PREFACE

The Environmental Impact Statement (EIS) for the M50 Motorway Upgrade Scheme consists of the following documents:

Non-Technical Summary

Volume 1	Introduction and General Volume
Volume 2	M1 Interchange to River Liffey
Volume 3	River Liffey to River Dodder
Volume 4	River Dodder to Sandyford Interchange
Volume 5	Illustrations: Introduction and General Volume
Volume 6	Illustrations: M1 Interchange to Sandyford Interchange

ACKNOWLEDGMENTS

This Environmental Impact Statement (EIS) has been prepared by Arup Consulting Engineers and their specialist environmental sub-consultants for Dun Laoghaire-Rathdown County Council on behalf of South Dublin County, Fingal County and Dublin City Councils. The assessment team drew primarily on in-house resources in traffic, highway and drainage engineering, environmental planning and management, air quality, climate and geotechnical.

Specialist technical contribution was provided in Noise and Vibration assessment and initial baseline Air Quality monitoring by AWN Consulting Ltd; Landscape and Visual assessment by Brady Shipman Martin; Archaeological, Cultural Heritage and Architectural Heritage assessment by Valerie J. Keeley Ltd; Lighting impact assessment by Kevin Cleary and Associates Ltd; Community assessment by Patrick J. Newell Consulting Engineers; and Terrestrial and Aquatic Ecology assessment by NATURA Environmental Consultants.

The assistance of all organisations and individuals consulted during the preparation of the EIS and the assistance of local residents over the course of the assessment is gratefully acknowledged.

EIS DISPLAY LOCATIONS

Members of the public may inspect and purchase copies of the EIS document, including the Non-Technical Summary, during normal office hours, at the following locations:

Dun Laoghaire Rathdown County Council
County Hall
Dun Laoghaire
Co Dublin

Fingal County Council
County Hall
Swords
Co Dublin

South Dublin County Council
County Hall
The Square
Tallaght
Dublin 24

Dublin City Council – Civic Offices
Wood Quay Reception
Wood Quay
Dublin 8

Each Local Authority may have the EIS for view and purchase at additional locations within their respective local authority areas. In addition, the Non-Technical Summary of the EIS will be available on the website of each Local Authority.

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(NON-TECHNICAL SUMMARY)

A. INTRODUCTION

Dun Laoghaire-Rathdown County Council, on behalf of Dun Laoghaire-Rathdown, South Dublin and Fingal County and Dublin City Councils propose to upgrade the M50 Motorway. The M50 Motorway is located on the outskirts of Dublin City.

The proposed M50 Motorway Upgrade Scheme (the Scheme), as shown in Figure 1, includes the following:

- Widening of 31km of the M50 Motorway to three lanes in each direction between the M1 Interchange and the proposed Sandyford Interchange (currently under construction). An additional auxiliary/weaving lane in each direction will also be provided between the M1 Interchange and Scholarstown Interchange.
- Upgrade of 10 interchanges along this section of the M50.
- Upgrade of the Westlink toll plaza to a fully electronic free flow toll facility.

The proposed Scheme will increase the capacity of M50 Motorway, enabling all road users including buses, taxis, commercial vehicles and private cars to benefit from significantly reduced traffic congestion and increased average traffic speeds both on and approaching the M50.

This document is the Non-Technical Summary of the Environmental Impact Statement (EIS) for the proposed M50 Motorway Upgrade Scheme. The EIS is a statement of the likely effects of the Scheme on the environment, prepared in accordance with the requirements of Section 50 of the Roads Act, 1993 as amended.

B. THE EXISTING M50

The M50 is a very important component of the Irish national road network providing a by-pass of Dublin City. The National Roads Authority estimates that on an average day in 2004, 87,000 vehicles (AADT) travel over the Westlink Bridge on the M50. These vehicles would use the M50 for its primary function, as a bypass of Dublin City, as well as for shorter trips between local communities, employment and shopping centres. The M50 also provides the most significant crossing of the River Liffey outside the urban centre of Dublin and access to Dublin Airport and Dublin Port.

The existing M50 Motorway is a dual two-lane carriageway, which traverses Fingal, South Dublin, and Dun Laoghaire-Rathdown County areas and the periphery of the Dublin City Council area. When completed, the M50 will be 42 km long. The southern 13 km section is currently under construction and is programmed to open in late 2005.

The completed M50 will connect traffic from the M1 Motorway to the M11 Motorway at Shankill. Interchanges along the mainline facilitate movements between the principal national primary (N2, N3, N4 and N7), secondary (N81) and regional (R108 and R110) routes radiating from the city.

The section of motorway between the N3 and N4 Interchanges including the Westlink Bridge is currently tolled at the Westlink Toll Plaza.

C. WHY UPGRADE THE M50?

The existing M50 is a result of over three decades of planning and construction during a period in which Dublin and Ireland has experienced significant economic growth and change. The increase in car ownership and changes in land use and travel patterns have resulted in serious congestion on many parts of the Dublin road network including the M50. The M50 itself has experienced compound traffic growth rates of between 8% and 10% on most

sections in the last 6 years, which was not catered for at the time of its original development. As such, the objective of the project, in the context of an integrated transport strategy for Dublin, is to provide an increase in the capacity of the M50 motorway and its interchanges. This will allow all road users, including key public transport services, such as buses and taxis as well as commercial vehicles, to benefit from significantly reduced traffic congestion and delays.

The need to upgrade the M50 has been identified in government policy documents such as the National Development Plan (NDP)[1], the Dublin Transportation Office's (DTO) A Platform for Change Strategy 2006 – 2016[2] and the Dun Laoghaire-Rathdown County[3], South Dublin County[4], Fingal County[5] and Dublin City[6] Development Plans.

The NDP states that *"Ireland has a significant infrastructure deficit, which threatens to inhibit the achievement of its economic and employment potential"*. The NDP, under the Strategy for Transport in the Greater Dublin Area, includes provision for the widening of the M50 to three lanes, together with improvements to the interchanges.

The DTO Strategy is an integrated transportation strategy that forms the planning framework for the future development of the transport network in the Greater Dublin Area. The DTO Strategy seeks to "*transform the transportation system in the Greater Dublin Area*" and includes significant public transport and road infrastructure improvements as well as traffic demand management measures. The DTO Strategy includes "*the upgrading and completion of the orbital motorway around Dublin (M50, the Dublin Port Tunnel and Eastern By-pass)*".

The M50 Upgrade Scheme is proposed as part of the integrated transportation strategy for Dublin, which includes all elements of the DTO Strategy. The DTO transportation model was used to assess the transport impacts of the proposed Scheme.

The transportation assessment concluded that the proposed Scheme will meet its objective of increasing the capacity of the M50 and will provide significant benefits including:

- Reduced traffic congestion and delays for private vehicles and public transport services on and around the M50. The M50 Upgrade is predicted to increase average travel speeds on the motorway during the morning peak hour in 2008 by 19% (10kph) and in 2023 by 11% (6kph) compared to a situation where the Scheme is not built.
- Reduced traffic congestion and delays for all road users on the wider Dublin road network. With the upgrade of the M50, average traffic speeds on the wider Dublin road network are predicted to increase by 9% in the morning peak hour and 12% in the off-peak periods in 2008 compared to a situation where the Scheme is not built.
- Improved accessibility to Dublin Airport and also Dublin Port (via the Dublin Port Tunnel), which supports the national and regional economy as recognised in the DTO Strategy.
- Traffic reductions on a number of local roads in and around the M50 corridor.

