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Design of roads in harmony with wildlife

Eugene J. OBrien ^{a,*}, Georg Tschan ^b, Dennis E.H. Wansink ^c, Miklós Puky ^{†d}

^a*Roughan O'Donovan Innovative Solutions, Ireland*

^b*Swedish National Road and Transport Research Institute (VTI), Sweden*

^c*Bureau Waardenburg, The Netherlands*

^d*MTA (Centre for Ecological Research), Hungary*

Abstract

'Procedures for the Design of Roads in Harmony with Wildlife' or 'Harmony' is a project that aims to develop sustainable solutions to road transport challenges that are in harmony with wildlife. This paper summarises Harmony's work in the areas of Environmental Legislation and Guidelines, Project Appraisal, and Procurement Practices. The project mainly focuses on practices in the eight reference countries of Ireland, the United Kingdom, Belgium, the Netherlands, Hungary, Austria, Sweden and Denmark.

A review of Environmental Impact Assessment (EIA) and Appropriate Assessment (AA) is carried out. As part of this review, a database of over 80 Environmental Impact Statements (EIS) and Appropriate Assessment reports is analysed to identify the similarities and differences between countries in the implementation of the duties required by EU Environmental Legislation. It is found that the degree of implementation under the headings considered varies greatly between countries. It is concluded that increased guidance on monitoring be provided in all countries.

Project Appraisal for transport infrastructure is the process of assessing whether capital expenditure is justified for a project and ensuring that it is allocated to the best transport solution to achieve the objectives of that project whilst complying with planning policy and national and EU legislation. The project appraisal methodologies used in the reference countries are compared with the aim of identifying a set of tools to enable rational and sensible decisions to be made. The approach used in the UK is recommended for adoption by all Member States.

This paper then examines existing approaches to the procurement of road constructions in the reference countries. The different types of contracts used for procurement are described and the benefits and disadvantages of different contract types are discussed. Recommendations are then made as to which contracts are the most favourable for ensuring the environmental commitments of

* Corresponding author. Tel.: +353-1-716-3224.

E-mail address: eugene.obrien@ucd.ie

the Environmental Impact Statement are carried out. Early contractor involvement as well as construction contracts that incorporate maintenance, with monitoring, for an extended period afterwards were cited as key recommendations to ensure a good outcome for wildlife.

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Nomenclature

AA	Appropriate Assessment
D&B	Design and Build
DBM	Design, Build and Maintain
DBFM	Design Build Finance Maintain
DBFO	Design Build Finance Operate
ECI	Early Contractor Involvement
ECO	Engineering – Construction – Operation
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
PPP	Public Private Partnership

1. Introduction

Development of road infrastructure has the potential to lead to considerable changes in land use. These changes have the potential to cause habitat fragmentation and ecosystem loss. The impact of road developments on biodiversity has become one of the central environmental issues when planning for road infrastructure. ‘Procedures for the Design of Roads in Harmony with Wildlife’ or ‘Harmony’ is a project that brings together a consortium of ecologists and engineers to develop sustainable solutions to road transport challenges that are in harmony with wildlife. As part of this paper, the Harmony work in the following areas is summarised and the project findings outlined:

- Environmental Impact Assessments
- Appropriate Assessments
- Project Appraisal
- Procurement

The planning process seeks to balance the need for transport with the need to minimize environmental impact. Environmental Impact Assessments (EIAs) and Appropriate Assessments (AAs) are important elements in the planning process of many road projects. All European Union (EU) countries carry out Environmental Impact Assessments and Appropriate Assessments to comply with the EIA Directive (2011/92/EU), the Birds Directive (09/147/EC) and the Habitats Directive (92/43/EEC).

Now that the relevant directives have been in place for a number of years and have been implemented throughout the European Union, the current situation is reviewed to analyse how the EIAs and AAs are being implemented across a range of European countries and how well they are complying with national and EU guidelines. This involves reviewing 87 case studies from nine different countries. This work was performed as part of Harmony Deliverable C (Ní Choine et al., 2015).

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