



**METRO NORTH  
ORAL HEARING  
PROOF OF EVIDENCE  
Steve Purnell  
Overall EIS  
Wednesday 8th April 2009**



**Metro North Oral Hearing**

**Proof of Evidence**

**EIS Preparation Process**

**Stephen Purnell**

## 1.0 NAME, QUALIFICATIONS AND ROLE IN PROJECT

- 1.1 My name is Stephen Purnell. I hold a Masters Degree in Transport Planning and Management and a Postgraduate Diploma in Highway and Traffic Engineering. I am an Affiliate of the Institute of Logistics and Transport.
- 1.2 I am a Partner in Environmental Resources Management Limited (“ERM”), an international consulting firm, where I hold the position of Head of Impact Assessment and Planning. In April 2006 my company was appointed by the Railway Procurement Agency (“RPA”) to prepare an Environmental Impact Statement (EIS) of the proposed Metro North scheme (which I also refer to as “the proposed scheme”).

## 2.0 EXPERIENCE

- 2.1 I have been continuously employed by ERM since February 1990, working principally in the field of Environmental Impact Assessment (“EIA”). Prior to this my professional work was with local authorities where I dealt with the development and appraisal of transport policy and infrastructure projects.
- 2.2 In addition to the Metro North scheme, I have previously been responsible for the EIA of some 12 major railway, metro or light rapid transit schemes. Of these, 11 have had a successful outcome, and one is still pending. I have also been responsible for numerous other EIAs in different sectors, principally housing, commercial development and other major infrastructure projects.
- 2.3 As well as undertaking the overall direction of EISs, I have from time to time contributed specialist input on road traffic and broader transportation matters. I have also been responsible for a number of comprehensive transport impact assessments of major schemes, including rail infrastructure, regeneration schemes and port developments.

## 3.0 GENERAL INTRODUCTION

### *The Environmental Impact Statement*

- 3.1 I was responsible for the overall production of the EIS for the Metro North scheme, supported by a comprehensive ERM team which managed and co-

- ordinated the process and undertook the assessments relating to a number of the specific environmental topics covered in the EIS.
- 3.2 In addition to ERM staff and representatives from RPA, a number of other firms and individuals contributed to the assessment, principally EHA Consulting Group, Rupert Taylor, MVA Consulting, Jacobs Engineering Ireland Ltd, AWN Consulting, Digitech, Curtin Agricultural Consultants and CRDS Ltd.
- 3.3 ERM has been a key part of RPA's project team since 2006, with leading members of the EIS team co-located with the project team in RPA's offices to facilitate the assessment process. The work included a scoping stage in order to determine the key elements required to be covered in the EIS. It also included a detailed route evaluation process, which I shall refer to later in my evidence.
- 3.4 The EIS was published in September 2008 to accompany the Railway Order application. The EIS was made available to download free of charge through RPA's website. Printed copies of the EIS have also been available for members of the public and others to purchase, either as complete or partial documents. A DVD version of the whole EIS could also be purchased.
- 3.5 For ease of local identification, the EIS was divided into seven areas. These are numbered Area MN101 to Area MN107, going from Belinstown in north County Dublin to St. Stephen's Green in the city centre.
- 3.6 The EIS was published in three separate volumes. Volume 1 provides an introduction to the scheme, including the scheme objectives, relevant legislation, policy context, scheme alternatives and consultation, as well as providing a description of the receiving environment for each of the environmental topics.
- 3.7 The environmental impact of the proposed scheme in each of the seven areas is set out in individual books, numbered MN101 to MN107, which collectively make up Volume 2 of the EIS.
- 3.8 Volume 3 comprises the baseline and impact assessment maps, as well as the annexes to the EIS, which comprise documents such as detailed technical reports.