The detailed analysis has also demonstrated that the economic benefits accruing from the Scheme in terms of travel time savings due to reduced congestion, represent an excellent return on capital investment.

D. ALTERNATIVES CONSIDERED

Development of the M50 Upgrade Scheme involved an initial assessment of the alternatives to upgrading the M50. The option of doing nothing was deemed unacceptable as the traffic congestion on the M50 is predicted to worsen in the future despite the implementation of public transport (such as the Luas and Metro), road improvements and demand management strategies as proposed in the DTO Strategy for Dublin.

Alternative major road schemes were investigated including:

- provision of a new outer orbital route
- a new connection to the M50 between the existing N4 and N7 interchanges via a possible M7.
- the provision of a new link road between the N2 and N3 as a possible measure to reduce traffic congestion at the N3 interchange and therefore minimise the need for improvements at this interchange.

In addition to major highway options, a range of other alternative measures were examined. These included:

- the use of the third lane as a dedicated orbital facility for buses and taxis.
- A number of low cost traffic management measures, including partial use of the hard shoulder at specific locations and extension of some merging lanes, to alleviate problems at specific locations on the M50.
- Minor M50 interchange improvements such as improved signalisation, further segregated left turn lanes, traffic management and bridge widening to provide additional lane capacity, in conjunction with provision of a third lane in both directions

After consideration of each alternative it was determined that none of these options would realistically provide a solution that would offer the same benefits and alleviate the need for upgrading the M50. Hence upgrading the existing M50 infrastructure was selected as the preferred option.

An incremental approach was taken to the design of each component of the M50 Upgrade Scheme. The approach involved examining at first minor upgrades, and then increasing in increments until one or more schemes met the design criteria of improving capacity, whilst taking account of the environmental, economic and physical site constraints. Dedicated pedestrian and cyclist facilities were also incorporated into the Scheme design.

E. PROPOSED SCHEME

The M50 Upgrade Scheme comprises the upgrade of 31km of the M50 mainline to dual 3-lane motorway standards between the M1 Interchange and the Sandyford Interchange (currently under construction) together with the upgrade of 10 interchanges along this length as described below. Pedestrian and cyclist facilities have been provided at all interchanges, except the M1 Interchange, as part of the M50 Upgrade Scheme.

It is proposed to widen the M50 mainline through the addition of a third lane in each direction. This will generally be carried out within the existing central median. In order to facilitate merging interchange traffic, an auxiliary weaving lane will be provided between interchanges on the section between the M1 and Scholarstown Interchanges. There is currently an auxiliary lane on the M50 between the N7 and Scholarstown Interchanges.

To facilitate access on and off the motorway the following seven interchanges will receive major upgrades involving the reconfiguration of the interchanges to include full or partial free flow lanes. Technical terms used in the interchange descriptions include:

- Grade separated - Road junction at which at least one road passes over another.
- Free Flow - A link or interchange where traffic is not required to stop at any time.
- Partial Free Flow - Traffic has a requirement to stop (usually due to traffic lights or yield lines) on or one or more approaches.

M1 Interchange (M1) – It is proposed to upgrade the M1 Interchange to provide free flow lanes for all M50/M1 traffic movements. The interchange is grade separated with the M1 mainline passing underneath the M50. The existing roundabout will be maintained as a signalised roundabout to accommodate N32 traffic. Three new bridges will be constructed. This is a motorway-to-motorway interchange so facilities for pedestrians and cyclists are not provided at this location. An artist's impression (photomontage) of the proposed M1 Interchange is shown in Figure 2.

N2 Interchange (N2) - It is proposed to upgrade the interchange to a partially free flowing interchange. The interchange is grade separated with the M50 mainline passing over the N2. The existing bridges over the roundabout will be re-used and a further four new road bridges and one new pedestrian/cyclist bridge will be constructed. An artist's impression of the proposed N2 Interchange is shown in Figure 2.

N3 Interchange (N3) - It is proposed to upgrade the interchange to a partial free flowing interchange. The interchange is grade separated with the M50 mainline passing underneath. The bridges on the existing roundabout will be re-used and a further fifteen new road bridges and two new pedestrian/cyclist bridges will be constructed. An artist's impression of the proposed N3 Interchange is shown in Figure 3.

N4 Interchange (N4) - It is proposed to upgrade the interchange to a completely free flowing interchange. The interchange is grade separated with the M50 mainline passing underneath. The two existing bridges will be re-used and a further four new road bridges and one new pedestrian/cyclist bridge will be constructed. In addition one existing pedestrian bridge will be reconstructed as a pedestrian/ cyclist bridge. An artist's impression of the proposed N4 Interchange is shown in Figure 3.

N7 Interchange (N7) - It is proposed to upgrade the interchange to a partial free flowing interchange. The interchange is grade separated with the M50 mainline passing underneath. The existing two bridges from the roundabout will be used and a further three new road bridges and two new pedestrian/cyclist bridges will be constructed. An artist's impression of the proposed N7 Interchange is shown in Figure 4.

Ballymount Interchange - The proposed interchange is a fully signalised interchange with the existing roundabouts removed. Free flow slip lanes are provided for left turning traffic. The existing bridge will be upgraded to three lanes and one additional two lane road bridge will be constructed to the north of the existing road bridge. One pedestrian/cyclist bridge will be constructed on the south side of the existing bridge. An artist's impression of the proposed Ballymount Interchange is shown in Figure 4.

Scholarstown Interchange: The proposed upgrade involves reconfiguring the existing bridge to three lanes and providing an additional three-lane bridge with one-way pedestrian/cyclist facilities to the south and a new one-way pedestrian/cyclist bridge to the north. The interchange will be fully signalised.

Less extensive upgrades such as the addition of left slip lanes and/or traffic signals to the existing roundabouts are proposed at the following interchanges:

Ballymun Interchange: The proposed improvements to this interchange involve the addition of free flow left slip lanes to all arms of the roundabout and the installation of traffic controls on all approaching arms. Additionally, all on and off ramps will be upgraded to two lane ramps.

N81 Interchange (N81): The proposed improvement to this interchange includes the provision of a new free flow left slip lane and a two lane on-ramp in the north western quadrant of the roundabout.

Ballinteer Interchange - No upgrade to the Ballinteer Interchange is proposed.

Sandyford Interchange (currently under construction): The proposed improvements to the Sandyford Interchange are the addition of free flow left slip lanes in the north western, south western and south eastern quadrants of the existing roundabout.

