Section 7 Evaluation of Alternative Scenarios

7.1 Introduction

This section provides a comparative evaluation of the environmental effects of implementing the three alternative scenarios. This determination sought to understand whether each alternative was likely to improve, conflict with or have a neutral interaction with the receiving environment.

7.2 Methodology

The description of the environmental baseline together with the maps provided in Section 4 of this report (including the Environmental Sensitivity Overlay Mapping) is used in the evaluation.

Strategic Environmental Objectives (SEOs) identified in Section 5 and reproduced overleaf are also used. Succinct planning pros and cons are also provided alongside the environmental effects for each scenario.

The provisions of the alternatives are evaluated using compatibility criteria (see Table 8.1 below) in order to determine how they would be likely to affect the status of the SEOs. The SEOs and the alternatives are arrayed against each other to identify which interactions - if any - would cause effects on specific components of the environment. Where the appraisal identifies a likely conflict with the status of an SEO the relevant SEO code is entered into the conflict column - e.g. B1 which stands for the SEO likely to be affected - in this instance 'to ensure compliance with the Habitats and Birds Directives with regard to the protection of Natura 2000 Sites and Annexed habitats and species³⁵'.

The interactions identified are reflective of likely significant environmental effects³⁶:

- 1. Interactions that would be likely to improve the status of a particular SEO would be likely to result in a significant positive effect on the environmental component to which the SEO relates.
- 2. Interactions that would probably conflict with the status of an SEO and would be unlikely to be mitigated would be likely to result in a significant negative effect on the environmental component to which the SEO relates.
- 3. Interactions that would potentially conflict with the status of an SEO and would be likely to be mitigated would be likely to result in potential significant negative effects however these effects could be mitigated (for the chosen alternative these effects will be mitigated by measures which have been integrated into the Plan).

The degree of significance of effects occurring cannot be fully determined at this level of decision making due to the lack of exact detail available with regard to the type or scale of development that will be permitted under the Plan.

 $^{^{35}}$ 'Annexed habitats and species' refer to those listed under Annex I, II & IV of the EU Habitats Directive and Annex I of the EU Birds Directive.

³⁶ These effects include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects.

Table 7.1 Strategic Environmental Objectives³⁹

SEO Code	SEO
B1	To ensure compliance with the Habitats and Birds Directives with regard to the protection of Natura 2000 Sites and Annexed habitats and species ³⁷
B2	To ensure compliance with Article 10 of the Habitats Directive with regard to the management of features of the landscape which - by virtue of their linear and continuous structure or their function act as stepping stones (designated or not) - are of major importance for wild fauna and flora and essential for the migration, dispersal and genetic exchange of wild species
В3	To avoid significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites ³⁸ and to ensure compliance with the Wildlife Acts 1976-2010 with regard to the protection of listed species
PHH1	To protect populations and human health from exposure to incompatible landuses
S1	To avoid damage to the hydrogeological and ecological function of the soil resource
W1	To maintain and improve, where possible, the quality and status of surface waters
W2	To prevent pollution and contamination of ground water
W3	To comply as appropriate with the provisions of the Planning System and Flood Risk Management: Guidelines for Planning Authorities (DEHLG, 2009)
M1	To serve new development with adequate and appropriate waste water treatment
M2	To serve new development with adequate drinking water that is both wholesome and clean
М3	To reduce waste volumes, minimise waste to landfill and increase recycling and reuse
C1	To reduce travel related emissions to air and to encourage modal change from car to more sustainable forms of transport
CH1	To protect archaeological heritage including entries to the Record of Monuments and Places and/or their context
CH2	To protect architectural heritage including entries to the Record of Protected Structures and Architectural Conservation Areas and their context
L1	To minimise significant adverse visual impacts within and adjacent to the Plan area - especially having regard to the Plan Policies LHB2 to 6 which provide for the protection and management of Landscape Character Areas, the Seascape, High Amenity Zones, Historic Landscape Character Areas and Views and Prospects

Table 7.2 Criteria for appraising the effect of Alternatives on SEOs

Likely to Improve status of	Probable Conflict with	Potential Conflict with
SEOs	status of SEOs- unlikely to be	status of SEOs- likely to be
	mitigated	mitigated

-

 $^{^{37}}$ 'Annexed habitats and species' refer to those listed under Annex I, II & IV of the EU Habitats Directive and Annex I of the EU Birds Directive.