3.9 A separate non-technical summary of the EIS was also prepared and issued.

*Issues covered in my evidence*

3.10 My evidence will deal with matters pertinent to the production of the EIS, including methodology and adherence to relevant legislation. I will also refer to the environmental appraisal of scheme alternatives (other witnesses will deal in more detail with the issue of alternatives) and the way in which cumulative impacts have been dealt with. In addition, I will provide an overall summary of the main impacts of the proposed scheme.

3.11 I will start by providing a brief description of the methodology that was adopted to undertake the EIA and the way in which the EIS accords with the statutory procedural requirements.

3.12 I will then describe the requirements for dealing with alternatives in deciding on the preferred scheme for Metro North, and the way in which RPA has accorded with these.

3.13 Next, I will describe the way in which cumulative impacts predicted to arise as a result of the proposed scheme in conjunction with other projects, for example, have been dealt with.

3.14 Following this I will provide a summary of the overall effects of the proposed scheme.

3.15 I will then identify points made by objectors pertinent to the issues that I address in my proof of evidence, and set out my general response to these.

3.16 Finally, I will present my conclusions on the work that I have undertaken.

#### 4.0 METHODOLOGY USED FOR THE ASSESSMENT

- 4.1 The procedures for preparing an EIS to accompany a Railway Order application are described in Section 39 of the Transport (Railway Infrastructure) Act 2001 (“the 2001 Act”), as amended by Section 49 of the Planning and Development (Strategic Infrastructure) Act 2006. This reflects the requirements of the *European Communities Directive 85/337/EEC on the assessment of the effects on certain public and private projects on the environment*.
- 4.2 The 2001 Act requires that an application for a Railway Order must be accompanied by, amongst other things, “a statement of the likely effects on the environment.....of the proposed railway works”, generally referred to as the EIS.
- 4.3 The methodology adopted for the assessment of the Metro North scheme followed the requirements of the 2001 Act, particularly in respect of Section 39, which is reproduced in my Appendix 1. It also accords with best practice commonly applied to the assessment of major infrastructure schemes. Examples of best practice techniques can be found in *Guidelines on the information to be contained in Environmental Impact Statements* (“the EIS guidelines”), issued by the Environmental Protection Agency in 2002.
- 4.4 In summary, the assessment process for the proposed scheme describes both the scheme itself and the existing, or “baseline” environment into which it is being introduced. It describes the likely significant impacts of the proposed scheme and the mitigation measures developed to minimise such impacts. It then describes the residual impacts, that is to say, those impacts remaining following the application of mitigation.
- 4.5 A wide range of environmental topics were covered in the EIS, in accordance with best practice. These include impacts on human beings, as well as impacts on natural resources and on other features, such as property. A full list of issues covered is provided in my Appendix 2.
- 4.6 The issues that were deemed to be important during the preparation of the EIS were initially identified during the scoping stage. In accordance with best practice, a Scoping Report was made available to key stakeholders, as well as members of the public. This was issued in October 2006, and RPA invited

comments to help inform the process. A scoping workshop was also held with statutory bodies in December 2006.

- 4.7 Feedback from these initiatives was incorporated into the Final Draft Scoping Report, dated February 2008, and the preparation of the EIS drew on this document as part of the ongoing assessment process.
- 4.8 The methodology that has been adopted to evaluate the baseline environment and any predicted impacts is generally consistent across all the environmental topics covered in the EIA. This approach has been adhered to as far as practicable in order to ensure that the methodology is as transparent as possible and can be effectively communicated to, and understood by, a wide audience.
- 4.9 To help achieve this, the importance and sensitivity of the baseline environment, including any existing adverse effects that may apply, have been categorised in terms of its “functional value” over a five-point scale, ranging from very low to very high.
- 4.10 Similarly, the magnitude of any impacts that arise takes into account the quality, type and range of impact as well as the duration over which the impact will occur. Again, five categories are used, from very low to very high.