Westlink Toll Facility - It is proposed to upgrade the Westlink Toll Plaza on a phased basis to a fully free flow electronic toll collection system. Free flow electronic toll collection refers to the electronic collection of toll by a system operating with traffic under free flowing conditions (i.e. no stopping). The existing toll plaza will be removed and replaced by a gantry mounted electronic tag recognition system. The gantries will also support a number plate recognition system, which can record the number plate of vehicles using the facility. It is proposed to construct a new toll operator's building and associated services adjacent to the toll collection gantries at the existing toll plaza site.

It is envisaged that the M50 Upgrade will be procured by a combination of a Design and Build contract and a Public Private Partnership (PPP) Scheme (where the design and construction takes place under a Design and Build type contract). As a result, the final design, while still complying with all relevant statutory approvals, will be developed by the successful Design and Build Contractor and may include modifications to the preliminary design described above. For example, modifications to the number, form and size of the structures making up the interchanges may occur.

F. LAND TAKE REQUIRED

The philosophy towards the design and construction of the Scheme has been to minimise land take and therefore the impact on the local community. The method of widening the mainline, generally within the central median, will limit impact on adjacent land. Where land is required on the mainline, this is predominantly required for the installation of noise mitigation barriers/walls and drainage works including emergency spill containment facilities. Similarly the design of the interchanges has incorporated the use of compact loop geometry primarily to reduce encroachment on surrounding land.

Approximately 20ha of private land and a further 35ha of public (local authority and government owned) land is required for the construction and operation of the M50 Upgrade Scheme. Approximately 90 residential, commercial, agricultural, community and recreational properties (including properties with planning permissions, local authority land and government land) and undeveloped private land will be affected to varying degrees as a result of the required land take.

The construction and operation of the M50 Upgrade Scheme will require the permanent acquisition of one private dwelling and one local authority owned dwelling.

G. CONSTRUCTION

The construction of the M50 Upgrade Scheme is a significant undertaking and will be one of the largest construction projects in Ireland in recent years. The widening of the 31 km of motorway and the upgrade of 10 interchanges and the Westlink Toll Facility will be carefully planned. It is likely however, that there will be significant disruption at times during the

course of construction. Some night-time works are required in order to construct the Scheme in the shortest possible time, thereby reducing the duration of impact on the community and to facilitate the operation of the existing road network as much as possible.

It is estimated that the construction of the Scheme will take approximately 5 years and employ several hundred people. A basic outline construction methodology was developed to provide reassurance that the Scheme could be constructed within the land made available while the motorway remains operational. The outline construction methodology was based on conventional construction techniques and methods, which have in turn been used to provide a basis for the assessment and management of the associated environmental impacts.

From the assessment of the potential environmental impacts of construction, specific requirements for the mitigation of adverse impacts have been identified in the EIS and these will be enforced through specific conditions in the construction contract documents. The Contractor will be contractually bound to adhere to these requirements in addition to any Statutory Regulations and applicable licenses.

General construction issues are detailed below.

- **Construction constraints** – The existing M50 and surrounding infrastructure provides physical construction constraints including the existing bridges, utilities, railway lines and canals which need to be taken into account during construction. The requirement to maintain all existing access as well as a live motorway during the construction provides a constraint to construction methods.
- **Construction programme and working hours** – It is anticipated that the construction of the Scheme will take at least 5 years. Construction periods and working hours will vary along the Scheme and it is anticipated that night-time working will be required.
- **Construction compounds** – Seven possible construction compound areas have been identified within the proposed Scheme boundary, primarily around the interchanges.
- **Excavated material** – Construction of the proposed Scheme will involve the excavation of in the order of one million cubic metres of material (earth and demolition material such as pavement, pipework and structures) of which a significant proportion will be suitable for re-use on-site.
- **Material requirements** - The M50 Upgrade Scheme will have a significant requirement for imported materials, in particular for high standard fill and stone for embankment construction, concrete for walls and bridge construction and asphalt for road construction.
- **Construction traffic and access** – Heavy vehicles importing materials and removing unsuitable excavated material will be required to travel on routes in accordance with the road hierarchy, that is to preferentially utilise national routes and avoid local estate roads wherever practicable. It is estimated that an average of 900 return vehicle trips per day will be required for the duration of construction works.
- **Preparatory works** – Substantial diversion and relocation of services such as sewers, water mains, telecommunications, gas pipelines, pylons and underground and overground electricity power lines will be required prior to and during the project. In addition some advance archaeological testing may be undertaken.
- **Public traffic management** – During construction it will be necessary to undertake traffic management measures to create safe construction working space and safety for the public. Where practicable, existing road movements and pedestrian/cyclist movements will be maintained during construction. However temporary diversions and at times, contra flows will be required to facilitate construction activities.

A Project Community Liaison Officer will be appointed at commencement of the contract. This officer will be responsible for informing the local community in advance of the activities

being undertaken in their area. This will include information on the method, time and duration of work. The Project Liaison Officer will discuss the concerns raised by individual groups in the community with the construction team.

H. ENVIRONMENTAL ASSESSMENT

H.1 Introduction

This EIS is a statement of the likely effects of the proposed road development, to which the Scheme relates, on the environment.

Extensive consultation with the community has been undertaken during the preliminary design development and the EIS preparation phase of this project. The issues and concerns identified during this period were incorporated into the design of the Scheme where possible and addressed in this EIS as described below. In addition formal scoping was undertaken as provided for under Section 50 of the Roads Act 1993 as amended. This allows for An Bord Pleanála to provide a written opinion on the information to be contained in the EIS. This opinion was taken into consideration in the preparation of the EIS.

The preparation of the EIS was an iterative process, which by its nature was linked with the preliminary design of the Scheme. The approach adopted in the assessment and preparation of the EIS document had regard to that recommended in the EPA Guidelines on the Information to be contained in Environmental Impact Statements 2002[7]. The assessment methodology for the EIS has incorporated any significant interaction of impacts into the assessment of each topic.

The impact assessment methodology has assessed the likely effects of the Scheme on the environment for the Scheme opening year (2008) and/or design year (2023) and compared them with the scenario without the proposed Scheme. The assessment methodology for the EIS has also incorporated any significant interaction of impacts into the assessment of each topic.

The following provides a summary of the impact assessment and proposed mitigation measures under the environmental topics included in the EIS.

H.2 Noise and Vibration

A noise and vibration assessment was undertaken for the construction and operation of the proposed Scheme. The assessment was undertaken with regard to the guidance set out in the National Roads Authority (NRA) Draft Guidelines for the Treatment of Noise and Vibration in National Road Schemes 2004[8].

Construction Phase

The draft NRA guidelines recommend 'maximum permissible construction noise levels' at dwellings. A construction methodology, based on typical construction techniques, was used as a basis for the prediction of maximum expected construction noise levels in the vicinity of the proposed Scheme. It should be noted that these predicted maximum expected levels, which are indicative only, are expected to occur for only short periods of time at a very limited number of properties.

Construction noise levels will generally be lower than the recommended maximum permissible construction noise levels for the majority of the time at most properties in the vicinity of the proposed Scheme, although greater levels may also occur. Because of the nature of the works and the necessity to keep the interchanges, which are amongst the busiest in Ireland, operational, there will be occasions when the NRA draft noise guidance limits may be exceeded. Mitigation measures will be incorporated into the Contract documents to reduce the impact of construction noise at sensitive receptors. The application of the Noise and

Vibration Management Plan will ensure that noise impact is kept to a minimum consistent with efficient construction practices.