³⁸ The Planning and Development Act 2000 as amended defines a 'wildlife site'. See Section 5.2.7.

³⁹ See Section 5.1 for a description of Strategic Environmental Objectives.

7.3 Cumulative Effects

Cumulative effects are one of the types of effects which have been considered by the assessment of the alternatives. Cumulative effects can be described as the addition of many small impacts to create one larger, more significant, impact.

There are 2 types of potential cumulative effects that have been considered, namely:

- Potential *intra-Plan* cumulative effects these arise from the interactions between different types of potential environmental effects resulting from a plan, programme, etc. Where the sensitivity mapping contained in Section 4 indicates an elevated level of vulnerability, future development could conflict with these cumulative environmental sensitivities and lead to a deterioration in environmental integrity. The interrelationships between environmental components that help determine these potential effects are identified on Table 8.4 in Section 8 e.g. interrelationships between: human health and water quality; human health and air quality; human health and flood risk; and ecology and water quality; and,
- Potential *inter-Plan* cumulative effects these arise when the effects of the implementation of one plan occur in combination with those of other plans, programmes, developments, etc.

Effects that may arise as a result of implementing the Plan have been mitigated to the extent that the only residual adverse effects likely to occur as a result of implementation of the Plan are those which are identified under Section 8.6.

With regard to potential *inter-Plan* cumulative environmental effects, these occur as a result of the combination of: potential environmental effects which are identified by the assessment; and the effects arising from other legislation, plans, programmes or developments arising. Other legislation, plans, programmes or developments arising which have been considered by the assessment of environmental effects include those which are detailed under Sections 2.5, 4 and 5.

The SEA undertaken for the Plan has taken account of the Council's obligation to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies and their plans etc. – the achievement of the objectives of the regulatory framework for environmental protection and management.

In considering the relationship with legislation and other plans and programmes it is important to note that the Plan will be implemented within areas that have existing plans and programmes for a range of sectors [e.g. water management, land use, energy] at a range of levels [e.g. National, River Basin District, Regional, County and Local] that are already subject to more specific higher and lower tier SEA and AA.

The assessment of the likely *inter-Plan* cumulative environmental effects requires knowledge of the likely effects of all plans/developments under consideration. The assessment is limited in this instance as there has been limited assessment of the likely types of developments provided for by other policies, plans and programmes that could occur in combination with the implementation of the County Development Plan.

Taking into account available information, cumulative effects to be considered include those resulting from the Plan and: other Development Plans (e.g. Carlow, Dún Laoghaire-Rathdown, Kildare, South Dublin and Wexford County Development Plans); and sectoral plans (e.g. Eastern and South Eastern River Basin Management Plans 2009-2015, Grid25 and associated Implementation Programme, Irish Water's Proposed Capital Investment Plan 2014-2016). Such effects include:

- Potential cumulative effects upon the use of water and wastewater treatment capacity arising from new developments;
- Potential cumulative effects upon surface and ground water quality;
- Potential cumulative effects arising from linear developments including in coastal areas;

- Potential cumulative effects on flood risk by, for example, development of greenfield lands or obstruction of flood paths adjacent to the Dún Laoghaire-Rathdown County border;
- Potential cumulative effects on habitat networks arising from fragmentation occurring on both sides of the County border;

A variety of the issues covered by the Plan provisions are Regional issues which are considered: at Regional Assembly level, in the Regional Planning Guidelines for the Greater Dublin Area 2010-2022 and by Planning Authorities across the Region. The solutions to these issues are often Regional solutions which are subject to their own consenting procedures. Works arising outside of the Plan as a result of providing for new development within the Plan area including those arising as a result of the cumulative provision of development in the wider Dublin Region would potentially conflict with a number of environmental components, across the wider Dublin Region and beyond, including: ecology, soil function, the status of water bodies and the landscape. Some of these conflicts would be mitigated by measures integrated into the Plan while some would be mitigated by measures arising out of separate consent procedures.

