has produced an information manual outlining the roles and functions of the various organisations providing supports to SMEs and entrepreneurs in the city. While this is a very useful and practical aid for business, it also demonstrates the challenge for the city and the region to develop effective collaborative initiatives and information sharing.

## Promoting Innovation

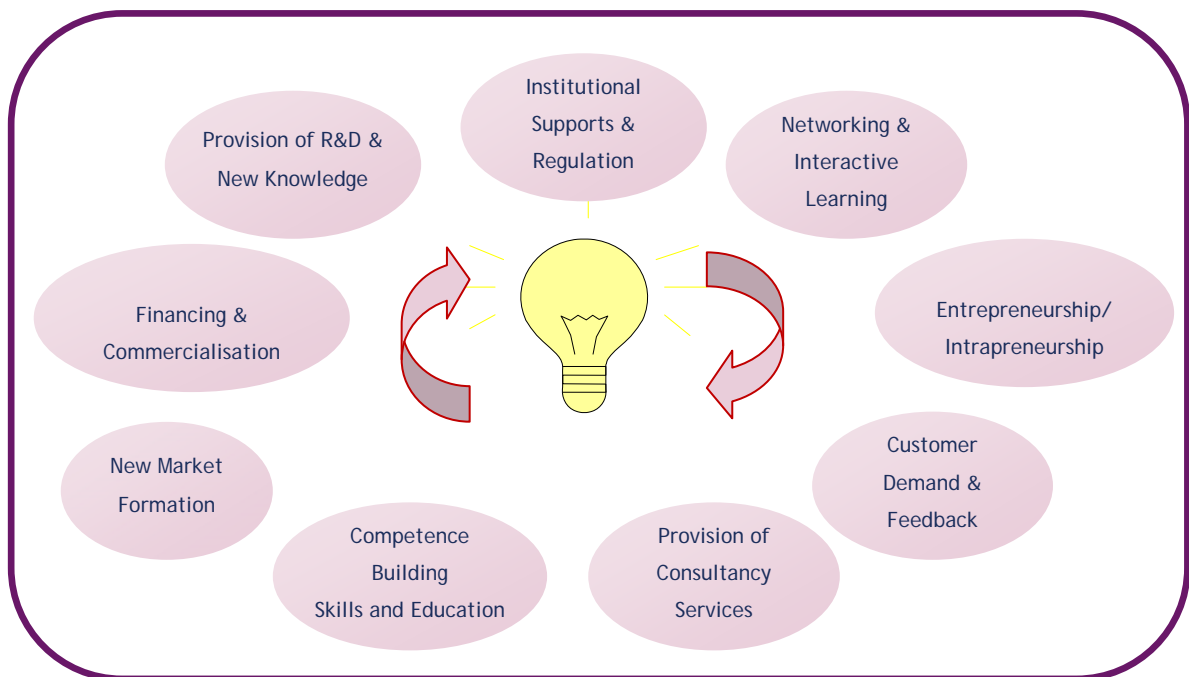
Innovation is about applying knowledge to translate ideas into high-value products and services. Innovative thinking and creativity is stimulated in an environment that is dynamic, interactive and collaborative. Innovation can range from incremental (particularly in services) to radical or disruptive.

There are many sources of innovation, including end customers, firms with complementary products and/or services, and research institutes. Innovation within the regional context is based on the effective interaction between the elements and, in particular, engagement by firms. Successful regions do not operate in isolation, but within a wider national and global context. Interactions at both the national and international level therefore play an important role.

There is limited data available to accurately assess the innovative capacity of a region in Ireland, but what evidence there is demonstrates that the GDA has a number of critical building blocks in place including:

- An attractive city and region accommodating diversity and creativity
- A high proportion of holders of third level qualifications; Leading HEIs with a strong track record in attracting substantial research funding and leading world class research centres/initiatives
- A range of incubation centres and innovation centres at different scales and with varying degrees of focus throughout the region
- A number of active and impactful industry networks and collaborative initiatives.

Figure 3: Activities that Stimulate Innovation



Source: Based on Edquist (2005) 'Systems of Innovation - Perspectives & Challenges' in Fagerberg et al (2005) *The Oxford Handbook of Innovation*

There is also a range of supports available through the enterprise development agencies which have attracted the involvement of many GDA based companies and research institutes; including: Industry-Led Research Platforms, Competence Centres; Strategic Research Clusters; TechSearch, Innovation Vouchers, supports for Innovation Partnerships and investments in Incubation and Innovation Centres and the Applied Research Enhancement Programme.

Locally driven efforts are being made to stimulate increased innovation in the region, for example through the initiatives being pursued by the Creative Dublin Alliance (see box). The collaborative approach taken through the CDA is a very positive development.

Local government bodies and agencies can also play a role in embracing innovation in service delivery, which in turn builds capability and stimulates engagement by end customers.

#### The Creative Dublin Alliance (CDA)

The CDA is a collaborative initiative involving the Dublin Local Authorities, Universities, State Agencies, Business Community and not for profit sector focused on developing a competitive city region. It is facilitating a range of projects including the following:

**Innovation Dublin:** a week of public events showcasing innovation and creativity in Dublin. This initiative is particularly valuable in heightening awareness about innovative thinking in a variety of contexts (culture, people, environment, enterprise and the public realm).

**Trinity-UCD Alliance:** A Trinity-UCD project to develop innovation as the third arm of the University sector, along with education and research, with identified outputs in job creation and enterprise.

## Skills and Education

The National Skills Strategy<sup>24</sup>, published in 2007, remains relevant today, particularly in the context of continued re-skilling and up-skilling of people within the workforce as well as preparing those who have found themselves unemployed to take advantage of new opportunities when the economy recovers.

Employees in all jobs will increasingly be required to acquire a range of generic and transferable skills including people-related and conceptual/thinking skills. Work will be less routine, with requirement for flexibility, continuous learning and individual initiative and judgement. The core skills of science, engineering, electronics and R&D related skills are relevant to a wide range of sectors, based on strong capabilities in maths and literacy, and are fundamental to the Smart Economy.

The GDA has a highly educated population, with the largest proportion of third level attainment in the country. The metropolitan region boasts wide ranging and diverse number of centres for learning and innovation, including universities (two of which are ranked in the world's top 100, with one of these being in the top 50), institutes of technology and specialist 3<sup>rd</sup> level institutes, which attract high levels of R&D investment.

With the support of various bodies such as Science Foundation Ireland, the Higher Education Authority, Enterprise Ireland and IDA Ireland, the HEIs are forming strong partnerships with industry and other HEIs (in Ireland and internationally) in the commercialisation of world class research. Such collaborative ventures continually refresh and advance the skills capabilities within the region and are a powerful magnet for increased levels of innovation and further investment within the city region. Sustained momentum in this area will rely on the region's attractiveness to a wide diversity of people/skill-sets from within Ireland and from overseas, as well as those originating and educated within the region.

In tandem with developing opportunities within third and fourth level institutes, investment in human resources, training, upskilling and reskilling are required to ensure opportunities for access to employment for *all* sectors of the labour force. This is perhaps even more urgent, given trends which have prevailed in the jobs market in recent times. The current economic downturn has resulted in a significant increase in unemployment nationally, although the impact has been less severe within the GDA than in other regions. Similar to the pattern across the country, the sectors particularly affected within the GDA are construction, manufacturing and retailing. The cohort of unemployed also includes many highly skilled people, for example those involved in providing professional services related to the previously buoyant construction industry.

While national interventions will be required and may have greatest impact in the medium term, it will be important that consideration is given by agencies in the region to identifying critical short-term needs, and the speedy implementation of national policy in the regional context.

## Quality of Life

Quality of life is a subjective and relative concept and can therefore be difficult to define, particularly in terms of regional economic dynamics - its different facets hold varying levels of significance for individuals depending on their individual tastes, disposable incomes,

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<sup>24</sup> EGFSN (2007) *Tomorrow's Skills - Towards A National Skills Strategy*

practical /fundamental needs etc. The attractiveness of the region in terms of appearance and character, environmental qualities, the range of entertainment and retail services, leisure activities and facilities, accessibility, living standards and social inclusion can all contribute to the quality of life of a region.

From an enterprise development perspective quality of life considerations are imperative in seeking to attract and retain investment and talent diversity. The NCC in their commentary on competitive cities and drawing on a wide body of research in the area note:

*'Cities are competing for citizens, workers and investment. Competitive cities are attractive and inclusive and these characteristics are nurtured when disparities are minimised and social exclusion is avoided. A cohesive society enables all of its members to be active participants and contributors, enabling individuals to achieve their goals and communities to exploit their economic and social potential. It also reduces criminality and negative reputational effects.'*<sup>25</sup>

This sets a wide-ranging agenda which is relevant not only to the metropolitan core as suggested in the above extract, but also for the entire region. In the case of the GDA however, there are many strengths that can be supported, protected and effectively promoted.

## Connectivity Infrastructures - Transport

Dublin city is Ireland's main national and international transport hub. National road and rail services radiate from Dublin through the GDA, and Dublin Port and Airport represent the gateways through which the majority of international traffic entering Ireland passes. Despite significant investment in transport, barriers to enterprise include urban sprawl, road congestion and long travel times, the need for greater integration of public transport services, and meeting future port capacity requirements. Priority targets for investment in transport infrastructure, at locations which can support economic mass, support structures and ease of access to do business is therefore essential to the economic success of the region.

For local transport, Dublin is car dependant, but has significant and growing public transport options in bus and rail. Major investments have occurred in Dublin and the Mid East region's transport infrastructure in recent years, but significant short-comings remain, especially in terms of the overall region's local transport connections, evidenced by congestion and lack of adequate connectivity across certain parts of the metropolitan area. More needs to be done to ensure that transport planning is undertaken in a holistic manner which encompasses all modes of transport.

The Dublin Transportation Office have an important remit to fill in this regard, and one which must be considered a key factor for the city and the region's success or failure in the future - congestion and poor transport networks are considered internationally as one of Dublin and the wider region's main competitiveness weaknesses (Dublin was ranked 19th out of 34 European cities surveyed for quality of internal transport connections, and 25 out of 34 for external transport connections by Cushman and Wakefield in their European Cities Monitor 2008). It is crucial that the infrastructure investment priorities identified within the RPGs are delivered to ensure future regional growth and economic sustainability are attained.

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<sup>25</sup> NCC (2009) *Our Cities: Drivers of National Competitiveness* (p31)

## Air

An efficiently functioning, well connected airport is a key competitiveness factor for Dublin, the wider region and the state. With major investments taking place, passenger facilities at Dublin Airport will be greatly enhanced. An area which requires urgent attention however is the airport's connections to the city and the region. The through-put of passengers from the airport to their final destinations in the city, region and country via local and national transport networks is an area of important consideration for future development.

## Sea

Dublin port, like its airport, is the largest on the island. The port is an essential piece of national as well as regional infrastructure, handling over 40% of overall national tonnage and 45% of Ireland's oil imports<sup>26</sup>. Large scale growth in trade through the port has resulted in capacity constraints being experienced, necessitating an expansion of port facilities. Various possibilities have been suggested, including land reclamation at Dublin port, the entire relocation of the port to a new facility to the north, or the development of additional capacity at other points on the coast.

The recently published study on the future role of Dublin Port led by Indecon Consultants on behalf of the Department of Transport highlighted the need to develop significant additional port facilities by 2025-2030 as a result of emerging capacity constraints. Its cost/benefit analysis of seven different scenarios concluded that the retention of Dublin Port in its present location together with on-site expansion would deliver the highest net present value in cost/benefit terms. The report also suggests that nothing should be done at a policy level to hinder Dublin Port's proposed expansion (currently with An Bord Pleanála) and the proposed new port at Braemore (at pre-planning stage).

Given the importance of the port both regionally and nationally and the long lead times for development of port infrastructures and facilities it is imperative that government ensures that a decision is made as soon as possible on the long term development direction of Dublin port facilities, to avoid negative impacts on export activities in particular.

## Roads

Dublin is the hub of a radial national motorway network. The major inter-urban (MIU) motorway network will, when completed in 2010, connect Dublin and the region with Belfast, the Midlands Gateway, Galway, Limerick, Cork and Waterford. High quality road links to the North West (Sligo and Letterkenny) are also undergoing development.

Local congestion in the Dublin region (including peak time access to Dublin airport) represents the biggest road transport issue for the area. The solution to this congestion will involve more sophisticated traffic management to maximise the use of existing road infrastructure, new road infrastructure to relieve constraints and the development of public transport alternatives to road usage.

With regard to new road projects, the NRA recently published a feasibility study for an eastern bypass of the city (continuing the route of the Dublin port tunnel south to the M50 and N11). This ambitious scheme would realise a complete orbital bypass of the city, relieving

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<sup>26</sup> For more detail see *Dublin Port National Development Plan Study* prepared for the Department of Transport by Indecon Consultants (and associates)



pressure in the M50 and facilitating traffic flows through and around the city and the region. The NRA's feasibility study found the bypass to be both technically and economically feasible.

Another project which has been mooted for the region is an outer western bypass which would leave the M1 north of the airport arcing South-West to meet the national primary routes for Galway, Cork and Limerick. This piece of infrastructure would improve traffic flows across the East of the country, removing the need for traffic from the North East to the rest of the country from having to pass through Dublin.

Ultimately however, the East is at a point with regard to road infrastructure where future development options have become limited, and has long reached a stage where public transport alternatives need to be developed to provide more efficient transport alternatives in the region, and to relieve pressure on a near-saturated road network.

## Rail

National rail services radiate from Dublin's two main rail stations, Connolly and Heuston. Investment is ongoing to add additional capacity to local rail lines out of Heuston to alleviate current congestion and to allow greater speed on national connections. Capacity at Connolly station has been increased by the addition of a new terminus at the Docklands Rail Station, but services to Belfast remain hindered by commuter services on the Belfast line serving northern suburbs.

Trains from Heuston to other national gateways face the same problems with congestion on the line. This will be alleviated to a large degree by the doubling of track between Heuston and Hazelhatch in Kildare which will allow for the removal of some commuter traffic from the mainline national railway, and allow for expanded commuter services to important residential centres in West Dublin and Kildare.

Other improvements for suburban commuter rail will include an increase in capacity on the DART and an expansion of DART services to other commuter lines, as well as the reopening of the railway to Dunboyne in 2010 (phase 1 of the re-opening of the Navan rail line, estimated for completion by 2015).

National and commuter rail services, as well as city centre transport, will be improved by the provision of the DART interconnector, an underground tunnel to connect Heuston and Connolly stations via Stephen's Green, where it will interface with the Luas and proposed Metro services. This project seeks to integrate the various rail infrastructures operating across the city and region, and to increase capacity on same.

In addition to the DART interconnector, two Metro lines have been proposed for the city with a projected completion by 2013. Metro North is planned to follow a northerly route from Stephen's Green to Swords via O'Connell Street, Ballymun and the Airport. It is planned for use by 35 million passengers per year and to deliver a journey time of approximately 20 minutes between Stephen's Green and the airport.

Metro West, the second phase of the Metro project, is planned to link the Western suburbs of the city (Tallaght, Clondalkin and Blanchardstown), and to interconnect with Metro North at Dardis Town (just south of the Airport). While the projected completion of Metro West is scheduled for 2014, the large capital costs of these projects may decrease the likelihood of their delivery in the medium term given current financial constraints.

The Luas came online in 2004. The two separate lines which formed the original network are due to be linked in the city centre in conjunction with the construction of Metro North. The

Luas is undergoing significant expansion at present, with further expansions planned. The extension of the green line from Sandyford to Cherrywood/Bridesglen is ongoing and due to be finished by 2010, the red line from Connolly Station to the Docklands by 2010, and from Tallaght to City West by 2011. New Luas lines to Lucan and Broadstone/Broombridge are at an advanced stage of planning, with a link from Cherrywood/Bridesglen to Bray also being considered.

### Bus

Dublin Bus is the main public transport provider for the GDA (extending as far as Balbriggan, Newcastle, Dunboyne and Kilcock) carrying 150 million passengers each year and transporting 70% of all public transport commuters into Dublin during peak times<sup>27</sup>. However, reforms are required to improve the efficiency and effectiveness of bus services in the city and region. Primary among these are better passenger information services to inform transport users with more accurate timetables and route maps, which highlight connections with other bus and transport services, and to better integrate bus services with other modes of public transport, particularly through integrated ticketing but also perhaps through the coordinated scheduling and provision of services.

## Connectivity Infrastructures - Telecommunications

Advanced telecommunications services are critical for the attraction of FDI, for the development of indigenous industry and the promotion of the Smart economy. The increasing importance of services to the economy, in particular those that are structured around electronic transactions and information flows, makes it essential that the region has access to advanced and cost competitive communications services. For SMEs, effective use of ICT allows them not only to develop and deliver new services but also to compete more effectively with their counterparts in other markets, for example by reducing costs and improving the quality of services.

Better use of ICT has been identified as one of the key factors required to improve Ireland's productivity performance. Broadband can enable higher productivity growth by allowing firms to cast their net wider when looking for suppliers or seeking new market opportunities to increase their customer-base or to more effectively link business functions e.g. sales, design, manufacturing, supply chain, stock control and accounts.

Currently, Ireland experiences poor broadband performance in relative European terms which is an impediment to enterprise and performance. Within the GDA, while wireless connections permeate much of the region, wireline provisions are more confined e.g. parts of the hinterland and in particular areas of Counties Meath, Kildare and Wicklow have limited wireline connections.

The broadband offering in the GDA needs to be dramatically improved to reflect the importance of the Capital city and its hinterland as an ICT hub of European and global significance, and to keep pace with the needs of businesses and individuals. Continual future investment in connectivity and telecommunications infrastructure is required - with focus required on uptake, performance and availability. An emphasis on fibre connections, high performance infrastructure and improving existing performance in terms of speeds, costs and

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<sup>27</sup> Information sourced at [www.dublinbus.ie](http://www.dublinbus.ie)

coverage should be prioritised in order to provide opportunities to compete with international competitors.

## Utilities

Economic development within the GDA is dependent on the availability and quality of services and utilities relating to water supply, waste, electricity, gas, broadband and other communication technologies. Being the most populated region within the country, this places significant pressures and demands on finite resources.

### Power Infrastructure

The demand for electricity in the East region is expected to increase by over 80% by 2025 and will then be 30% of the demand of the island. Up to 240 MW of wind generation is expected to be connected to the Grid in this region. Improvements are necessary in regional power infrastructure in order to maintain security of supply, to attract additional industry, and to allow for the connection of renewable energy sources to the grid.

Eirgrid, the agency responsible for the management of the national power grid, has stated that the following developments are necessary to cater for forecast demand in the region:

- An additional investment of approximately €800m through upgrading approximately 450 km of the existing network and building new circuits
- Strengthening of network into and out of the region to allow the demand to be met by renewable generators located mainly in the west of the country
- Strengthening of network serving Dublin City load
- Development to allow north-south flows to by-pass the network serving the Dublin load
- Construction and connection of new 220 kV stations in north and west Dublin to cater for the rapidly growing developments in these areas
- Reinforcement of the network to cater for strong growth in Kildare and North Wicklow.

Eirgrid states that, if no action is taken:

- In the medium term, there will be no capacity in the network to cater for new customers and the reliability of supply to existing customers will fall below normal international standards
- There will not be adequate capacity in the network to allow for excess renewable generation to be exported over the planned East-West interconnector; this will curtail renewable generation at times, reducing the commerciality of renewable developments and consequently the likelihood of necessary progression.

### Waste Management

The quality, availability and cost of waste management solutions continue to be a competitiveness issue for enterprise in Ireland. Enterprises continue to have concerns in relation to the cost of waste management services and the lack of adequate waste

infrastructure and services in Ireland to meet the demands from industrial, commercial and household waste generation.

There is currently a high level of uncertainty about the future direction of Irish waste policy. In particular, a decision on the regulation of the sector is pending. This uncertainty, which has serious implications for the provision of new services and infrastructure by the private sector and inhibits regional waste planning.

In addition to this uncertainty, the current scope of waste management strategies presents an issue. Existing regional waste management plans need to be coordinated at national level to attract investment in waste infrastructure in a way that maximises potential economies of scale, competition and enables the market to pass on the benefits to businesses and households<sup>28</sup>.

### Water and Waste-water

The provision of adequate and affordable water and waste water services is crucial to ensure the sustained growth and development of enterprise in the region. Access to secure and competitively priced water supplies, at appropriate quality levels, is core to the delivery of these services. Adequate waste water treatment capacity is essential for environmental sustainability<sup>29</sup>.

At present, treated water supply and sewerage treatment in Dublin and the Mid East is primarily undertaken at a local level. Substantial investment in the region's water and waste water infrastructure has been undertaken in recent years through the individual local authorities. Continued investment in water services under the current NDP aims to address remaining capacity shortages.

In the recent Forfás (2008) assessment of water and waste water services from an enterprise perspective a number of issues were highlighted for Dublin and the Mid-East, including insufficient water capacity in Dublin by 2013, and insufficient waste water capacity as of 2008. It is expected that planned water and waste water infrastructure projects will address these deficits.

The Forfás report also examined non-domestic charges for water and waste water amongst the local authority areas with Gateways and Hubs. In relation to their combined water service charges, Fingal, South Dublin and Dublin City were each below the average for Gateway and Hub authority areas charges, while Dun Laoghaire Rathdown was above. The study did not include the local authority areas in the Mid East.

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<sup>28</sup> Forfás (2008) *Waste Management Benchmarking and Priorities Report*

<sup>29</sup> Forfás (2009) *Statement on Infrastructure - Issues and policy priorities for enterprise development*

## 6. Priority Actions

The action areas below will benefit from increased proactive collaboration across the relevant actors in a structured way. There are many actions that can be taken at a regional level and others that require a national response. However, it is incumbent upon the regional actors to also consider how they can best take advantage of national initiatives, and their delivery locally.

A number of cross-cutting recommendations concerning national level action arise from Forfás' work in relation to all of the individual regions as part of the Regional Competitiveness Agendas process. These are set out in the final report: *Regional Competitiveness Agendas: Overview, Findings and Actions*, which is available separately. Key areas of focus are: infrastructure - planning, development & delivery; accelerated development of the gateways (including leadership and governance issues); and mechanisms to initiate and support enterprise related regionally based initiatives).

The following are considered of primary importance in ensuring the future competitiveness of the East region in the years ahead.

### Connectivity issues

Access and transport issues in the City and the wider region are negatively affecting enterprise development and competitiveness on a number of fronts, including ease of access, quality of life and environmental sustainability. Congestion due to car dependency is an issue that needs to be addressed through better traffic management and the accelerated development of integrated public transport alternatives to car transport. Major initiatives are already in train in this regard, but many others require urgent delivery - which have been highlighted in the previous section and are summarised in the box below.

The soon to be established Dublin Transport Authority will play a key role in the strategic planning of transport infrastructure and services in the Greater Dublin Area.

#### Transport

Advance provision of public transport in Dublin and the GDA

Dart Interconnector

Luas interconnection (Red/Green Lines)

### Leadership and Governance

To achieve and retain competitiveness, key policy decisions need to be made for the region and its metropolitan area in particular. Strong leadership can coordinate and implement progressive strategies in all areas of local governance, facilitating efficiency, and an effective relationship with central government. Given their co-ordinating and leadership role, structures and institutions such as the Dublin and Mid East regional authorities, the Dublin Transport Authority and the proposed office of a Dublin Mayor all have important contributions to make in effecting a more 'entrepreneurial' model of local governance<sup>30</sup>. The

<sup>30</sup> OECD (2007) *Competitive Cities: A New Entrepreneurial Paradigm Shift in Spatial Development*

RPGs provide a framework for enhanced region-wide co-ordination. It is important that they facilitate strategic planning and land use, and are adhered to.

## Broadband

The broadband offering in the region needs to be dramatically improved to reflect the importance of Dublin city and its hinterland as an ICT hub of European and global significance and to keep pace with the needs of business and citizens. An accelerated shift to more advanced, next generation, fibre-based connectivity to both businesses and homes in the region is urgently required. Unless investment in next generation broadband networks is made, Ireland risks allowing a competitiveness threat for Irish based firms as significantly faster speeds become available in other countries.

## Enhanced Agency Collaboration

As ways of doing business are changing, firms will increasingly engage in alliances, partnerships and networks, both in Ireland and across the world. Business models are being transformed whereby open innovation (across companies) is becoming a reality; smaller technology intensive companies have a range of options for targeting their end customers, including entering into licensing and/or revenue sharing arrangements with larger global companies.

As companies increasingly network, the enterprise development agencies can also enhance their collaborative actions to facilitate companies in this environment, and to:

- Provide clarity on the availability of business supports, the role of each agency and key contacts
- Working across the community of multinational and indigenous firms, facilitate structured interactions and networking between firms (and between HEIs and firms), by promoting awareness of existing initiatives (for example Industry Led Research Platform Programme, Competence Centres Initiative, Skillnets sector specific training initiatives etc.)
- Involve overseas and indigenous company participation in trade missions and inward investment itineraries.

## Developing Innovative Capacity

Build on and extend existing in-region initiatives such as the Creative Dublin Alliance to stimulate greater levels of innovative activity within firms. In addition, regionally based government bodies and agencies should assess how they themselves can encourage innovative thinking within their organisations and ultimately achieve enhanced innovative service delivery, increasing service efficiency and impact, and minimising costs, particularly for business facing services.

## Appendix I

### Existing Enterprise Agencies, Initiatives and Supports<sup>31</sup>

The enterprise development agencies play a key role in stimulating the development of new businesses, facilitating the expansion of existing companies, and targeting new foreign direct investment through a broad range of initiatives. In conjunction with Forfás they influence policy by providing on-the-ground information about the real issues facing business (in areas such as infrastructures, education and regulatory environment).

The agencies work together to market and promote Ireland internationally as a 'good place to do business' and with a strong reputation for high quality exports, and within that context marketing the capabilities of regions specific to potential investors' needs. All of the agencies work to deliver value for money for their expenditure, which is monitored using a range of indicators including increased exports, productivity, innovation and employment.

### Enterprise Ireland

Enterprise Ireland's core objective is to drive export growth by creating and growing internationally competitive businesses and facilitating entrepreneurship throughout the country. They have offices and representatives established in a range of locations throughout the country and their regional headquarters is based in Shannon. They also have a range of offices overseas that facilitate and support companies in gaining a foothold in new markets. They provide both financial and 'softer' supports to:

- Stimulate and support entrepreneurship
- Stimulate investment in R&D and innovation - through financial supports, Intellectual Property advice, TechSource (technology acquisition)
- Support company expansions and investment in capital and productivity initiatives
- Provide supports for training and management development
- Facilitate companies to participate in trade missions across the world, enable introductions and provide guidance to accessing new markets
- Provide supports for mentoring specific to a business' requirements (e.g. in marketing, finance etc.)
- Facilitate establishment of business networks and facilitate linkages with HEIs (through Innovation, Industry-Led Research Platform and Business Networks programmes, and through supports for Technology Transfer Offices)
- Support the provision of a range of property solutions.