## 5.0 REQUIREMENTS FOR APPRAISAL OF SCHEME ALTERNATIVES

- 5.1 To enable a full consideration of the acceptability of the environmental impacts of a development, it is important to have an understanding of the alternatives to the preferred scheme that have been considered and why these have been rejected. Indeed, Section 39 of the 2001 Act requires that an EIS contains, amongst other things, “*an outline of the main alternatives studied by the applicant and an indication of the main reasons for its choice, taking into account the environmental effects*”.
- 5.2 Following confirmation that the proposed scheme should take the form of a “metro” - generally taken to mean a high capacity urban transport, rail-based system - the main route alternatives were evaluated against a range of objectives. A multi-criteria approach was adopted for the assessment of the alternatives, as recognised by the Department of Transport and used for the

Luas lines. Integral to this approach is the minimisation of environmental impacts, and ERM played a key role in this part of the appraisal.

- 5.3 The EIS for the Metro North scheme includes a comprehensive description of the appraisal process that was adopted to examine the alternatives. This is contained in Section 5.3 in Volume 1 of the EIS, and also set out in Table 5.2 specifically with respect to environmental issues.
- 5.4 A detailed description of the Metro North scheme has been given in the evidence presented by Geoff Featherstone. The overarching principles adopted for choosing the metro concept and its preferred alignment are set out in evidence by Rory O'Connor. This also includes a consideration of the way in which the main alternatives to the proposed scheme were addressed in respect of the likely environmental effects.
- 5.5 In addition to the overview presented by Mr O'Connor, further evidence on the appraisal of alternatives is presented by Richard Spalding. In particular, Mr Spalding deals with the detailed localised alternatives and how the decisions were made in respect of each option along the chosen route.
- 5.6 The detailed alternatives that were assessed during the design stage focused principally on proposed stop locations, track alignment, crossovers and turn backs, park and ride sites and depot location. During this process, environmental assessment and consultation continued in order to, amongst other things, mitigate any potential significant effects on the environment. It is that refined scheme that forms the basis of the EIS that was prepared for the proposed scheme.
- 5.7 Throughout the design, considerable emphasis was placed on minimising the environmental impacts of the Metro North scheme. Moreover, the process was informed by the results of intensive public consultation, which is addressed in the evidence presented by Tom Manning.

## 6.0 CUMULATIVE IMPACTS

### *Overview*

- 6.1 The 2001 Act requires that, amongst other things, an EIS shall contain information on the inter-relationship between the likely significant impacts on

the aspects of the environment set out in Section 39, paragraph (2) (b) (iv) of the Act, and also likely cumulative effects as described in paragraph (2) (c).

### *Interactions*

- 6.2 Consequently, the EIS considered the expected interaction between different impact types (such as noise or air quality) as a result of the Metro North scheme, as well as the potential combined impacts between the proposed scheme and other projects in the same area, where sufficient information was available. These aspects are reported in Chapter 18 in Volume 2 of the EIS.
- 6.3 Interactions manifest themselves in different ways between the various environmental topics involved and it is important that this is recognised. The specialists who contributed to the EIS had such potential interactions in mind in undertaking their own assessments. Where such interactions occur, the EIS states what the link is and defines appropriate mitigation measures. Where appropriate, these are further described in the respective briefs of evidence presented by the specialist contributors.

### *Cumulative Effects*

- 6.4 During the construction phase of the Metro North scheme several other major projects, such as Irish Rail's DART Underground line between Docklands and Heuston Stations, and the Marlborough Bridge scheme across the River Liffey, are also likely to be under construction. These are described in Chapter 18 of Volume 1 of the EIS.
- 6.5 Such a scenario has the potential to give rise to combined, or cumulative, impacts during the construction of these schemes.
- 6.6 Consultation was undertaken with the promoters of these other major projects to ensure that the potential for cumulative impacts could be duly considered in the EIS for the Metro North scheme. Proposed mitigation measures have been put in place by RPA where relevant. This was particularly pertinent with regards to the topics of landuse, socio-economics, noise, traffic and air and climatic factors, as reported in Chapters 2, 3, 4, 7 and 12 of Volume 2 of the EIS, respectively.
- 6.7 As noted in the EIS (at Section 18.3 of Volume 2), the timeframe for other developments that may potentially interact with the Metro North scheme is

not always known, and in some cases there may not always be sufficient environmental information available.

