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Transport Infrastructure Ireland

TII Publications



Project Appraisal Guidelines for National Roads Unit 1.0 - Introduction

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March 2021

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1. Context

This unit provides a general overview of the Transport Infrastructure Ireland (TII) Project Appraisal Guidelines for National Roads, referred to hereafter as the Project Appraisal Guidelines (PAG), which apply to the appraisal process of National Road projects and programmes.

The PAG incorporate the requirements of project appraisal which are set out in the following governmental publications:

- “The Public Spending Code”, Department of Public Expenditure and Reform (2019); and
- “Common Appraisal Framework for Transport Projects and Programmes”, Department of Transport (2016)¹.

1.1 The Public Spending Code

All Irish public bodies are obliged to treat public funds with care, and to ensure that the best possible value-for-money is obtained whenever public money is being spent or invested.

The Department of Public Expenditure and Reform (DPER) publication “The Public Spending Code” (2019) sets out the rules and procedures that apply to ensure that these standards are upheld across the Irish public service.

1.2 Guidelines on a Common Appraisal Framework for Transport Projects and Programmes

The Department of Transport (DoT) publication which is referred to as the Common Appraisal Framework (CAF) provides specific guidelines for the appraisal of transport projects and programmes. The CAF provides guidance on how the rules and procedures of the Public Spending Code (PSC) apply to projects in the transport sector. The document gives advice on defining projects for appraisal and on the generation of project options, describing an objectives-led framework that employs both multi-criteria and cost-benefit approaches.

The Project Appraisal Guidelines translate the requirements of the PSC and CAF in relation to National Road projects and programmes.

¹ Sections of the CAF were updated in October 2020. A full update of the CAF is due to be published in 2021

2. Purpose of Appraisal

From a transport perspective, the key purpose of appraisal is to ensure that scarce public funds are allocated in an efficient manner by establishing the merits of a proposal using a consistent and comprehensive framework.

The appraisal of a project or programme occurs over a number of project phases which are discussed later in this unit. Appraisal is used throughout these various project phases to inform the following:

- Support the decision making process;
- Assess the 'worth' of a project or programme;
- Identify if a project or programme will yield benefits and to whom; and
- Understand if the project is meeting the set objectives.

3. Appraisal – Key Principles

3.1 Proportionality

It is crucial that the level of appraisal, and the resources invested in appraisal are proportionate to the scale and complexity of the proposal. All proposals should be subject to comprehensive and robust appraisal. However, the scale of the appraisal should be tailored to match the decision being made.

The concept of proportionality in the case of National Road projects and programmes will mean that a detailed appraisal may not be appropriate in every case and that a more simplified or light touch approach may be more appropriate.

3.2 Rationale

There must be a clear rationale for any proposal and it must be based on the presentation of existing deficiencies and future challenges, which establish the need for a scheme. In the early project phases a clear transport related problem should be identified, with supporting evidence.

3.3 Objective Based Appraisal

The PSC states that 'poor objective setting' can be among a number of shortcomings that commonly arise with public investment projects and programmes. Scheme objectives should not be tailored to suit a particular intervention. There must be consideration of genuine, discrete options, and not an assessment of a previously selected option against some clearly inferior options.

4. Appraisal Process

Appraisals should provide an assessment of whether a proposal is worthwhile and clearly communicate conclusions and recommendations. It is important to recognise that appraisal is an ongoing process through the life of a project.

4.1 The Need for Intervention

The first step in the appraisal process is to identify the need for the intervention and to consider whether or not any subsequent proposal is likely to be cost effective. Any appraisal must include the potential negative impacts of an intervention as well as considering a 'Do-Nothing' or 'Do-Minimum' option. It will often be the case that this initial step will involve an exercise to determine the scope of the work and the rationale behind intervention.

4.2 Setting Appropriate Objectives

An important task of any public sector organisation is continually to reassess needs and objectives. New projects should only be undertaken where there is a clearly established public need for the project or service to be provided.

An objective is the explicit intended result of a particular programme or project, measured as precisely as possible. These objectives should be Specific, Measurable, Accurate, Realistic and Timely (SMART).

Project objectives should be expressed in terms of the benefits they are expected to provide and those whom they are intended to benefit. For example, the construction of a new road is not an end in itself; it must be seen in the light of the needs of the economy as a whole, and of the target groups for which the project caters (for example, freight traffic, tourist traffic, commuters etc.).

There is a need for realism in stating objectives. Where schemes have multiple objectives it is necessary to be clear about the relative importance of each and how this should be reflected in resource allocation and in the appraisal process.