The Enterprise Ireland client base in the East (in 2008) employs almost 56,000 people, accounts for approximately 6.5% of total employment in the region. Prominent activities

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<sup>31</sup> This overview represents a selection of existing agencies, initiatives and supports and is not a complete listing

include Food production and ICT services, alongside an array of other manufacturing and services activities.

Enterprise Ireland has supported the development of Community Enterprise Centres across the region. The Agency has also provided funding for the development of Campus Incubation Centres at nine HEIs in the region and Technology Transfer Offices have also been established at UCD, DCU, TCD, NUI Maynooth, RCSI and DIT.

Under the Applied Research Enhancement Scheme, EI has funded the establishment and development of the Micro Sensors for Clinical Analysis Research Centre at IT Tallaght and the Centre for research in Engineering and Surface Technology at DIT.

Other activities include roll-out of the EnterpriseSTART campaign in the region to encourage the emergence of new high potential start-up companies and provide information and referral for established and nascent entrepreneurs about EI and other enterprise supports at a local level. EI also works closely with the CEBs in the region, for example, enabling access to the EI First Flight Programme to eligible CEB client companies who are ready to enter export markets.

## IDA Ireland

IDA is responsible for the attraction and development of foreign investment in Ireland. It is focused on securing investment from new and existing clients in the areas of High End Manufacturing, Global Services and Research, Development and Innovation. Key sectors include Life Sciences, ICT, Engineering, Financial Services, International Services, Digital Media and Consumer Brands. The IDA is also focused on emerging areas such as Clean Technology, Convergence and Services Innovation - areas that offer exciting new investment opportunities.

The IDA attracts overseas and inward investment by:

- Focusing on business sectors that are closely matched with the emerging needs of the economy and that can operate competitively in global markets from an Irish base.
- Building links between international businesses and third level education, academic and research centres to ensure the necessary skills and research and development capabilities are in place.
- Pursuing Ireland's policy of becoming a knowledge-based economy by actively building world-leading clusters of knowledge-based activities.
- Compiling up-to-date statistics and facts for research into industry, the economy and foreign direct investment in Ireland.

The IDA also provides serviced sites, pre-planning approval and buildings (buildings are provided by the private sector on IDA serviced sites). The IDA is developing a limited number of larger scale strategic sites that are intended to service utility intensive enterprise activity (e.g. bio/pharma manufacturing, data intensive services).

### IDA Ireland Activity in the East Region

The IDA Ireland client base in the East (in 2008) employs almost 66,000 people, accounts for approximately 7.5% of total employment in the region and is dominated by firms in ICT, Financial Services, and Life Sciences sectors.



A key activity for IDA in the regional context is the development of a strong value propositions for attracting high value foreign direct investment to the region based on its particular strengths and competencies and leveraging complementary strengths and competencies in other regions.

#### Selected major IDA project announcements in the East region (2005 - 2008)

Company	Sector/Activity	Estimated Job Numbers
IBM	ICT Services	113
Business Objects	ICT Services	100
Service Source	ICT Services	100
Freightquote	Other Services	100
Facebook	ICT services	74
GOA	ICT Services	474
AON	Financial Services	100
Paragon Global Resources	Business Services	100
Google	ICT Services	1,100
HP Financial Services	Financial Services	110
Qlogic	ICT Services	100
PFPC	Financial Services	290
IFS	Financial Services	240
Microsoft	ICT Services	100
Yahoo	ICT Services	400
Hartford Financial Services	Financial Services	130

### Údarás na Gaeltachta

Údarás na Gaeltachta is the regional authority responsible for the economic, social and cultural development of the Gaeltacht areas of Ireland. Its overall objective is to ensure Irish remains the main language of the Gaeltacht region and is passed on to future generations. Its economic mission seeks to encourage new investment and employment opportunities in Gaeltacht areas.

The Gaeltacht covers parts of counties Donegal, Mayo, Galway and Kerry - along the western seaboard - and also parts of counties Cork, Meath and Waterford. Údarás is structured on a regional basis (North, Connacht/Leinster and South) and has offices in Donegal, Mayo, Galway, Kerry and Cork. Key economic development activities undertaken by Údarás within the Gaeltacht areas include:

- Attracting high value investments (especially in high technology services), both indigenous and from overseas, to the Gaeltacht
- Providing attractive property solutions for enterprise development in the Gaeltacht

- Working to upgrade services and infrastructure (physical access and telecommunications) - especially where Industrial Estates and Business Parks are located
- Initiatives to strengthen the competencies and qualifications of the workforce
- Initiatives in support of entrepreneurship and early stage start-up companies, including provision of incubation facilities

In providing supports to both FDI and indigenous enterprise investments, Údarás operates within the same regional aid framework as EI and IDA and offers a similar suite of supports to enterprise as the other national agencies, in some instances effectively acting as an 'agent' for mainstream programmes managed by EI or IDA (for example the R&D programme and the more recent Enterprise Stabilisation Fund).

## Science Foundation Ireland

Science Foundation Ireland (SFI) is the state agency that promotes investment in basic research, particularly in the science and engineering that underpin the fields of biotechnology, information and communications technologies (ICT), and energy efficient technologies<sup>32</sup>.

SFI's stated mission is to "help build in Ireland research of globally recognised excellence and nationally significant economic importance through strategic investments in the people, ideas and partnerships essential to outstanding research in strategic areas." Specific functions in this regard include:

- Promoting, developing and assisting the carrying out of oriented basic research in strategic areas of scientific endeavour particularly in the fields of biotechnology, ICT, and sustainable energy;
- Endeavouring to ensure that a standard of excellence in the oriented basic research, as measured by competitive peer review on an international basis, is consistently adhered to at the highest level;
- Developing and extending the national capability for the carrying out of oriented basic research in institutions;
- Promoting the attraction of world class research teams and individuals with a view to their carrying out oriented basic research in the State;
- Cooperating and collaborating with other statutory bodies in the promotion and encouragement of oriented basic research; and
- Devising, administering, allocating, monitoring and evaluating any grants, schemes and other financial facilities requiring disbursement of any funds authorised from time to time by the Minister with the concurrence of the Minister for Finance.

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<sup>32</sup> SFI was established in 2000, as a sub-board of Forfás, to administer Ireland's Technology Foresight Fund. In July 2003, SFI was established on a statutory basis under the Industrial Development (Science Foundation Ireland) Act, 2003. SFI's remit was extended in 2008 to include energy. SFI does not have a specific regional development (or spatially driven) mandate and its activities are guided by the overriding objective to develop and support research excellence

## City and County Enterprise Boards (CEBs)

The East has 7 CEBs (four in Co. Dublin). The CEBs support the start-up & development of local business in Ireland. Supports include advice, mentoring & grants or financial supports for training and growth (as a guideline, the CEBs deal with client companies that employ less than 10 people). Through the CEB Co-ordination Unit based in Enterprise Ireland regional headquarters in Shannon the CEBs are developing a closer working relationship with Enterprise Ireland, through for example the extension of the EI First Flight Programme to eligible CEB clients ready to begin exporting or already exporting overseas and the EnterpriseSTART initiative.

## Integrated Local Development Companies

In 2007, new and more coherent arrangements were put in place to have one integrated local development company in each county providing a single access point for local communities. These local development bodies are responsible for the disbursement of significant public funds under a wide range of programmes in the NDP, including the Local Development Social Inclusion programme and LEADER and they provide a range of enterprise supports to SMEs and start-up businesses. Groups in the East region include: Cill Dara Ar Aghaidh Teo (Co. Kildare); County Wicklow Partnership; Fingal Leader Partnership; Meath Partnership; several Urban Partnerships and the Dublin Employment Pact.

## FÁS

FÁS is the National Training and Employment Authority and provides training courses, apprenticeship programmes and re-skilling/supports. The FÁS Corporate Strategy sets out the strategic direction taken by the Authority and outlines the action that it will take to progress the Strategy under eight High Priority Goals. These goals cover areas such as services for jobseekers and the unemployed, workforce development, labour market policy, social inclusion, equality and diversity, and customer service. FÁS a number of employment services offices and training centres in Co. Dublin, and the Mid-East counties are served by facilities in the FÁS Midlands, North-East and South-East regions.

## Fáilte Ireland

Fáilte Ireland has three principal areas of operation; firstly, the agency helps to develop product offerings for both the domestic and overseas markets and leads the marketing effort to promote Irish holidays to the domestic consumer.

Secondly, it supports enterprise development in Irish tourism, promoting best practice in operations, quality and standards and facilitating investment in tourism infrastructure.

Thirdly, it builds human resource capability in the industry, investing in training provision and standards across the publicly supported educational system, through a training network of outreach centres and also via an executive and management development programmes for the tourism industry.

Regional support for people and enterprises is provided at a local level through the office of the Business Development Manager. The role of the Business Development Manager in each region is to liaise with Industry stakeholders to provide support in developing businesses

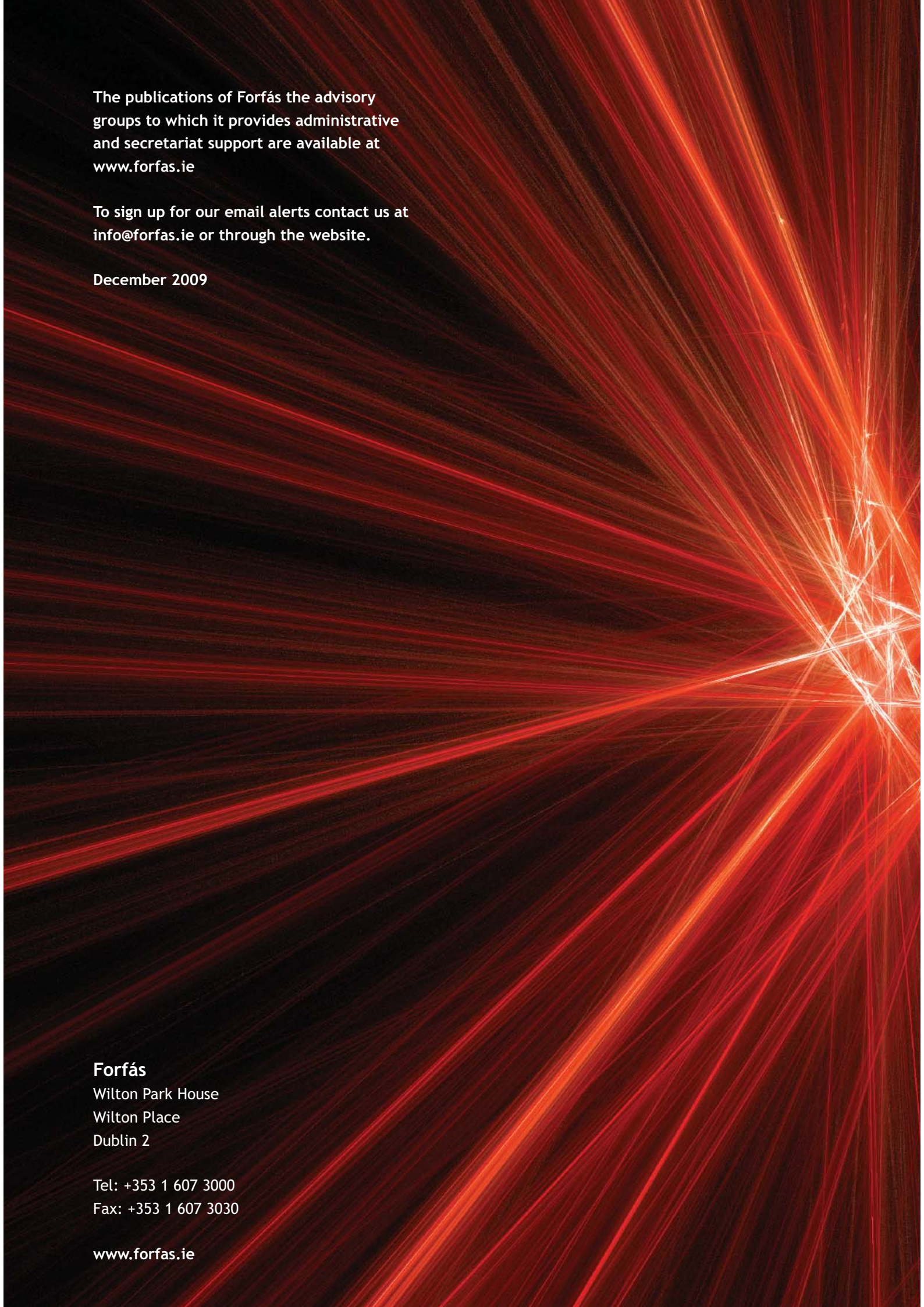
capability and standards to support business goals, service standards, profitability and long-term sustainability, in line with the key strategic themes identified in each region's operational plan.

## Skillnets

Skillnets provides industry specific training programmes to employees of networks of firms, based on their defined needs. They primarily facilitate an enterprise-led approach to training and development and also aim to address the lack of investment in Human Resource Development by business by tackling some of the real and perceived barriers to training. Skillnets is funded under the National Training Fund through the Department of Enterprise, Trade and Employment.







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December 2009

**Forfás**

Wilton Park House  
Wilton Place  
Dublin 2

Tel: +353 1 607 3000  
Fax: +353 1 607 3030

[www.forfas.ie](http://www.forfas.ie)



July 2009

# ECONOMIC DEVELOPMENT ACTION PLAN

## for the Dublin City Region

safe, clean and green

city and county development plans

diversity, creativity and equality

high speed broadband

innovation and entrepreneurship

internationally renowned education sector

water / waste / transport infrastructure

research and development

highly skilled workforce

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***Positioning the Dublin City Region, the engine of Ireland's economy, as a significant hub in the European knowledge economy through a network of thriving spatial and sectoral clusters providing a magnet for creative talent and investment.***

## List of Acronyms

CDA	Creative Dublin Alliance
CDB's	City & County Development Boards
CEB's	City and County Enterprise Boards
D/CENR	Department of Communications, Energy and Natural Resources
D/ETE	Department of Enterprise, Trade and Employment
D/JELR	Department of Justice, Equality and Law Reform
DCC	Dublin City Council
DCU	Dublin City University
DDDA	Dublin Docklands Development Authority
DIT	Dublin Institute of Technology
DLA	Dublin Local Authorities Managers Co-ordination Group
DLRCC	Dún Laoghaire Rathdown County Council
DRA	Dublin Regional Authority
EDU	Economic Development Unit, Dublin City Council
EI	Enterprise Ireland
ESRI	Economic and Social Research Institute
FCC	Fingal County Council
GDP	Gross Domestic Product
IADT	Institute of Art, Design and Technology, Dún Laoghaire
ICT	Information and Communication Technologies
IFSC	Irish Financial Services Centre
ITT	Institute of Technology, Tallaght
NCAD	National College of Art and Design
NCC	National Competitiveness Council
NDRC	National Digital Research Centre
NGO	Non-Governmental Organisation
NUI Maynooth	National University of Ireland, Maynooth
OECD	Organisation for Economic Co-operation and Development
R&D	Research and Development
SDCC	South Dublin County Council
TCD	Trinity College Dublin City Council
UCD	University College Dublin

## **Section 1: Setting The Context**



## Introduction

The world in general and Ireland in particular is experiencing an unprecedented downturn in economic activity caused by a global financial and banking crisis. In Ireland's case the crisis is exacerbated by a severe correction in property values and a resultant decline in the construction sector. This has resulted in a significant rise in unemployment and rapidly deteriorating public finances, directly affecting all areas including the Dublin Region.

Notwithstanding this bleak economic picture, future economic growth will depend on re-orientating the economy towards exporting goods and services and supporting growth in indigenous enterprise. Improving the competitiveness of the economy is essential if the economy is to return to full employment within a reasonable time scale. In preparing for a recovery, the economy would also benefit from increased policy attention to measures to enhance productivity and innovation in the tradable sector of the economy. To achieve this there is a need to stimulate the growth of enterprise and take advantage of the significant potential from the development of the green economy. We must reduce the relative cost of doing business by continuing to invest in both labour and productive infrastructure thus increasing competition across the economy. We must attract high value added employment and guide the construction sector to a more sustainable growth path while addressing issues such as the cost and security of energy supply.

In response to these pressing needs, Government policy is focused on supporting the 'Smart Economy'. This is defined as an economy that combines the successful elements of the enterprise economy and the innovation or 'ideas' economy while promoting a high-quality environment, improving energy security and promoting social cohesion. A key feature of the 'Smart Economy' is building the innovation component of the economy through the utilisation of human capital - the knowledge, skills and creativity of people - and its ability and effectiveness in translating ideas into valuable processes, products and services. A second important aspect is the greening of the economy and the development of green enterprise. More fundamentally, to keep talented Irish people working in Ireland, as well as attracting the most talented people from around the world, we must offer a high quality living environment.

The Dublin City Region is the administrative areas of Dublin City, South Dublin, Fingal and Dún Laoghaire Rathdown County Councils and is recognised as Ireland's only internationally competitive city region<sup>1</sup> (with a population of over 1.2 million people). The National Competitiveness Council (NCC) argues we should not be complacent about Dublin's position as an internationally competitive location and that it's continued success is critical for the performance of the entire economy. The ESRI highlights that jobs will be concentrated in large urban centres in the internationally-traded services sectors and that therefore the need is to deliver an attractive location for Irish and foreign skilled workers. In view of this pivotal role in driving national growth and prosperity, a strong focus on maintaining and enhancing Dublin's attractiveness as a location in which to do business, live and work, is essential and in economic terms will deliver the highest return on investment, ultimately leading to economic growth and enhanced quality of life for all of Ireland.

*"THE CHALLENGE IN ACHIEVING AN EVEN SPREAD OF INVESTMENT (across Ireland) IS INTENSIFIED AS THE SOPHISTICATION OF INVESTMENTS INCREASE. THEY REQUIRE A CONCENTRATION OF HIGHLY QUALIFIED AND EDUCATED WORKERS, SUPPORTING INFRASTRUCTURE AND HIGH LEVEL BUSINESS SERVICES. FREQUENTLY, COMPETITION FOR FOREIGN DIRECT INVESTMENT COMES NOT FROM OTHER COUNTRIES BUT FROM CITY REGIONS WITH POPULATIONS IN EXCESS OF ONE MILLION PEOPLE. DUBLIN IS THE ONLY RECOGNISED CITY REGION IN IRELAND THAT MEETS THIS CRITERIA"*  
IDA ANNUAL REPORT 2008

In light of the growing consensus evident in the National Programme for Recovery '*Building the Smart Economy National Programme*', the NCC, the ESRI and the IDA (as seen opposite), this Economic Development Action Plan is very timely. It has been developed collaboratively, led by Dublin City, South Dublin, Fingal and Dún Laoghaire Rathdown County Councils. Research and deliberation has been ongoing since early 2008. Contact has been made with over 350 companies, organisations, state bodies, universities and colleges, public representatives and individuals who have involvement at various levels in economic development in the city region. The contacts varied from face to face interviews, to completed questionnaires, to written submissions, to facilitated workshops and roundtable discussions. The feedback was broad based and helpful, positive and informative. There has been an enthusiastic response towards this initiative and a general welcome for producing an action plan for the city region as a whole.

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<sup>1</sup> National Competitiveness Council, *Our Cities: Drivers of National Competitiveness* (2009)

Areas have been identified where the Dublin City Region has a competitive advantage and where action is required to improve the region's competitiveness. The document is divided into three sections. Section One sets the context of this Plan, explaining the process of its formulation and presenting Dublin's core strengths and assets on which we must build. Section Two identifies the key economic drivers in the city region, namely Talented People, Strong Leadership and Vibrant Place. Section Three sets out the Implementation Plan for the delivery of the actions with the partners who will be involved and the anticipated outputs.

A series of background papers were produced in 2008 to provide a detailed and contextual analysis in the preparation of the plan. Each local authority is currently reviewing their City and County Development Plans and the Economic Issues Papers have directly informed this Action Plan, along with the Regional Planning Guidelines which are also being reviewed at present. The Fingal County Council /Indecon study for the Metro North Economic Corridor, published in 2008 is also relevant. These reviews provide a timely opportunity to firmly place economic development at the very heart of the planning process.

### **Aim**

The overarching aim of this Plan is to further develop the Dublin City Region, the engine of Ireland's economy, as a significant hub in the European knowledge economy through a network of thriving spatial and sectoral clusters providing a magnet for creative talent and investment. In 2008 Dublin City Council published the report 'Funding The Dublin City Region'. The mission statement of this report is 'To secure ongoing funding for projects in the Dublin City Region that enhance the quality of life and its competitive position with other city regions by addressing perceived deficiencies in the public realm and responding to the vision of city region as a global leader, as a place to live, to work in and to visit.' This Economic Action Plan supports that vision of Dublin as it focuses on both the quality of life and competitive advantage of Dublin in equal measure.

### **Status of the Plan**

The Plan is intended to be a working document amended periodically to reflect the dynamic economic situation. It will be informed by the comprehensive data sets to be produced by the Dublin City Region Indicators and International Benchmarking Project, which is also underway in a parallel process<sup>2</sup>. The success of the Plan is dependent on the commitment of the partners to implement the agreed actions.

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<sup>2</sup> For more information on this aspect please see Section 3 on Implementation & Delivery.

## Dublin's Assets & Strengths

The challenge in writing this Action Plan was to do so during a period of unprecedented global economic crisis while remaining focused on opportunities for future development and increasing Dublin's competitive advantage. The knowledge and awareness we have of our existing assets, continued strengths and new successes must come to the fore in building resilience and confidence. These are the strengths on which we must build.

The following are some examples of what makes Dublin a great city region:

### ***A WORLD CLASS CITY REGION***

Dublin regularly punches above its weight in international benchmarking reports – it features 25th in the world for quality of living (Mercer, 2008), 17th for personal safety (Mercer, 2008) and it is also recognised as the 31st most influential business centre in the world by the MasterCard Centres of Commerce Index (2008). Dublin ranked seventh just behind New York under the category 'ease of doing business', while it ranked top in the Cushman and Wakefield European Cities Monitor survey (2008) for the climate that the government creates to do business.

### ***A CITY REGION OF LEARNING AND INNOVATION***

The city region has three public universities, four institutes of technology and specialist third level institutions in distance education, medicine and theology. Third level education is a real strength in the city region with over 90,000 full and part-time students.

Trinity College Dublin ranks in the World's Top 50 universities and University College Dublin moved from 177<sup>th</sup> to 108<sup>th</sup> between 2007 and 2008. Dublin City University's research income per postgraduate student is the highest nationally.

The recently announced UCD-Trinity Innovation Alliance will create an eco-system for innovation by focusing on delivering 1000 world class 4<sup>th</sup> level students annually and 300 enterprises in the smart economy, positioning Ireland as an international Innovation hub.

Dublin will be the European City of Science in 2012. The aim is to attract 8,000 Irish and international delegates to a range of events to celebrate Science and Technology. It provides a unique opportunity to promote the value of investing in science with true

consequences for the daily life of the citizen. It will showcase the research and development infrastructure and programmes within Dublin to our European and international partners.

### ***A CITY REGION FOR INVESTMENT & ENTREPRENEURSHIP***

The top clusters that attract investment to the Dublin City Region are Financial Services, ICT and Electronics, Professional Services and the Creative Industries<sup>3</sup>. Dublin has also been successful in attracting some major Life Science projects. The Dublin City Region has a very strong track record in attracting investment in Research & Development (R&D) projects across the sectors and continues to attract world class global companies including the likes of IBM, Microsoft, Ericsson, Facebook, Ebay, Google, Pfizer and Wyeth.

In 2009 Dublin dropped out of the world's top 20 most expensive cities due to falling rents and the weakness of the euro. The Worldwide Cost of Living Survey (2009), conducted by consultants Mercer, ranked Dublin as the 25th most expensive of 143 cities, a drop of nine places since 2008. It found the average cost of renting a two-bed luxury apartment in Dublin was €1,300 a month, compared with €4,227 per month in Tokyo, the most expensive city region.


Dublin's International Financial Services Centre moved up three spaces into the top ten on the Global Financial Centres Index in March 2009.

The sustained level of investment into Dublin over the past two decades has dramatically changed the appearance and "feel" of the city region. Several initiatives are continuing to transform Dublin to a 21st century international iconic location. A new face of the city centre is developing from east to west with the Docklands and Heuston Gateway. The city region is being defined in the north by the expansion of Dublin International Airport together with its commercial environs into a world-class international gateway; in the south by the development of the high-tech knowledge-driven commercial centres of the Sandyford Commercial Axis and Cherrywood; and a high technology crescent around the western side of the county, connecting Citywest and Grange Castle Business Parks and linking both to the training and research facilities in the Institute of Technology Tallaght and Tallaght Hospital.

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<sup>3</sup> Creative Industries are defined as "those industries which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property." (Department of Culture, Media and Sport, UK, 2001) The current DCMS definition recognises eleven creative sectors: Advertising; Architecture; Arts and Antique Markets; Crafts; Design; Designer Fashion; Film, Video and Photography; Software, Computer Games and Electronic Publishing; Music and the Visual and Performing Arts; Publishing; Television and Radio





Initiatives to improve the environment for business in the region include the Dublin Business Improvement District Scheme, which is an excellent example of the public and private sector working together to address competitiveness and make the city region cleaner, greener, safer and attractive for investment. The process to establish similar schemes in other commercial and major town centres in the city region is well under way.

Innovation and Business Incubation Centres are distributed across the city region. They range from centres administered by Enterprise Boards to campus centres (such as NovaUCD, DIT Hothouse, Trinity Technology and Enterprise Campus, ITT Synergy Centre, IADT Media Cube and DCU Invent) to clusters such as the Digital Hub and the Guinness Enterprise Centre.

The Global Entrepreneurship Monitor in 2007 finds that Irish rates of Entrepreneurship are increasing with Ireland at the forefront of European and OECD countries in terms of the numbers among its population who are engaged in entrepreneurial activity.

#### ***A CITY REGION THAT ATTRACTS TOURISM***

Dublin is the 6th most popular city region in Europe for city breaks. Dublin is by a considerable margin the main tourist attraction in Ireland. More than 4.3 million overseas visitors came to Dublin in 2008 and that resulted in tourism-generated revenue inflows of 1.5 billion euros. Although there was an overall drop of 2.5% in total overseas visitor numbers from 2007, there was an increase of 0.9% in spend. It is encouraging to see that despite the global economic downturn, there was a significant increase in spend by visitors from mainland Europe of 6.7% in 2008, which indicate its potential to grow as a market to attract future tourism to the city region<sup>4</sup>.

Dublin has a diverse tourism product, which attracts a wide range of visitors e.g. rich heritage and culture, coastal and water activities, mountain walking, hiking, cycling. This diversity also encourages repeat visitors to the city region - 44% in 2007. A recent survey by Trip Advisor has ranked Dublin as the friendliest city in Europe.