- 6.8 The work that was undertaken for the EIS in respect of cumulative impacts has now been updated, so that a more current understanding of potential issues can be gained. All new applications within 500 m of the alignment, prepared since the submission of the Railway Order Application and which are considered to be of sufficient scale to potentially give rise to significant cumulative impacts, have been identified.
- 6.9 The criteria which were adopted to determine such new applications were commercial, office, retail or industrial developments of 1,000 m<sup>2</sup> or more of floor space, or on a site of 1.0 ha or larger; or, residential developments of 10 or more dwellings or on a site of 0.5 ha or larger.
- 6.10 All planning applications below these criteria were not considered significant and thus have not been detailed or mapped. Those applications which were considered to have an interface with the proposed Metro North scheme, together with their potential cumulative impacts, will be described in the evidence given by Ian Gilder. Other witnesses will also make reference to potential cumulative impacts arising, as appropriate.
- 6.11 I should note that any future scheme, not currently the subject of a planning application, would need to take the Metro North scheme into consideration during its own approval process.

## 7.0 ENVIRONMENTAL IMPACTS AND THEIR MITIGATION

### *Overview*

- 7.1 Where impacts have been predicted in the EIS, I will summarise them in this section, together with an indication of the mitigation to which RPA is committed.
- 7.2 I will focus on describing “significant” impacts, that is to say those residual impacts reported in the EIS as being of high or very high significance. To ensure consistency with the EIS, I will refer to the seven areas along the

route, numbered MN101 to MN107 between Belinstown and St. Stephen's Green.

#### *Human Health*

- 7.3 An assessment of the potential human health effects of the proposed scheme was undertaken as part of the EIS, as will be described in the evidence to be given by Martin Hogan.
- 7.4 Relatively minor inconveniences or annoyances are to be expected during the construction phase. These relate to sleep disturbance, noise, vibration etc. None of these are, however, predicted to have a significant health effect.
- 7.5 The operational phase is not predicted to be associated with any significant detrimental effect.
- 7.6 There are clear benefits to human physical and psychological health from an operational line. Overall, the impact of the proposed scheme on human health is predicted to be positive.

#### *Landuse*

- 7.7 Throughout both the construction and operational phases of the proposed scheme, only the minimum amount of land necessary will be taken.
- 7.8 In particular, the construction compounds will be located and designed in a manner that minimises both their impact on the surrounding areas and the area of landtake that is temporarily required.
- 7.9 The majority of the construction compounds are to be located on lands where the existing uses can be reinstated following construction. Where compounds are in public open spaces, such as Albert College Park and St. Stephen's Green, the remaining areas of these parks will remain useable. Where land is temporarily taken it will be reinstated to its existing use at the earliest opportunity.
- 7.10 Some significant adverse impacts will, however, arise due to temporary landtake necessary for construction. This will occur at a number of

construction compounds along the route and will be described in more detail in the evidence presented by Ian Gilder.

- 7.11 There will also be some significant impacts arising from permanent landtake. This will include land at the proposed depot and at other isolated locations along the route. Mr Gilder's evidence will address this in more detail.

#### *Socio-economics*

- 7.12 The proposed scheme is expected to provide significant benefits with respect to future development, employment creation and improved accessibility, and by assisting regeneration.
- 7.13 The construction programme is expected to generate on average 3,100 jobs a year over the total five-year period, a large proportion of which will be located in areas of high unemployment and areas of high population growth.
- 7.14 There will, however, be some adverse impacts arising from increased traffic congestion and diversions during construction. Maintaining access to communities, retail, commercial and leisure areas will be a key objective during construction. The issue of access has been given close attention by RPA.