The SEA for the Regional Planning guidelines for the Greater Dublin Area 2010 – 2022 makes particular reference to the potential cumulative effects in association with other relevant plans and programmes within the Greater Dublin Area including: the proposed 2030 Vision for Greater Dublin Transport; the Dodder and the Fingal East Meath Flood Risk Assessment and Management Studies; the Water Supply Project; and the relevant River Basin Management Plans.

7.4 Potentially Significant Adverse Effects

There are a number of potentially significant adverse environmental effects which are common to all alternatives and these are described in Table 7.3 below. For the Plan, these effects will be mitigated by measures which have been integrated into the Plan.

Table 7.3 Potentially Significant Adverse Environmental Effects common to all alternatives

Environmental Component	Potential Effect	
Biodiversity and	 Loss of biodiversity with regard to Natura 2000 Sites and Annexed habitats and 	
Flora and Fauna	species (see baseline Section 4.3)	
	 Loss of biodiversity with regard to ecological connectivity and stepping stones (see baseline Section 4.3) 	
	 Loss of biodiversity with regard to designated sites including Wildlife Sites and listed species (see baseline Section 4.3) 	
Population and Human Health	 Spatially concentrated deterioration in human health (see baseline Section 4.4) 	
Soil	 Damage to the hydrogeological and ecological function of the soil resource (see baseline Section 4.5) 	
Water	 Adverse impacts upon the status and quality of water bodies, including bathing 	
	waters (see baseline Section 4.6)	
 Increase in the risk of flooding (see baseline Section 4.6) 		
Material Assets	 Failure to provide adequate and appropriate waste water treatment (see baseline 	
	Section 4.8.1; water services infrastructure and capacity would be needed to	
	ensure the mitigation of potential conflicts) o Failure to comply with drinking water regulations and serve new development with	
	 Failure to comply with drinking water regulations and serve new development with adequate drinking water that is both wholesome and clean (see baseline Section 	
	4.8.1; water services infrastructure and capacity would be needed to ensure the	
	mitigation of potential conflicts)	
	 Increases in waste levels (see baseline Section 4.8.2) 	
Air and Climatic	 Failure to contribute towards sustainable transport and associated impacts (see 	
Factors	baseline Section 4.7)	
Cultural	o Effects on entries to the Record of Monuments and Places and other	
Heritage	archaeological heritage (see baseline Section 4.9.2)	
	 Effects on entries to the Records of Protected Structures and other architectural 	
	heritage (see baseline Section 4.9.3)	
Landscape	 Occurrence of adverse visual impacts (see baseline Section 4.10) 	

7.5 Scenario A - Restructuring the Current Housing Pattern⁴⁰

7.5.1 Environmental Effects

Likely to Improve Status of SEOs

By planning higher density areas, providing incentives to facilitate densification of existing areas and providing development along existing or planned public transport corridors, Scenario A would:

 Avoid the need for unnecessary greenfield development in certain locations thereby contributing towards the protection of many environmental components [biodiversity and flora and fauna, soil, water (including interactions with population and human health), landscape designations, cultural heritage outside of developed areas]⁴¹.

By planning higher density areas, providing incentives to facilitate densification of existing areas, focusing upon urban hubs, providing development along existing or planned public transport corridors and providing a sustainable mix of population and employment, Scenario A would:

• Help to maximise the uptake in smarter, more sustainable modes of transport and minimise transport related emissions (including indirect benefits with regard to the protection of human health)⁴².