It is important that objectives are expressed in a way that will facilitate consideration and analysis of alternative ways of achieving them. In other words, they should not be so expressed as to point to only one solution or be biased towards a particular mode of transport.

Further detail on this topic is provided in PAG Unit 3.0: Project Brief.

4.3 Considering Possible Alternatives and Options

All realistic ways of achieving stated objectives should be identified and examined critically when considering project alternatives and options for the first time. This includes, during the early project phases, examining whether an investment in an alternative mode of transport is a more appropriate response to the identified transport problem. Different scales of the same response should be included as separate alternatives or options, where appropriate. Furthermore, alternatives and options should be described in such a way that the essentials of each, and the differences between them, are clear.

Considering the possible alternatives/options in light of known physical, legal and institutional constraints will usually lead to the conclusion that some of the alternatives/options are not feasible, while others may conflict with existing policies.

Objectivity is important in considering alternatives/options, there can be a danger that the selection may be manipulated in order to make a case for a course of action which is already favoured. It is intended that following the appraisal process set out in the PAG will minimise the likelihood of that occurring.

An approach to option development, identified in CAF, is to consider small scale or lower standard initially and then to consider incremental increases in scale. The document also notes that investment may not always represent the most appropriate response to identified needs or objectives.

The 'management option' also requires consideration during the initial project phases to examine whether control measures or fiscal measures can achieve the project objectives.

Further detail on this topic is provided in PAG Unit 4.0 - Consideration of Alternatives and Options.

4.4 Appraisal Tools

Project appraisal should be supported by analysis tools which can allow clear, evidence based findings to be incorporated into the appraisal process. Typically, project appraisal is supported by a transport model to understand the impacts of a scheme. It is therefore critical that the transport model is fit for purpose and can allow the difference in impact between alternatives or options to be understood.

Economic analysis tools, such as COBALT and TUBA are also available to assist with appraisal. These tools automate many of the calculation processes required for the appraisal of safety and economic impacts. The construction of COBALT and TUBA models is specific to every scheme, although there are some datasets (e.g. economic parameters) that are common across all projects.

Further detail on the development and application of appraisal tools is provided in PAG Unit 5.0 - Transport Modelling and PAG Unit 6.0 - Cost Benefit Analysis.

4.5 Choosing Between Various Options

Once the possible options have been considered, and in order to comply with CAF, the Project Appraisal Balance Sheet (PABS) should be used to present the most appropriate option taking into consideration both quantitative and qualitative impacts of the various options.

See PAG Unit 7.1 - Project Appraisal Balance Sheet for further guidance.

4.6 Post Project Review

The purpose of a Post Project Review (PPR) is to undertake an evaluation of what happened when the proposal was implemented.

The evaluation is similar in principle to appraisal but relies on actual outturn information and takes place after the scheme or solution has been implemented. The main purpose is to ensure that lessons are learnt and applied for future appraisals.

See PAG Unit 9.0: Post Project Review for further guidance.

5. Structure of Appraisal

Each project must be assessed against the Government's key appraisal criteria as set out in the DoT Guidelines on a Common Appraisal Framework for Transport Projects and Programmes. These are as follows:

- Economy;
- Safety;
- Environment;
- Accessibility and Social Inclusion;
- Integration; and
- Physical Activity

The economy objective is concerned with improving the economic efficiency of transport and providing economic transport solutions. The safety objective aims to reduce loss of life, injuries and damage to properties resulting from transport collisions.

Environment aims to protect the built and natural environment, including reducing the direct and indirect impacts of transport schemes and their use on the environment. Accessibility and Social Inclusion seeks to improve facilities for those without a car and to reduce access severance.

Integration aims to ensure that all decisions are taken in the context of wider European directives and national government policy objectives, and the impact of a scheme in terms of transport provision (e.g. provision of missing links), land use integration (e.g. compatibility with national / local land use strategies) and geographic integration (e.g. does the scheme improve transport links to Northern Ireland and Europe). The Physical Activity criterion examines the nature of physical activity impacts including impacts on particular groups of road users such as pedestrians and cyclists.

6. Appraisal of National Road Capital Expenditure Projects

Appraisal is required at different stages of a project, depending on project size. For major projects, appraisal is required at all decision stages. Smaller projects are subject to a more compact appraisal requirement, while programmes may be appraised at a strategy level (e.g. pavement maintenance).

All spending on National Roads is either Capital Expenditure or Current Expenditure. Capital Expenditure is spending to buy or construct assets which produce benefits over a relatively long period of time, certainly longer than a single year. Current Expenditure is spending on goods and services where the benefit of this spending is received within the spending entity's accounting period, e.g. pavement maintenance.