#### *Noise*

- 7.15 Noise control measures, including monitoring and limits on noise at sensitive locations, will mitigate impacts during construction. Residual impacts are expected around the major underground stop sites and other major structures, and during the noisiest enabling works along the route. In a small number of locations there will be noise increases along roads due to construction traffic.
- 7.16 Mitigation of operational noise impacts will be achieved through incorporating attenuation measures into substations and ventilation buildings and shafts, and by designing viaducts, bridges, trackform and other structures to minimise noise. The Metro North vehicles and track system will also be designed to minimise noise.
- 7.17 Noise barriers will be used at various locations to mitigate noise impacts. Noise barriers on viaducts will be at low level close to train tracks where they

will be visually unobtrusive. Landscaped bunds and on-site barriers will mitigate the noise impact from the depot.

7.18 These measures will be described in more detail in the evidence provided by Steve Mitchell.

#### *Vibration*

7.19 As described in the EIS, there is the potential for groundborne noise disturbance due to the operation of the tunnel boring machines. The construction of cross passages and underground stops by blasting may also result in disturbance.

7.20 The adoption of a series of controls will reduce disturbance and prevent damage to structures and equipment. These include restrictions on the methods and timings of blasting, restrictions on timings of tunnel boring machine operation, consultation with affected neighbours, and monitoring to ensure that groundborne noise and vibration is maintained below the imposed limits. These measures will be described in detail by Rupert Taylor in his evidence.

7.21 Specific track forms providing reduction of vibration and groundborne noise will be provided as part of the proposed scheme. Once in operation no significant vibration or groundborne noise impacts are expected.

#### *Radiation and Stray Currents*

7.22 Measures to minimise stray currents have been incorporated into the design specifications for the proposed scheme and will be implemented during its construction and operation. There will be no significant impacts due to radiation or stray currents during either the construction or operational phases. John McAuley will present evidence in relation to this.

#### *Traffic*

7.23 A comprehensive Scheme Traffic Management Plan will be implemented to alleviate the impacts of traffic during construction. This plan has evolved since submission of the Railway Order application, and now provides more detail in relation to traffic conditions during construction than those described

in the EIS. This is addressed in detail in the evidence given by Ian Byrne, Rob Kelly and Richard Tucker.

- 7.24 Once operational, Metro North will result in significant beneficial impacts, removing in the region of up to 5,000 peak hour car trips from the road network. The impact of increased levels of pedestrian traffic at and near stops will be mitigated through additional pedestrian infrastructure, including new signalised pedestrian crossings and footpath upgrades.

#### *Flora and Fauna*

- 7.25 Neither the construction nor operation of Metro North is expected to result in any significant impacts on flora and fauna in any of the areas along the route.
- 7.26 Appropriate measures will be put in place to ensure that any habitat lost during construction will be replaced and that no significant impacts to fauna occur. Andy Coates will provide further details in his brief of evidence.

#### *Soil and Geology*

- 7.27 A number of measures will be implemented to mitigate the construction impacts of paving, settlement and ground disturbance, ensuring that no significant impacts occur.
- 7.28 During operation, maintenance will be undertaken in controlled environments and cleaning will be undertaken in line with best practice, resulting in residual impacts of low significance only.
- 7.29 These issues will be discussed further in evidence given by both Brian Rouse and John Burland.

#### *Groundwater*

- 7.30 Mitigation measures preventing the pollution of groundwater environments will ensure that there are no significant impacts to groundwater during construction. Tunnelling may result in minor alterations of groundwater flow but this impact is not significant.
- 7.31 During operation, the use of various measures, such as the control of wastewater discharge, will ensure the impacts are of low significance. Fergal Callaghan will provide further details in his evidence.

#### *Surface Water*

- 7.32 Construction works will be designed to prevent potential construction impacts on surface water flow regimes. Any risk of contamination will be mitigated through the use of appropriate systems, together with the use of on site-treatment to mitigate the risk of contamination in areas of high risk.
- 7.33 Design and management measures will also ensure that there will be no significant impacts during the operational phase.
- 7.34 Mr Callaghan's evidence will address these points in greater detail.

