

Working for sustaining progress while conserving our environment



Key Learning Outcomes

- ▶ Sustainable Progress - economic growth and social progress while respecting the environment
- ▶ Incorporating an environmental policy into all aspects of planning, construction and operation of road-building projects
- ▶ Management Activities – from an environmental point of view

Curriculum Links

Business

(Units 3&6)

Transition Year

LCVP

Introduction

The National Roads Authority was formally established as an independent body under the Roads Act, 1993. The NRA has overall responsibility for the planning and supervision of construction and maintenance works on the vast network of our national roads.

The NRA's **mission statement** is to contribute to sustainable transport by developing and maintaining a safe and efficient network of national roads, in partnership with local authorities and the private sector, having regard to national and EU programmes.



The challenge facing the NRA is to deliver a safe and efficient network of national roads within the framework of sustainable development. For the NRA, this means that “economic growth supports social progress while respecting the environment; that social policy underpins economic performance and that environmental policy is cost effective”.

The NRA is conscious of the potential environmental impacts that can arise when building a new road scheme. It is committed to carrying out all construction and maintenance works in co-operation with all stakeholders, e.g. local authorities and the public. Consultation ensures that a national approach for the treatment of environmental issues is adopted and will contribute to the development of national road infrastructure in a sustainable manner.

Approximately 14% of Ireland is covered by designated areas for nature conservation, including Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas, National Parks and Nature Reserves. The NRA takes its environmental responsibilities very seriously and has adopted a best practice approach when planning all construction projects.

Badger Facts

Badgers are protected under the Wildlife Act, 1976 and 2000. Under the Act it is an offence to interfere with or destroy the breeding site or resting place of any protected animal. In order to avoid impacting on sensitive species e.g. badgers, the NRA incorporates, where possible, measures to minimise habitat fragmentation.

Where, for example badgers' pathways cross a proposed new road, the NRA builds a badger underpass. The underpass is usually a concrete pipe, which leads from one side of the road to the other. Badgers are guided into the underpasses by mesh fencing and appropriate planting.

Underpasses are installed at the earliest possible stage of construction to encourage the badgers to use them and get used to them. Entrances are planted with appropriate hedgerow plants (e.g. holly, hawthorn and blackthorn) to encourage badger use.

Environmental Awareness

The National Roads Project Management Guidelines published in 2000 ensures that all road construction takes account of the possible effects on the environment and adheres to environmental laws. All potential impacts must be identified. To support the Environmental Impact Assessment Framework and the National Road Project Management Guidelines, the NRA has put in place a four-stage strategy to allow further integration of environmental issues into road scheme planning, construction and operation. This strategy incorporates all legislative requirements and where feasible, national and international policy. Early planning ensures minimum impact on the environment. The NRA's Environmental Assessment and Construction Guidelines make it clear when an Environmental Impact Statement (EIS) is necessary.

An EIS contains ‘a description of the likely significant effect, direct and indirect, on the environment of the development, explained by relevance to its possible impact on human beings, flora, fauna, soil, water, air, climate, the landscape, the interaction between any of the foregoing, material assets, and the cultural heritage.’

Bat Facts

All bat species in Ireland are legally protected under the Wildlife Act, 1976 and the Wildlife Act, 2000. The Acts provide protection for the habitats and roosts of all bat species, as well as the bats themselves. Bat roost sites e.g. of the Lesser Horseshoe bat can be designated as Special Areas of Conservation (SACs).

The NRA recognises the importance of protecting all bat species in Ireland and has prepared guidance documents for the protection of bats during the planning and construction stages of national road schemes.

Lights have an effect on the ability of bats to feed and commute. Bats will abandon a roost that is illuminated. The provision of a ‘green bridge’ allows bats to cross roads to feeding or mating areas. Green bridges have grassland and mature trees along the side of the bridge to guide the bats in flight to follow hedgerows over the road. They also have solid walls to prevent light penetration.

If it is deemed necessary to build a new route through a breeding or resting place for bats, a purpose-built structure known as a ‘bat-house’ will be provided.

Environmental Legislation

The procedures followed by the NRA and local authorities in the planning, design and implementation of road schemes are specified in the Roads Act, 1993, and amended by the Planning and Development Act, 2000, and in the National Roads Project Management Guidelines.

The Planning and Development Act 2000 increased the power of local authorities to demand Environmental Impact Assessments for a wider variety of projects. The NRA submits schemes for approval to An Bord Pleanála, the independent planning body.

The Environmental Protection Agency produces *Guidelines on the Information to be Contained in an Environmental Impact Statement*. It addresses many of the issues associated with the EIS preparation. However, due to the complex nature of preparing an EIS for national road schemes the NRA prepared its own guidelines - *The Environmental Impact Assessment of National Road Schemes - A Practical Approach*.

Planning national road schemes differs from all other types of development, e.g. planning to build a new road is much more complex than building a new house. The plan of the new road may cross areas covering many kilometres crossing rivers and fields and different eco-systems. Therefore the NRA needed to implement its own guidelines.

The EU also issued numerous **directives** on environmental legislation, which Ireland as well as other Member States are required to adopt into national law.

Protecting our Environment

Air Quality: Air quality must satisfy the standards set out in Irish law. Legal standards are set for the principal pollutants e.g. nitrogen dioxide and particulates.

Noise/Vibration: EU legislation on noise/vibration control has been passed into Irish law. The NRA hires Acoustic Engineers to assess how potential noise levels will impact on the local environment.

Ecology: Certain areas are designated as Special Areas of Conservation, National Heritage Sites or Special Protection Areas. If any of these areas are to be affected by a proposed road, measures are prepared to minimise the environmental impact.