#### ***A CITY REGION OF CULTURE, LEISURE AND ENTERTAINMENT***

Dublin has a rich literary heritage that is interwoven with the works of internationally renowned writers, poets and playwrights such as Synge, Joyce, Shaw, Yeats, O'Casey etc. It

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<sup>4</sup> Fáilte Ireland Regional Estimates 2008.

is famous for its range and quality of pubs and is the home of global brands such as Guinness and Jameson.

New centres of business and cultural activity are facilitated with state of the art venues including the O2 Arena, Croke Park Stadium, the soon to open Convention Centre, the Libeskind Theatre, the revamped Lansdowne Road Stadium, and the National Concert Hall among others. Leopardstown Race Course is one of the premier racecourses in Europe in terms of both the quality of racing and its facilities.

Sports activity is vibrant, reinforced by the significant recent successes in attracting international events – Dublin will be the European Capital of Sport 2010; in 2011 it will host the Europa League (UEFA Cup 2011) and the Four Nations Football Tournament; and in 2012 the Tall Ships.

Dublin has a significant retail offer available with the city centre as the prime retail centre (including the planned investment in the Carlton and Arnotts sites) and several excellent regional centres such as Dundrum Town Centre, which was awarded European Shopping Centre of the Year in 2007 by the International Council of Shopping Centres.

### ***A CONNECTED CITY REGION***

Dublin is an international hub, with more than 23.2 million passengers using Dublin Airport in 2007, making it Europe's eighth largest airport for international traffic<sup>5</sup>. There are 1.2 million ferry and cruise passengers passing through Dublin Port every year, where record levels of trade were reported in 2007 with 10.9 million tonnes of goods exported from there, representing 42% of Ireland's GDP, and 20 million tonnes of imported goods<sup>6</sup>. Internally, the Luas carries 90,000 passengers daily. This will be further enhanced following the construction of Metro North.

Dublin is home to over 150 nationalities (census 2006). The foreign born population has increased over 300 per cent since 1991 with over 17 per cent of the city regions population born outside of the island of Ireland (over 205,000 persons an increase from 59,000 in 1991). Dublin's diverse and multicultural population is now an increasing advantage for companies locating here.

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<sup>5</sup> Dublin Airport Authority <http://www.dublinairportauthority.com/TDA/Overview/>

<sup>6</sup> Dublin Port <http://www.dublinport.ie/about-dublin-port/trade-statistics/>

## Figure 1: What Makes A Creative City Region?

City Regions are important drivers of national economies. For the first time the majority of the world's population live in cities. Businesses primarily locate in cities and their competitiveness is determined by the performance of the city, by the quality of its infrastructure, its development capacity and the mix of skilled and talented people. The following are some of the key characteristics that are evident in the most successful creative cities in the global knowledge economy.

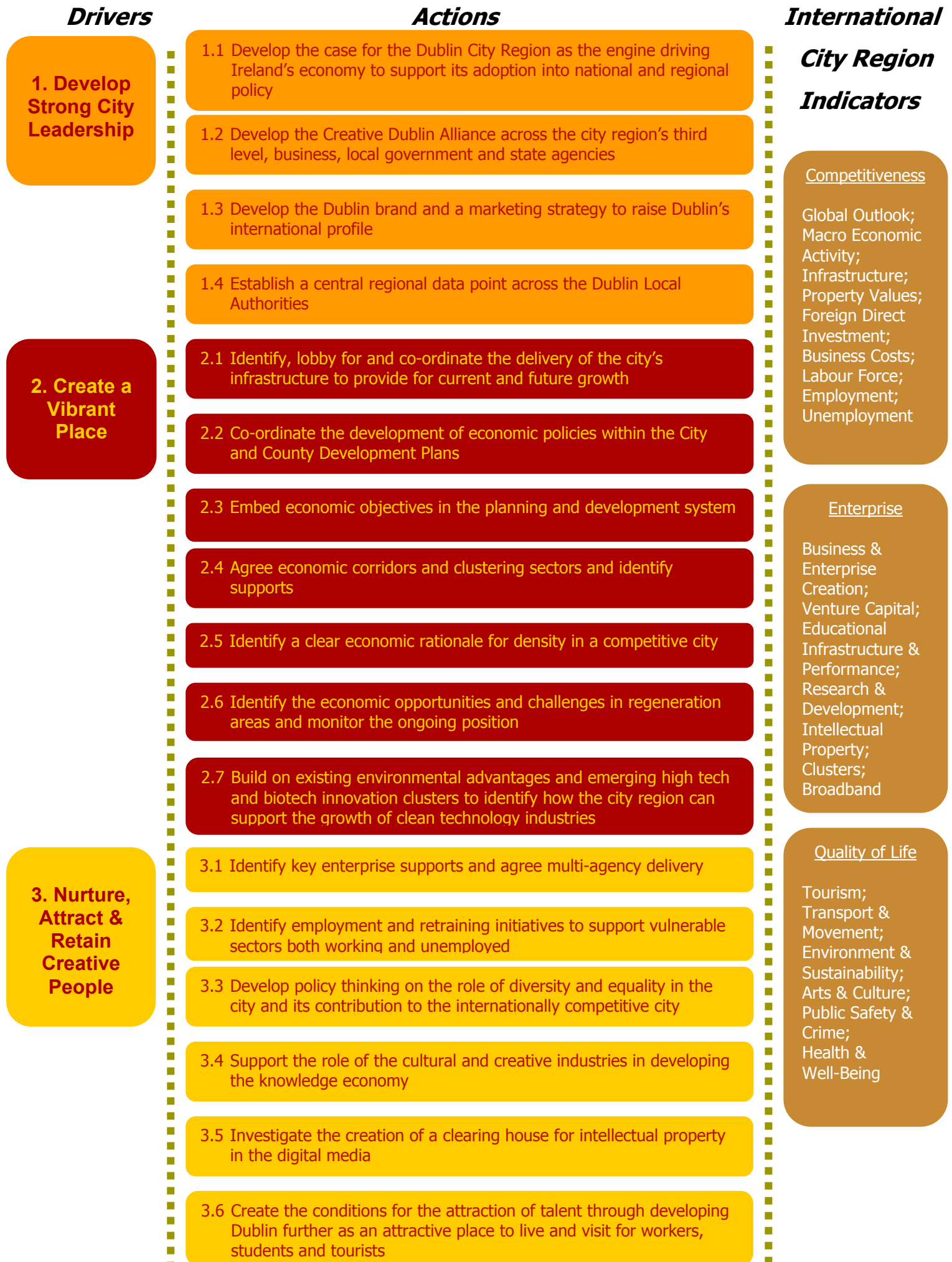
- A vibrant dynamic city region that is safe, clean and green
- Promotes openness, diversity, creativity and equality
- Attracts talented young highly-skilled workers
- A centre of innovation and entrepreneurship
- Attracts global and regional headquarters
- Clear government leadership and vision with good institutions and competent macro-economic management
- Very high levels of educational attainment
- Strong competencies in research & development
- Availability of and access to venture capital
- Outstanding levels of information and communication technologies
- An effective regulatory environment

Figure 1 above entitled 'What Makes a Creative City Region' presents some of the key attributes that are regularly identified as prerequisite characteristics in successful cities in International City Ranking Reports. Translating these characteristics into the desired outcomes of an Action Plan, and thus moving Dublin into sustainable economic growth, requires a multi-agency cross-sectoral collaboration on many levels. This is a complex process that requires a simple yet effective framework so that the delivery of actions is shared across organisational boundaries to maximise the impact on the desired outcomes. Developing an evidence-based approach will also support effective collaboration by heightening awareness on how and where we are (or are not) performing, and thus inform the swift review of actions and development of the shared understanding. Hence the delivery of actions within the framework will be consistently and periodically informed by the international benchmarking of Dublin with comparable competitive cities. The simplicity of the framework is that the delivery of actions under the three themes of Leadership, People and Place will be measured by Dublin's performance in terms of competitiveness, enterprise and the quality of life of citizens. This framework is set out in the following section.



## **Section 2: The Strategic Framework**

**Figure 2: Framework for Action in the City Region**



## **1. Develop Strong Leadership for the Dublin City Region**

The challenge for this strategy is to reach agreement on a shared vision across the key players in Dublin on the critical areas for investment and development of world-class infrastructure and services given increasingly scarce resources. The development of a visionary leadership dedicated to delivering this Dublin Agenda is an imperative in the increasingly competitive and fast changing global economy. This is the economy in which Dublin (and Ireland) has to perform. It is noted that the significance of having a single political voice for Dublin has proved a successful concept in other city regions.

### ***ACTIONS & DELIVERY:***

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#### **1.1 Develop the case for the Dublin Region as the engine driving Ireland's economy to support its adoption into national and regional policy**


- Identify the opportunities and benefits that accrue to cities and regions in Ireland by Dublin's competitiveness
- Liaise with governmental advisory bodies to develop a consensus on the importance of the competitiveness and economic performance of the Dublin City Region as a driver of the national economy
- Lobby for the inclusion of Dublin specific policy and associated funding stream in the National Spatial Strategy and the National Development Plan

#### **1.2 Develop the Creative Dublin Alliance across the city region's third level, business, local government and state agencies**

The purpose of the Alliance is to build a network of diverse urban leaders that gathers to identify solutions in response to the challenges that Dublin faces as an internationally competitive city region. Along with supporting key initiatives as they emerge (such as the Trinity-UCD Innovation Alliance and the Economic Action Plan), the Alliance has taken direct responsibility for progressing a number of core projects.

The work projects of the Creative Alliance include:

- INNOVATION DUBLIN - A week of public events showcasing innovation and creativity in Dublin from October 14th to 20th 2009
- Creative Alliance /Public Identity: To build a citizenship model that would get Dubliners passionate about contributing to their city via discussion forums, events, web presence, and project initiatives

- 
- UniverCities - An alignment of the teaching and research programmes of universities with the challenges of managing and planning for the future of the city Region
  - Designing Dublin – A learning initiative on design thinking focused on innovation and collaborative engagement to identify solutions to the challenges facing the city region
  - Network Mapping - Identify the interagency, cross-sectoral alliances and knowledge networks across the city region

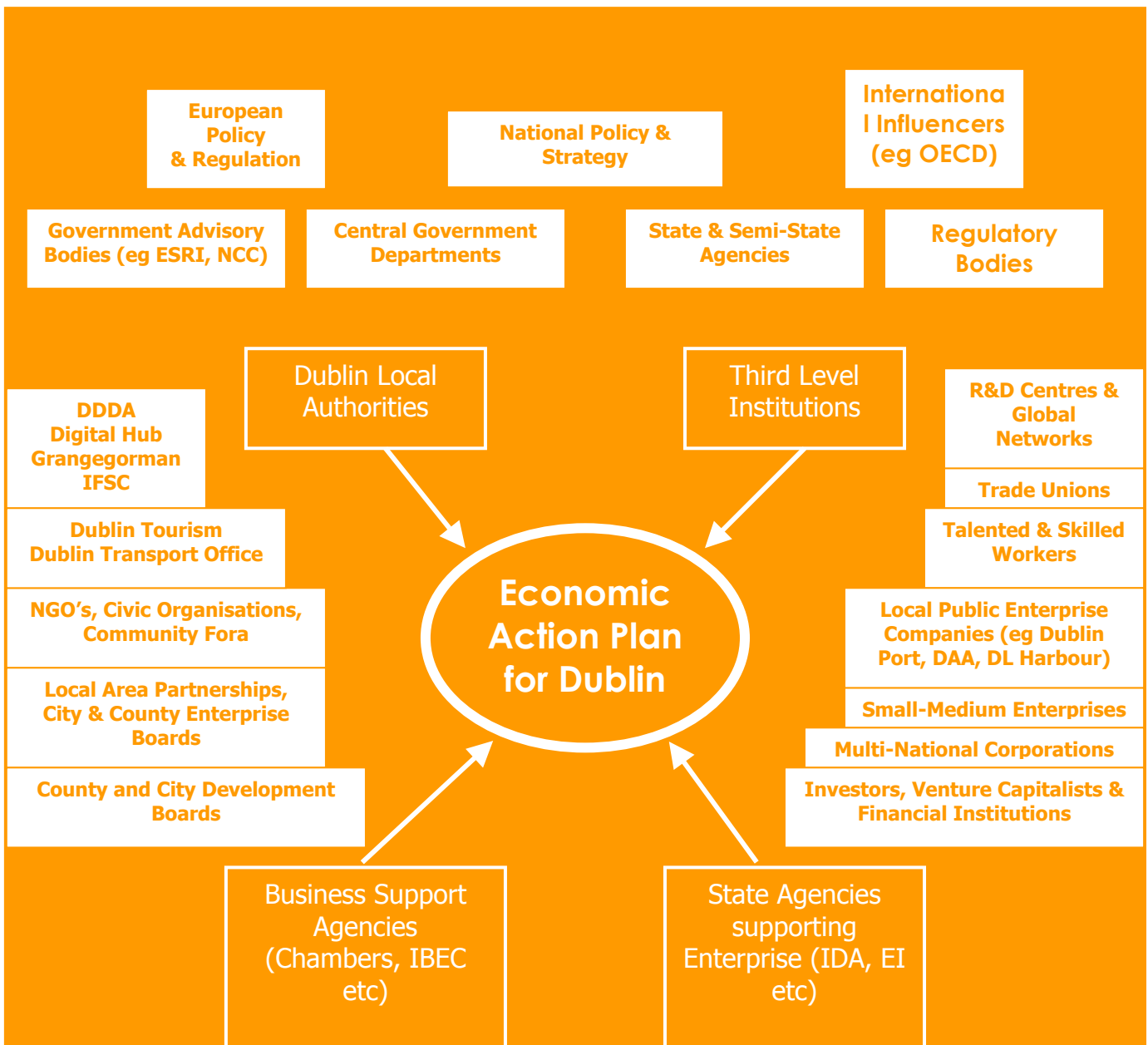
### **1.3 Develop the Dublin brand and a marketing strategy to raise Dublin's international profile**

- Develop the Brand for Dublin based on Dublin's distinctive identity, its unique achievements and competitive advantage as an international city region
- Take a lead role in co-ordinating targeted campaigns to bid for major events that will bring economic and social benefits, increased tourism and promote active lifestyles in the city region.

### **1.4 Establish a central regional data point across the Dublin Local Authorities**

- Agree and deliver a data strategy for the management, analysis, and dissemination of core area data on a regional basis to support greater collaboration and co-ordination

**Figure 3: Developing Collaborative Leadership**



A significant challenge encountered when developing strategic city leadership and vision is the myriad of organisations and sectors that impact on or are impacted by the performance of Dublin's economy. There is a need for a policy framework that explicitly recognises the development of competitive city regions as fundamental to economic growth. By building alliances across business, third level institutions and local government the potential for developing a coherent and visible leadership that has the support of these sectors is maximised. If effective it will increase levels of trust, confidence and openness for change and place the city region in a position to maximise the potential for innovation and collaboration.



## **2. Create A Vibrant Place**

Good urban quality is of central importance in attracting investment and talent. This includes the quality of the built and natural environment, the vibrancy of street life, density and intensity, café culture, arts and music, outdoor activities, public spaces, a choice of quality places to live, a child friendly environment, tolerance and social harmony.

Density of economic activity and population are critical to a city region's competitiveness and success. Increased density, clustering and agglomeration economies are central issues facing the city region. There is considerable potential for Dublin to have a larger population and a higher quality of life, if the benefits of higher density are brought on stream to replace the costs of urban sprawl. A larger and more compact population will in turn make it easier to develop knowledge intensive services, manufacturing and a greener regional economy. This poses major interrelated challenges—to increase housing densities, produce step-changes in the quality of public transport, address water infrastructure requirements, make a success of integration and social inclusion policies, and much else. Knowledge-intensive service activities benefit from features that potentially arise in any high-density urban area. This is not clustering by sector so much as the ability of concentrations of high-skilled and professional workers to attract more such people because they contribute to each other's employment prospects and quality of life.

Failure to surmount the challenges of urban sprawl in Dublin would not see benefits displaced to other regions within Ireland but to metropolitan regions elsewhere in Europe.

Quality of life is a wide-ranging and somewhat subjective issue. It encompasses a range of areas such as the location, type and format of residential development, access to services including cultural and educational and the maintenance of a high quality natural environment. In essence, the above point towards the promotion of sustainable connectivity and accessibility and require measures to be put in place that allow for movement and access by means other than the private car. A high quality of life within a compact urban environment is central to the promotion of a knowledge-based economy that attracts and retains highly talented people to the city region. Significant progress has been made in developing new integrated residential areas. The fundamental thrust of these policies will continue to be improved on in the new Development Plans under preparation by the Dublin Local Authorities based on a strategic approach.

From amenity point of view significant features such as the Dublin Mountains, Dublin Bay, the Phoenix Park, the Demesne Parks and the Liffey Valley will continue to be protected in the new Development Plans. The maintenance of a good quality natural environment is a key element in promoting a good quality of life.

Measures to improve the quality of life for citizens is a core feature of the new Development Plans. It is also a vital feature in attracting people to the Region and in promoting economic development. These measures are intertwined with specific policies and objectives for the promotion of economic and enterprise activity.

### **ACTIONS & DELIVERY:**

#### **2.1 Identify, lobby for and co-ordinate the delivery of the city region's infrastructure to provide for current and future growth.**

Agree the fundamental infrastructure investments required in Dublin for future sustainable economic growth and lobby for the identification of appropriate funding streams. Safeguard the development of critical city region infrastructure, eg the zoning of a Designated Airport Area by Fingal County Council and putting in place a Local Area Plan to provide for the long-term development of Dublin Airport.

The key infrastructure investments required to generate and sustain economic activity in the city region are:

- Provision of water and waste services to provide for future high-density development in Dublin
- Rollout of next generation broadband
- Priority Transport 21 projects: Metro North, the Interconnector and extension of the Luas lines
- Renewable energies infrastructure to reduce energy costs for business in long term
- Significant expansion of Dublin Airport
- A definitive decision on the future location of the Port

#### **2.2 Co-ordinate the development of economic policies within the City and County Development Plans.**

- Identify, develop and agree the policies required within the Development Plans to support sustainable growth for an internationally competitive city region

### 2.3 Embed economic objectives in the planning and development system.

- Establish economic criteria (see Figure 4 below) to be considered on strategic planning applications in planning and development management system

#### Figure 4: Embed Economic Objectives in Planning and Development

The role of cities and planning and development policies are increasingly critical factors in economic development, employment growth and prosperity. Sustainable development has economic, environmental and social aspects; there is a need for planning to be responsive to changing economic circumstances and to balance complex sets of economic, environmental or social goals. The Development Plan and management system are crucial in promoting public and private investment, economic development and employment growth. Planning mediates all investment and can either amplify or restrict the flow of public benefits. The Planning Authorities will take a positive, pro-active, high quality approach when considering economic aspects of major planning applications. Central to this will be the articulation of economic and enterprise policies in City and County Development Plans. It will embed core economic principles in the planning and development system, while ensuring appropriate location and development quality, which are vital to both quality of life and sustainable development. The following criteria will be an integral tool to aid assessments of strategic planning and development opportunities:

1. Do the density, scale and quality of the development optimise the consolidation of the City Region?
2. Is there significant regeneration benefit within the area, and/or the potential for follow-on future development?
3. Does the development maximise the economic return on public investment in infrastructure?
4. Will the development support an existing or create a new tourist attraction within the City Region?
5. Does the development support the development of agglomeration economies and clustering?
6. Does the development contribute to the achievement of other strategic objectives for the City Region such as enterprise and employment creation?
7. Does it contribute positively to the image and identity of a Creative City Region?
8. Does it contribute to an enhancement of quality of life?
9. Does it lead to increased market competition in the area?
10. Does it contribute to or increase the competitiveness of the City Region?

#### **2.4 Agree economic corridors and clustering sectors and identify supports.**

- Agree the population centres within Dublin's development as a polycentric city region and the required density and economic policies to support the sustainable development of the Dublin City Region
- Develop a co-ordinated response between the relevant local authorities to the development of the following three transboundary economic corridors:
  - o Southern Economic Corridor (including the Trinity-UCD Innovation Alliance)
  - o Metro North Economic Corridor
  - o Naas Road/Rail Economic Corridor
- Identify measures to promote and support key economic growth sectors/clusters in the Dublin City Region
- Participate in and contribute to the development of international networks for research of implementation strategies for the successful development of knowledge locations, clustering and other initiatives in developing competitive city regions. Maximise the dissemination of research findings to ensure collaboration and the delivery of innovative responses

#### **2.5 Communicate a clear economic rationale for density in a competitive city region.**

- Identify density levels that increase competitiveness and create economies of scale to justify world-class infrastructure provision that ensure sustainable development.
- Initiate programmes at regional, local and community levels to promote the benefits of higher densities including mixed commercial and residential development, reprioritised road networks for public transport and improved amenity (including retail, schools, creches and playing facilities) within residential neighbourhoods.

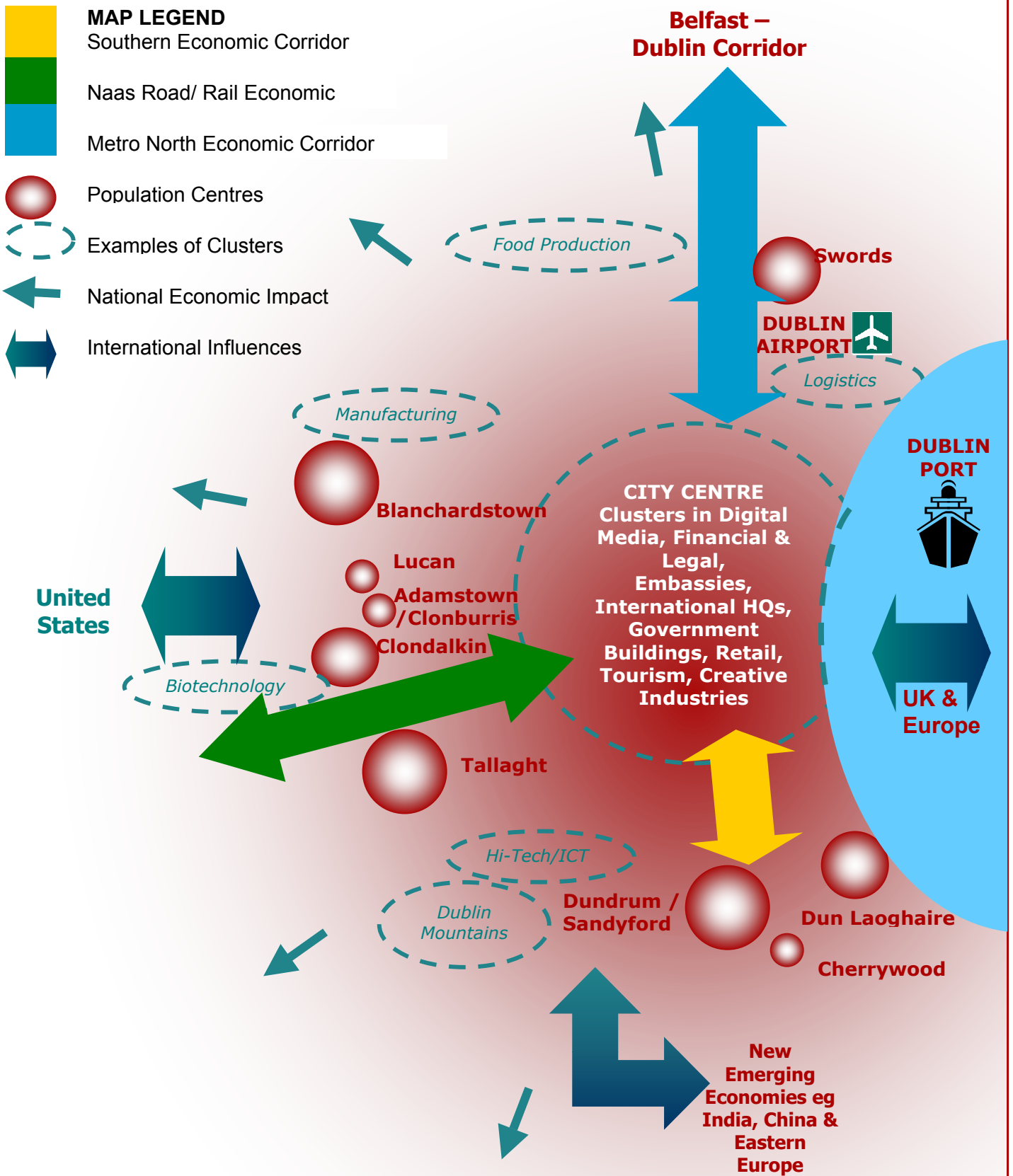
#### **2.6 Identify the economic opportunities and challenges in regeneration areas and monitor the ongoing position.**

- Map and collate approaches to regeneration and in particular the specific employment and enterprise objectives in regeneration plans. Monitor and assess delivery of these outcomes, and encourage dissemination and learning.

#### **2.7 Build on existing environmental advantages and emerging high tech and biotech innovation clusters to identify how the city region can support the growth of clean technology industries**

- Establish a cross-agency working group to identify and agree priorities

**Figure 5: Economic Corridors & Clusters in the Polycentric City Region**



### 3. Nurture, Attract & Retain Creative People

People and the capacity for innovation and enterprise are perhaps the most important resources to building a city region's competitive advantage in the knowledge economy. In the current economic crisis it will be our capacity to innovate, network, communicate and be entrepreneurial that will grow our exports in internationally traded goods and services in the short term. We need to develop specialisms and distinctive strengths to build our international competitive advantage in the long term.

We need to nurture, attract and promote the following in the existing and future populations

- Creativity
- Innovation
- Confidence
- Entrepreneurship
- Multi-lingual proficiency

We need to develop a society that acknowledges, accepts and expects the following

- Diversity
- Integration
- Urbanity
- Openness
- Quality Design

We need to create a city region that engages with its people. It is when the achievement of a higher quality of life is attached to goals of economic growth that a city region experiences prosperity. The rules of global economies are changing and the promise of a quality of life is a core economic driver. Education needs to be seen as an economic issue as well as a social one. A sustainable economy will flourish when you develop a safe city region where families and visitors, whether holidaying or working, feel welcome and valued.

## ***ACTIONS & DELIVERY:***

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### **3.1 Identify key enterprise supports and agree multi-agency delivery**

- Research the challenges to immigrant entrepreneurs, identify supports and agree delivery of appropriate actions
- Through Dublin's participation in the European Cities Entrepreneurship Ranking system we will measure the importance and success of different types of support for business people and the most successful entrepreneurial cities will be identified (among 40 participating European Metropolitan areas).
- Develop an enterprise strategy for the Dublin City Region that will examine how regional competitiveness can generate more enterprise start-ups, provide incubation supports and high quality enterprise supports in the Dublin City Region and agree regional delivery of an implementation plan.
- Develop a network of Intellectual Enterprise Zones to work with people who have become recently unemployed to develop new business opportunities
- Evaluate and enhance existing enterprise support infrastructure to improve delivery on five measures namely: accessibility and promotion of entrepreneurship; pre-creation support including start-up advice, project diagnosis, mentoring, etc.; post-creation support including advice, monitoring, identification of partnerships, etc.; funding including administering of grants, access to loans, seed capital, development capital, etc.; conducive environment including incubation space, quality of life and infrastructure, training, sustainable development, etc.