#### *Air and Climatic Factors*

- 7.35 The changes to air quality as a result of construction traffic are expected to be slight, and the proposed scheme does not materially compromise compliance with air quality standards.
- 7.36 Any annoyance caused by dust that is generated during construction should be confined to people spending considerable amounts of time in close proximity to the construction activity.
- 7.37 Once operational, the proposed scheme would have very little potential for changing local air quality
- 7.38 These issues are explained further in the evidence given by Roger Barrowcliffe.

### *Landscape and Visual*

- 7.39 During construction visual impacts are expected at Belinstown, Albert College Park and St. Stephen's Green, due to the presence of construction compounds or the removal of landscape features and monuments. These impacts will be mitigated through various means, including reinstatement of sites at the earliest opportunity.
- 7.40 Operational impacts are expected at a number of locations, including Lissenhall farmland, Dublin City University, St. Patrick's College, Parnell Square and St. Stephen's Green. Mitigation measures will include the creation of a landscaped embankment surrounding the depot to screen the multi-storey car park, as well as the reinstatement of features at St. Stephen's Green.
- 7.41 A high standard of design and new screen planting will be used to mitigate impacts. Further detail will be given in the evidence presented by John Flannery.

### *Agronomy*

- 7.42 The construction and operation of Metro North will have significant impacts on agriculture in Areas MN101, MN102 and MN104, principally due to loss of farmland.
- 7.43 Impacts on agronomy will be reduced through the implementation of mitigation measures, including maintenance of access to severed lands through alternative access points and accommodation bridges, boundary fencing to prevent disturbances to adjacent lands, reinstatement of top soil where possible, managed communications and liaison with land owners, and suitable drainage designs.
- 7.44 These matters will be discussed further in the evidence given by Con Curtin.

### *Archaeology, Architectural Heritage and Cultural Heritage*

- 7.45 There is the potential for significant impacts on archaeology, architectural heritage and cultural heritage due to the part removal of Lissenhall Bridge and Balheary Bridge, the construction of the Northwood Stop and the

construction of the DCU, Drumcondra and Mater Stops. These issues will be described in greater detail in the evidence given by David O'Connor.

7.46 An Archaeological Strategy has been prepared by RPA in conjunction with Dublin City Council and the Department of Environment, Heritage and Local Government to further develop the archaeological mitigation proposed in the EIS.

7.47 The operational scheme will give rise to significant impacts to a number of protected structures and recorded monuments along the route. Impacts at these locations will be mitigated through careful architectural and landscaping design.

#### *Non-agricultural Property*

7.48 During construction a number of non-agricultural properties along the scheme have either to be acquired on a temporary or permanent basis or to be demolished. RPA has already acquired the majority of these properties by mutual agreement.

7.49 A Property Owners' Protection Scheme has been established by RPA. This will enable residents to have "before and after" condition surveys carried out on their homes, and for repairs to be carried out if necessary.

7.50 Where demolition of properties is to occur, property owners will be compensated in accordance with the general compulsory purchase code. Appropriate compensation will also be payable to owners of property that is subject to temporary acquisition.

7.51 The operation of Metro North will have a positive impact on property within each area along the route through increasing the attractiveness of the area and strengthening the overall property market in the vicinity of the scheme.

7.52 Specifically in connection with Area MN103, the impact of the proposed scheme on the Dublin Airport lands is considered to be a positive impact of very high significance due to Metro North enhancing the success and sustainability of Dublin Airport.

### *Utilities*

- 7.53 A schedule of proposed utility diversions has been prepared which identifies infrastructure requiring diversion and identifies the necessary mitigation measures required. Relevant statutory undertakers and local authorities have been consulted, and the project team will continue to liaise with them in order to ensure compliance with their requirements.
- 7.54 It is anticipated that there will be no significant impacts on utilities along any part of the route due to either the construction or operation of Metro North.