Building a Road

National road schemes are large developments that have potential impacts on the natural environment along their entire length. While there is a demand for newer and safer roads there has also been a growing awareness of the need to conserve and protect Ireland's natural heritage and biodiversity.

The NRA ensures that in the early stages of planning and design the stakeholders most directly affected by proposed new road construction have a chance to voice their concerns and possible objections. There are many different factors to be considered when selecting roads. These factors are weighted before decisions are made. The ecological impacts for each option are identified so that those with unacceptably high levels of impact can be avoided.

Factors to be considered in road selection

Each potential route is evaluated and compared taking account of the following considerations:

- **Financial cost** - How much will each road cost to construct?
- **Engineering** - Which route will be the easiest one to construct? Civil engineers assess the constructability of each route corridor.
- **Management** - Which route will be the easiest one to manage during construction, i.e. which route will cause the least disruption to the local area, traffic, noise etc?

- **General environment including archaeology** - How will the local environment be affected? Archaeologists survey the proposed routes for possible archaeological finds. Also the impact on local ecology would be assessed.
- **Business impact** - What impact will the new road have on local businesses during and after construction?
- **Farming community e.g. land severance** - Would the proposed routes run through farm land and break up farms?
- **Local community groups** - Local community groups would have to be consulted. Would they be in favour or against the proposed new route?

Boyne Bridge

The opening of the Drogheda By-Pass is another success story for the Authority. The journey from Dublin to Dundalk is now safer and shorter. *"One of the interesting aspects of this scheme is the balance struck between transportation needs and nature. The area surrounding the bridge is environmentally sensitive. This meant the use of large foundations had to be avoided to protect the reed beds on the north bank and the flora and fauna of Yellow Island in the middle of the river. All of these problems were overcome by using a cable-stayed bridge"*. Dr. Vincent O'Malley, Environment Manager, NRA.

Management Activities

The following management activities may take place to protect the environment during the planning, construction and operation of a new road scheme.

Stage 1 PLANNING

Overall planning takes place in this phase: defining road need, consulting with environmental experts and local groups. Environmental Assessment Guidelines are developed to assess the impact of road planning and development on Ecology, Noise and Vibration, Air Quality, Archaeology and Architecture. If necessary, an Environment Impact Assessment is undertaken and an EIS is prepared.



Stage 2 CONSTRUCTION

Best practice construction guidelines are developed to minimise the environmental impacts identified.

There may be temporary impacts on the environment e.g. temporary displacement of **flora and fauna**. Badgers may be moved from a set near the road during construction and returned later.

Where wildlife could be impacted directly by road construction, barriers such as fences may be used to prevent them coming into the direct path of road construction traffic.

The following are other measures, which can be adopted to minimise impact:

- ▶ planting native trees and shrubs to compensate for the loss of hedgerows or woodland,
- ▶ recreating habitats in areas near to the road, and/or
- ▶ connecting bridges or passages to help link fragmented habitats and to allow larger animals to cross the road without accident.

Stage 3 ORGANISING

An environmental operating plan is developed and implemented for the construction lifecycle. The plan details how to avoid any negative environmental impacts which have been identified. It addresses issues such as noise, water runoff, dust and waste arising from construction.

The NRA works with the local authorities during this phase. For example, the proposed road may go through areas that are sensitive to noise and/or vibration. These areas may have a school, hospital, places of worship, heritage building, special habitat and/or local amenity area. Local authorities, where appropriate, control construction activities by imposing hours of operation and consider noise limits at their discretion.

Stage 4 CONTROLLING

The NRA undertakes a post-EIA evaluation study to assess actual impacts of the road schemes on the environment. The research also assesses the effectiveness of measures adopted to minimise environmental impacts.

Badger-resistant fencing needs to be properly maintained and underpasses checked periodically to ensure that they remain clear of debris or have not become waterlogged.

Noise barriers are built today to ensure that noise limits will be met in 15 years from now. They will need to be checked over the years to see how well they are coping.

The controlling stage allows comparisons to be made between actual and predicted data.

Conclusion

The NRA takes its responsibilities towards the environment very seriously. The environment is considered through all stages of the planning and constructing of road schemes and the proactive measures the NRA sets in place today should protect the environment well into the future. Preserving our environment is a task for all socially responsible organisations and individuals. With everyone doing their social, ethical and legal part, we can protect our environment today for tomorrow's generations.

Glossary

Directives: A type of legislation issued by the EU which is binding on Member States in terms of objective but which leaves choice of method to Member States.

Flora and Fauna: Fauna – a collective term for all kinds of animals and Flora – a collective term for all kinds of plants.

Mission Statement: This is a written statement of the organisation's long-term aims and objectives. It is written to support the purposes of an organisation and provide employees with an indication of what the organisation is trying to achieve.

Activity

- 1) 10 students in groups, with 10 minutes preparation time.

You are at the local town hall to meet with the NRA to discuss plans to build a new motorway bypass around the town.

Two people are chosen as representatives of the NRA.

Each of the other students will be a stakeholder, e.g., a local farmer, shop owner, representative from the local hospital, local politician, representative from the local wildlife conservation centre, etc.

Students must prepare what they are going to say to the NRA either by themselves or with some group discussion. Some students will be for the bypass others against.

The students representing the NRA need to listen to the community concerns and focus on how the NRA will ensure minimum impact to the environment.

- 2) Work in pairs to write a speech given by an NRA representative to a group of local people who are concerned about how a proposed new road scheme will impact on their lives.
- 3) Go to www.nra.ie. Find a National Road Scheme under construction near your town. Download the map of the scheme. Is the proposed road going through farmland, near rivers, mountains, towns etc? What likely measures might the NRA have to take to minimise environmental impact?

Find out more

Visit: www.nra.ie