### **3.2 Identify employment and retraining initiatives to support vulnerable sectors both working and unemployed**

- Develop an Employment and Skills Strategy with policy and action targets agreed by the key players, setting out both current and future employment types required to meet the demand in the Dublin City Region.

### **3.3 Develop policy thinking on the role of diversity and equality in the city region and its contribution to the internationally competitive city region**

- Examine and develop consensus that would inform policy thinking on the role of equality and diversity in the new knowledge economy, in encouraging economic development, employment growth and global competitiveness.

**3.4 Support the role of the creative industries in developing the knowledge economy**

- Support the delivery of local cultural/economic strategies in recognition that culture is essential to Dublin's economic vitality

**3.5 Investigate the creation of an International Digital Services Centre (similar to the IFSC)**

- Support the creation of the innovation eco-system identified in the government programme 'Building the Smart Economy' by exploring the potential role, capacity and viability of establishing an International Digital Services Centre in Dublin.

**3.6 Create the conditions for the attraction of talent through developing Dublin further as an attractive place to live and visit for workers, students and tourists**

- Quality of life issues such as the design of a safe, clean and green city region will be addressed in the reviews of the City and County Development Plans.
- Identify and seek to address the challenges experienced by international students in considering Dublin as a city of choice
- Support the further development of international schooling including secondary level in recognition of the critical role of this sector in attracting highly skilled and mobile talent and its relative under provision in Dublin in comparison with its competitor cities.
- Develop and agree the policy framework to support the primacy of the city centre as a shopping destination that competes with other international cities and promote competition between retail locations throughout the city region
- Examine the feasibility of a cruise terminal in the Poolbeg area, including a review of the current disembarking point and its connectivity with the city region and the development of tour options for visitors within the city region. Develop a Local Action Plan



## **Section 3: Implementation & Delivery**



## Implementation Structures


**Dublin Local Authorities Managers Co-ordination Group (DLA)** The managers of the four Dublin Local Authorities meet on a monthly basis to ensure the strategic executive management of regional issues and infrastructure development. Utilising this structure, the Dublin Local Authorities have developed this Economic Development Action Plan. Consultation has or is also occurring with the relevant Council Strategic Policy Committees. The DLA, in consultation with their respective Councils, will manage, monitor, review and adapt the delivery of this Action Plan across the city region. Through this structure potential blockages will be identified and removed and critical support measures can be resourced and implemented.

The Reviews of the City and County Development Plans are underway in each of the four Dublin Local Authorities. This presents an opportunity to identify, agree and develop a coherent co-ordinated policy framework that gives recognition to the fundamental importance of the planning and development management system to economic growth in the city region. Core policies and objectives will be developed within this combined review process, co-ordinated by the DLA that will seek to create the right conditions for creating and sustaining economic growth in the Smart Economy.

A working group reporting to the DLA will be responsible for co-ordinating the delivery of the Economic Action Plan across the four administrative areas.

**Creative Dublin Alliance (CDA)** The purpose of the Creative Dublin Alliance is to build a network of diverse urban leaders that gathers to help identify, discuss, recommend and distribute solutions in response to the challenges that Dublin faces as an internationally competitive city region. It will:

1. Create a clear vision that unifies around the strengths and future potential of Dublin City Region.
2. Build a Dublin City Region that is supportive of its people by encouraging innovation and enterprise.
3. Continue to grow an internationally renowned higher education and research sector.
4. Communicate, show and engage people in the variety of entrepreneurial initiatives that are occurring in the Dublin City Region.
5. Encourage an open, merit based, tolerant and inclusive society that promotes well-being.
6. Develop a high quality information, communications and transport network.



The membership includes the Lord Mayor of Dublin, the Chair of the Dublin Regional Authority, the City Manager and Designated Regional Manager, the Presidents of UCD, TCD, DIT and DCU, Dublin Chamber of Commerce and IBEC, IDA and Enterprise Ireland, and a not-for-profit organisation in design/creativity. The Alliance will receive regular reports on the progress made on the Action Plan, and is instrumental in the delivery of some core actions.

**Dublin Regional Authority (DRA)** The DRA covers the four local authority areas of Dublin City Council, Fingal, South Dublin and Dun Laoghaire-Rathdown County Councils. Its role is to prepare and implement the Regional Planning Guidelines in tandem with the Mid-East Regional Authority for the Greater Dublin Area; and to promote co-ordination in the provision of public services in the region, which includes promoting co-operation and joint action between local authorities, public authorities and other bodies.

The first stage of public consultation has just been completed on the Regional Planning Guidelines for the Greater Dublin Area 2010 – 2022. The Guidelines are a policy document which will direct the future growth of the Greater Dublin Area over the medium to long term, informing the City and County Development Plans of the four Dublin Local Authorities along with those of Kildare, Meath and Wicklow. The Regional Planning Guidelines Office will be represented on the working group of the DLA to ensure a co-ordinated approach between the Regional Planning Guidelines and the actions within this Economic Action Plan.

In fulfilling its second remit of promoting the co-ordination of public services, the DRA had initiated work on a competitiveness strategy for Dublin. Because of the similarities between this work and the work of the Economic Action Plan, it is now being integrated with the Action Plan. The DRA is progressing the core strands of developing strategies in employment and skills development, enterprise creation, in the establishment of a Local Authority regional data point, and in researching the national benefit of Dublin's economic performance. The DRA will co-ordinate the input of the appropriate public services and bodies to improve the delivery of integrated services on these issues.

**City & County Development Boards** The members of the CDBs are key players across business, public services and community and voluntary sectors who are partners in the local governance structures of the city region. They play a critical role in planning and facilitating collaboration between member groups as well as developing strategic networks and partnerships to support economic development initiatives. The Economic Development Subcommittee of each CDB will ensure connectivity between their locally agreed work plan and the Economic Action Plan for the Dublin City Region.

## Monitor & Review of the Economic Action Plan

In liaison with Dun Laoghaire-Rathdown, Fingal and South Dublin County Councils, the Economic Development Unit in Dublin City Council will co-ordinate, monitor and report on the delivery of the actions within the plan to the Dublin Local Authorities Managers Group (DLA) and the Creative Dublin Alliance. On the periodical release of new data through the City Region Indicators Project, collaborative dialogue events will be organised to facilitate the shared dissemination of new data and analysis of emerging trends across the implementation structures outlined in the previous section. Discussion will focus on the delivery of the Action Plan in light of this analysis, agreeing new priorities or renewing the focus in existing areas as needs require. In this way an evidence-based approach will develop that will be flexible and responsive to emerging needs and changing circumstances.

**Figure 6: Model for Monitoring and Review**



## City Region Indicators & International Benchmarking Project

A key to the economic competitiveness of the Dublin City Region is the capacity to relate to and benchmark itself against other international city regions. The primary objective of such work is the positioning of Dublin on a global stage in a manner that benefits Dublin economically. Dublin City Council's Office of International Relations and Research will lead this work on behalf of the city region and involve other stakeholders especially in the business and higher education sectors.


This international benchmarking programme for the city region will involve the identification of key cities with which Dublin can collaborate or cities against which Dublin is competing. A key component of this benchmarking will be the identification of learning and lessons from these cities, which will inform action programs in Dublin for the purposes of improving Dublin's overall economic performance.

The Research Section within the Office of International Relations is leading on the preparation and identification of indicators that monitor the performance of the Dublin City Region. These indicators will be used to inform which cities are to be included in our benchmarking programme and to monitor the economic performance of the Dublin City Region. They will be updated as appropriate on a quarterly basis and will be available to key stakeholders.

The indicators will reflect the goals of the Economic Action Plan by measuring performance in the areas of Dublin's competitiveness, enterprise and quality of life as presented in Figure 6 below.

**Figure 7: City Region Indicators & Benchmarking Economic Performance**

<b>Competitiveness</b>	<b>Enterprise</b>	<b>Quality of Life</b>
Global Outlook Macro Economic Activity Infrastructure Property Values Foreign Direct Investment Business Costs Labour Force Employment & Unemployment	Business & Enterprise Creation Venture Capital Educational Infrastructure & Performance Research & Development Intellectual Property Clusters Broadband	Tourism Transport & Movement Environment & Sustainability Arts & Culture Public Safety & Crime Health & Well-Being



There may be gaps under some of these indicators due to lack of data for the Dublin City Region. In some cases economic data is not released for confidentiality reasons while in other cases the data is not collected by any agency at a city regional level. A further element of this project will be to highlight gaps that exist in key indicator themes.

The indicators are being sourced from multiple agencies across the city region. This work relies on the co-operation of these agencies for access to the data as well as providing quarterly updates where appropriate. Protocols for the sharing and usage of such data are being developed.

This is the first project of its kind in the city region and offers stakeholders a powerful set of tools to identify trends and inform the development and delivery of the Economic Action Plan. Commentary, charts and analysis will be presented for each of these indicators.

The indicators will deliver the following:

- Monitoring of Dublin's performance against the national context. This in itself is a powerful tool for the city region, as it will enable stakeholders in Dublin to develop a stronger evidence base for lobbying central government on behalf of the city region.
- Monitoring of Dublin's international performance using international city ranking reports and appropriate international datasets such as those sourced from the OECD, World Bank or Eurostat. Such data will be used to highlight the international context against our national / regional economic performance.

Each year the Office will provide the Economic Development Unit (EDU) with a list of cities against which appropriate benchmarking and learning will happen. This list of relevant cities will be linked to the indicators as appropriate for the purpose of international benchmarking.

## **Implementation of the Economic Development Action Plan**

<b>1. DEVELOP STRONG LEADERSHIP FOR THE DUBLIN CITY REGION</b>				
<b>1.1 Develop the case for the Dublin City Region as the engine driving Ireland's economy to support its adoption into national and regional policy</b>				
<b>Project</b>	<b>Lead Body</b>	<b>Relevant Agencies</b>	<b>Outputs</b>	<b>Timeframe</b>
Identify the opportunities and benefits that accrue to cities and regions in Ireland by Dublin's competitiveness	Dublin Regional Authority	Dublin Local Authorities, Third Level Institutions, Enterprise Ireland, IDA	Report published and launched	2010
Liaise with governmental advisory bodies to develop a consensus on the importance of the competitiveness and economic performance of the Dublin City Region as a driver of the national economy	Dublin Local Authorities	National Competitiveness Council, National Economic and Social Council	Ongoing dialogue and collaboration to share report findings and development of mechanisms for wider key stakeholder input	2009 & ongoing
Lobby for the inclusion of Dublin specific policy and associated funding stream in the National Spatial Strategy and the National Development Plan	Dublin Local Authorities	IDA, Enterprise Ireland, Central Government Departments	Funding secured for prioritised capital projects	2009 & ongoing
<b>1.2 Develop the Creative Dublin Alliance across the city region's third level, business, local government and state agencies</b>				
Co-ordinate the delivery of the work programme for the Creative Dublin Alliance across prioritised projects	Dublin City Council	Creative Dublin Alliance member organisations	Work programme agreed and delivery ongoing	June 2009 and ongoing
Co-ordinate a multiplicity of events for INNOVATION DUBLIN showcasing innovation and creativity across the Dublin City Region	Dublin City Council	A wide range of companies and organisations in the public, private and civic sectors in Dublin	Week long programme of events organised across the city region Website created ensuring effective promotion and citizen engagement International linkage with other cities on innovation initiatives	October 14th to 20th 2009



<b>Project</b>	<b>Lead Body</b>	<b>Relevant Agencies</b>	<b>Outputs</b>	<b>Timeframe</b>
Develop a public identity/ engagement strategy that builds a citizenship model	Creative Dublin Alliance	Creative Dublin Alliance member organisations	Discussion forums, events, web presence, and project initiatives with citizen engagement	2009 & ongoing
Develop the UniverCities initiative to align the teaching and research programmes of universities with the challenges of managing and planning for the future of the city region	Dublin City Council	UCD, TCD, DCU, DIT, NCAD, NUI Maynooth	Series of projects developed between DCC and each institution to address specific challenges faced by the city region for mutually beneficial learning outcomes	2009 & ongoing
Run 'Designing Dublin' project as a learning initiative on design thinking focused on innovation and collaborative engagement to identify solutions to the challenges facing the city region	Design Twentyfirst Century	DCC, SDCC, UCD, TCD, DCU, DIT, NCAD, NUI Maynooth, Private Sector involvement	Pilot of projects and participants with international linkage developed with prototypes designed to exhibit	2009/10
Network Mapping - Identify the interagency, cross-sectoral alliances and knowledge networks across the city region	DCU/DIT	Creative Dublin Alliance member organisations and key stakeholders	Networks and initiatives mapped and presented visually online for cross-agency input	2009/10
<b>1.3 Develop the Dublin Brand and a Marketing Strategy to raise Dublin's International Profile</b>				
<b>Project</b>	<b>Lead Body</b>	<b>Relevant Agencies</b>	<b>Outputs</b>	<b>Timeframe</b>
Develop the Brand for Dublin based on Dublin's distinctive identity, its unique achievements and competitive advantage as an international city region	Dublin Local Authorities	Creative Dublin Alliance member organisations and key stakeholders	Brand developed that is inclusive of all assets and attributes within the Dublin City Region and agreed across the key players	2009 & ongoing
Take a lead role in co-ordinating targeted campaigns to bid for major events that will bring economic and social benefits, increased tourism and promote active lifestyles in the city region	Dublin City Council	Dublin Local Authorities and other key stakeholder organisations as relevant	Successful bids for selected international events	2009 and ongoing

<b>1.4 Establish a Central Regional Data Centre across the Dublin Local Authorities</b>				
<b>Project</b>	<b>Lead Body</b>	<b>Relevant Agencies</b>	<b>Outputs</b>	<b>Timeframe</b>
Agree and deliver a data strategy for the management, analysis, and dissemination of core area data on a regional basis to support greater collaboration and co-ordination.	DRA	SDCC, DCC, FCC, DLRCC	<ul style="list-style-type: none"> <li>- Agree the pilot selection of robust reproducible indicators, which can be grouped as appropriate, to form measurements of policy success / regress in priority areas</li> <li>- Develop an online mechanism for the sharing and dissemination of information</li> <li>- Regional Committee established to undertake analysis etc.</li> <li>- Set data sharing protocols and standards and streamline</li> </ul>	2009 & ongoing

## 2. CREATE A VIBRANT PLACE

### 2.1 Identify, lobby for and co-ordinate the delivery of the city region's infrastructure to provide for current and future growth.

<b>Project</b>	<b>Lead Body</b>	<b>Relevant Agencies</b>	<b>Outputs</b>	<b>Timeframe</b>
Agree the fundamental infrastructure investments required in Dublin for future sustainable economic growth and lobby for the identification of appropriate funding streams	Dublin Local Authorities	Central Government Departments, Semi-State bodies, Government Advisory Bodies and other Development and Strategic Management Agencies as appropriate	<p>Ring-fencing of funding to ensure the delivery of:</p> <ul style="list-style-type: none"> <li>- Water &amp; waste services to provide for future high-density development in Dublin</li> <li>- Rollout of next generation broadband</li> <li>- Priority Transport 21 projects: Metro North, the Interconnector and extension of the Luas lines</li> <li>- Renewable energies infrastructure to reduce energy costs for business in long term</li> <li>- Significant expansion of Dublin Airport</li> <li>- A definitive decision on the future location of the Port</li> </ul>	2009 & ongoing

<b>2.2 Co-ordinate the development of economic policies within the City and County Development Plans.</b>				
<b>Project</b>	<b>Lead Body</b>	<b>Relevant Agencies</b>	<b>Outputs</b>	<b>Timeframe</b>
Identify, develop and agree the policies required within the Development Plans to support sustainable growth for an internationally competitive city region	Dublin Local Authorities	Working group established of DCC, DLRCC, DRA, FCC, SDCC	Economic policy framework agreed and developed in the City and County Development Plans	2009 – 2011 (Development Plan Reviews)
<b>2.3 Embed economic objectives in the planning and development system.</b>				
Establish economic criteria to be considered on strategic planning applications in planning and development management system.	Dublin Local Authorities	Working group established of DCC, DLRCC, DRA, FCC, SDCC	Economic criteria for planning applications agreed and protocols agreed for usage	2009
<b>2.4 Agree economic corridors and clustering sectors and identify supports.</b>				
Agree the population centres within Dublin's development as a polycentric city region and the required density and economic policies to support the sustainable development of the Dublin City Region	Dublin Local Authorities	Working group established of DCC, DLRCC, DRA, FCC, SDCC	Agreement on the population centres that make up this polycentric city region and development of support policies and co-ordinated development across the Dublin Local Authorities: Dublin City Swords Blanchardstown Tallaght Town Centre Clondalkin / Lucan Adamstown / Clonburris Dun Laoghaire Dundrum / Sandyford Cherrywood (future)	2009 – 2011 (Development Plan Reviews)
Develop a co-ordinated response to the development of transboundary economic corridors between the relevant local authorities	Dublin Local Authorities	Working group established of DCC, DLRCC, DRA, FCC, SDCC and include input of IDA, Enterprise Ireland	Policy framework and delivery mechanisms developed for: - Southern Economic Corridor - Metro North Economic Corridor - Naas Road/Rail Economic Corridor	2009 – 2011 (Development Plan Reviews)

<b>Project</b>	<b>Lead Body</b>	<b>Relevant Agencies</b>	<b>Outputs</b>	<b>Timeframe</b>
<p>Identify measures to promote and support key Economic growth sectors/clusters in the Dublin City Region, i.e.</p> <ul style="list-style-type: none"> <li>Financial services</li> <li>Digital media/creative industries</li> <li>Tourism</li> <li>Retail</li> <li>Culture/recreation</li> <li>Legal</li> <li>Medical &amp; Life Sciences</li> <li>Food</li> <li>Logistics</li> <li>Education/R&amp;D</li> <li>Media/advertising</li> <li>International HQs</li> <li>Government Buildings</li> <li>Embassies</li> <li>Smart/Green Manufacturing</li> </ul>	Dublin Local Authorities	Working group established of DCC, DLRCC, DRA, FCC, SDCC and include input of IDA, Enterprise Ireland	Information and collaboration channels established and ongoing needs identified and swiftly responded to	2009 – 2011 (Development Plan Reviews)
<p>Participate in and contribute to the development of international networks for research of implementation strategies in the successful development of knowledge locations, clustering and other initiatives aimed at developing competitive city regions. Maximise the dissemination of research findings to ensure collaboration and the delivery of innovative responses</p>	Dublin Local Authorities	Creative Dublin Alliance Member organisations and other key stakeholders as relevant	<p>Collation and dissemination of Research and Project outputs from (sample) Projects:</p> <ul style="list-style-type: none"> <li>Euricor</li> <li>ACRE</li> <li>Open Cities</li> <li>Eurocities</li> <li>World Class Cities Partnership</li> <li>ECCE Innovation – Developing Economic Clusters of Cultural and Creative Enterprises in the Innovation Process</li> </ul>	2009 and ongoing

<b>2.5 Communicate a clear economic rationale for density in a competitive city region.</b>				
<b>Project</b>	<b>Lead Body</b>	<b>Relevant Agencies</b>	<b>Outputs</b>	<b>Timeframe</b>
Identify density levels that increase competitiveness and create economies of scale to justify world-class infrastructure provision that ensure sustainable development.	Dublin Local Authorities	Working group established of DCC, DLRCC, DRA, FCC, SDCC and include input of IDA, Enterprise Ireland	Density policies developed in the City and County Development Plan Reviews	2009 – 2011 (Development Plan Reviews)
Initiate programmes at regional, local and community levels to promote the benefits of higher densities including mixed commercial and residential development, reprioritised road networks for public transport and improved amenity (including retail, schools, crèches and playing facilities) within residential neighbourhoods.	Dublin Local Authorities	DCC, DLRCC, DRA, FCC, SDCC, CDBs	Promotional materials Workshops and use of innovative communication tools for public engagement	2009 - 2011
<b>2.6 Identify the economic opportunities and challenges in Regeneration Areas and monitor the ongoing position.</b>				
Map and collate approaches to regeneration and in particular the specific employment and enterprise objectives in regeneration plans. Monitor and assess delivery of these outcomes, and encourage dissemination and learning.	Dublin Local Authorities	DCC, DLRCC, FCC, SDCC, Enterprise Ireland and Development Agencies as relevant	Monitoring and evaluation of the delivery of economic and enterprise objectives in Local Area Plans and Regeneration Projects	2009 and ongoing
<b>2.7 Build on existing environmental advantages and emerging high tech and biotech innovation clusters to identify how the city region can support the growth of Clean Technology Industries</b>				
Establish a cross-agency working group to identify and agree priorities	Dublin Local Authorities	Enterprise Ireland, IDA, R&D hubs and private sector	Working group established and Report developed with recommendations	2009/10

### 3. Nurture, Attract & Retain Creative People

#### 3.1 Identify key enterprise supports and agree multi-agency delivery

Project	Lead Body	Relevant Agencies	Outputs	Timeframe
Research the challenges to immigrant entrepreneurs, identify supports and agree delivery of appropriate actions	Dublin City Council	Dublin Local Authorities, Enterprise Support Bodies, Government and State Agencies, University Research and Enterprise hubs	Research Report Published Delivery of actions to support immigrant entrepreneurs	2009
Through Dublin's participation in the European Cities Entrepreneurship Ranking system we will measure the importance and success of different types of support for business people and the most successful entrepreneurial cities will be identified (among 40 participating European Metropolitan areas).	Dublin City Council	Dublin Local Authorities & City & County Enterprise Boards	« European Cities Entrepreneurship Ranking » report - An active member status within the E.C.E.R Foundation Association	2009
Develop an Enterprise Strategy for the Dublin City Region that will examine how regional competitiveness can generate more enterprise start-ups, provide incubation supports and high quality enterprise supports in the Dublin City Region and agree regional delivery of an implementation plan.	Dublin Regional Authority	Dublin City and County Enterprise Boards, DLA, FÁS, IDA, EI, 3rd level institutions, Enterprise centres, CDBs, Partnerships, Chambers	<ul style="list-style-type: none"> <li>- Develop a competent competitive strategy for the development of enterprise in the Dublin City Region.</li> <li>- Create an understandable and consistent, co-ordinated service from organisations in the enterprise support area for entrepreneurs</li> <li>- Recommend a series of short, medium and long term actions</li> <li>- Identify some actions early on that can be recommended for immediate implementation and can benefit the recovery of current economic climate</li> </ul>	2009
Develop a network of Intellectual Enterprise Zones to work with people who have become recently unemployed to develop new business opportunities	South Dublin County Council	FÁS, Department of Social and Family Affairs, Inst. of Technology Tallaght, DLA and other key stakeholders	<ul style="list-style-type: none"> <li>- Provision of dedicated desk/office space to individuals and new SME's on a 'time share basis' to run and operate their business</li> <li>- Creation of a virtual business campus</li> <li>- Promotion of business opportunities</li> </ul>	2009 & ongoing

<b>Project</b>	<b>Lead Body</b>	<b>Relevant Agencies</b>	<b>Outputs</b>	<b>Timeframe</b>
Evaluate and enhance existing enterprise support infrastructure to improve delivery on five measures namely: accessibility and promotion of entrepreneurship; pre-creation support including start-up advice, project diagnosis, mentoring, etc.; post-creation support including advice, monitoring, identification of partnerships, etc.; funding including administering of grants, access to loans, seed capital, development capital, etc.; conducive environment including incubation space, quality of life and infrastructure, training, sustainable development, etc.	Dun Laoghaire Rathdown County Council	Enterprise Ireland, Enterprise Boards, University Research and Enterprise hubs, DCC, SDCC and FCC	Analysis of existing enterprise support infrastructure Action Plan for improvement of supports, including agreements for inter-agency collaboration Priorities for developing synergies across four local authority administrative areas.	2010
<b>3.2 Identify employment and retraining initiatives to support vulnerable sectors both working and unemployed</b>				
Develop an Employment and Skills Strategy with policy and action targets agreed by the key players, setting out both current and future employment types required to meet the demand in the Dublin City Region	Dublin Regional Authority	Dublin Employment Pact, FAS, Forfas Enterprise Ireland, Chambers of Commerce etc	A strategy document setting out the types of employment needed in Dublin City Region, both currently and into the future and the skills needed to meet the demand and identify priority policy and action targets with sign up from the key players	2009
<b>3.3 Develop policy thinking on the role of diversity and equality in the city region and its contribution to the internationally competitive city region</b>				
Examine and develop consensus that would inform policy thinking on the role of equality and diversity in the new knowledge economy, in encouraging economic development, employment growth and global competitiveness	Dublin City Council	D/JELR, D/ETE, Equality Authority, Forfas, IDA, other stakeholder agencies	Working Group established and production of report examining the various issues and opportunities with recommendations for the development of integrated policy thinking	2009
<b>3.4 Support the role of the cultural and creative industries in developing the knowledge economy</b>				
Support the delivery of Cultural/Economic Strategies in recognition that culture is essential to Dublin's economic vitality	Dublin Local Authorities	Key stakeholders	Creation of a Dublin City Region Cultural Alliance and Implementation of cultural strategies	2009 and ongoing

<b>3.5 Investigate the creation of an International Digital Services Centre (similar to the IFSC)</b>				
<b>Project</b>	<b>Lead Body</b>	<b>Relevant Agencies</b>	<b>Outputs</b>	<b>Timeframe</b>
Support the creation of the innovation eco-system identified in the government programme 'Building the Smart Economy' by exploring the potential role, capacity and viability of establishing an International Digital Services Centre in Dublin.	Digital Media Forum	D/CENR, IDA, Enterprise Ireland, DLA, Digital Hub, NDRC, CDA	A working group of stakeholders convened to examine the potential of the development of an international clearing house	2009/10
<b>3.6 Support the attraction of talent through developing Dublin further as an attractive place to live and visit for workers, students and tourists</b>				
Quality of life issues such as the design of a safe, clean and green city region will be addressed in the reviews of the City and County Development Plans	Fingal County council	DCC, DLRCC, DRA, SDCC	An integrated network of green spaces and green infrastructure will be mapped and improvements identified in an agreed policy framework for the city region	2009-2011 (Development Plan Reviews)
Identify and seek to address the challenges experienced by international students in considering Dublin as a city of choice	Dublin City Council	Creative Dublin Alliance, Dublin Local Authorities, Education Ireland, Enterprise Ireland, Dublin Tourism, International School of Dublin	Policy measures identified and developed	2009 and ongoing
Develop and agree the policy framework to support the primacy of the city centre as a shopping destination that competes with other international cities and promote competition between retail locations throughout the city region	Dublin Local Authorities	Dublin Regional Authority and key stakeholders	Policy measures identified and developed	2009-2011 (Development Plan Reviews)
Examine the feasibility of a cruise terminal in the Poolbeg area, including a review of the current disembarking point and its connectivity with the city and the development of tour options for visitors within the city. Develop a Local Action Plan	Dublin City Council	Dublin Docklands Development Authority, Dublin Port Company, Southern & Eastern Regional Assembly	Local Action Plan on the development of a cruise line terminal	June 2011



## Acknowledgements

Many people and organisations were involved in and gave generously of their time in the development of this strategy, from the initial interviews and questionnaires, to presentations and questions and answers sessions with Boards and Committees, to facilitated workshops. It is not possible to acknowledge everyone individually, but the following people were involved in some key working groups and events that are particularly noteworthy and greatly appreciated.