Construction of the proposed road scheme is not expected to give rise to vibration that is either significantly intrusive or capable of giving rise to structural or even cosmetic damage. The use of proven techniques for vibration prediction and control will be employed so that construction vibration does not give rise to excessive intrusion or building damage.

Operational Phase

The guidelines specify noise design goals for new national road developments in Ireland as follows:

- day-evening-night 60dB L_{den} (free field)
- night (23:00hrs to 07:00hrs) 50dB L_{night} (free field)

Noise surveys were undertaken at over 100 locations along the M50 in accordance with the NRA guidelines to establish the existing noise environment in the vicinity of noise sensitive locations (e.g. houses, hospitals, nursing homes etc) that may be affected by the proposed Scheme. A noise model was also prepared to predict the future noise levels at noise sensitive locations both with and without the Scheme in 2008 and 2023.

In accordance with the criteria outlined in the NRA guidelines, noise mitigation measures are required as part of the Scheme at numerous locations along the M50 mainline and interchanges. Noise mitigation measures in the form of low noise road surfacing and noise barriers are included in the M50 Upgrade Scheme. Approximately 16km of new noise barriers will be constructed as part of the scheme. In addition, it is required to increase the height of approximately 7km of existing barriers/walls for noise mitigation purposes. The proposed noise barriers are a substantially between 2.0m and 4.0m in height though some are up to 6.0m in height.

With mitigation in place, all receiver locations comply with the NRA design goals, except at four locations. However, it can be confirmed that in respect of these four locations, measures have been taken to reduce road traffic noise as far as practicable.

The level of noise residual impact has been assessed by consideration of predicted changes in noise level due to the proposed Scheme. This was done for the Scheme opening (2008) and design (2023) years by calculating the change in noise day-evening-night levels (L_{den}) and night levels (L_{night}).

Assuming that the mitigation measures are applied in full, the residual impacts are as follows:

- For L_{den} in the Opening Year (2008) – the impact is not significant at 170 locations, minor positive at 9 locations and moderate positive at 6 locations
- For L_{night} in the Opening Year (2008) – the impact is not significant at 166 locations, minor positive at 14 locations and moderate positive at 5 location
- For L_{den} in the Design Year (2023) – the impact is not significant at 178 locations and minor positive at 7 locations
- For L_{night} in the Design Year (2023) – the impact is not significant at 177 locations, minor positive at 7 locations and moderate positive at 1 location.

It may therefore be concluded that the noise impact of the operational of the proposed Scheme is either not significant or positive at all of the noise sensitive locations in the immediate vicinity.

No vibration impacts are predicted during the operation phase of the Scheme.

H.3 Air Quality

Air quality refers to the presence or absence of airborne pollutants, and the impact of these materials on the atmospheric environment. In order to reduce the risk to human health and the environment from poor air quality, National and European statutory bodies have set objective limit values for a range of air pollutants.

An air quality assessment was undertaken for the construction and operation of the Scheme with regard to the guidelines provided in the United Kingdom Design Manual for Roads and Bridges[9]. It involved an assessment of the existing air quality and prediction and assessment of future air quality using modelling techniques. Mitigation measures are proposed where appropriate to reduce, remedy or avoid significant adverse impacts.

Existing local air quality in the vicinity of the proposed Scheme was determined for key pollutants, nitrogen dioxide (NO_2), benzene and particulate matter (PM_{10}), using a baseline air quality survey. The locations monitored allowed an assessment of both the worst-case and typical exposure of the residential population.

In general, the existing levels of NO_2, benzene and PM_{10} monitored were within the National and European objective limit values with the following exceptions:

- Exceedance of the annual mean objective limit for NO_2 was observed at five locations. These monitoring locations represent worst-case residential or roadside receptors, thus high concentrations are not unexpected.
- The average concentrations of PM_{10} at the two receptors monitored at the N7 Interchange were within the current annual mean objective limit of 40mg/m³ to be met by 2005, but exceeded the indicative European objective limit of 20mg/m³, to be met by 2010.

Construction Phase

There are two main potential sources of emissions to the air during construction of the Scheme:

- Exhaust emissions from construction machinery, equipment and vehicles site plant, equipment and vehicles
- Dust emissions from construction areas and activities.

Air quality impacts from vehicle and machinery exhaust emissions are predicted to be not significant, particularly in comparison to levels of similar emissions from existing road/motorway traffic.

Detailed dust modelling techniques have been used to predict dust deposition rates and dust concentrations during construction of the Scheme. The construction activities at the N3 and N4 Interchanges have been assessed as they have the greatest potential to result in adverse impacts due to the magnitude and length of construction and the close proximity of residential properties.

Based on monthly daily mean dust deposition rates, the proposed Scheme is predicted to have a minor adverse impact on air quality at the N3 and N4 Interchanges. It should be noted however that at limited times during the construction works some exceedance of the generally accepted deposition level of 250 mg/m2/day may occur.

Prior to commencement of construction, a construction methodology will be devised to reduce the potential for adverse environmental impacts on local receptors. Standard dust control measures incorporated into a construction methodology include vehicle wheel-washing; appropriate storage, handling and transport of dusty materials; provision of hoarding/barriers to prevent dust breakout; and appropriate site dust monitoring included within the site management practices to inform site management of the success of dust control measures used. No long-term residual effects, with respect to air quality, are expected as a result of the

construction of the M50 Upgrade Scheme between the M1 Interchange and Sandyford Interchange.

Operational Phase

An air quality model was prepared to predict the future air quality at sensitive locations both with and without the Scheme in 2008 and 2023. In general, the pollutant concentrations at the receptors modelled are predicted to increase with the proposed Scheme in place. This would be expected due to the increased traffic flows associated with the Scheme and, in some cases, the closer proximity of the realigned interchanges to the receptors. Overall the proposed Scheme is determined to have a minor adverse impact on air quality in terms of local air quality, when compared with predicted air quality without the Scheme in place.

An assessment of the impacts of the operation of the proposed Scheme on regional air quality associated with vehicle emissions was undertaken. Overall it is predicted that operation of the proposed M50 Upgrade Scheme will result in small changes in the pollutants assessed, with the maximum increase of 0.62% for NO_x in 2023. An assessment of the potential impact on greenhouse gas emissions, has been undertaken for the M50 Upgrade Scheme, for details refer to the Section H.9: Climate.

H.4 Landscape and Visual

A landscape and visual assessment was undertaken for the construction and operation of the proposed Scheme. The assessment of visual impact considers the impact of the proposed development on the nature and visibility of the existing landscape environment. The existing landscape includes all the physical components of the environment including natural landform and vegetation as well as the built environment, which includes the existing motorway.

Construction Phase

Visual impacts will be most pronounced during the construction stage while disturbance is at its greatest and mitigation is least effective.