By providing incentives to facilitate densification of existing areas, Scenario A would:

• Enable development to be served by existing water services and drainage infrastructure, subject to capacity being provided (including indirect benefits with regard to the protection of water, biodiversity and flora and fauna, soil and human health)⁴³.

Potential Conflict with status of SEOs

By providing for infill within existing developed areas, this scenario would potentially result in a localised intensification of effects. There would be potential for adverse effects to occur with regard to the protection of cultural heritage (both archaeological and architectural) and its context and the protection of biodiversity and flora and fauna in urban areas⁴⁴. Flood risk could increase in certain areas due to the cumulative loss of flood water storage areas in certain locations⁴⁵.

The potential adverse effects detailed under Table 7.3⁴⁶ would be present during the implementation of this scenario however it would be possible to mitigate them and residual adverse effects would be likely to be non-significant.

With regard to the effects described under Table 7.3, there would be higher potential for in combination/cumulative effects in urban areas, in particular, arising from potential interactions with land use plans for Dublin City, South Dublin and Wicklow.

7.5.2 Planning Effects

Pros

- Good use of installed infrastructure and amenity
- Reduces pressure on land

⁴⁰ Footnotes like this are used in this section in order to identify instances where interactions between the relevant scenario and the relevant SEOs occur. The nature of these interactions is identified on Table 7.4.

⁴¹ SEOs B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 CH1 CH2 L1

⁴² **SEOs C1** PHH1

⁴³ **SEOs M1 M2** W1 W2 W3 B1 B2 B3 S1 PHH1

⁴⁴ SEOs CH1 CH2 B1 B2 B3

⁴⁵ **SEOs W3** HH1

⁴⁶ SEOs B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1

Cons

Requires innovative techniques

7.6 Scenario B - Demographic Alternative - Phased Zoning

7.6.1 Environmental Effects

Likely to Improve Status of SEOs

Phasing would help to ensure that infrastructure, services, facilities and amenities are provided together with residential and employment development.

By providing for phasing, Scenario B would:

- Delay the piecemeal replacement of non-artificial surfaces with artificial surfaces in areas which are not prioritised for development thereby delaying potential effects and contributing towards the protection of many environmental components [biodiversity and flora and fauna, soil, water (including interactions with population and human health), landscape designations, cultural heritage outside of developed areas¹⁴⁷.
- Help to maximise the uptake in smarter, more sustainable modes of transport and minimise transport related emissions (including indirect benefits with regard to the protection of human health)⁴⁸ by concentrating in development in specific, considered locations already served by public transport.
- Enable development to be served by existing water services and drainage infrastructure, subject to capacity being provided (including indirect benefits with regard to the protection of water, biodiversity and flora and fauna, soil and human health)⁴⁹. Areas that are currently zoned and serviced by foul water and water supply schemes would be prioritised and developed/redeveloped initially, followed by zoned areas south of the County that are waiting for funding to be made available for provision of foul drainage or water supply.

Potential Conflict with status of SEOs

The phasing of zoning provided for by the Plan would facilitate the development of the Plan area and therefore would potentially conflict with a number of environmental components. The nature of these potential conflicts is provided on Table 7.3^{50} - it would be possible to mitigate the conflicts and residual adverse effects would be likely to be non-significant.

It should be noted that due to the geographical location of lands to be developed there would be least potential for in combination effects with land use plans for Dublin City and South Dublin under this scenario. Note that there would be higher potential for in combination effects with land use plans for Wicklow given that allowing for phased development would result in considerable development on lands in the South of the County bordering with Wicklow.

With regard to the effects described under Table 7.3, there would be particular potential for in combination/cumulative effects arising from potential interactions with land use plans for Wicklow/Bray.