### **DLA Manager's Co-ordination Group**

John Tierney	City Manager, Dublin City Council
Joe Horan	County Manager, South Dublin County Council
David O'Connor	County Manager, Fingal County Council
Owen Keegan	County Manager, Dún Laoghaire Rathdown County Council
Ciaran McNamara	Assistant City Manager, Dublin City Council
Michael Phillips	Assistant City Manager, Dublin City Council
Michael Stubbs	Assistant City Manager, Dublin City Council
Philip Maguire	Assistant City Manager, Dublin City Council
James Lyons	Assistant City Manager, Dublin City Council
Vincent Norton	Executive Manager, Dublin City Council

### **DLA Economic Plan Working Group Members**

#### Dublin City Council:

Michael Stubbs	Assistant City Manager, Planning and Development
Dick Gleeson	City Planner
Declan Wallace	Executive Manager, Planning and Development
Jim Keogan	Executive Manager, Planning and Development
John O'Hara	Deputy City Planner, Planning and Development
Eileen Quinlivan	Senior Executive Officer, Planning and Development
Lorna Maxwell	Senior Executive Officer, Economic Development Unit
Kieran Rose	Senior Planner, Economic Development Unit
Paul O'Connell	Senior Valuer, Economic Development Unit

#### South Dublin County Council:

Jim Walsh	Director of Services, Economic Development
Frank Nevin	Director of Services, Planning
Emer O'Gorman	Senior Executive Officer, Economic Development
Colin Ryan	Senior Planner, Planning

#### Fingal County Council:

Gilbert Power	Director of Services, Planning
PJ Howell	Director of Services, Economic Development
Ann Marie Farrelly	Senior Executive Officer, Economic Development
Sean O'Faircheallaigh	Senior Planner, Planning
Hazel Craigie	Senior Executive Planner, Planning

#### Dún Laoghaire Rathdown County Council:

Kathleen Holohan	Director of Services, Planning
Mary Mallon	Director of Services, Economic Development
Richard Cremins	Senior Planner, Planning
Wessel Badenhorst	Administrative Officer, Economic Development

#### Dublin Regional Authority:

Patricia Potter	Director
Deirdre Scully	Senior Planner, Regional Planning Guidelines
Walter Foley	Research and Policy Development Officer

### **NCC/ CDA / DLA Roundtable Discussion on 19<sup>th</sup> June 2009**

David Byrne	Enterprise Ireland
Jean Byrne	Design Twentyfirst Century
Tom Coffey	Chief Executive Officer, Dublin City Business Association
Clr Emer Costello	Lord Mayor, Dublin City Council

Hazel Craigie	Fingal County Council
Donal DeBuitleur	General Manager, AIB
Adrian Devitt	Manager, Forfas
Clare Dunne	Department of Enterprise, Trade and Employment
Jim Dunne	Design Twentyfirst Century
AnnMarie Farrelly	Senior Executive Officer, Fingal County Council
Peter Finnegan	Director of Office of International Relations & Research, Dublin City Council
Dick Gleeson	City Planner, Dublin City Council
Paul Hogan	Senior Planner and representing County Manager, South Dublin County Council
Michael Horgan	Royal College of Surgeons of Ireland
PJ Howell	Director of Services, Fingal County Council
Cathal Kelly	Royal College of Surgeons of Ireland
Philip Maguire	Assistant City Manager, Dublin City Council
Mary Mallon	Director of Services, Dún Laoghaire Rathdown County Council
Lorna Maxwell	Economic Development Unit, Dublin City Council
Derek McGarry	National College of Art and Design
John O'Brien	Head of Planning, Regions and EU Affairs, IDA
Paul O'Connell	Economic Development Unit, Dublin City Council
David O'Connor	County Manager, Fingal County Council
Michael Phillips	Assistant City Manager Dublin City Council
Patricia Potter	Director, Dublin Regional Authority
Terry Prendergast	Dublin Institute of Technology
Gina Quin	Chief Executive Officer, Dublin Chamber
Kathy Quinn	Head of Finance, Dublin City Council
Kieran Rose	Economic Development Unit, Dublin City Council
John Shaw	Principal Officer, Department of the Taoiseach
Michael Stubbs	Assistant City Manager, Dublin City Council
Aidan Sweeney	Head of Innovation, IBEC
Don Thornhill	Chairman, National Competitiveness Council
John Tierney	City Manager, Dublin City Council
PJ Timmins	Chair, Dublin Chamber of Commerce
Mary Twomey	Senior Policy Advisor, Forfas
Professor Ferdinand Von Prondynski	President, Dublin City University
Declan Wallace	Executive Manager, Dublin City Council

### **Creative Dublin Alliance Members**

John Tierney (Chair)	City Manager, Dublin City Council
Joe Horan	County Manager, South Dublin County Council and Designated Regional Manager
Dr John Hegarty	Provost, Trinity College Dublin
Dr Hugh Brady	President, UCD
Professor Ferdinand von Prondzynski	President, Dublin City University
Professor Brian Norton	President, Dublin Institute of Technology
Gina Quin	Chief Executive Officer, Dublin Chamber
John O'Brien	Head of Planning, Regions and EU Affairs, IDA
Gerry McMahon	Regional Manager, Enterprise Ireland
Finola McDonnell	Senior Policy Executive, IBEC
Michael Stubbs	Assistant City Manager, Dublin City Council
Declan Wallace	Executive Manager, Dublin City Council
Dick Gleeson	City Planner, Dublin City Council
Peter Finnegan	Director of Office of International Relations & Research, Dublin City Council
Jean Byrne	Design Twentyfirst Century
Margaret Whelan	Head of Innovation and Industry Services, DIT
Lorna Maxwell	Senior Executive Officer, Dublin City Council

Jim Dunne  
Vannesa Ahuactzin

Design Twentyfirst Century  
Creative Director, Design Twentyfirst Century

**Previous Members:**

Cllr Eibhlin Byrne  
Cllr Pat Hand  
Professor Mark Keane  
Kieran Donoghue

Lord Mayor, Dublin City  
Cathaoirleach, Dublin Regional Authority  
Vice-President for Innovation, UCD  
Executive Vice-President Globally Traded Business

**Interviewees**

Brian Cotter  
Pat Nolan  
Amanda Bane  
George Shaw  
John Shaw  
Jean Byrne  
Gina Quinn  
Tom Coffey  
Anthony Abbott King  
Patricia Potter  
Frank Magee  
Richard Cremmins  
Wessel Badenhorst  
Frank Ryan  
Frances Ruane  
AnnMarie Farrelly  
Martin Cronin  
Eoin Collins  
Michael Kelly  
Matt Moran  
Kieran O'Donoghue  
David Begg  
Alan Taylor  
Don Thornhill  
Rory O'Donnell  
Frank Gannon  
Mattie McCabe  
Jim Walsh  
Emer O'Gorman

American Chamber of Commerce  
Department of Enterprise, Trade and Employment  
Department of Foreign Affairs  
Department of the Taoiseach  
Department of the Taoiseach  
Design Twenty First Century  
Dublin Chamber of Commerce  
Dublin City Business Association  
Dublin Docklands Development Agency  
Dublin Regional Authority  
Dublin Tourism  
Dún Laoghaire Rathdown County Council  
Dún Laoghaire Rathdown County Council  
Enterprise Ireland  
ESRI  
Fingal County Council  
Forfás  
GLEN  
Higher Education Authority  
IBEC  
IDA Ireland  
Irish Congress of Trade Unions  
Lisney  
National Competitiveness Council  
National Economic and Social Council  
Science Foundation Ireland  
Science Foundation Ireland  
South Dublin County Council  
South Dublin County Council



Economic Development Unit  
Dublin City Council,  
Civic Offices,  
Wood Quay,  
Dublin 8.

T. +353 1 222 0100  
E. [edu@dublincity.ie](mailto:edu@dublincity.ie)  
W. [www.dublincity.ie](http://www.dublincity.ie)

Dún Laoghaire-Rathdown  
County Council, County Hall,  
Marine Road, Dún Laoghaire,  
Dublin.

T. +353 1 205 4700  
E. [corp@dlrcoco.ie](mailto:corp@dlrcoco.ie)  
W. [www.dlrcoco.ie](http://www.dlrcoco.ie)

South Dublin County Council  
County Hall,  
Tallaght,  
Dublin 24.

T. +353 1 414 9000  
E. [info@sdublincoco.ie](mailto:info@sdublincoco.ie)  
W. [www.sdcc.ie](http://www.sdcc.ie)

Fingal County Council  
County Hall,  
Main Street, Swords,  
Fingal,  
Co. Dublin.

T. +353 1 890 5000  
E. [info@fingalcoco.ie](mailto:info@fingalcoco.ie)  
W. [www.fingalcoco.ie](http://www.fingalcoco.ie)

Dublin Regional Authority  
1<sup>st</sup> Floor,  
Mainscourt,  
23 Main Street,  
Swords,  
Co. Dublin.

T. +353 1 807 4482  
E. [info@dra.ie](mailto:info@dra.ie)  
W. [www.dra.ie](http://www.dra.ie)

THE MID-EAST REGIONAL AUTHORITY ECONOMIC  
DEVELOPMENT STRATEGY



TO INFORM

*'THE REVIEW OF THE REGIONAL PLANNING GUIDELINES  
FOR THE GREATER DUBLIN AREA 2004-2016'*

DECEMBER 2009



comhairle chontae na mí  
meath county council



meath county council  
economic development  
and innovation

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## 1 Introduction

The Dublin Local Authorities have jointly prepared an “Economic Development Action Plan for the Dublin City Region”. The overarching aim of this plan is to further develop the Dublin City Region, the engine of Ireland’s economy, as a significant hub in the European knowledge economy through a network of thriving spatial and sectoral clusters providing a magnet for creative talent and investment. The Economic Development Action Plan for the Greater Dublin Area does not reflect the inherent symbiotic role of the Gateway Core and its wider regional Hinterland area. **This document sets out the agreed economic priorities for the Mid East Region which successfully dovetails with and complements the Dublin City Economic Development Action Plan, outlining our expectations and ambitions for the region and our infrastructural priorities for investment for the period 2010-2022.**



Figure 1 : Role of Mid East Economic Development Strategy

The strategy is prepared in the context of the positioning and role of economic development within the wider strategic planning framework of the Regional Planning Guidelines which are currently being reviewed. Against this background, the strategy outlined in this document compliments and strives to achieve the overall stated objectives for the wider region and in particular, the role which the Mid East region will play in reaching these stated objectives.

## 2 Regional Economic Development – Setting the Scene

Chapter 3 of the National Development Plan (NDP) 2007 – 2013 deals with Regional Development and includes the following extract:

*The rate and location of regional economic development reflect many different factors, some of which can be directly influenced by Government policy, some of which reflect the inherent characteristics and potential of different regions and some of which reflect*

*the natural growth of the private sector. Regional economic development can also have a close relationship with population distribution. Strong clusters of population can themselves be a driver for regional development while in turn being the result of economic expansion in the related regions.*

With specific reference to the Dublin & Mid East Region, this section of the NDP states the following:

*The growth of the Greater Dublin Area (GDA), comprising the four Dublin councils and the counties of Kildare, Meath and Wicklow, has been dramatic in terms of population and economic output. While the economic success of the GDA has made a major contribution to the success of Ireland as a whole, it has also brought challenges, particularly in the area of infrastructure. The GDA has experienced heavy pressures in the areas of transport, housing and environmental services. In response, there has been considerable investment in infrastructure in the GDA under the NDP 2000-2006 and the NDP 2007-2013 will build on and intensify this.*

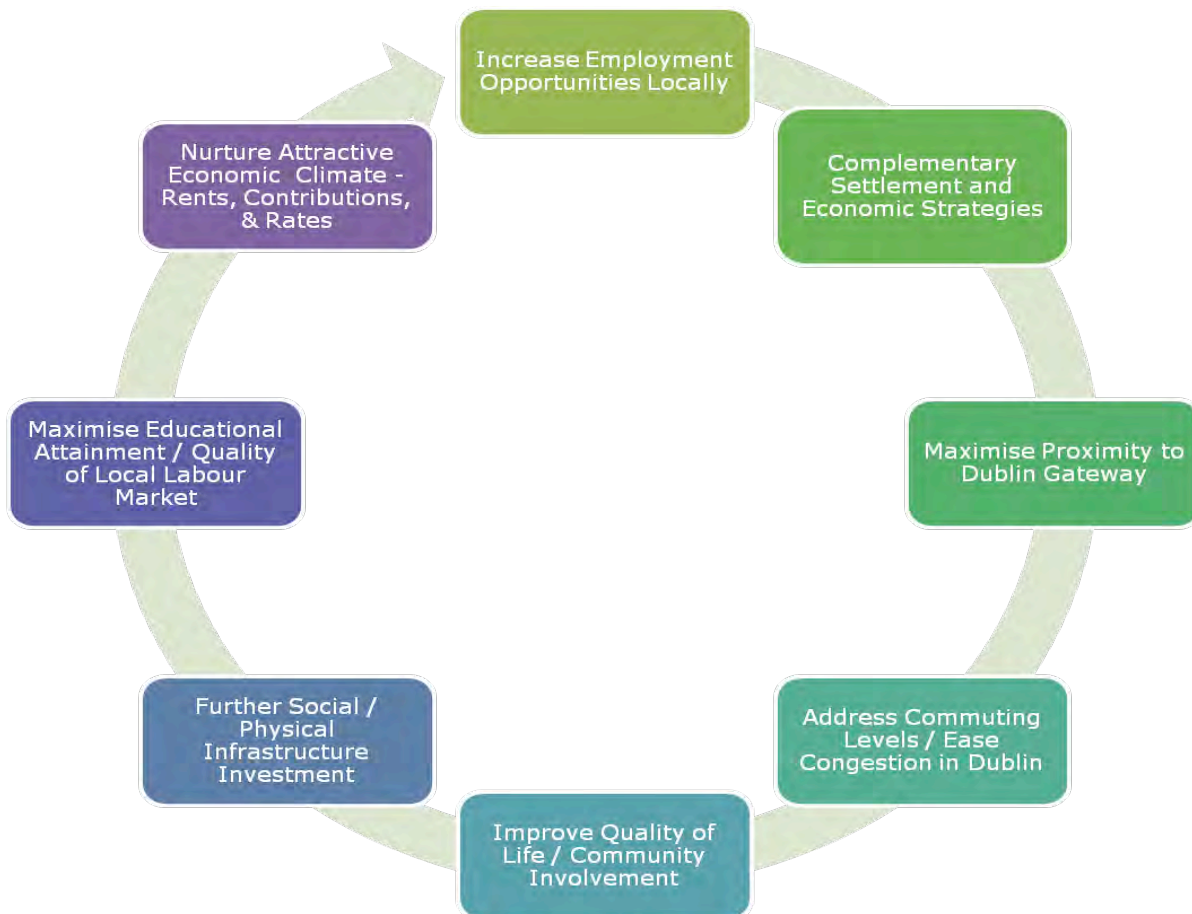
The NDP acknowledges that RPGs will **"be the template to secure good alignment between public investment plans at national level and physical planning at regional and local levels."** It also acknowledges that **"IDA Ireland's regional strategy is aligned with the NSS and is designed to support the Gateway approach to regional development"** and that **"this approach will be backed up by the regional focus of Enterprise Ireland"**. It is therefore clear that the NDP, informed by the NSS, will determine greatly the direction of future investment prioritization and that the major focus of the NDP is to address the deficits in the various Gateways. The Mid East Region have neither Gateways nor Hubs other than the extent of the Metropolitan Area of the National Gateway which extends into our constituent counties. The Mid East region is therefore effectively an island due to the creation of artificially created boundaries between the National Gateway of Dublin on one side and the Border Midland West region on the other. This places the region at a distinct disadvantage with regard to anticipated future exchequer capital investment. This is reinforced by a perception that because of the juxtaposition of the Mid East Region within the GDA, that we have enjoyed considerable economic development and have sufficient future opportunities in place to sustain our substantial resident populations.

There is considerable integration in the scale of investment under the sub headings of economic infrastructure, namely transport, energy, communications and environmental services, in the NDP with a seemingly unapologetic bias towards investment in Gateways and Hubs. The Gateway Innovation Fund (GIF) was proposed in the NDP as a strategic targeted intervention to stimulate Gateway development in the context of the NSS and was additional to the significant funds already available under the sectoral investment programmes. The intention of the GIF was to address areas where mechanisms to support Gateway development were either not readily apparent or where funding levels available would not have resulted in the required pace of development or progress in the Gateway concerned. It is possible that the areas of the Metropolitan Area of the GDA located in the Mid East region could have expected to benefit from the GIF. Unfortunately, due to the cutbacks enforced on the Government as a result of the unfavourable economic climate which now prevail, the establishment and implementation of the GIF has been deferred. Nonetheless, this commitment to a targeted investment approach places designated growth centres in the Mid East region at a distinct and palpable disadvantage which must be rectified in the review of the RPGs.

The NSS envisages the continued development of the GDA but in a more compact and sustainable manner, anchored through higher density development around a strengthened public transport grid. One of the critical issues for Dublin is recognized as combating long distance



commuting from the Mid East region and beyond. To achieve this requires that the range and quantity of housing options and transport and social infrastructure be further improved upon such that the population increase, and the consequent increase in housing demand, is accommodated within the GDA at its key development centres served by high capacity public transport.



**Figure 2 : Making Mid East Region a Critical Engine for Growth**

**The perception at the national level therefore is that the growth in economic development enjoyed by the National Gateway has extended into the counties of the Mid East Region and is not confined solely to the Gateway Core. The jobs ratios which are emerging in the constituent counties of the Mid East region would not appear to support this perception.** The counties of the Mid East region have experienced unprecedented levels of growth and development in population and housing respectively over the past decade. However, economic development within the constituent counties has been limited in comparison and not been maximised due to the dominance of the Dublin Metropolitan Area. **The juxtaposition of the Mid East region adjacent to Dublin should provide the stimulus to encourage and promote economic prosperity.** This favourable juxtaposition means that the region can capitalize on infrastructure investment necessary to service the sustained growth of

the Greater Dublin Area including road and rail infrastructure. To ensure success in future growth and economic development, the Mid East region must more clearly define its role within the Greater Dublin Area as its future will be greatly influenced by developments in the region as a whole. The quantum of employment creation in the Hinterland Area which the RPG review must strive towards achieving must be sufficient to cater for the existing resident population which has no alternative presently but to commute to the city centre for employment and the proposed population increase earmarked for the region as contained in the Settlement Strategy

**The Mid East Region should be considered as a critical engine for growth in the Greater Dublin Area.** This engine for growth will only be achieved if a number of critical decisions which are taken at a regional level are both accepted and endorsed. The achievement of success will require tough decisions to be made which will result in growth of a regional scale being directed to a select number of towns in the Mid East region. It will also necessitate the scale of growth in all other centres being restricted to local scale growth i.e. that required to serve local rather than regional needs. This will apply equally to residential / population growth and economic growth as they are often intrinsically linked. This often results in difficulties with regard to acceptance at a local political level. The review of the RPGs will assist in this regard by setting a clear settlement typology and hierarchy along with population and household targets for each constituent county. The central tenet of a successful economic strategy to complement this settlement typology and hierarchy will be the **development of a series of dynamic economic clusters centred on strategic multi modal transportation corridors across the region.** The identified growth centres within these dynamic economic clusters will **accept and develop regionally derived economic growth as well as the majority of regionally derived residential growth.** In this way, the RPGs are clear that economic growth will be promoted primarily in settlements identified to accept significant regionally derived residential growth and not towards all regional transportation corridors. The RPGs must seek to support the provision of the necessary physical and social infrastructure required to facilitate the recommended level of population and economic growth to ensure a successful outcome.

### 3 Regional Planning Guidelines

The existing planning legislation requires RPGs to address economic and employment trends and the location of industrial and commercial development. The strategic planning framework shall address projected population trends and settlement and housing strategies. The RPGs are therefore a broad brush strategic framework and not a detailed land use plan. The suggested recommendations contained in this report should therefore reflect the nature of the policy objectives likely to be contained in the RPGs.

#### 3.1 Settlement Strategy

The emerging Settlement Typology and Hierarchy for the Greater Dublin Area is presented in the table below with the Mid East Region settlements highlighted. The emerging Settlement Typology and Hierarchy is broadly consistent with that contained in the Regional Planning Guidelines 2004 – 2016. It would be expected that there will be general consistency between the positioning of centres in the Settlement Hierarchy and accompanying Economic Strategy.

### Emerging Settlement Typology and Hierarchy

Hierarchy	Description	Locations
Gateway Core	International business core and high density population, retail & cultural activities.	Dublin City Centre & immediate suburbs
Metropolitan Consolidation Towns	Strong active urban places within Metropolitan Area with strong transport links	Swords, Blanchardstown, Lucan, Clondalkin, Tallaght, Dundrum, Dun Laoghaire, <b>Bray</b> .
Large Growth Towns I	Key destinations, economically active towns supporting surrounding areas, located on Multi Modal Corridor in Metropolitan Hinterland.	<b>Navan, Naas, Wicklow, Drogheda</b>
Large Growth Towns II	Smaller in scale but strong active growth towns, economically vibrant with high quality transport links to larger towns/city	<b>Newbridge, Greystones, Cherrywood, Arklow, Balbriggan, Dunboyne, Maynooth - Leixlip.</b>
Moderate Sustainable Growth Towns	(i) In Metropolitan area, strong edge of metropolitan area district service centres, HQ linkages and increased densities at nodes on public transport corridors (ii) In Hinterland areas, 10k from large town on public transport corridor, serve rural hinterland as market town	Donabate, <b>Celbridge</b> , Lusk, Rush, <b>Ashbourne, Kells, Trim, Dunshaughlin, Kildare, Monasterevin, Kilcullen, Kilcock, Athy, Newtownmountkennedy, Blessington.</b>
Small Towns	Good bus or rail links; 10k from large growth towns.	To be defined by Development Plans.
Villages		To be defined by Development Plans.

### 3.2 Planning Policy Zones

The key objective for the future development of the Metropolitan Area is to ensure, inter alia, consolidation of urban centres, development of brownfield sites especially located along public transport corridors, the provision and facilitation of an integrated public transport system and the achievement of a greater use of sustainable transport modes through the integration of land use and transport planning. This would allow potential for settlements in the Mid East region located in the Metropolitan Area of the GDA to further densify. Such centres could develop in a compact sustainable manner predicated upon a rail based public transport in a similar manner to that underway in Adamstown, Clonburris and Hansfield. Development in the Hinterland Area of the GDA is to be concentrated in strategically placed, strong and dynamic urban centres.

There is some overlapping of strategic policies pertaining to both the Metropolitan & Hinterland Areas. The strengthening of the provision of retail in Dublin City Centre focusing on specialty and higher order comparison sectors is notable with further recommendations that economic development might be appropriately specialized in ways cognizant of the Metropolitan Area's unique competitive strengths. A reduction in the unsustainable level of commuting from the Mid East region to Dublin and a greater focus on community building within the Mid East region must form a significant element of the planning policy strategy for the Hinterland Area of the GDA.

It is recommended that Metropolitan Area be extended to include the Primary Dynamic Cluster of Dunbooyne (already included), Ashbourne and Dunshaughlin. The conflict between the RPG's and County Development Plan currently creates two distinct policy pathways within this Primary Dynamic Cluster. The identified growth centres within this Dynamic Cluster have undergone a significant increase in urbanization / population level since the preparation of the last RPG's. There is now an accepted need for considerable commercial and industrial development to sustain the resident population. The development of a strong employment base in each of these centres needs to be achieved in order to combat the extent of commuting out of the county, clogging up existing road space approaching and within Dublin.

#### 4 Retail Strategy and Regional Retail Hierarchy

The adopted Retail Strategy for the Greater Dublin Area 2008-2016 aims to set out a co-ordinated, sustainable approach to the assessment and provision of retail within the GDA. The regional retail hierarchy contained in the aforementioned Retail Strategy is recognised as a core spatial policy around which future growth, rejuvenation and expansion in the retail sector needs to be focused. The hierarchy and policy of the Strategy re-confirms the role of Dublin City Centre as the prime retailing centre for the Greater Dublin Area. The projected demand does not show a need to make significant changes to the hierarchy and therefore, in line with sustainable principles, the hierarchy coincides and re-enforces the RPG policies. Energizing of county towns and major town centres as important places where retail is one element of their role as multi-functional lively and vibrant places is proposed. Supporting the importance of retail within the main key towns of the GDA, a necklace of spatially balanced lower order centres providing for more regular needs is provided. The Strategy aims to encourage the achievement of more balanced flows of shopping patterns within each Local Authority area.

The adopted Retail Hierarchy for the GDA (and for the Mid East region in particular) would correlate closely with the suggested Settlement Typology and Hierarchy provided by the Regional Planning Guidelines office. The Major Town Centres and County Town Centres (Level 2) contain Bray, Wicklow, Navan, Naas / Newbridge and Leixlip (including Collinstown). Leixlip and the Collinstown area and Dunbooyne (Pace) will gradually develop along a 20 year time horizon reaching their desired Level 2 Major Town Centre status.

The adopted Retail Strategy for the Greater Dublin Area 2008-2016 are prepared pursuant to a recommendation contained in the Retail Planning Guidelines (DoEHLG. **The RPGs should unequivocally support the adopted Retail Strategy for the Greater Dublin Area.** In particular, this support should extend to the adopted GDA Retail Strategy (Table 6.1) which specifies, inter alia, that Dunbooyne and Collinstown will develop over the next 15 - 20 years to a Level 2 centre to provide predominantly retail and employment facilities. Meath County Council have determined in the Dunbooyne / Pace / Clonee LAP that the emerging preferred location for this Level 2 Centre adjoins the Pace Interchange proximate to the proposed Pace Railway Station / Park & Ride Car Park / M3 Interchange.

#### 5 PolyCentric City Region and Economic Development

It is indicated in the existing RPGs that Dublin will be able to confer wider economic benefits arising from its growth and development to the wider Hinterland Area. The degree to which this has materialized in the intervening years is questionable. All of the Large Growth Towns (I & II) within the Mid East region have failed in any measurable way to attract larger, multi office businesses which focus on knowledge based intensive service functions other than back office operations or call centres. It is difficult therefore to identify with the concept of a polycentric city region in which the constituent Local Authorities of the Mid East region have a real economic function which extends beyond that of localised service providers.