Along the mainline of the M50 corridor, adverse impacts during construction will generally be minor as the changes relate primarily to the central median and portions of the outside grass verge, thus retaining most of the existing screen planting along the M50. There will, however, be some severe impacts and several major impacts at sections along the Scheme, including the M1, N3, N4 and N7 Interchanges, and sections of mainline between the N3 and the River Liffey and between Edmonstown Road Underbridge and Ballinteer Interchange. This is predominantly due to the intensity of works in these areas and the likelihood that all of the existing screen vegetation will be removed during construction, combined with the number of residential and other property types adjacent to the Scheme at these locations. Impacts at the interchanges where less extensive works are proposed will range from minor to moderate adverse impacts, as existing vegetation will be maintained wherever practicable.

The construction phase will result in various moderate adverse impacts for road users with localised major adverse impacts in the vicinity of the junctions, primarily arising from visual disturbance and visual attention in terms of vegetation removal and general construction activity associated with the proposed mainline, interchanges and barriers.

Contracts will be framed to ensure good working practices aimed at reducing the adverse impacts arising from construction to the lowest practicable level.

Operational Phase

Two assessments of the level of impact were undertaken for the operational phase of the Scheme. These include:

- Impact of the completed Scheme on a winter's day in the year the Scheme would open (2008), when planting mitigation measures are least effective.

- Impact in the winter of the design year for the Scheme (2023), taking account of the proposed mitigation measures and planting.

Mitigation measures have been proposed so as to visually re-integrate the proposed development in its existing setting and to reduce the adverse nature of visual impacts wherever practicable. Mitigation measures include retention of existing planting where possible and extensive areas of new planting of dense vegetation / landscaping comprised of native species, to improve the character of the view.

The visual impact of the Scheme on a winter's day in the year of opening is generally predicted to be minor to not significant, with some instances of moderate impact at the N4 and N7 Interchanges and along the mainline between the River Dodder and Edmonstown Road Underbridge. There will also be major impacts during the opening year at the M1 and N3 Interchanges. These impacts are predicted to decrease over time as the landscaping matures. In overall terms, by the design year 2023, it is considered that upgrading of the mainline will have no significant residual impact while for the upgrading of the main interchanges, the M1, and N4 Interchanges will have minor residual impacts.

In terms of impacts on road users in the opening year, most impacts will be moderate to minor with a major impact for the section from the N3 to the Toll Facility. This is due mainly to the amount of existing vegetation to be removed for the construction of noise barriers. In time proposed planting will reform the road corridor softening the view of roadside barriers and while the overall Scheme will remain as a significant change, when viewed in the context of an existing motorway, it is considered that in the medium and longer term that the overall impact on road users will be minor adverse to not significant.

H.5 Archaeological, Cultural Heritage and Architectural Heritage

An Archaeological, Cultural Heritage and Architectural Heritage assessment was undertaken for the construction and operation of the proposed Scheme.

An assessment of the existing Archaeological, Cultural Heritage and Architectural Heritage was undertaken based on a desk study of available information on the archaeological, cultural heritage and architectural heritage of the study area and a field survey of areas of proposed landtake. The field survey was carried out to determine the nature and extent of any above ground archaeological, cultural heritage or architectural evidence and to project the potential impact of the proposed development on the receiving environment. Mitigation measures are proposed to avoid, reduce or remedy impacts in accordance with relevant statutory provisions and with regard to the guidance provided in the Code of Practice agreed between the NRA and the Minister for Arts, Heritage, Gaeltacht and the Islands[10] in relation to the treatment of archaeology, architecture and cultural heritage issues in road scheme planning and development.

Construction Phase

Two sites, Archaeological Site16 (area of potential), Archaeological Site 19 (habitation site) will be impacted directly by construction of the Scheme. No Architectural Sites will be directly impacted. Sixteen river crossings may be directly impacted during construction of the scheme to varying extents depending on the construction methodology employed.

Mitigation measures including testing and preservation of findings in accordance with relevant statutory requirements are proposed to fully resolve the two directly impacted Archaeological Sites 16 and 19, prior to and during construction of the Scheme. Mitigation is also proposed within the Scheme Boundary adjacent to Archaeological Site 21, whose environs are impacted, due to the proximity of Site 21 and the fact that it has been identified as an area of archaeological potential.

The environs of Architectural Heritage Site 4 (Ranelagh Bridge) and Archaeological Site 21 (area of archaeological potential) and Archaeological Site 26 (medieval watercourse) will be impacted during construction.

In the case of Architectural Heritage Site 4 (Ranelagh Bridge) and Archaeological Site 26 (medieval watercourse), mitigation will consist of fencing during construction. In the case of Architectural Heritage Site 10 (House at Oatlands) and Architectural Heritage Site 34 (dwellings at Sandyford), mitigation in the form of visual screening (landscaping) during operation is proposed.

Operational Phase

It is intended that all archaeological issues will be resolved prior to operation of the Scheme if possible.

The environs of Architectural Heritage Site 10 (House at Oatlands) and Architectural Heritage Site 34 (dwellings at Sandyford) will be impacted by the Scheme and mitigation in the form of visual screening (landscaping) during operation is proposed.

No residual impacts are anticipated, as all mitigation measures proposed will be carried out.

H.6 Lighting

Additional road lighting will be provided as part of the M50 Upgrade Scheme to ensure road lighting for the upgraded Scheme meets the road lighting standards. The potential impact of spill lighting from the proposed lighting design has been assessed for the construction and operation of the Scheme.

Spill lighting is defined as the light that extends beyond the boundary of the property or area intended to be lit, in this case the motorway boundary. The proposed lighting design was developed to minimise light spill as far as practicable.

Construction Phase

During any evening and night-time construction, temporary mobile lighting units will be utilised to supplement existing lighting. When positioned and operated correctly the spill lighting from temporary lighting is not considered to be greater than that from operational lighting. In order to minimise potential spill lighting the following measures are proposed.

- Temporary construction lighting will be directed toward construction works and away from residences as far as practicable.
- If necessary, temporary site hoarding will be provided to reduce light spill, where practicable.

Operational Phase

An assessment of the impact of the Scheme was undertaken by comparing the existing spill lighting conditions with the predicted spill lighting levels associated with the upgrade Scheme in place.

The spill lighting assessment indicated that average light spill along the mainline of the M50 would be in the order of 1.2Lux (on the horizontal plane) at 20m from the motorway boundary. This level is comparable to bright moonlight and considerably lower than the standard for residential street lighting and the effect is considered to be not significant.

Impacts from spill lighting at the interchanges are predicted to be not significant with the exception of two properties, which are predicted to experience minor and moderate impacts.

As the proposed lighting design was developed to minimise light spill as far as practicable no further mitigation measures are proposed and the predicted impacts represent the residual impacts.

H.7 Community

An assessment of the impacts of the proposed Scheme on community was undertaken with regard to the guidelines given in UK Design Manual for Road and Bridges[11]. Communities are taken to constitute groups of people and the study does not assess the impact of the Scheme on particular persons/households/businesses.

The impact of the scheme is addressed at both a national/regional and local level. At national/regional level, the general context of the M50 in terms of its function is described and assessed. At the local level, particular attention is given to assessing the impact of the proposed scheme on pedestrian and cyclist journeys.