The CAF set out the required level of appraisal based on the expected level of capital expenditure. Table 1.1 provide a summary of the CAF appraisal classifications and the relevant PAG Unit.

Table 1.1 CAF Appraisal Levels and Applicable PAG Unit

Capital Expenditure Level	PSC Appraisal Type	Applicable PAG Unit(s)
<€0.5m	Simple Assessment	N/A ²
€0.5m - €5m	Single Appraisal	Unit 14.0
€5m - €20m	Multi-Criteria Analysis ³	Unit 2.1 & Unit 12.0
>€20m	Cost Benefit Analysis	Units 2.1 - 9.0

At present, National Road Capital Expenditure Projects⁴ are classified into three main categories under the TII Project Appraisal Guidelines (PAG), with each requiring a different and proportionate level of appraisal. The three categories are as follows⁵:

- Major Projects - cost > €20m;
- Minor Projects - cost between €5m and €20m; and
- Minor Projects - cost between €0.5m and €5m.

See PAG Unit 2.1: Project Appraisal Deliverables for further guidance.

6.1 Major Projects

Major projects are those defined as costing in excess of €20m. Major projects typically involve improvements to significant lengths of the National Road network be they online or offline upgrades, large scale junction improvements, structures/bridges or tunnels.

² Schemes of this nature are likely to form part of a current expenditure programme and are therefore appraised at a programme level.

³ Multi-Criteria Analysis is the minimum requirement for projects between €5m - €20m

⁴ For the categorisation of projects capital expenditure costs are inclusive of VAT.

⁵ These classifications may be updated later in 2021 to align with the Department of Transport requirements under the updated Common Appraisal Framework.

Motorway Service Areas also generally fall under the definition of major projects but are subject to a bespoke appraisal technique as outlined in PAG Unit 6.8 – Appraisal of Motorway Service Areas.

6.2 Minor Projects (€5m to €20m)

Minor Projects (€5m to €20m) are those National Road projects which are less complex in nature and typically involve lengths of improvement to the national road network, junction/bridge improvements or combination of road and junction improvements. Minor Projects (€5m to €20m) need to be appraised in accordance with PAG Unit 12.0 – Minor Projects (€5m to €20m).

6.3 Minor Projects (€0.5m to €5m)

The second category of Minor Projects encompasses schemes falling within the value of €0.5m to €5m. These can also fall under DN-GEO-03030 Guidance on Minor Improvements to National Roads. Under DN-GEO-03030 schemes are classified as follows:

- Minor Improvement Schemes;
- Road Safety Improvement Schemes; and
- Maintenance Schemes.

Maintenance schemes predominantly involve pavement works and other road feature maintenance works such as replacement of traffic signs and road markings and edge strengthening of existing roads. Pavement maintenance falls under current expenditure and is supported by the Pavement Management System (PMS) which provides a basis for the allocation of such funds and includes the appraisal of such expenditure at programme level based on life cycle analysis. Therefore, pavement maintenance is not appraised under Minor Projects (€0.5m to €5m).

A Minor Improvement Scheme (e.g. removal of a sub-standard bend) may form part of a Maintenance Scheme. Where this is the case the additional costs and benefits of the Minor Improvement Scheme element need to be identified and appraised in accordance with PAG Unit 14.0 – Minor Projects (€0.5m to €5m).

7. Appraisal of National Road Current Expenditure Programmes

Current Expenditure encompasses expenditure such as the operation and maintenance of existing infrastructure as well as other expenditure required for administration and management of the national road network.

Contact the TII Strategic and Transport Planning Section for further guidance on the appraisal of National Road Current Expenditure Programmes.

8. Structure of the Project Appraisal Guidelines

The Project Appraisal Guidelines have been developed as a series of stand-alone documents which, together, form a complete appraisal manual. The structure of the guidance is outlined in Table 1.2.