The National Gateway has numerous advantages which perpetuate this trend - access to client base, labour pool, cluster effect, transport / telecommunications infrastructure, compact nature of city centre business district, prestigious location, amenities and attractiveness of the urban environment. The existing radial manner of our transport system also offers certain advantages which attracts commuters from the wider region. There has been an increase in the relocation of some activities out of the National Gateway Core to locations adjoining the M50 but no further. Dublin provides a continuous stream of graduates from its higher education institutes each year and provides a highly qualified labour pool. Whilst some of these graduates will move to locations within the Mid East region due to lower property prices, these locations cannot presently offer sufficient numbers of jobs that would suit their qualifications and they have no alternative but to look to the National Gateway Core for employment. The advantages offered by the Mid East region include a better quality of life, better work life balance with reduced commute, cheaper housing and office accommodation and access to the same labour force available in Dublin (reverse commuting) with potential for accepting lower relative wages.

There is an accepted relationship between the Gateway Core / Metropolitan Area with the wider Metropolitan Hinterland Area. The Hinterland provides a significant portion of the labour force, housing, recreational area and the physical context for the Gateway Core / Metropolitan Area without which the wider region would fail to operate efficiently. There is room for structured economic development in both of the Gateway Core / Metropolitan Area and in the wider Metropolitan Hinterland Area. The structure for this development should be provided for in the planned context provided by the RPGs. Higher end functions should be primarily located in the Gateway Core / Metropolitan Area such as digital media, financial and legal, international corporate headquarters, embassies, Government Buildings, etc. The potential for more routine, back office operations or certain elements of the supply chain being relocated to or located in designated growth centres in the Hinterland Area is recognized. Certain lower end functions and services should therefore be located in the wider Hinterland Area as their provision in the Gateway Core / Metropolitan Area would not aid the overall competitiveness of the National Gateway. There are accepted benefits in opting for locations in the designated growth centres in the Hinterland such as cheaper office accommodation, access to the same labour market available in GDA, lower housing costs for workers, potential for lower labour costs to reflect cheaper commuting times, etc. As most, if not all, of the designated growth centres in the Hinterland Area are located on strategic multi nodal public transport corridors, they also offer the potential for reverse commuting from the Gateway Core to the regions. **There are shared opportunities to be harnessed in the wider GDA and these should be presented and promoted in a combined regional package accordingly.** Indeed, this would reinforce the sentiments expressed in the existing RPGs (Section 5.8 Towards an Integrated Polycentric City-Region):

*"It is further proposed that the GDA be marketed as an authentic city-region and a single localised local market. The aim should be to alter the perception that it comprises a metropolis plus a collection of small, scarcely accessible towns. This paradigm or idea is at the heart of the strategy."*

The development of a series of strong primary and secondary economic hubs in the Mid East region would allow more balanced regional development within the region with the primary focus of seeking to redistribute employment more equitably throughout the GDA region. The quantum of employment growth must be sufficient to cater for the existing commuting population and projected population growth increase earmarked for these centres. The employment growth should be promoted, in the first instance, to those locations where existing physical infrastructure (energy, transport, water services, etc.) would confer front loaded business advantage. This would ensure maximum use of existing service capacities and national investment in infrastructure provision.

## 6 IDA Policy

The constituent Local Authorities within the Mid East Region are realistic with regard to attracting future Foreign Direct Investment (FDI). Dublin City is not competing with Meath, Kildare and Wicklow for FDI, it is competing with other city regions in Europe and from further afield. This is acknowledged by the IDA as Dublin is the only city region in Ireland that meets the required criteria.<sup>1</sup> It would be fair to recognize and acknowledge that the constituent Local Authorities within the Mid East region are effectively competing with each other and other strategic regional locations in Ireland for lower order economic opportunities that are not attracted to the National Gateway Core or specific manufacturing facilities which would be difficult to satisfy in the National Gateway Core due to their extensive space requirements.

The IDA is fully committed to securing a balance in regional development whilst recognizing that the challenge in achieving an even spread of investment is intensified as the sophistication of investments increase. Such investments require a concentration of highly qualified and educated workers, supporting infrastructure and high level business services. The IDA indicate that their regional development commitment supports the national policy of achieving balanced social and economic development across the country as outlined in the National Spatial Strategy. This manifests itself in a focus on the presentation, by the IDA, of areas of sufficient scale and critical mass, namely national regional gateways and hubs. This would again place the Mid East region at an apparent disadvantage which must be addressed.

There is presently no apparent difference in the marketing of Navan, Naas, Arklow or Drogheda by IDA Ireland. It is indicated on the IDA Ireland website that there are adequate greenfield areas available within Navan, Arklow and Drogheda for future development available to suit "*manufacturing and international services clients*". The existing Millennium Park Development at Naas is referred to with regard to Property Options but is not identified as an IDA Business & Technology Park. Furthermore, none of the Strategic Sites being developed and marketed in Ireland by IDA Ireland are located in the Mid East region. This places the Mid East region at a regional disadvantage and individual Local Authorities need to identify and secure strategic sites for this purpose and, if required, to develop them in partnership with the IDA or by themselves.

**The RPGs will include an objective that seeks to develop a new IDA Regional Plan for the Mid East region in conjunction with the Mid East Regional Authority and constituent Local Authorities / County Enterprise Boards which is specifically tailored to concentrate certain types of industry / sectors into certain designated centres within the constituent counties.** The suggested regional plan should take account of the locational behaviour and requirements of the next generation of FDI projects, infrastructure capacities, the importance of building critical mass and leveraging the advantages of existing sectoral clusters. This would require collaboration and agreement between the constituent Local Authorities but could result in greater specialisms being developed in certain centres developing regional agglomeration effects.

## 7 Economic Corridors and Hubs

The existing RPG's envisage the National Gateway Core and strategic key towns developing as significant hubs of economic growth which can attract and support a range of services and can deliver high quality of life standards making these locations attractive places to work and live. A number of multi-modal growth corridors extending across the Metropolitan Area and Metropolitan Hinterland and beyond into other regions are promoted, which have high quality new or

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<sup>1</sup> IDA Annual Report 2008



enhanced public transport serving key towns along the route and maximise opportunities in these towns.

The M1, M3, M4, M7 and M11/N11 which traverse the Mid East Region are all recognized as strategic national transport corridors with existing Motorways and parallel heavy rail based services either present or planned. The Metropolitan Consolidation Town of Bray (M11/N11) and all of the Large Growth Towns I identified in the Mid East Region (Navan (M3), Drogheda (M1), Naas (M7) and Wicklow (M11/N11)) are located on these corridors whilst other centres which are placed strategically within the Settlement Hierarchy (Large Growth Towns II) such as Newbridge (M7), Maynooth (M4), Dunboyne (M3), Greystones and Arklow (M11/N11) are similarly served by these corridors. Therefore from a transportation perspective, all of the designated growth centres are well served with regard to accessibility and public transport opportunities as all are already or will be served by high capacity road and rail infrastructure. **It would therefore be logical that all of the above strategic multi modal transport corridors are also designated as economic corridors extending across the Metropolitan Area and Hinterland Area in the RPGs. All of economic corridors are transregional in nature, both within the GDA and extending to the other regions beyond.** Public transportation infrastructure, centred on major transportation linkages provides a significant opportunity for the Mid East region to exploit and has lower additional public investment requirements compared to the cost of new dedicated infrastructure.

The Mid East Regional Authority is therefore advocating 5 Strategic Economic Development Corridors in the review of the RPGs which builds on the existing and proposed settlement hierarchy and strategy and also complements the *"Economic Development Action Plan for the Dublin City Region"*.

1. The **Northern Economic Corridor** corresponding with the M1 Motorway / **Dublin Belfast Economic Corridor** with **Drogheda** (Large Growth Town I) as a **Primary Economic Hub** with Swords (Metropolitan Consolidation Town) also identified as a Primary Economic Hub. It is considered that over the course of the current RPGs that the development of the proposed deepwater port at Gormanston and related employment generating uses in conjunction with the further development of the City North Business Park at Stamullen would require Gormanston / Stamullen to be advanced to a Secondary Economic Hub in this Corridor over the currency of the RPGs (2010- 2022).
2. The **North West Economic Corridor** corresponding with the M3 Motorway with **Navan** (Large Growth Town I) as a **Primary Economic Hub** in the Navan – Kells – Trim Primary Dynamic Cluster and **Dunboyne / Clonee** (Large Growth Town II) as the **Primary Economic Hub** in the Dunboyne / Clonee, Ashbourne and Dunshaughlin Primary Dynamic Cluster. **Blanchardstown** (Metropolitan Consolidation Town) would also be identified as a Primary Economic Hub on this corridor. **Ashbourne** and **Kells** would be identified as **Secondary Economic Hubs** in their respective Primary Dynamic Clusters. The Moderate Sustainable Growth Towns of Trim and Dunshaughlin would have a supporting role within their respective Primary Dynamic Clusters. The scale of land zoned for commercial, industrial and employment generating uses in future Trim Development Plans and Dunshaughlin Local Area Plans would have to be cognisant to their designation within their respective Primary Dynamic Cluster.
3. The **Western Economic Corridor** corresponding with the M4 Motorway with **Leixlip** (Moderate Sustainable Growth Town) and **Maynooth** (Large Growth Town II) identified as **Primary Economic Hubs** in the Maynooth – Leixlip – Kilcock – Celbridge Primary Dynamic Cluster. The Moderate Sustainable Growth Towns of Kilcock and Celbridge would have a supporting role within the Primary Dynamic Cluster. The scale of l

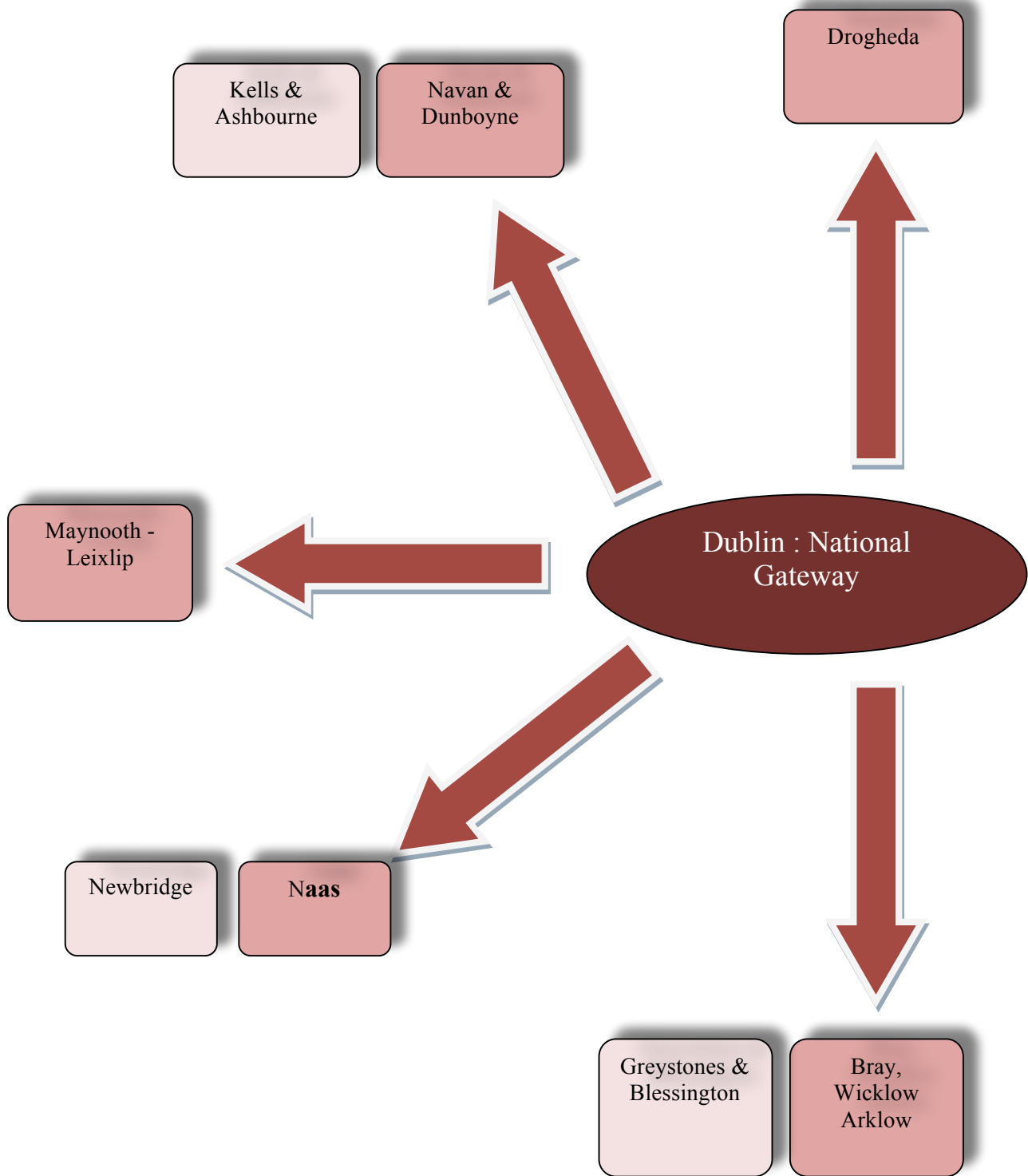


Figure 3 : Positioning of Primary & Secondary Economic Hubs on Economic Corridors

zoned for commercial, industrial and employment generating uses in future Celbridge and Kilcock Local Area Plans would have to be cognisant to their designation within their respective Primary Dynamic Cluster.



4. The **South Western Economic Corridor** corresponding with the M7 Motorway with **Naas** (Large Growth Town I) identified as a **Primary Economic Hub** and **Newbridge** (Large Growth Town II) identified as a **Secondary Economic Hub**. Kilcullen is identified as a Moderate Sustainable Growth Town within the Naas – Newbridge – Kilcullen Primary Dynamic Cluster. The towns of Kildare and Monasterevin are also identified as Moderate Sustainable Growth Towns and form a Secondary Dynamic Cluster along this corridor. The scale of land zoned for commercial, industrial and employment generating uses in future Kilcullen, Kildare and Monasterevin Local Area Plans would have to be cognisant to their designations within their respective Primary & Secondary Dynamic Clusters.
5. The **Southern Economic Corridor** corresponding with the M11 / N11 Motorway / Dual Carriageway with **Bray** (Metropolitan Consolidation Town) and **Wicklow** (Large Growth Town I) and **Arklow** (Large Growth Town II) identified as **Primary Economic Hubs** with **Greystones** (Large Growth Town II) identified as a Secondary Economic Hub.

As a counter balance to the dominance of the Southern Economic Corridor, it is considered that **Blessington** be identified as a **Secondary Economic Hub** to serve the west Wicklow area located on the N81. It is not suggested that the N81 be considered as a strategic economic corridor in its own right. This would compliment the inclusion of Ashbourne within the North West Economic Corridor although not located on the M3 itself.

**The proposed Leinster Orbital Route would connect the Large Growth Towns of Drogheda, Navan and Naas / Newbridge with a possible further extension to Arklow. The Mid East Region shall also support the development of this transport corridor** which would greatly improve the connectivity between these Large Growth Towns and also potentially allow other centres along this route to be reconsidered in a Regional Settlement Hierarchy perspective which have the benefit of existing national transportation corridors such as Enfield or Kilcock (both on M4 / M6 Motorways and Dublin – Sligo rail line).

## 8 Dynamic Economic Clusters

The RPGs currently identify Primary and Secondary Dynamic Clusters which act as catalysts for regional economic development. Identified urban centres located within these Dynamic Clusters can be developed in a mutually dependent way, so that the amenities and economies of the whole cluster are greater than the sum of the individual parts. Future sustainable employment generation for the Mid East region, particularly in the areas of industrial development and enterprise, can be achieved through the promotion and development of the identified Dynamic Economic Clusters. Provided that the channels for collaboration and co-operation between them are working, significant opportunities exist for successful cluster development in the Mid East region. In order to exploit these opportunities and to maximise employment locally, it is important that the mismatch between the labour skills of the resident population and the jobs available therein is reconfigured. The cluster concept will exploit the dynamic nature between those towns within each cluster, and will also capitalise on the niche opportunities / specialisms within the relevant cluster. Establishing a critical mass that contributes to self-sufficient economic development is fundamental to the emerging thematic spatial strategy advocated in the RPGs. By enhancing the competitiveness and functionality of various sectors within these clusters, the Mid East region can establish a more attractive status for inward investment, both indigenous and foreign, and increase employment levels to a more sustainable ratio.

**The strategic opportunities present in the Mid East region should be enabled by the preparation of plans for such economic clustering with an intrinsic thematic study contained therein.**

This will require greater consideration to the following thematic issues :

- Retention of Highly Educated and Skilled Labour

Whilst Dublin has the highest rate of educational attainment in Ireland, the Mid East also fares well. However, to compete on an international basis, the level of attainment has to be boosted even further. In the long term, the most sustainable way of ensuring a supply of skilled labour is to provide education and training to the local population.

- Education, Research & Development

Forging closer co-operation between industry and the wider education sector will ensure that the right skills are developed locally thus making regions more competitive. The key objective to achieve in this regard is to move from basic research at higher education institutes towards new products and processes in industry.

- Infrastructure

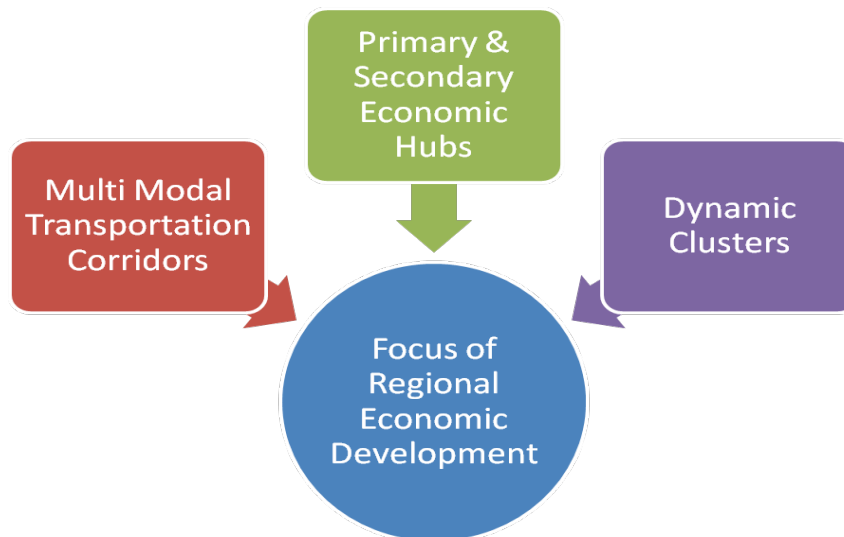
The most obvious infrastructure of a region comprise of transport, water services, waste, energy, telecoms, social, cultural and recreational. It is accepted that infrastructure generally has a positive impact on growth. Co-ordination of land use and transport planning will seek to maximise the use of road and public transport infrastructure that links designated settlements. This will require the resolution of a number of "big ticket issues" for the region upon which the emerging settlement and economic strategies of the Regional Planning Guidelines are predicated upon. In particular, the abstraction of an adequate potable water supply from the River Shannon and a regional wastewater treatment facility and sea outfall at Portrane (in accordance with the Greater Dublin Strategic Drainage Study) as considered as significant cross regional priorities of particular strategic importance.

- Quality Built Environment / Quality of Life

Increased mobility due to skills and experience attained results in individuals seeking out areas that will provide them with a higher quality of life. A well designed / laid out built environment in conjunction with a quality natural environment is highly desirable. Whilst there remains excess demand in the housing supply, this is masked by activity in the construction sector being decimated, concerns about NAMA and the willingness of lenders to provide capital to budding home owners. The net result has been a marked reduction in the price of residential property across the region although the scale of the decrease has not been universal throughout the region. The quality of the product in conjunction with the quality of the surroundings will always have a positive effect on the price of housing and this is within the compass of Local Authorities to influence and shape.

Cluster based economic development utilises a specific grouping of competing companies and identifies how co-operation can lead to mutual advantages. Collaboration, not just among competitive companies but also with universities and other higher education institutions, generates a critical mass of labour and skills, thereby leading to a greater level of expertise and a platform for sustainable growth. By planning from a local level, inter-enterprise co-operation can incur economies of scale, and stronger social linkages which contribute to the creation of new businesses and the expansion of existing enterprise. Reaching a more competitive level of business through cluster based economic development offers a viable solution to promoting a more sustainable jobs ratio within the region. Economic enhancement will, on foot of the current

global and domestic financial crisis, increasingly require a highly competitive environment. By building upon an already diverse economic base and exploiting the unique opportunities of each of the dynamic clusters, the Mid East region can provide the critical mass necessary to rebalance economic development with recent population growth trends.



**Figure 4 : Strategic Focus of Mid East Region Economic Development Strategy**

Each of the constituent Local Authorities within the Mid East region will continue to employ and foster a proactive approach to economic development and recognize that increased levels of industrial and commercial development are essential to making our respective counties more sustainable places to live and work. The RPGs will seek to channel economic development for the Mid East through the identified dynamic economic clusters. However, it will be incumbent on each Local Authority to establish strategic policy objectives in their respective County Development Plans that will encourage and facilitate the provision of mixed employment opportunities concurrently with anticipated future population growth resulting in the establishment of more sustainable communities and counties in the future. Harnessing the opportunities and potential of identified dynamic clusters in the Mid East region, supported by developing national and regional transport infrastructure and the Mid East region's spatial relationship with the Metropolitan Area of the GDA, can be achieved through a strategic thematic framework coupled with linked connectivity and focused residential growth. Sustainable spatial development in this way will encourage the realisation of a dynamic, attractive and more competitive Mid East region with a greater share of the GDA economy than enjoyed previously.

## 9 Broadband Capacity

The Metropolitan Area Networks (MANs) enable telecommunications companies to provide cheap 'always-on' high-speed access to the Internet. Such high speed access is considered a vital tool for industry and business to be both efficient and competitive whilst also invaluable for educational institutes, health and research bodies and private consumers. The MANs consist of high-speed, fibre-optic rings linking the main business districts to a co-location centre which houses the telecoms operators' telecommunications equipment. By making these MANs available to all operators on an open access carrier neutral basis, they are stimulating competition by removing the need for service providers to build their own networks.

High Speed broadband is fast becoming a critical piece of economic infrastructure to facilitate balanced regional development and will be a fundamental requirement for all business in the future. Regional broadband provision needs to be addressed quickly as the **price performance**

**differential is a significant disincentive for companies to base themselves outside of Dublin**, and thus is a barrier to realizing the future potential within the regions. There was no centre in the Mid East region identified as a Metropolitan Area Network (MAN) Phase I town other than Drogheda. This contrasts to smaller centres such as Kiltimagh, Kingscourt and Manorhamilton being included. Navan, Trim, Kells, Dunshaughlin, Dunboyne / Clonee in Co. Meath and Blessington and Kilcoole / Newtownmountkennedy in Co. Wicklow were included in Phase II of the MAN. Whilst the development of MAN's in these centres is welcomed, high speed broadband is required throughout the region.

The future balanced economic development of the region requires that this infrastructure is rolled out throughout the Hinterland Area of the GDA and in particular to the centres identified as Primary & Secondary Economic Hubs. Despite an assessment having been carried out by the Department of Communication, Energy & Natural Resources (DoECNR) into the effectiveness of spending under the first phases of MAN's rollout, no subsequent phases have yet been announced. Of concern, it is noted that it is recommended that the further rollout of Phase II and Phase III Metropolitan Area Networks (MANs) would be deferred in the recently published McCarthy An Bord Snip Nua report. **The Mid East Region shall seek to ensure that all identified Primary and Secondary Economic Hubs in the RPG review are prioritized in the future national rollout of the Metropolitan Area Networks. This action is a priority for economic infrastructure investment in any subsequent NDP to ensure regional competitiveness.**

## 10 Higher Education and the SMART Economy

The next phase of economic development in Ireland will need to be based on a new source of competitive advantage, accepted as being centred mainly on knowledge. There has been a significant increase in the level of investment devoted to research in order to create new knowledge and to transfer that knowledge to enterprises throughout Ireland. The scope of the innovation agenda aim to not only increase the level of innovation throughout all sectors of the economy and society but also to accelerate the pace of adoption innovations from whatever sources by enterprises in Ireland. Innovation, in the wider economy, is as much about existing companies developing new products and processes as it is about developing commercial spin-outs from academic research. Innovation creation, adoption and diffusion is as much a social and cultural process as it is an outcome from scientific and technological advances.

The draft Regional Competitiveness Agendas : The East prepared by Forfas indicated that the proportion of the resident population educated to third level is highest in the Dublin & Mid East regions than in any other region in the state. This is attributed to the pull of Dublin City Centre with its numerous Higher Education Institutes and employment opportunities. Dublin has proportionately more people qualified in areas such as humanities & arts, social science, business, law and computing but lower relative proportions in areas such as engineering, manufacturing, construction, health, education and social services than in the Mid East region. This is reflective of the competitive advantage of specialisms locating in the Metropolitan Area Core whilst other employment sectors tend to locate in other regions outside of Dublin. It is the latter sectors that the Mid East Region need to compete more vigorously for i.e. manufacturing (including high end in supply chain), food production, biotechnology, Pharma, SMART / Hi-Tech / ICT technologies, services, back offices of financial services, data processing, forestry, tourism, agri-tourism, agri-business, renewable energy, film industry, etc. Furthermore, due to the excellent transportation networks of the Mid East region, many existing distribution and logistics centres have established such as Primeline Logistics in Ashbourne, Aldi regional distribution centre in Naas, Musgrave Supervalu distribution centre at Kilcock, etc. This needs to be further exploited.

There are 2 innovation ecosystems been developed into the Mid East region, namely the Wicklow County Campus in the former Clermont College in Rathnew and a proposal to develop the M4

Knowledge Valley by National University of Ireland Maynooth (NUIM) at Maynooth. The RPGs should identify and promote the development of an Innovation and Commercialization Ecosystem at both locations. This designation would act as a regional counter balance to the TCD – UCD Innovation Alliance. (Further information on both the Wicklow County Campus and proposed M4 Knowledge Valley by NUIM are provided in Appendix A : Potential Sectoral Opportunities)

## 11 Realizing Future Potential – Potential Economic Sectoral Opportunities

It is considered that there are a number of economic sectors which offer significant opportunities for the Mid East region during the currency of the RPG review. Appendix A outlines these individual economic sectors in considerable detail as their inclusion in the main body of the text would unnecessarily extend the voluminous nature of this report. Potential Economic Sectoral Opportunities include, inter alia, the following

- Equine Industry / Sports Related Horse Industry
- Horticulture
- Forestry
- Manufacturing / Office Based Industry
  - High Value Added Traded Services
  - High Tech Business Sector
  - SMART (ICT) Technologies.
  - Centres for Science, Engineering and Technology.
  - Data Processing
  - Software Development
  - Telemarketing
  - Research and Development,
  - Commercial Laboratories / Healthcare
  - Meat, Food and Agri Foods Production
  - Pharma and biotechnology
- Logistics and Supply Chain Management
- Energy and Environmental Potential
- Domestically Traded Sector (including Retail and Personal Services)
- Tourism
- Film Industry
- Port Related Development

The future Economic Development Strategy for the Mid East region must also acknowledge and support the importance of local job creation / the role of existing rural based enterprises and the invaluable contribution which small & medium sized enterprises & high potential start ups make to the existing regional economy.