7.6.2 Planning Effects

Pros

- Pragmatic
- Responsive to market and demographic needs
- Matches development with infrastructure

⁴⁷ SEOs B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 CH1 CH2 L1

⁴⁸ **SEOs C1** PHH1

⁴⁹ **SEOs M1 M2** W1 W2 W3 B1 B2 B3 S1 PHH1

⁵⁰ SEOs B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1

Cons

- Lacks certainty at plan-making due to the fact that the provision of strategic infrastructure is outside the control of the Local Authority
- Challenges of timely infrastructure provision
- Confusing 'signals' to market potentially leading to frustration

7.7 Scenario C - Market-Led Growth

7.7.1 Environmental Effects

Likely to Improve Status of SEOs

Under this scenario, infilling of existing developed areas would be significantly less likely to occur. Consequently, in urban areas, there would be potential for beneficial effects to occur with regard to the protection of cultural heritage (both archaeological and architectural) and its context, the protection of biodiversity and flora and fauna⁵¹ and the protection of flood water storage areas in urban areas⁵².

Potential Conflict with status of SEOs

Because the areas proposed for development would occur on lands at the edge of currently developed areas - which have poor public transport links, have little or no current infrastructure capacity, such a water supply or foul drainage, and have low levels of development or are previously undeveloped – the potential adverse effects which are detailed under Table 7.3⁵³ would be present. It would be difficult to mitigate against all of these potential adverse effects and it is likely that implementation of a Plan which evolves from this scenario would result in significant residual adverse effects (including loss of habitats, landscape effects, surface and potentially ground water effects, effects on cultural heritage and unsustainable patterns of mobility).

With regard to the effects described under Table 7.3, there would be higher potential for in combination/cumulative effects in more rural areas, in particular, arising from potential interactions with land use plans for South Dublin and Wicklow.

7.7.2 Planning Effects

Pros

- Could help to match to social and economic needs
- Allows flexibility

Cons

- Unsustainable
- Potentially non-conforming with planning policies

7.8 Comparative Evaluation against SEOs

Table 7.4 provides a comparative evaluation of alternative scenarios against the SEOs.

⁵¹ SEOs CH1 CH2 B1 B2 B3

⁵² SEOs W3 HH1

⁵³ SEOs B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1

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I able 7.4 Eval	able 7.4 Evaluation of Airel Hative Scenarios against SEOS		
	Likely to <u>Improve</u> status of SEOs	Probable Conflict with status of SEOs- unlikely to be mitigated	Potential Conflict with status of SEOs- likely to be mitigated
Scenario A:	By planning higher density areas, providing incentives to facilitate densification of existing areas and providing		By providing for infill within existing developed great this greatly more than the control of th
Restructuring	ig or planned public		localised intensification of effects upon the
the Current			heritage, protection
Housing	 Avoid the need for unnecessary greenfield 		biodiversity and flood risk (cumulative loss of
Pattern	development in certain locations thereby contributing towards the protection of many environmental		storage) in urban areas. SEOS CHI CH2 BI
	components SEOs B1 B2 B3 PHH1 S1 W1 W2		ה ה ה ה
	W3 M1 M2 M3 CH1 CH2 L1		Potential adverse environmental effects arising
	 Help to maximise the uptake in smarter, more 		would be present during the implementation of
	sustainable modes of transport and minimise transport		this scenario nowever it would be possible to mitigate them and residual adverse effects would
			be likely to be non-significant.
	 Enable development to be served by existing water services and drainage infrastructure, subject to 		SEOs B1 B2 B3 PHH1 S1 W1 W2 W3 M1
	capacity being provided. SEOs M1 M2 W1 W2 W3 R1 R2 R3 S1 PHH1		M2 M3 C1 CH1 CH2 L1
Scenario B:	By providing for phasing, Scenario B would:		The phasing of zoning provided for by the Plan
	Delay the piecemeal replacement of non-artificial		would facilitate the development of the Plan area
Demographic	surfaces with artificial surfaces in areas which are not		and therefore would potentially conflict with a
Alternative -	prioritised for development thereby delaying potential		number of environmental components. It would be
	ellects alid collulaturiig towards trie protection of		possible to illugate potential adverse effects
	PHH1 S1 W1 W2 W3 M1 M2 M3 CH1 CH2		to be non-significant. SEOs B1 B2 B3 PHH1
	I		S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2
	Help to maximise the uptake in smarter, more curtainable modes of transport		-
	specific, considered locations already served by public		
	Enable development to be served by existing water		
	services and drainage infrastructure, subject to		
	capacity being provided SEOS M1 M2 W1 W2 W3 B1 B2 B3 S1 PHH1		
Scenario C:	Under this scenario, infilling of existing developed areas would	Because the areas proposed for development would occur	
Market-Led	be significantly less likely to occur. Consequently, in urban areas, there would be notential for beneficial effects to occur with	on lands at the edge of currently developed areas - which have noor mildic transport links, have little or no current	
Growth	regard to the protection of cultural heritage, biodiversity and	infrastructure capacity, such a water supply or foul	
	flood risk in urban areas. SEOs CH1 CH2 B1 B2 B3 W3	drainage, and have low levels of development or are	
		previously undeveloped, it would be difficult to mitigate notential adverse effects. It is likely that implementation of	
		a Plan which evolves from this scenario would result in	
		significant residual adverse effects on various	
		environmental component SEOs B1 B2 B3 PHH1 S1	
		WI WZ W3 MI MZ M3 C1 CH1 CH2 L1	