### *Impacts arising from Changes to the Railway Order*

- 7.55 Since the submission of the Railway Order, RPA and its consultants have paid close attention to objections that have been received and, where appropriate, have made revisions to the scheme accordingly, as described in the evidence given by Geoff Featherstone.
- 7.56 All of these changes have been communicated to the EIS team. The impacts described in the EIS have been revisited by each of the environmental specialists, who will be describing in their evidence any relevant changes arising as a result of the revisions.

## 8.0 RESPONSES TO OBJECTIONS

### *Overview*

- 8.1 In this section I refer to submissions that have been received in respect of the principal issues that I cover in my evidence. These relate, in broad terms, to the overall adequacy of the EIS and the way in which alternatives and cumulative impacts have been dealt with. Where I make reference to the adequacy of the EIS, this relates to any assertions made by objectors about the way in which the EIS as a document accords with the relevant legislative requirements, rather than any detailed technical issues, which are dealt with in evidence by other witnesses as appropriate.

### *Overall adequacy of the EIS*

- 8.2 Of the total 193 submissions received, some 10% or so of objectors question the adequacy of the EIS as a compliant document. A number of these objectors provide no further information at all to support their assertions; others have given further details, which expand on their claims.
- 8.3 I have considered the various objections that have been made in respect of the adequacy of the EIS and I am confident that it meets the necessary requirements for such documents, as set out in both the relevant legislation and best practice guidance.

#### *Assessment of Alternatives*

- 8.4 A smaller number of objectors have raised specific concerns about the way in which alternatives have been addressed in the EIS.
- 8.5 As I have previously noted, Section 39 of the 2001 Act requires that an EIS includes, “an outline of the main alternatives studied by the applicant and an indication of the main reasons for its choice, taking into account the environmental effects”.
- 8.6 This requirement places a responsibility on the applicant to describe, with respect to environmental matters, the process that was undertaken to determine the preferred route alignment and other associated scheme details. It is important to note, as described in the EIS guidelines (Section 2.4.3, p 12), that the applicant cannot be expected to examine options that have previously been determined by wider national plans; nor is the EIS required to report in detail on non-environmental factors which may have influenced the consideration of alternatives.
- 8.7 In this context, I am confident that the EIS has properly reported the way in which RPA and its consultants have considered the assessment of alternatives for the proposed Metro North scheme.

#### *Cumulative Impacts*

- 8.8 A much small number again have questioned the way in which cumulative impacts have been dealt with in the EIS.
- 8.9 As I have noted elsewhere, where information has been made available on other schemes in the vicinity of Metro North, these have been considered in the EIS. In order to provide more up to date information, further work has been undertaken and will be described in the evidence given by Ian Gilder.
- 8.10 I am satisfied that cumulative impacts have been adequately dealt with in the EIS for the proposed Metro North scheme.

## 9.0 CONCLUSIONS

- 9.1 The EIS for the Metro North scheme was prepared for both the operational and construction phases of the development. I have demonstrated in my proof of evidence that the proposed scheme underwent a thorough assessment and that the EIS is robust and fully conforms to the requirements of Section 39 of the 2001 Act as well as best practice.
- 9.2 The process included an examination of the alternatives to the scheme at both a strategic level and at a scheme specific level, taking into account environmental and other concerns.
- 9.3 The EIS considers interactions between potential environmental impacts arising from the proposed scheme, and also cumulative impacts which might arise in conjunction with other projects likely to be constructed in the area within the same general timeframe. Suitable mitigation measures will be put in place to minimise such impacts.
- 9.4 The scheme will give rise to a range of benefits, and there will be very few adverse environmental impacts once the scheme is operational. There will, however, be some significant residual impacts during construction. In all cases, RPA has implemented mitigation measures to reduce these.
- 9.5 RPA has paid close attention to objections and has made revisions to the proposed scheme as appropriate. All such changes have been assessed by each of the environmental specialists.
- 9.6 Overall, I am confident that the EIS has been prepared with appropriate care and attention, and that it meets all the necessary requirements for such

documents in accordance with the 2001 Act. RPA has assessed a wide range of alternatives to the proposed scheme, and these have been reported in the EIS. Similarly, cumulative impacts have been assessed and reported upon, and where necessary this information has been updated.