The above sectors represent the assets of the region and the detailed commentary provided in Appendix A seeks to explore how these sectors might be harnessed to further develop the existing enterprise bases, and to capture future sectoral opportunities. The challenge over the next decade will be to successfully shift the growth towards export oriented sectors and activities.

It is considered that the high tech business sector is likely to have the brightest futures and the RPGs should facilitate the establishment of these firms in the designated Primary and Secondary Economic Hubs within the Mid East Region. As competition for Foreign Direct Investment intensifies on an international basis, it is possible that Ireland may attract a smaller share of this investment in the future which suggests a parallel focus on maintaining existing firms whilst also focusing on indigenous firms and more traditional sectors.

There are different functions carried out within firms – strategic management, day to day management, administration, accountancy, marketing, logistics, production, research and development. Whilst we have become a high wage economy in the recent past and may no longer be able to attract labour intensive enterprise, the other functions within manufacturing remain highly profitable and these sectors should be the target for the Mid East's industrial policy. It will remain a priority within the region to attract higher end manufacturing and SMART (ICT) Technologies.

There is scope within the Mid East region e.g. Newbridge (Wyeth), Maynooth / Leixlip, Navan or Wicklow to create a dynamic cluster of high tech / bio tech industries which would develop a high degree of synergies between new technology types.

## 12 Summary & Recommendations

### 12.1 Economic Corridors and Clustering of Sectors

The Mid East Region is a **critical engine for growth** in the Greater Dublin Area. The Mid East Economic Development Strategy strives to achieve a **reduction in the unsustainable level of commuting** from the Mid East region to Dublin and a **greater focus on community building** within the Mid East region. This strategy has strongly advocated a **redistribution of employment opportunities** throughout the Greater Dublin Area, **focusing on Primary / Secondary Economic Hubs** located on designated Economic Corridors.

The Mid East Regional Authority is advocating 5 Strategic Economic Development Corridors in the review of the RPGs which builds on the existing and proposed settlement hierarchy and strategy and also complements the "Economic Development Action Plan for the Dublin City Region".

1. **Northern Economic Corridor - Drogheda** (Large Growth Town I) as a **Primary Economic Hub**.
2. **North West Economic Corridor - Navan** (Large Growth Town I) as a **Primary Economic Hub** in the Navan – Kells – Trim Primary Dynamic Cluster and **Dunboyne / Clonee** (Large Growth Town II) as the **Primary Economic Hub** in the Dunboyne / Clonee, Ashbourne and Dunshaughlin Primary Dynamic Cluster. **Kells** and **Ashbourne** are identified as **Secondary Economic Hubs** within their respective Primary Dynamic Clusters.
3. **Western Economic Corridor – Leixlip and Maynooth** (Large Growth Towns II) identified as **Primary Economic Hubs** in the Maynooth – Leixlip – Kilcock – Celbridge Primary Dynamic Cluster.
4. **South Western Economic Corridor - Naas** (Large Growth Town I) identified as a **Primary Economic Hub** and **Newbridge** (Large Growth Town II) identified as a **Secondary Economic Hub**.
5. **Southern Economic Corridor - Bray** (Metropolitan Consolidation Town) and **Wicklow** (Large Growth Town I) and **Arklow** (Large Growth Town II) identified as **Primary Economic Hubs** with **Greystones** (Large Growth Town II) identified as a Secondary Economic Hub.

**Blessington** identified as a **Secondary Economic Hub** to serve the west Wicklow area located on the N81.

There are **shared opportunities** to be harnessed in the wider GDA which should be presented and promoted in a combined regional package accordingly. There are numerous functions and services which should be located in the wider Hinterland Area as their provision in the Gateway Core / Metropolitan Area would not aid the competitiveness of the National Gateway.

The **Dublin City must be properly defined** to ensure that Dublin can achieve its full international potential as a city region. The partitioning of the city region along outdated administrative boundaries fail to address the serious long term implications of maintaining a dual structure in the city region whereby the Mid East counties continue to be cast in the role of providers of labour force and residential accommodation. Any attempt to exclusively concentrate most of the next wave of knowledge intensive and innovation driven enterprises in one part of the city region has to be reconciled with other planning objectives for the overall region.

The maximization of the potential afforded by each of the economic corridors will require a **co-ordinated response between the relevant local authorities** as most of the corridors are



trans-regional in nature. The Mid East region must **prepare an Economic Development Action Plan for the region** which complements the existing strategy prepared by the Dublin Local Authorities and the Economic Strategy contained in the RPGs. This Economic Development Action Plan should seek to identify measures to promote and support key economic growth sectors / clusters in the Mid East Region, to include, inter alia:

- Equine Industry / Sports Related Horse Industry
- Horticulture
- Forestry
- Manufacturing / Office Based Industry
  - High Value Added Traded Services
  - High Tech Business Sector
  - SMART (ICT) Technologies.
  - Centres for Science, Engineering and Technology.
  - Data Processing
  - Software Development
  - Telemarketing
  - Research and Development,
  - Commercial Laboratories / Healthcare
  - Meat, Food and Agri Foods Production
  - Pharma and biotechnology
- Logistics and Supply Chain Management
- Energy and Environmental Potential
- Domestically Traded Sector (including Retail and Personal Services)
- Tourism
- Film Industry
- Port Related Development

### 12.2 Land Use Zoning

The Mid East Regional Authority will **vigorously pursue the availability of competitively priced properties and attractive business and industrial parks** that accommodate mixed use businesses in a planned and strategic manner located in identified Primary & Secondary Economic Hubs. The RPG's advocate that the **least restrictive enterprise land use approach to zoning of land**, consistent with good planning, should be taken and a sufficient amount of serviced land should be available to meet demands from enterprise. Following the adoption of the RPGs, each Local Authority within the Mid East Region shall undertake a review of existing land use zoning objectives pertaining to employment generating uses and their compatibility to secure the economic development strategy contained therein. A **regionally consistent approach to land use zoning objectives** for employment generating uses will be advanced rather than local variations.

### 12.3 Securing of Strategic Sites

The RPGs will include an objective that seeks to develop a **new IDA Regional Plan for the Mid East** in conjunction with the Mid East Regional Authority and constituent Local Authorities / County Enterprise Boards. The new Regional Plan will be specifically tailored to **concentrate certain types of industries / sectors into certain designated economic hubs** in the constituent counties. Specific promotional and marketing material will then be produced which are tailored to the specific sectors and / or firms conducting specific business activities. There would also be a requirement for **the location of IDA investment / business park development to align with the identified Primary Economic Hubs**. This may require the development of additional IDA supported business park developments in conjunction with Local Authorities.

The constituent Local Authorities within the Mid East region will explore joint ventures with developers / industrialists / landowners to **develop strategic sites around the region**. These



sites shall be identified only in the identified primary and secondary economic hubs. The **fast tracking of statutory planning consent** shall be facilitated and encouraged which may include the use of Part VIII planning consent for site development works or indeed for the entire development. This process should include the reservation of prize sites which would be **suitable for or comparable to the IDA "strategic sites"** which could support investment from large FDI firms which may have significant space requirements.

#### 12.4 Broadband Capacity

High Speed broadband is a **critical economic infrastructure** to enable regional development and will be a fundamental requirement for all business of the future. Regional broadband needs must be addressed and the price performance differential is a significant disincentive for companies to base themselves outside of Dublin, and is thus a barrier to realizing future potential within the regions. The Mid East Region shall seek to ensure that all identified Primary and Secondary Economic Hubs in the RPGs review are **prioritized in the future national rollout of the Metropolitan Area Network Program**. This action is a priority for economic infrastructure investment in any subsequent NDP to ensure regional competitiveness.

#### 12.5 Training

There is a need to develop an **Employment and Skills Strategy** with policy and action targets agreed by key stakeholders, setting out **targeted enterprise and employment sectors** to meet the demand in the Mid East Region. There is also a need to develop a **compendium of skills** required to service the range of sectors / activities highlighted in this report. The ongoing research of the **Forfas Regional Competitiveness Agenda** shall be used to determine how regional competitiveness can generate and sustain more enterprise start ups and to provide incubation / enterprise supports.

#### 12.6 Enhanced Collaboration

The manner in which individual firms do business is changing with the emergence of alliances, partnerships and networks, both on a national and international basis. As networking becomes an accepted base for business modeling, it presents opportunities for the **development agencies in the Mid East region to enhance their collaborative actions** to facilitate companies within this environment. The Mid East region will strive to ensure clarity **on the availability of business supports, the role of each regionally based agency and key contacts** to avoid a 'pillar to post' scenario emerging within the region or constituent counties. The Mid East region will **facilitate greater interactions between Higher Educational Institutes and local firms** by promoting awareness of existing initiatives and working across the range of multinational and indigenous firms in the region. The **capabilities of the entire region should be jointly marketed and branded** rather than on an individual county basis where the strengths of the entire region are promoted as a counter balance to the Dublin Gateway.

#### 12.7 Infrastructure Investment

This strategy stresses the importance of **identification and co-ordination of the region's infrastructure to provide for RPG predicted future growth**. This will require the identification and prioritization of the necessary investment in physical, social and economic infrastructure required for the future sustainable economic development of the Mid East region. This will require a **targeted approach** based on the centres identified for significant residential and economic development in the RPGs rather than on a parochial basis. The correlation between the necessary forms of infrastructure investment required and the geographical locations earmarked for significant residential and economic growth in the RPG's will become a key tenet of the region's lobbying strategy for future National Development Plans.

A **sub regional approach to providing environmental services** is necessary to facilitate regional development. There must be an agreed protocol between individual county administrators which facilitate ease of transfer and the sharing / development of environmental services across traditional county boundaries.

### 12.8 Retail

The RPGs shall **unequivocally support the adopted Retail Strategy for the Greater Dublin Area** and seek to support the development of the proposed Level 2 Major Town Centre at Collinstown and Dunboyne.

### 12.9 Healthcare

The RPG's shall ensure that **adequate lands are reserved at suitable locations to facilitate the development of a new regional hospital in Navan**. The new regional hospital would become a key driver with significant multiplier effects within the primary economic hub of Navan and the Primary Dynamic Cluster of Navan – Kells – Trim. The RPG's will also acknowledge the **potential of private healthcare facilities** such as specialist hospitals, nursing homes, assisted and independent living schemes, etc. to be located in the Mid East region. Such facilities are required to cater for the healthcare needs of the resident population although they could also have a wider GDA remit and, in particular, to cater for the significant growth expected in this sector to cater for the needs of an ageing population.

### 12.10 Additional Port / Airport Capacity

Drogheda Port is part of the Greater Dublin Area for future strategic planning as an integral part of the central Seaway Corridor which also includes Dun Laoghaire & Dublin Port. The RPG's shall include specific recognition which supports the **provision of additional flanking port capacity along the east coast** to augment and compete with the existing and planned capacity at Dublin Port. This would provide a critical piece of economic infrastructure to the Mid East region and provide the catalyst for complementary enterprises to develop within the surrounding area. The advancement of the emerging preferred location for the expansion of Drogheda Port through the planning process will require, inter alia, an assessment of the affect of this new deepwater port on the Natura 2000 site. The review of the RPGs shall therefore support the development of additional flanking port capacity within the Mid East region and **support the development of a deepwater port and related enterprise at Gormonston, Co. Meath** pursuant to an agreed local planning framework such as a Strategic Development Zone and / or Local Area Plan. This recognition will also acknowledge the potential for the development of extensive mixed use development in the surrounding area predicated on the development of the deepwater port in the first instance.

The RPGs shall also **support the development of Arklow Port** as a 'roll-on / roll off' facility. It is envisaged that this new port would act as a counter regional balance to Dublin and Rosslare / Waterford ports and would greatly enhance access to the Midlands.

### 12.11 Innovative Capacity

The RPGs shall **identify and promote the development of an Innovation and Commercialization Ecosystem in Wicklow**, centred on the Wicklow County Campus with the resultant spatial framework to be prepared by Wicklow Local Authorities.

The RPGs shall **identify and promote the development of an Innovation and Commercialization Ecosystem referred to as the "M4 Knowledge Valley"** spanning north Kildare and South Meath centred on NUIM with the resultant spatial framework to be jointly prepared by Meath and Kildare Local Authorities. This framework would include the existing Maynooth Environs Local Area Plan adopted by Meath County Council. This may include the consideration of the designation of an Strategic Development Zone for this area. This designation would act as a regional counter balance to the TCD – UCD Innovation Alliance.

### **12.12 Importance of Local Job Creation and the role of Existing Rural Based Enterprises**

The revised RPGs must recognize the potential for local job creation within the constituent counties of the Mid East region which would reduce journey to work times and length of commute for existing residents. The restriction to **local scale employment growth should be removed within all of the centres identified within Primary Dynamic Clusters**. The positive consideration of enterprise and industrial development in all centres within Primary Dynamic Clusters by individual Planning Authorities in the Mid East region may be deemed consistent with other objectives / policies contained in RPGs. The RPG's presently fail to acknowledge that there are advantages of developing employment in the constituent counties of the Mid East which although car borne in nature would be contained within their respective counties.

The issue of **existing industrial enterprises which operate in rural areas** needs to be addressed in any Economic Development Action Plan which is advanced within the Mid East region. The revised RPG's need to take strong cognizance of the potential of existing industrial enterprises located outside of settlements earmarked for residential and economic development in rural areas to **harness local entrepreneurship and create valuable local employment**. It is considered that the existence of such uses or indeed the further expansion of such facilities in limited cases would not threaten the overall economic strategy contained in the RPG's. Indeed, the development of such local enterprises which serve predominantly a local rather than regional economy or individual or grouped enterprises which have specific locational requirements that cannot be readily facilitated within existing development centres are **integral to the overall functioning of a region**.

It is considered imperative that there is a corresponding **acknowledgment in the revised RPGs of the existence and value of such enterprises** outside of designated settlements to provide primarily local employment.

## 13 Appendix A Potential Economic Sectoral Opportunities

### 13.1 Higher Education and the SMART Economy

#### Wicklow County Campus

Wicklow County Campus is a joint venture developed by Wicklow County Council in conjunction with the Institute of Technology Carlow and provides higher education programmes on an impressive 55 hectare campus located in the former Clermont College in Rathnew, Co. Wicklow. Wicklow County Campus are currently developing the facility as a centre of excellence in enterprise development, innovation and educational provision, thus becoming a catalyst for economic development in the region. The campus is surrounded by a further 30 hectares of land zoned 'Employment' and is very well served by both physical and ICT infrastructure.

The campus provides a range of services including:

- Higher Education and Training Programmes targeted at supporting local business and industry through continuing education and continuing professional development courses including Business, Law, Building Energy Rating and Health & Safety.
- Enterprise Development through the location and development of specific enterprise programmes and services facilitated by Wicklow County Council. The Campus also accommodates a number of county wide agencies including the Wicklow County Enterprise Board.
- Courses in Applied Social Studies and Early Childhood Education and Care are also offered reflecting the stated belief that social and cultural development are important components in the development of society.
- A variety of Lifelong Learning higher education programmes are offered on a part-time basis in partnership with Institute of Technology Carlow (IT Carlow).

All of the courses are accredited by IT Carlow, HETAC or other recognized national and international providers and range from short part time single module special purpose awards through to honours four year degree programmes. This initiative provides for individual needs wishing to pursue a higher education qualification or upgrade an existing one, and for the needs of the business community who seek to improve and strengthen the qualifications of their workforce.

The Strategic Plan (2008 - 2013) adopted by Wicklow Country Council for the Wicklow County Campus presents a broad macro vision for Clermont. This is highlighted in the Mission Statement;

*'Wicklow County Campus is being developed by Wicklow County Council to be a Centre of Excellence in Enterprise, Education and Innovation in County Wicklow and to act as a catalyst for Economic Development in the County. Wicklow County Campus is committed to the promotion of higher education and training through the provision of internationally recognised higher education opportunities, enterprise support programmes and other economic development activities'.*

The main objectives of the Wicklow County Campus include:

- To ensure a range of internationally recognised higher education opportunities, focusing on part-time and Lifelong Learning education and training are available within the campus to support the development of enterprise and industry in the County.
- To create an economic environment that will attract Knowledge Based Industry and Enterprise, which will lead to sustainable, long-term employment opportunities.
- To promote a new Business and Enterprise Park to attract national and international companies to establish a low-carbon environment for, but not exclusively for, the development and manufacture of renewable energy technology equipment / components / products to supply national and global markets.
- To create incentives to attract renewable energy organisations and trade bodies to establish representation on-campus.
- Focusing on the zero energy facilities to actively seek collaboration with commercial entities in order to further the quest for partnerships and the use of the academic, training and innovation facilities provided.
- To complement the focus on sustainable design and construction that includes passive house construction and zero energy building, the Campus will incorporate research regarding other strong resources (existing and available) within Co. Wicklow. These include such existing industries as film, tourism and forestry as well as bio-fuel development and production (wood pellet / chip and Miscanthus). This will also focus on other natural resources such as wind power and the sea with its potential for tide and wave energy production.

Wicklow County Campus is therefore establishing a clear and strong identity both nationally and internationally as a Centre of Excellence in Innovation, Enterprise and Education. This identity will comprise of a '*sustainable living park*' and include an incubation centre for high potential start-ups as well as a range of courses. The Campus, therefore, will also provide substantial local employment as well as creating jobs in the wider community. This will uniquely result in the bringing together of enterprise support groups, education and training providers, local businesses and private sector interests and will provide a one stop shop in developing, supporting and improving the skills of the resident workforce.

The RPGs should identify and promote the development of an Innovation and Commercialization Ecosystem in Wicklow, centred on the Wicklow County Campus with the resultant spatial framework prepared by Wicklow County Council.

#### [NUIM](#)

NUIM gives Maynooth the distinction of being the only university town in Ireland. With approximately 8,400 registered students, NUI Maynooth has 26 academic Departments which are organized into three Faculties: Arts, Celtic Studies and Philosophy; Science and Engineering, and Social Sciences. The University consists of two connected campus' extending over 100 acres of land. In addition to being one of Co. Kildare's largest education employers, the college has established / is participating in a number of internationally competitive research institutes in a number of areas of science, technology and social science. They include;

- The Hamilton Institute
- National Institute for Regional and Spatial Analysis (NIRSA).
- The Institute of Immunology
- The Institute of Bioengineering and Agrecology (IBA)
- An Foras Feasa
- The Institute of Microelectronic and Wireless systems (IMWS)
- The National Centre for Geocomputation (NCG)
- National Institute for Cellular Biotechnology (NICB)
- The Innovation Value Institute

Enterprise Ireland's Technology Transfer Strengthening Initiative aims to increase the level of intellectual property transferred from research activity within higher education institutes in Ireland. NUIM have established the Office of Commercialization in this regard, which is responsible for protecting and marketing industry relevant research generated within the University. Through various on-campus initiatives, the Office fosters a culture of commercial awareness to undergraduates and research staff alike. The Office negotiates contracts with industry on behalf of NUIM and also protects NUIM Intellectual Property (research output) by liaising with patent agents and government grant bodies.

Kildare and Meath County Councils are both working with NUIM to develop and improve linkages between the College and high tech / FDI firms in the surrounding sub region. This objective seeks to strengthen the existing position of attracting and retaining ICT type employment into the sub region. In particular, NUIM has pioneered (with Intel) the development of an open innovation consortium through the Innovation Value Institute (IVI), whose aim is to enhance the added value of technological innovation by focusing on leveraging and systematizing the business value of IT investment. The IVI model is potentially transferable to other sectors if appropriate partnerships are developed based on the established model with Intel. Meath & Kildare Local Authorities both endorsed the NUIM submission to the Government Innovation Taskforce in this regard last month.

NUIM is already working in partnership with the owners of Carton Estate, the Intel Corporation, Meath and Kildare County Councils, agencies such as Enterprise Ireland and others to develop a 'SMART' business park on the portion of the Carton Estate located in Co. Meath. This particular initiative is only the beginning of a process that could lead to a dynamic sub-region that will contribute to achieving the potential of the Dublin city region as the leading innovation zone to support national economic development.

All of the essential pre requisites required to establish an effective Innovation and Commercialization Ecosystem are present in the North Kildare Primary Dynamic Cluster (Maynooth, Leixlip, Kilcock and Celbridge) which would also include Dunboyne (Pace). These pre-requisites include;

- academic research;
- extensive industry base;
- established linkages between industry and academia in areas of research;
- large highly skilled labour pool;
- availability of physical space and facilities;
- supportive local authorities;
- important economic / business infrastructure (broadband, motorways, rail, airports), and
- proximity to major markets.

The RPGs should identify and promote the development of an Innovation and Commercialization Ecosystem referred to as the "M4 Knowledge Valley" spanning north Kildare and south Meath centred on NUIM with the resultant spatial framework to be jointly prepared by Meath and Kildare Local Authorities. This framework would include the existing Maynooth Environs Local Area Plan adopted by Meath County Council. This may include the consideration of the designation of an Strategic Development Zone for this area. This designation would act as a regional counter balance to the TCD – UCD Innovation Alliance.

Uniquely, the interaction of the four key ingredients of academia, government, business community and skilled labour pool in the M4 Knowledge Valley has been critical in creating a successful research and innovation environment.



A series of public policy measures should be developed to address financial, infrastructural, planning and promotional supports to ensure that the vital linkages and collaborations between the various elements within this ecosystem take place, so that these regional ecosystems develop their full potential in an accelerated timeframe.

The Greater Dublin Area is capable of developing a number of innovation ecosystems similar to the M4 Knowledge Valley. It is important that all such ecosystems within the region are developed along co-ordinated and complementary lines, rather than set up as competitive entities, to deliver breadth and momentum to the creation of Ireland's Knowledge Economy.

### **13.2 Equine Industry**

Kildare and Meath are at the centre of the Irish horse industry. There is a strong and unparalleled tradition of employment in the horse racing / equine industry in both counties.

Co. Kildare has more stud farms than any other county in Ireland (111 no.), has important racecourses at Punchestown and Naas, as well as the leading national flat racecourse at the Curragh. Kildare is also home to the state owned national stud farm, the national equestrian centre and Goff's equine auction centre, both located in Kill. Several prominent international breeders have substantial stud farms in Kildare, including many from the Arab world.

Co. Meath is the only Irish county in which there are 4 recognized racecourses. Fairyhouse is the venue for many of the biggest races of the Irish jump season, including the Irish Grand National on Easter Monday. Navan, Bellewstown and an annual race event at Laytown (the only national event run on a beach under the Rules of Racing) are the other 3 venues in the county. There are 54 stud farms in Co. Meath which is third largest number in the state after Kildare and Tipperary. Tattersalls Ireland is a world renowned bloodstock sales company and is located opposite Fairyhouse Racecourse in Ratoath.

In addition, most of Ireland's prominent show jumping competitors are located in, or come from counties Kildare and Meath.

There are considerable opportunities to optimize these existing resources in Kildare and Meath in order to increase employment in this sector by utilizing the existing infrastructure to further develop equine tourism and as a location for national and international equine events. This is an important niche where the local industry has a significant advantage not only nationally but also internationally, and as such these sectoral developments should be supported. There is scope to further diversify the sports related horse industry which, given the region's proximity to Dublin, could be integrated with show jumping, eventing and general equine leisure activities.

### **13.3 Horticulture**

The agricultural industry has an important role to play in preserving and improving the natural environment. Horticulture is one sub sector of agriculture that offers a higher value added than in traditional agricultural enterprises which are largely in decline. The proximity of the region to the largest domestic market of the Dublin Metropolitan Area is particularly opportune. Horticulture has been particularly successful in north County Dublin and this model could be replicated in parts of the Mid East Region.

### **13.4 Forestry (Coillte Teoranta)**

A positive planning and regulatory system coupled with the vast Coillte resources offers enormous potential in Wicklow County Council's strategy for Renewable Energy. Coillte Teoranta has a very strong tradition of forestry in County Wicklow, is the largest forestry landowner in the county and Coillte Headquarters are accommodated at Newtownmountkennedy. In 2007, land under forestry in Co. Wicklow amounted to 36,270 Ha or 18% of the county. This was the highest percentage cover of any county in the state, almost double the national average of 10%.

The amount of land under forestry cover was already ahead of the national target objective of 17% by 2030 contained in the Government's Strategic Plan (Growing for the Future).

The existing and draft Wicklow County Development Plans seek to support existing resource based industries particularly agriculture and forestry while also promoting the diversification of the rural economy. Objectives contained in the most recent draft County Development Plan seek to:

- Promote the County as a Center of Excellence in Forestry Research and Management, and;
- Encourage the development of Forestry for Biomass.

Coillte is actively investing in the biomass / wood chip supply chain and has huge resources available within County Wicklow. Coillte have recently advertised to seek a biomass technology partner with a view to providing biomass energy solutions to the commercial and industrial sectors. A technology partner will complement Coillte's raw material (national resource of 445,000 hectares), along with its supply expertise to provide focused turnkey biomass energy solutions incorporating design, installation, operations and maintenance.

The national target regarding wind energy is to increase wind penetration on the national electricity grid by four to five times by 2020. This will require the best wind regime sites to be developed and Coillte owns a significant number of such sites in Co. Wicklow.

It is natural that any new technologies and innovative initiatives developed by Coillte should be located in County Wicklow. The job potential in these industries are considered significant.

### **13.5 Manufacturing / Office Based Industry**

The Region will need to develop and attract more strategic activities in the manufacturing sectors and re-orientate towards high value added traded services which will sustain a significant employment base at internationally high wages. High wages can only be justified on the basis of high productivity, which is in turn related to skills. This will only be achieved through the development of skills which places greater emphasis on training and education and attracting skilled individuals from outside the region.

It is considered that the high tech business sector is likely to have the brightest future and the RPGs should facilitate the establishment of these firms in the designated Primary and Secondary Economic Hubs within the Mid East Region. As competition for Foreign Direct Investment intensifies on an international basis, it is possible that Ireland may attract a smaller share of this investment in the future which suggests a parallel focus on maintaining existing firms whilst also focusing on indigenous firms and more traditional sectors. Local Authorities must assist existing FDI firms in our region by supporting their consolidation plans and in making existing operations more cost effective and developing new products.

There are different functions carried out within firms – strategic management, day to day management, administration, accountancy, marketing, logistics, production, research and development. Whilst we have become a high wage economy in the recent past and may no longer be able to attract labour intensive enterprise, the other functions within manufacturing remain highly profitable and these sectors should be the target for the Mid East's industrial policy. It will remain a priority within the region to attract higher end manufacturing and SMART (ICT) Technologies.