The assessment considered the following: (i) changes in journey length resulting from physical alterations to the road and increased traffic volumes, (ii) changes in journey amenity, (iii) the impact on community/recreational resources, and (iv) public transport.

Construction Phase

During the construction phase the impacts on community (local residents, businesses, road users including public transport) will vary greatly. The Contractor will be responsible for the preparation and implementation of the Community Liaison Plan during the construction phase with the aim of minimising the impact on the community as far as practcable.

Existing cyclist and pedestrian access will be maintained where feasible and temporary alternative routes will be provided where necessary. Significant traffic delays, temporary diversions, speed restrictions, lane restrictions and contra-flows are likely adjacent to construction works. The contractor will be required to liase with bus operators to minimise the potential disruption to services. Some bus stops will require relocation during construction works and pedestrian access to these will be provided.

The upgrade of the N3 interchange will require temporary disruption of the Dublin-Maynooth/Sligo railway line. Any temporary track closures/possessions and temporary train speed restrictions will be agreed in advance with Iarnród Éireann and timed to minimise, in so far as is practicable, delays and disruption to railway operations and the travelling public.

Construction in the vicinity of the Luas line will also require some temporary closures, most likely during off-peak periods. All temporary track closures will be agreed in advance with the Railway Procurement Agency/Luas operator and will be timed to minimise, in so far as is practicable, delays and disruption to Luas operations and the travelling public.

Operational Phase

The overall impact of the scheme will be a beneficial one in terms of improving the road network around Dublin and the associated benefits on the radial routes intersected by the M50. The Scheme will reduce congestion for both commercial and non-commercial traffic. The improved accessibility afforded by the Scheme will further competitiveness of businesses and will assist in enhancing the potential for economic growth. The Scheme will also generate direct and indirect opportunities in this regard.

On a more local level, there will be a range of operational impacts on cyclists and pedestrians using the road network. Where new, dedicated facilities are put in place, the amenity value of journeys will improve both for pedestrians and cyclists. However, journeys may take longer in many instances due to the necessity of navigating larger junctions and also due to the additional traffic signals. Impacts range from not significant to major adverse.

Several mitigation measures have been incorporated into the Scheme design to facilitate pedestrian and cyclist movements. These include dedicated pedestrian and cyclist crossings at all interchanges except the M1. Additional mitigation measures for the operation phase are listed below.

- Lighting will be provided at all interchanges in the interest of motorist, cyclist and pedestrian safety.
- Where necessary, the route to be taken to access all footpaths/cyclistways will be clearly marked so as to direct pedestrians and cyclists to use these facilities.
- Where appropriate, traffic islands will be constructed large enough to accommodate waiting cyclists.

H.8 Property and Material Assets

The predicted impact of the proposed M50 Upgrade Scheme on private properties to be fully or partly acquired by the scheme was assessed. The impact has been assessed in terms of loss of buildings/facilities (including planning permissions), size of land holding, size of landtake, proximity to the route, loss of access, viability of the commercial, community or agricultural property and level of severance.

Properties, that are privately owned only, are assessed if their use can be defined under the following headings:

- Residential property
- Commercial/Industrial property
- Community/Recreational property
- Agricultural property
- Undeveloped private land
- Planning Permission development not commenced construction

The existing land use in the vicinity of the M50 varies considerably along the route. Industrial and agricultural land is dominant between the M1 and N3, with mainly residential and industrial land uses between the N3 and the River Dodder with agricultural and residential land dominating the southern section to the Sandyford Interchange.

Construction Phase

Access to all existing properties will be maintained at all times during the construction phase. This may require temporary alternate access arrangements at some locations. All access will be re-instated upon completion of construction.

Operational Phase

A total of nine (9) properties will be fully acquired and/or are predicted to experience a major adverse impact due to the proposed scheme, consisting of six (6) commercial properties, two (2) residential properties and one (1) undeveloped private landholding. These acquisitions will result in a major adverse impact.

The Scheme has a moderate adverse impact on twelve (12) properties along the route. Of these, seven (7) are commercial, two (2) are commercial-planning permission, two (2) are residential/community and one (1) is commercial/recreational.

The proposed Scheme will have a minor adverse impact on a total of twenty six (26) properties. Of these, eleven (11) are commercial, four (4) are agriculture, three (3) are residential, three (3) are undeveloped private land, two (2) are commercial-planning permission, one (1) is community, one (1) is community/agriculture and one (1) is commercial/recreational.

The impact of land take at a total of twelve (12) properties is considered not significant.

Mitigation measures in the form of compensation are not part of the EIS and are therefore not considered further in this study.

H.9 Climate

An assessment of the impacts of the proposed Scheme on climate was undertaken with regard to the guidelines given in UK Design Manual for Road and Bridges[12]. The assessment examines the potential impacts of the Scheme on emissions of greenhouse gases and considers potential micro-climate (localised) issues. The climate describes the weather in a location averaged over a long period of time.

Operational Phase

Greenhouse Gas Emissions - An assessment of the impacts of the operation of the proposed Scheme on greenhouse gas emissions associated with vehicle emissions was undertaken. The Scheme is predicted to result in an increase in CO_2 emissions in 2023. However, in the context of national emissions this is relatively small, being less than 0.04% of the national emissions of carbon dioxide compared with the 1990 baseline, and less than 0.03% of the projected 2010 emissions. Therefore the overall impact of the Scheme on greenhouse gas emissions is considered to be not significant.

Micro-climate - The construction of the proposed Scheme will result in minor changes to the shape of the landscape next to the road and the construction of some new structures such as bridges. No mitigation measures are considered to be necessary although care will be taken in the detailed design of landscaping and structures to minimise any local impacts. The impact of any changes in micro-climate such as local shading or wind speeds are considered not significant.

Construction Phase

Greenhouse Gas Emissions - During construction and operation the use of motor vehicles results in the emission of carbon dioxide and nitrogen oxides. The number of construction vehicles/machinery and hence the emissions from construction vehicles would be expected to be very low relative to the emissions from vehicles using the M50 itself. Therefore the emissions from construction vehicles are considered to have a negligible impact on greenhouse gas emissions.

Micro-climate - Rain suppresses the re-suspension of dust from surfaces and is an important factor in reducing dust impacts during construction. Generally, when there is a rainfall of greater than 0.2mm in a day, it is considered that dust would be effectively suppressed and that dust emissions would be minimal during that day.

H.10 Terrestrial Ecology

A terrestrial ecological assessment was undertaken for the construction and operation of the proposed Scheme.

Terrestrial ecology includes both the land flora (vegetation) and fauna (animals) and their associated habitat. The existing terrestrial ecology along the M50 motorway is typical of a predominantly urban environment. This generally consists of isolated areas of semi-natural habitat (mostly adjacent to watercourses) supplemented by garden and road landscaping which provides secondary habitat of varying ecological value, dependant on factors such as size, maturity, complexity and connectivity to other habitats.