## Appendix 1 - Transport (Railway Infrastructure) Act, 2001 (Number 55 of 2001)

### Environmental Impact Statement

**39.—**(1) An Environmental Impact Statement shall contain the following specified information—

- (a) a description of the proposed railway works comprising information on the site, design and size of the proposed railway works,
- (b) a description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects,
- (c) the data required to identify and assess the main effects which the proposed railway works are likely to have on the environment,
- (d) an outline of the main alternatives studied by the applicant and an indication of the main reasons for its choice, taking into account the environmental effects, and
- (e) a summary in non-technical language of the above information.

(2) An Environmental Impact Statement shall, in addition to and by way of explanation or amplification of the specified information referred to in *subsection (1)*, contain further information on the following matters—

- (a) (i) a description of the physical characteristics of the whole proposed railway works and the land-use requirements during the construction and operational phases,
- (ii) an estimate, by type and quantity, of the expected residues and emissions (including water, air and soil pollution, noise, vibration, light, heat and radiation) resulting from the operation of the proposed railway works;
- (b) a description of the aspects of the environment likely to be significantly affected by the proposed railway works, including in particular—
  - (i) human beings, fauna and flora,
  - (ii) soil, water, air, climatic factors and the landscape,
  - (iii) material assets, including the architectural and archaeological heritage, and the cultural heritage,
  - (iv) the inter-relationship between the matters referred to in this paragraph;
- (c) a description of the likely significant effects (including direct, indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative) of the proposed railway works on the environment resulting from—

- (i) the existence of the proposed railway works,
- (ii) the use of natural resources,
- (iii) the emission of pollutants, the creation of nuisances and the elimination of waste,

and a description of the forecasting methods used to assess the effects on the environment;

(d) an indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information; and

(e) a summary in non-technical language of the above information,

to the extent that such information is relevant to a given stage of the consent procedure and to the specific characteristics of the railway works or type of railway works concerned, and of the environmental features likely to be affected, and the applicant may reasonably be required to compile such information having regard, inter alia, to current knowledge and methods of assessment.

(3) (a) If a person, before applying to the Minister for a Railway Order, so requests, the Minister shall, after consulting the person and such bodies as may be specified by the Minister for that purpose, give a written opinion on the information to be contained in an Environmental Impact Statement.

(b) The giving of a written opinion in accordance with this subsection shall not prejudice the exercise by the Minister of his or her powers pursuant to this Act to require an applicant to furnish further information in relation to the effects on the environment of the proposed railway works.

(4) The European Communities (Environmental Impact Assessment) Regulations, 1989 to 2000, and the Local Government (Planning and Development) Regulations, 1994 to 2000, and the Act of 2000 and any regulation made thereunder in relation to Environmental Impact Assessment shall not apply to anything done under an order made under this Act.

## **Appendix 2 - Environmental topics covered in the EIS**

Human Beings: Landuse  
Human Beings: Socio-economics  
Human Beings: Noise  
Human Beings: Vibration  
Human Beings: Radiation and Stray Current  
Human Beings: Traffic  
Flora and Fauna  
Soils and Geology  
Groundwater  
Surface water  
Air and Climatic Factors  
Landscape and Visual  
Material Assets: Agronomy  
Material Assets: Archaeology, Architectural Heritage and Cultural Heritage  
Material Assets: Non Agricultural Property  
Material Assets: Utilities  
Interactions and cumulative impacts

Railway Procurement Agency  
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