7.8.1 The Selected Alternative Scenario

The alternative scenario for the County Development Plan which has emerged from the planning/SEA process is a mixture of Scenarios A and B (see evaluations provided above). The evaluation of the combination of Scenarios A and B against the SEOs is provided on Table 7.5 below.

Elements of Scenario A which have been integrated into the Plan include:

- planned higher density areas
- incentives to facilitate densification of existing areas
- focus on urban hubs
- development along existing or planned public transport corridors
- protecting the residential amenity and character
- a sustainable mix of population and employment

Elements of Scenario B which have been integrated into the Plan include:

- taking into account factors including demand, economic growth and availability of funding
- ensuring the protection of environmental sensitivities
- ensuring that areas currently zoned and serviced by foul water and water supply schemes are prioritised

The Plan was developed by the Planning Team, placed on public display as the Draft Plan and eventually adopted by the Elected Members having regard to both:

- 1. The environmental effects which were identified by the SEA and are detailed above; and
- 2. Planning including social and economic effects which also considered by the Council.

By complying with appropriate mitigation measures - including those which have been integrated into the Plan - potential adverse environmental effects which could arise as a result of implementing this scenario would be likely to be avoided, reduced or offset. Section 9 of this report details how the Plan was informed by environmental sensitivities.

Table 7.5 Evaluation of Selected Alternative Scenario against SEOs

	Likely to Improve status of SEOs	Probable Conflict with status of SEOs- unlikely to be mitigated	Potential Conflict with status of SEOs- likely to be mitigated
The Selected Alternative Scenario	By planning higher density areas, providing incentives to facilitate densification of existing areas and providing development along existing or planned public transport corridors in a manner which is generally phased, the Plan would: • Avoid the need for unnecessary greenfield development in certain locations thereby contributing towards the protection of many environmental components SEOs B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 CH1 CH2 L1 • Help to maximise the uptake in smarter, more sustainable modes of transport and minimise transport related emissions. SEOs C1 PHH1 • Enable development to be served by existing water services and drainage infrastructure, subject to capacity being provided. SEOs M1 M2 W1 W2 W3 B1 B2 B3 S1 PHH1		By providing for infill within existing developed areas, this scenario would potentially result in a localised intensification of effects upon the protection of cultural heritage, protection of biodiversity and flood risk (cumulative loss of storage) in urban areas. SEOS CH1 CH2 B1 B2 B3 W3 Potential adverse environmental effects arising would be present during the implementation of this scenario however it would be possible to mitigate them and residual adverse effects would be likely to be non-significant. SEOS B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1