Table 1.2 Structure of the Project Appraisal Guidelines

Unit	TII Publication	Title	Notes
1.0	PE-PAG-02009	Introduction	
2.0	PE-PAG-02010	Project Appraisal Deliverables	
2.1	PE-PAG-02011	Strategic Assessment Report	
3.0	PE-PAG-02012	Project Brief	Report Template Provided
4.0	PE-PAG-02013	Consideration of Alternatives and Options	
5.0	PE-PAG-02014	Transport Modelling Overview	
5.1	PE-PAG-02015	Construction of Transport Models	
5.2	PE-PAG-02016	Data Collection	
5.3	PE-PAG-02017	Travel Demand Projections	Projections and Shapefiles Provided
5.4	PE-PAG-02018	Transport Modelling Report	Report Template Provided
6.0	PE-PAG-02019	Cost Benefit Analysis Overview	
6.1	PE-PAG-02020	Guidance on Conducting CBA	
6.2	PE-PAG-02021	Preparation of Scheme Costs	Spreadsheets Provided
6.3	PE-PAG-02022	Guidance on using TUBA	Input Files Provided
6.4	PE-PAG-02023	Guidance on using COBALT	COBALT Input Files and Programme provided
6.5	PE-PAG-02024	TUBA & COBALT Sample Input Files	
6.6	PE-PAG-02025	CBA Audit Checklist	
6.7	PE-PAG-02026	CBA Report	Report Template Provided
6.8	PE-PAG-02027	Appraisal of Motorway Service Areas	
6.9	PE-PAG-02028	Wider Impacts	
6.10	PE-PAG-02029	Reliability and Quality	
6.11	PE-PAG-02030	National Parameter Values Sheet	
7.0	PE-PAG-02031	Multi Criteria Analysis	
7.1	PE-PAG-02032	Project Appraisal Balance Sheet	Spreadsheet Provided
8.0	PE-PAG-02033	Business Case	Report Template Provided
9.0	PE-PAG-02034	Post Project Review	Report Template Provided
10.0		Not Currently Used	
11.0	PE-PAG-02044	Financial Appraisal	
12.0	PE-PAG-02035	Minor Projects (€5m to €20m).	Spreadsheet Provided
13.0	PE-PAG-02036	Pedestrian and Cyclist Facilities	
14.0	PE-PAG-02037	Minor Projects (€0.5m to €5m).	Spreadsheet Provided
15.0		Not Used	
16.0	PE-PAG-02038	Estimating AADT on National Roads	
16.1	PE-PAG-02039	Expansion Factors for Short Period Traffic Counts	

8.1 Project Appraisal Guidelines Associated Downloads

Additional files associated with the Project Appraisal Guidelines are available for download as zipped files from the Downloads page accessible from the TII Publications website homepage. Table 1.3 lists the files that are available for each unit of the Project Appraisal Guidelines.

Table 1.3 Project Appraisal Associated Downloads

Unit	TII Publication	Associated Download File
3.0	PE-PAG-02012	PAG Unit 3.0 - Project Brief Template_v1.docx
		PAG Unit 3.0_Sample PB_V1.pdf
5.3	PE-PAG-02017	NTpM Zone-Based Growth Rates.xlsx
		NTpM Zones Shapefile
		Metropolitan Area Shapefile
5.4	PE-PAG-02018	PAG Unit 5.4 - Sample TMR_v1.pdf
6.2	PE-PAG-02021	PAG Unit 6.2 Input Cost Spreadsheet - Phase 2_v1.xlsm
		PAG Unit 6.2 Input Cost Spreadsheet - Phases 3,4,5_v1.xlsm
		PAG Unit 6.2 Input Cost Spreadsheet - Phase 7_v1.xlsm
6.3	PE-PAG-02022	Economic_Input_TUBAv1.9(Oct2020).txt
		Economic_Input_TUBAv1.9.7(Oct2020).txt
		Economic_Input_TUBAv1.9.8(Oct2020).txt
		Scheme_Input_Sample_TUBAv1.9(Oct2020).txt
		Scheme_Input_Sample_TUBAv1.9.7(Oct2020).txt
		Scheme_Input_Sample_TUBAv1.9.8(Oct2020).txt
6.4	PE-PAG-02023	COBALT_Ireland_Input_Sample_v1.cbi
		COBALT_Ireland_Parameters_v3.cbp
		Cobalt_run_files_v1.txt
		COBALT-Ireland_PF_201606_v1.xls
		COBALT-Ireland_UF_201606_v1.xls
6.7	PE-PAG-02026	PAG Unit 6.7 - Sample CBA Report_v1.pdf
6.8	PE-PAG-02027	PAG Unit 6.8 - Business Case Template_v1.docx
7.1	PE-PAG-02032	PABS V4 16.03.2021.xlsm
8.0	PE-PAG-02033	PAG Unit 8.0 - Detailed Business Case Template_v1.docx
9.0	PE-PAG-02034	PAG Unit 9.0 - Post Project Review Template_v1.docx
12.0	PE-PAG-02035	PAG Unit 12 0 - Minor Projects (€5m to €20m) PAR Template_v2.docx
		PABS (Minor Projects €5m to €20m) _v2.docx
		TII Simple Appraisal Tool (Version 4).xlsm
14.0	PE-PAG-02037	Unit 14 Minor Projects (0.5m to 5m euro) PABS_v2.xlsx



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