In assessing the impact of the proposed Scheme on terrestrial ecology, the importance of the site (i.e international, national, regional or local importance; high, moderate or low value) was taken into consideration, as was the nature of predicted impacts (i.e scale of impact; permanent or temporary impacts etc).

Construction Phase

Construction impacts of the proposed Scheme are regarded as temporary impacts resulting from the activity of constructing the Scheme.

The local fauna, including birds, is habituated to ongoing disturbance from the M50 (e.g. noise from traffic, lighting etc.) so the net increase in disturbance from construction activities is generally anticipated to have minor adverse impact in areas of high local ecological value and not significant in areas of low ecological value.

The construction working area around ecological sites, hedgerows and treelines will be kept to a minimum to reduce the effects on habitats and fauna. Habitats to be safeguarded will be adequately fenced off to prevent access by machines, people or materials.

Operational Phase

Three sites of high ecological value (locally important) are predicted to be impacted by the Scheme due to loss of habitat: the River Tolka Valley, the Liffey tributary glen, and the River Owenadoher Valley. Mitigation measures are proposed for these sites, involving compensatory planting of suitable native species at or near these locations, as included in the landscape strategy for the Scheme. The residual impacts, after implementation of the mitigating measures are expected to be major adverse at the River Tolka Valley, and minor adverse at the Liffey tributary glen and River Owenadoher Valley.

Compensatory planting of trees, shrubs and hedgerow plant species is also proposed as part of the landscaping strategy to mitigate the operational impacts on habitats of moderate local value, which mostly include hedgerows, treelines and mixed woodland. The residual impact is predicted to be minor to not significant at these locations, though compensatory planting will result in a long-term minor beneficial impact (>20 years), upon maturation.

Overall there will be a minor adverse residual loss of habitat for mammals and birds resulting in an indirect minor adverse residual impact on fauna in general. This impact will reduce with time, as the compensatory plantings mature.

H.11 Surface Water Resources

The M50 lies within the catchments of the Rivers Mayne, Santry, Tolka, Liffey and Dodder. The M50 crosses these rivers and several of their tributaries which all flow in an approximately easterly direction, through the Greater Dublin Area, discharging into Dublin Bay.

The assessment of the impact of the proposed M50 Upgrade Scheme on surface water resources includes drainage and flooding and aquatic ecology. In assessing the impact of the proposed Scheme on aquatic ecology, watercourses were evaluated taking account of riparian habitat, aquatic habitat, fisheries value, presence of species/habitats listed for protection, and water quality. The significance of predicted impacts was assessed based on their permanence and scale during the construction and operation of the Scheme.

Construction Phase

The impact on the watercourse crossings considered in this assessment, including the watercourses associated with four areas of high ecological value: the River Tolka Valley, the Liffey tributary glen, the River Dodder Valley and the Owenadoher River Valley, is generally considered moderate adverse. These impacts are mainly associated with the risk of pollution (siltation, chemical/fuel spills etc) associated with construction activities in close proximity to the watercourses. Mitigation measures are proposed for the construction phase of the Scheme in order to reduce the risk of pollution of watercourses from construction activities.

Temporary diversion of the Royal Canal, which is a proposed National Heritage Area (pNHA), is however predicted to result in a major adverse impact on the Canal. In order to

reduce the impact on the Royal Canal during construction, the diversion structure will take the form of a navigable channel designed in consultation with Waterways Ireland, National Park and Wildlife Services (NPWS) (Formerly Dúchas) and the Eastern Regional Fisheries Board (ERFB).

Operational Phase

The strategy for the design of drainage for the M50 Upgrade Scheme is to attenuate any flow in excess of the flow experienced by the existing drainage system during a 1-in-5 year storm. New drainage facilities will be constructed at several locations along the Scheme, particularly at interchanges. However these new facilities will discharge into the existing pipe network, outfalls and receiving watercourses. As a result, the impact of the proposed Scheme on the flow in the rivers and streams is not significant for events equal or more frequent than the 1 in 5 year storm event

To reduce the risk of pollution of watercourses during operation of the Scheme, mitigation measures in the form of bypass petrol interceptors and emergency spill containment facilities (to contain spills from road accidents) at all outfalls along the mainline, and where practicable at interchanges, are proposed.

The Scheme also involves the construction of an aqueduct to carry the Royal Canal over new sections of carriageway at the N3 Interchange. The aqueduct will be designed in consultation with NPWS and the ERFB and will incorporate mitigation measures such as wet and dry vegetated strips to facilitate animal movements, however a moderate adverse impact is predicted.

There will be a permanent loss of some mature semi-natural riparian habitat along the River Tolka, constituting a moderate adverse impact.

Overall the residual impact on surface water resources is expected to be not significant to minor, with the exception of moderate impacts at the River Tolka Valley and the Royal Canal.

H.12 Geology, Soils and Hydrogeology

An assessment of impact of construction and operation of the proposed Scheme on Geology, Soils and Hydrogeology was undertaken with regard to the guidance provided in the The Institute of Geologists of Ireland's Geology in Environmental Impact Studies – A Guide [13] and Guidelines for Groundwater Protection[14] respectively.

The assessment of soils and geology considered the following: construction earthworks, rock excavation, piling and slope stability of overburden and rock cuts whilst the assessment of hydrogeology considered construction dewatering and potential spillages of pollutants

It should be noted that detailed site investigations are currently underway in order to develop a detailed assessment of ground conditions, earthworks and structural foundations for the M50 Upgrade Scheme. However, the preliminary findings from the ongoing work support the findings from the previous site investigation works, on which this assessment is based.

Construction Phase

Geology and Soils - Impacts on geology and soils from construction methods including piling, earthworks, rock excavation and slope stability in overburden cuts and in rock cuts are anticipated.

Mitigation measures proposed to reduce impacts on geology and soils from construction methods include re-incorporation of excess material from piling and possible re-use of earthworks material. Excavated materials intended for re-use will be handled in a way that will maximise their potential for re-use.

Safe slope angles for any cut slopes will be maintained and based on the available site investigation information and observation of existing cut slopes along the M50, it is envisaged

that side slopes within the glacial till of one vertical to two horizontal (1V:2H) would be satisfactory.

Hydrogeology - The impact on potential temporary lowering of groundwater at the N3, N4, N7 and Sandyford Interchanges is expected to be minor adverse. In addition potential impacts from accidental spillages of vehicle fuel/oils or other polluting materials during construction at these interchanges is considered minor adverse. Otherwise due to the depth of overburden or due to the limited nature of works, construction dewatering is anticipated to result in a not significant impact for the rest of the Scheme.

In order to mitigate the minor adverse impacts of lowering of groundwater at the N3, N4, N7 and Sandyford Interchanges, appropriate measures are proposed, where necessary, in order to drain the water table below the level of the granular layer and/or the cut.

Operational Phase

Geology and Soils - Potential weak zones may result in occasional instability and/or minor rock fall. Such zones will be identified during construction and either permanently stabilised as part of the works, or protection measures put in place. Therefore, residual impact on geology and soils are expected to be not significant.