There is scope within the Mid East region e.g. Newbridge (Wyeth), Maynooth / Leixlip, Navan or Wicklow to create a dynamic cluster of high tech / bio tech industries which would develop a high degree of synergies between new technology types. The success previously by Kildare County Council in attracting major FDI investment in the ICT & Pharmaceutical sectors should be further developed. Science and Technology Parks are considered to be the main infrastructure of the



new knowledge economy. Their co-location within an Academic campus promotes strong links to research and the CSET model of development (Centres for Science, Engineering and Technology). NUI Maynooth & Wicklow County Campus (Carlow IT) would be the partners in the realisation of this vision.

There is a tendency toward spatial concentrations of different employment uses and the creation of centres of excellence or a dynamic cluster to create the right environment to generate spin off developments and innovation. It is considered that office based industry and technology uses to include data processing, software development, telemarketing, research and development, information technology, commercial laboratories / healthcare would satisfy the above criteria and will be prioritised on appropriate sites within designated Economic Hubs by the constituent Local Authorities within the Mid East region.

The region is also a preferred location for meat, food and agri foods plants, associated greatly by the juxtaposition of the region close to the largest domestic market. Kildare boasts Dawn Farm Foods (Naas), QK Meats (Naas), Green Isle (Naas), Glanbia (Ballitore), Kildare Chilling (Kildare town), Meath has major meat processing plants at Clonee (Kepak Group Ltd.) and Navan (Irish Country Meats) along with Largo Foods (Exports) Ltd (Kilbrew, Ashbourne) whilst Kerry Foods (Shillelagh) and Glenhaven Foods Ltd operate out of Arklow. There remains further scope to retain and increase employment in the food production and processing sectors.

### **13.6 Logistics and Supply Chain Management**

The Mid East region provides an optimum location for a logistics hub due to the integration of infrastructure that occurs. There is a multi modal interface possible in the East Meath area predicated on the development of a deepwater port at Gormonston effectively replacing Drogheda Port to the north. This area enjoys excellent access to Dublin airport, access to the Dublin – Belfast corridor (M1 Motorway and rail line), the M50 and also to the proposed Leinster Orbital Route. There is significant scope to develop proximate transportation / distribution related businesses in the vicinity of the deepwater port. The development of the deep water port would facilitate the clustering of firms close to distribution companies and transportation infrastructures in order to optimize supply chain flows. The existing electronic support systems that enable the integration of industrial and transportation infrastructures would need to be significantly upgraded but due to the proximity to the Dublin Metropolitan Area, this is not seen as a major constraint.

The region has excellent road transportation networks as outlined elsewhere in this report which make the region a preferred location for transportation and distribution hubs. Further growth in this sector should be feasible given the quality of the transport links to all of the major cities in the country.

### 13.7 Energy and Environmental Potential

There is a major transformation underway in energy markets and energy supply that will give rise to opportunities for Irish enterprises over the coming years. This arises from resource depletion of traditional hydrocarbons and the need to address climate change at a global level. The "green economy" has huge potential for the Irish economy whilst also helping Ireland meet its environmental challenges and commitments. The latest estimates put the size of the global environmental goods and services market as exceeding €950 billion by 2010. The value of this sector for Ireland is growing and estimated to be more than €2.8 billion in 2008. Ireland has a 40% target for renewable energy over the next 12 years. There are Government incentives and support available to meet this target, with an objective to achieve a fully functioning all-island electricity system and plans for further interconnection to the UK and beyond.

The Irish Government considers that the "green economy" provides Ireland with a tremendous opportunity to create quality jobs in a sustainable and high growth sector. Recent government initiatives like the introduction of the Accelerated Capital Allowance Scheme and the Home Energy Saving Scheme, both of which will create important enterprise and employment growth are examples of the potential growth in this sector. This also has the potential to provide a much needed boost for the construction industry. Due to the manner in which significant power energy transmission networks traverse the Mid East region, significant opportunities exist to create energy from renewable or carbon neutral sources that can connect with relative ease into the existing national grid. Such activities should be encouraged and promoted. The sector also offers potential in the research and development sector with regard to renewable energy research.

### 13.8 Domestically Traded Sector

The Domestically Traded Sector, mainly business / financial services, wholesale, retail, distribution, consumer services and the tourist sector will remain a priority for the Mid East region. Whilst perhaps less prestigious than other sectors, this sector is likely to continue to account for the significant element of total employment in the Mid East region for the currency of the RPGs.

Advanced producer services such as legal, accounting and marketing generate high value added and consequently high wages. Their activities rely heavily on the skills of staff which is strongly aligned to the effectiveness of the education sector and the general ability of the Mid East region to attract and retain skilled workers. As evident in the "Forfas Regional Competitiveness Agendas – the East" document, this latter issue (attraction and retention of highly skilled workers) remains a problem. The locational requirements of firms in this sector are quite high. New firms entering into the country from abroad might consider locations such as Maynooth / Leixlip, Newbridge, Wicklow or Navan as suitable locations since they can cluster in close proximity to some existing multinational enterprises.

Retail and personal services are important in any economy and the Mid East economy is no different in this regard. The retail and entertainment offer in our identified Primary Economic Hubs is critical key to attracting and retaining highly skilled individuals. Whilst convenience shopping is carried out mainly within the region, higher order comparison shopping is not. The proximity of the Primary and Secondary Economic Hubs to Swords, Drogheda, Blanchardstown, Liffey Valley and Dundrum Town Centres result in considerable leakage out of the region. The development of a quality shopping environments in all of the Primary and Secondary Economic Hubs must be a priority for each of the constituent Local Authorities.

### 13.9 Tourism

Failte Ireland is the state agency responsible for tourism production in the Mid East. In its most recent operational plan for tourism in the Mid East & Midlands, the agency sets the objective of achieving revenues of €505million and to grow visitor numbers to 900,000 in the region by 2010. This compares to the targets set for the Dublin region of 5,500,000 visitors and revenue of €1,800 billion over the same time period. Their operational plan highlights 5 key action areas to enable the region to achieve these targets by 2010, and they are :

- Lakelands and Inland Waterways
- Heritage & Culture
- Land of the Horse
- Beyond Dublin
- Business, Enterprise and People Support

The scale of the challenge is obvious. There were only 2 out of the top 20 fee charging attractions in the country last year located in the Mid East region, namely Bru Na Boinne Visitor Centre (236,312 visitors) and Powerscourt House & Gardens, Wicklow (232,257 visitors) and these were ranked no's. 16 & 17 respectively. The Irish National Stud and Japanese Gardens (135,522 visitors) were the most popular attraction in Co. Kildare. Whilst all regions are currently suffering during this period of economic downturn, the East & Midlands experienced the biggest fall in room occupancy last year mainly due to a large fall-off in demand (46% room occupancy compared to 58% nationally and 66% in Dublin). The Mid East region supports the achievement of the targets set by Bord Failte and considers tourism as an important economic driver within the region and particularly in less densely populated parts of Wicklow. In particular, the constituent Local Authorities, in conjunction with their respective Tourism Boards / Companies, will seek to capitalize on the wealth of assets already in place and seek to support additional employment opportunities through the provision and upgrading of tourism infrastructure that will critically extend the stay and revenue generated by tourists in the region. All of the counties in the Mid East region suffer from being day trip destinations and the challenge remains to attract longer stay visits. The Mid East region should harness the siting of major international golf competitions such as the Ryder Cup at the K Club, Kildare, the Solheim Cup at Killeen Castle, Dunsany and the Irish Open / Seve Trophy (relaunched this year as The Vivendi Trophy) at Druids Glen Golf Club by further developing golf breaks associated with the number of international quality courses peppered throughout the region such as the world renowned European Golf Links at Brittas Bay. Rural tourism and tourism related projects are essential employment drivers in rural areas.

#### 13.10 Film Industry

County Wicklow is not only known as *'The Garden of Ireland'* but also as the *'Hollywood of Europe'*. Over the last 85 years, hundred of films have been made in the County, which rightly justifies this title. Indeed, it is boasted that the county has been being used as a location by 50% of all film productions in Ireland. The versatility of the beautiful scenery in County Wicklow (rolling Wicklow Mountains with its extensive peat bogs, the picturesque and colourful villages, and the long stretches of white sandy beaches) is one of the main reasons for its resounding success as a film location. The presence of the internationally renowned Ardmore Studios, established in 1958 in Bray, has played an important role in establishing the film industry in Ireland and in promoting the varied landscape in County Wicklow in particular. County Wicklow is unique in that it has been able to compete for international film and television productions with the UK, Canada and New Zealand. The majority of the leading Irish film and television professionals also live and work in the County. Film and television productions that have been made in County Wicklow include blockbusters such as 'King Arthur', 'Braveheart', 'Reign of Fire', 'P.S. I Love You' and 'Michael Collins'. The internationally acclaimed television series 'The Tudors', as well as homespun RTE productions such as 'Raw', and in previous times 'Glenroe' and 'Ballykissangel' were also filmed locally.

The County Wicklow Film Commission was set up in 1992 by Wicklow County Council and Bray Town Council and is the longest running film commission in Ireland. The aim of Wicklow Film Commission is to extend a friendly hand to all filmmakers wishing to film in the county. Since 1999, the Film Commission Office has been manned fulltime, providing assistance to big feature films, smaller productions and many commercials and television series. The County Wicklow Film Commission has contributed to the high volume of film production here through marketing and promotions as well as hands-on location assistance. This has resulted in the development of a proactive and film friendly attitude by the local authorities and within the wider community, which has been recognised and highly valued by film industry professionals.

National and international film and television generates significant direct foreign investment, creates valuable employment and promotes Ireland as a tourist destination. The obvious economic benefit of film making to County Wicklow is illustrated by reference to the recent HBO production of 'The Tudors'. During its four years been made in County Wicklow, the series spent over €78 million, employed 1,500 crewmembers and provided temporary employment for 6,000 extras. ITV sci-fi drama 'Primeval' is confirmed to be on the way to the Wicklow area and should assist in offsetting the massive loss to the local economy as a result of the 'The Tudors' finishing. A recent survey valued Ireland's audiovisual content industry at €500 million per annum and found that it now offers permanent employment to over 6,000 individuals. The industry in turn supports an ecology that generates many other indirect employment benefits arising out of production activities around the country.

The audiovisual industry is entering a new age, the age of digital broadcasting, the trade marks of which are a profusion of images and increasing global consumption. The growth potential of the audiovisual content industry, as an essential component of Ireland's Smart Economy strategy, represents one of the best prospects of employment for highly qualified young people seeking jobs in the future.

Wicklow County Council aspires to contribute further to the development of the film industry by assisting the development of film industry infrastructure in the county. Previously the facilities in Wicklow County Campus in Rathnew have been used for the annual Youth Film Training Programme as well as providing a unique period film location for international productions such as 'My Boy Jack'. Wicklow County Campus aims to provide film production courses through Clermont College, with a particular focus on training in special effects and other aspects of the film production process where there is currently a skills shortage.

### **13.11 Healthcare**

Under HSE reorganization plans for hospitals in the north-east (Meath, Louth, Cavan, Monaghan), which will result in the closure of acute services in smaller hospitals, a new regional hospital for the north-east is proposed. The Health Service Executive confirmed last year that the preferred location for the new regional hospital for the North East is Navan and would accommodate a 750 bed facility. Whilst plans to build this major new regional hospital in Navan have been long-fingered in view of current economic circumstances, the official HSE policy is that it remains their long-term plan to centralise all major hospital care into the new regional hospital. The development of the new regional facility had been included in the HSE National Development Plan for 2009-2013 but is now expected that it will not be advanced before 2015. However, the RPG will still be current up to 2022 and as such should support the development of this regional facility in Navan. It is considered that the development of this regional facility would become a key driver with significant multiplier effects within the Primary Economic Hub of Navan and the Primary Dynamic Cluster of Navan – Kells – Trim.

Furthermore, the RPGs should support the provision of Private Health Care facilities / institutions in response to the ageing population and the changing economic and social circumstances that now prevail.

### **13.12 Additional Port Capacity**

The report prepared on behalf of the Department of Transport by Indecon International Economic Consultants into the role and future development of Dublin Port within the context of the NDP, has made a number of recommendations of interest to the Mid East region. The ability to provide competitive access to internal and external markets is a crucial consideration in the development of an open trading economy. The modeling carried out as part of this study indicates that LoLo demand would likely exceed available capacity in Ireland between 2020 and 2025. Whilst the terms of reference for the Indecon report did not require a prescriptive approach to the potential alternative locations to Dublin Port, the report recognizes that there are both existing and planned facilities which were relevant to their analysis. The proposal to build a new port for Drogheda Port Company at Bremore (now Gormonston, Co. Meath) is identified as one of the two most significant proposals which would impact on the future of Dublin port. The study made a number of strategic conclusions which include an acceptance that there is a need to develop additional port capacity in Ireland by 2025 – 2030 and this would require the expansion of Dublin Port or the development of the proposed Bremore Port (or some equivalent facility) to provide additional capacity for the Irish economy. If neither of these developments proceeds or if equivalent capacity is not developed elsewhere, there is likely to be a shortage of port capacity to meet the requirements of importers and exporters. This would result in significant damage to the Irish economy and in particular, the need to service the greater Dublin origin – destination market. The Indecon report concludes that nothing should be done at a policy level to block either the proposed expansion of Dublin Port to the proposed deepwater port development at Bremore (Gormonston).

The development of a new port at Bremore (Gormonston), if commercially feasible, would confer significant regional and national benefits and would be likely to enhance competition in the Irish port sector. It is considered that the development of this facility of both regional and national importance would become a key economic driver with significant multiplier effects along the M1 Northern Economic Corridor. The provision of additional flanking capacity to augment and compete with the existing and planned capacity at Dublin Port would provide a critical piece of economic infrastructure to the Mid East region and provide the catalyst for complementary enterprises to develop within the surrounding area.

The RPGs should also support the development of Arklow Port as a 'roll-on / roll-off' facility in conjunction with CRH Ireland proposals to develop a deepwater port on a 200 acre site at the Arklow Rock Quarry. It is envisaged that this new port would act as an alternative to Dublin and Rosslare / Waterford ports and would greatly enhance access to the Midlands. The building-materials group has been operating the site as a private port since the early 1960s and plans to enter commercial-port operations with the possible future development of marine leisure and related onshore facilities also being considered. Wicklow County Council supports the future development of the site as a port. The current port has two berths and can accommodate ships of up to 4,500 tons. CRH uses the port to transport material for coastal-defence projects around the country and to export aggregate to Britain.

It is also suggested that the feasibility of expanding Wicklow Port as an alternative to Dublin Port may be considered in view of the recent road infrastructural improvements linking Wicklow Port to the M11.

### **13.13 Importance of Local Job Creation and the role of Existing Rural Based Enterprises**

The revised RPGs should recognize the potential for local job creation within the constituent counties of the Mid East region which would reduce journey to work times and length of commute for existing residents. The existing Strategic Policy of the Metropolitan Area promotes the development and densification of quality employment enterprise clusters of various sizes catering for a wide range of enterprise types. The restriction to local scale employment growth

should be removed within all of the centres located in the Primary & Secondary Dynamic Clusters and would improve their ability to create strong regional counterparts to the Dublin Gateway. The positive consideration of enterprise and industrial development in all centres within Primary & Secondary Dynamic Clusters is considered consistent with other objectives / policies contained in RPGs. Clarity in this issue is important for the Mid East region.

The RPG's have previously acknowledged that the Mid East region has the lowest jobs ratio in the GDA and the review of the RPG's must offer flexibility in attempts to reverse this trend. The RPG's need to accept that residents from the Mid East region are travelling longer distances to work and spend more time travelling to work than in any other region in the state. The RPG's need to accept that a significant number of residents in the Mid East already use their cars to get to work and that this trend won't change in a dramatic fashion in the short to medium term. These trends currently exist and will take considerable time and investment in public transport infrastructure to change over a period of time. There is a social cost as well as an environmental cost to commuting which the RPG's must accept. The development of strong employment base in each of the settlements in the Primary & Secondary Dynamic Clusters needs to be stressed in order to combat the extent of commuting out of the counties which clogs up existing road space approaching and within Dublin. This will assist in alleviating congestion in Dublin. The RPG's presently fail to acknowledge that there are advantages of developing employment in the constituent counties of the Mid East which although car borne in nature would be contained within the counties. It is considered that such employment options would not adversely impact upon developing the critical mass required to develop more effective public transport systems within the Metropolitan Area of the Greater Dublin Area and from the primary settlement centres in the Hinterland Area of the Greater Dublin Area.

The issue of existing industrial enterprises which operate in rural areas needs to be addressed in any Economic Development Action Plan which is advanced within the Mid East region. The revised RPG's need to take strong cognisance of the potential of existing industrial enterprises located outside of settlements earmarked for residential and economic development in rural areas to harness local entrepreneurship and create valuable local employment. It is considered that the extensive Tougher Business Park on the former N7 dual carriageway between Naas and Newbridge and the existing Liscarton Industrial Estate between Navan and Kells on the existing N3 would be some of the better known regional examples. There are other existing individual enterprises, such as Alltech Ireland (Bioscience) at Sarney, Dunboyne which is in existence since 1981 or Barrstown Industrial Park between Dunboyne and Summerhill offering lower offer storage facilities on the basis of short tenancy arrangements for tenants who cannot compete on industrially zoned lands / business parks in adjacent higher order settlements. It is not considered that the existence of such uses or indeed the further expansion of such facilities in limited cases would threaten the overall economic strategy contained in the RPG's. Indeed, the development of such local enterprises which serve predominantly a local rather than regional economy or individual or grouped enterprises which have specific locational requirements that cannot be readily facilitated within existing development centres are integral to the overall functioning of a region.

It is considered imperative that there is a corresponding acknowledgment in the revised RPGs of the existence and value of such enterprises outside of designated settlements to provide primarily for local employment.

#### **13.14 Small & Medium Sized Enterprises & High Potential Start Ups**

Although not pertaining to a specific sector, it would be remiss of the Mid East Regional Authority not to acknowledge the potential for continued growth amongst Small & Medium Sized Enterprises & High Potential Start Ups which cumulatively represent a significant and growing source of employment within the constituent Local Authority areas.



The Mid East Regional Authority understands the importance of SMEs in Ireland and their critical role in the future success of the Irish economy. Irish SMEs represent approximately 99% of private enterprises in Ireland with over 800,000 employees or nearly 67% of the private sector workforce (30% in enterprises with less than 10 employees, 20% with less than 50 employees and 17% with less than 250). Approximately 50% of the Irish private sector workforce is employed in micro and small enterprises. The past year have seen a significant deterioration in their financial strength (78% reporting a fall in turnover and profit), and a continuing reliance on the banking sector to provide critical funds (39% received funding from Banks in the last two years of which 64% used for Working Capital).

In 2008, encouraging and supporting innovation-led high potential start-up companies (HPSUs) with an export focus was a key priority for Enterprise Ireland and is fundamental to building the next generation of world-class Irish companies. Enterprise Ireland have established a dedicated HPSU Business Unit which continue to drive the development of innovative new companies. The stated added focus of Enterprise Ireland between 2008–2010 is to assist Irish companies to achieve scale at the earliest stage of development.

Thriving entrepreneurship in all parts of the Mid East region is fundamental to the achievement of balanced regional economic growth and realizing employment potential. The Mid East Regional Authority is committed to supporting internationally competitive businesses that will create employment throughout the constituent counties in the region. This strategic approach aims to foster innovation-based start-ups, to proactively develop existing SMEs in the region, and to facilitate entrepreneurship and the enterprise environment in local and rural communities. The County Enterprise Boards in the respective constituent counties have a clearly defined role as the principal deliverers of state support to the micro-enterprise sector. As a result of their strong local and regional presence, they are well placed to help small and micro-enterprises to deal with and adapt to changing economic circumstances. Through the provision of both financial and non financial support, County Enterprise Boards have assisted many enterprises, in developing their growth and export potential as well as bringing them to a stage where they have sufficient mass to access the services of Enterprise Ireland.

The challenge facing the Mid East region is not only to generate a high level of new businesses being started, but also to maximise the number of innovative businesses among them that subsequently develop to achieve high growth.

## **Appendix A8**

### **Definition of Metropolitan and Hinterland Area**



## Appendix A8

### Definition of Metropolitan and Hinterland Area

The Metropolitan Area includes all of Dublin City Council, substantial parts of South Dublin and Dun Laoghaire Rathdown and certain EDs (Electoral Divisions) in Fingal, Kildare, Meath and Wicklow.

The EDs from Fingal included in the Metropolitan Area are the Airport, Baldoyle, Balgriffin, Blanchardstown (Abbotstown, Blakestown, Coolmine, Corduff, Delwood, Mulhuddart, Roselawn, Tyrrelstown), Castleknock (Knockmaroon, Park), Donabate, Dubber, Howth, Kilsallaghan, Kinsaley, Lucan North, Malahide (East and West), Portmarnock (North and South), Sutton, Swords (Forrest, Glasmore, Lissenhall, Seatown, Village), The Ward, Turnapin.

The EDs from Kildare included in the Metropolitan Area are Celbridge, Donaghcumper, Kilcock, Leixlip, Maynooth, Straffan.

The EDs from Meath included in the Metropolitan Area are Dunboyne and Rodanstown.

The EDs from Wicklow included in the Metropolitan Area are Bray No.1, Bray No. 2, Bray No. 3, Rathmichael, Delgany, Greystones and the following townlands in Kilmacanogue ED:

- Corrigoona Commons West.
- Corrigoona Commons East.
- Glencormick North.
- Glencormick South.
- Kilcronney.
- Wingfield.
- Hollybrook.
- Kilmacanogue North.
- Kilmacanogue South.
- Barchuillia Commons.

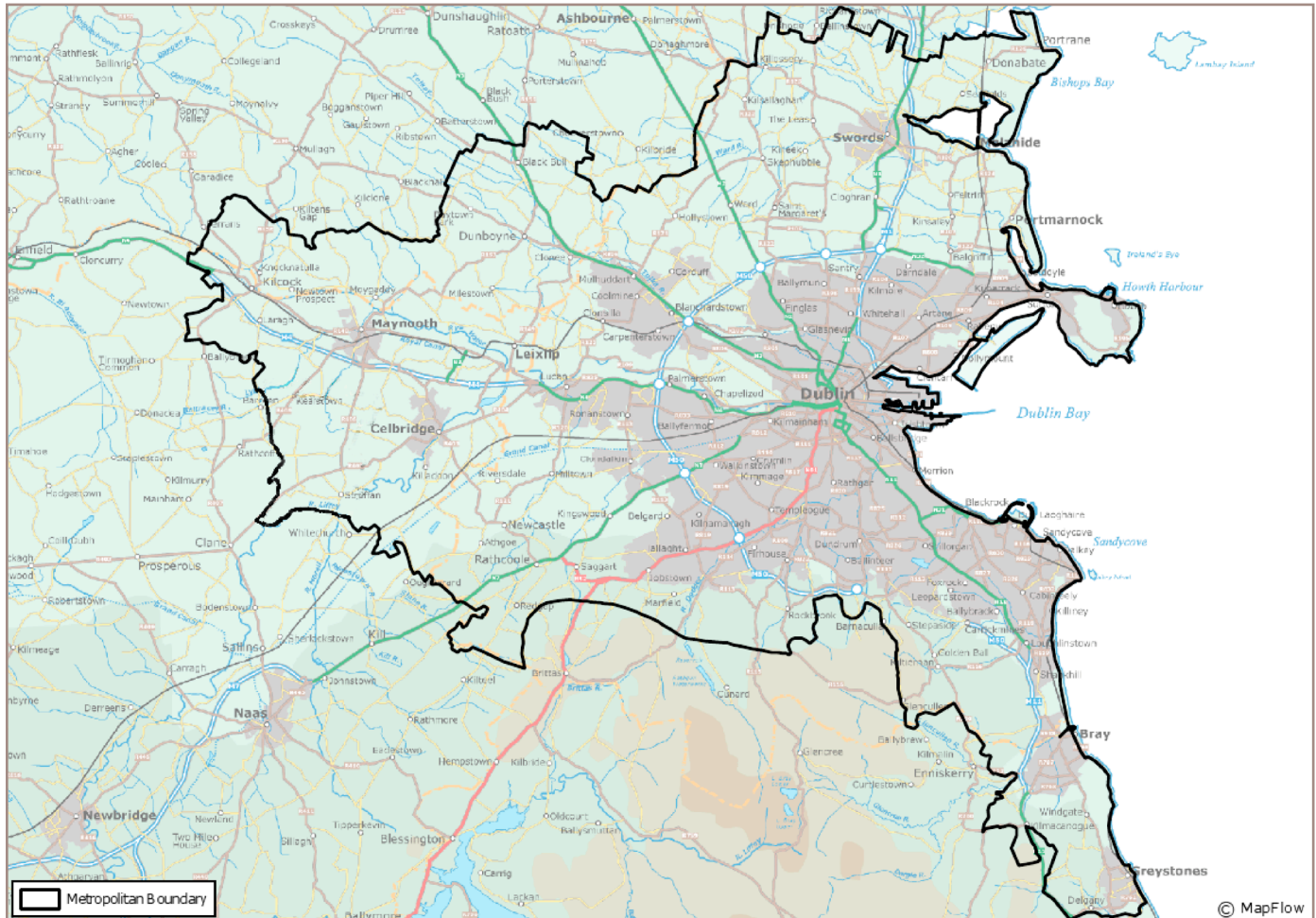
The EDs from South Dublin excluded from the Metropolitan Area include parts of Rathcoole, Saggart, Ballinacorney and Bohernabreen comprising the townlands of Aghfarrell, Allagour, Ballinascorney (Lower and Upper), Ballymaice, Ballymorefinn, Belgard Deer Park, Brittas (Big and Little), Calliaghstown Upper, Castlekelly, Corrageen, Cunard, Friarstown Lower, Glassamucky, Glassamucky Brakes, Glassamucky Mountain, Glassavullaun, Glenaraneen, Glendoo, Gortlum, Killakee, Lugg, Mountpelier, Mountseskin, Piperstown, Raheen, Sladmore, Slievethoul and parts of the townlands of Crockaunadreenagh\*, Crooksling\*, Cruagh\*, Ballymana, Calliaghstown Lower, Coolmine, Corbally, Jamestown (ED Whitechurch), Killinardan, Kiltalown, Lugmore\*, Kiltipper, Newtown Upper, Orlagh, Redgap, Saggart, Slade, Tibbradden and Woodtown.

\* These townlands are more than 50% in the hinterland area.

The EDs from Dun Laoghaire Rathdown excluded from the Metropolitan Area include parts of the EDs of Tibbradden and Glencullen comprising the townlands of Stackstown, Ticknock, Kilmashogue\*, Tibbradden\*, Ballybrack, Glendoo, Boranaraltry, Glencullen Mountain and Brockery.

\* The 230m OD line denotes the northern extent of the hinterland boundary.

# Metropolitan Area



(Courtesy of National Transport Authority)