Hydrogeology - Impact on groundwater is expected to be not significant along the mainline and at the interchanges, with the exception of minor adverse impacts at the N3, N4, N7 and Sandyford Interchanges. Mitigation measures, including bypass petrol interceptors and emergency spill containment facilities, are proposed to reduce the risk of pollution of water bodies and groundwater/aquifers during the operational phase of the Scheme.

Residual Impacts on soils, geology and hydrogeology are assessed as not significant on the basis that all mitigation measures proposed are carried out.

I. WHAT HAPPENS NEXT?

I.1 Viewing and Purchasing of the EIS

Members of the public may inspect and purchase copies of the EIS document, including the Non-Technical Summary, during normal office hours, at the following locations:

Dun Laoghaire-Rathdown County Council
County Hall
Dun Laoghaire
Co Dublin

Fingal County Council
County Hall
Swords
Co Dublin

South Dublin County Council
County Hall
The Square
Tallaght
Dublin 24

Dublin City Council – Civic Offices
Wood Quay Reception
Wood Quay
Dublin 8

Each Local Authority may have the EIS for view and purchase at additional locations within their respective local authority areas. In addition, the Non-Technical Summary will be available on the website of each Local Authority.

I.2 Way Forward

The proposed Scheme cannot take place unless and until it is approved by An Bord Pleanála (the Board) in accordance with the statutory procedures contained in the Roads Acts, as amended.

Written submissions relating to the environmental effects of the proposed Scheme may be made to the Board prior to the date specified in the published newspaper notice at the following location:

An Bord Pleanála

64 Marlborough Street,

Dublin 1

An Oral Hearing, previously known as a public inquiry, will be undertaken. The Board is only able to make a decision on the proposed road development after all submissions are heard and the Oral Hearing is concluded.

The written submissions, together with any representations made at the Oral Hearing, will be considered by the Board before making their decision on whether or not to approve the proposed Scheme (with or without modification).

The Board's decision shall be published on one or more newspapers circulating in the area, including where appropriate, particulars of any modifications to the proposed road development.

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Dun Laoghaire - Rathdown
County Council

South Dublin
County Council

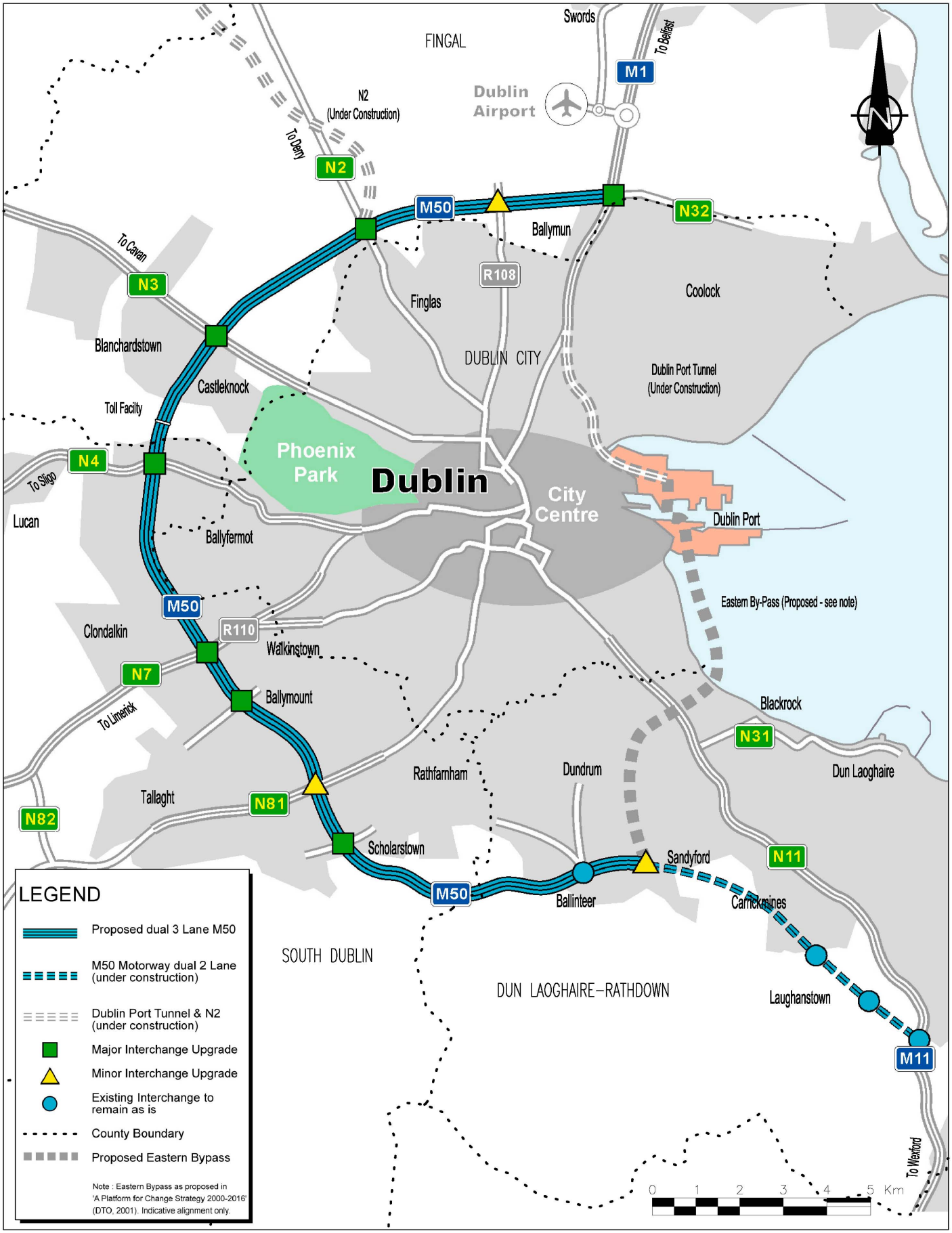
Fingal County Council
Comhairle Contae Fhine Gall

Dublin City Council
Comhairle Cathrach Bhaile Átha Cliath

Figures

September 2004

ARUP



NDP NATIONAL DEVELOPMENT PLAN

ARUP

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M50 Upgrade Scheme EIS - Non Technical Summary

M50 Upgrade Scheme

September 2004	Scale: Not to Scale	Figure No. 1

Proposed M1 Interchange

Proposed N2 Interchange

Note: For Indicative Purposes Only

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M50 Upgrade Scheme EIS - Non Technical Summary

Artist's Impression of Upgraded Intersections

September 2004	Scale: Not to Scale	Figure No. 2

Proposed N3 Interchange

Proposed N4 Interchange

Note: For Indicative Purposes Only

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M50 Upgrade Scheme EIS - Non Technical Summary

Artist's Impression of Upgraded Intersections

September 2004	Scale: Not to Scale	Figure No.3

Proposed N7 Interchange

Proposed Ballymount Interchange

Note: For Indicative Purposes Only

NDP NATIONAL DEVELOPMENT PLAN

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M50 Upgrade Scheme EIS - Non Technical Summary

Artist's Impression of Upgraded Intersections

September 2004	Scale: Not to Scale	Figure No. 4