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Transport Infrastructure Ireland

## TII Publications



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# Project Appraisal Guidelines for National Roads Unit 6.0 - Cost Benefit Analysis Overview

PE-PAG-02019

October 2016

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# **1. Overview**

This document provides an overview of all the Units contained within PAG Unit 6 and is to be used to direct the reader to the appropriate Unit.

## **2. Unit Content**

### **2.1 PAG Unit 6.1 - Guidance on Conducting CBA**

This PAG Unit provides guidance on conducting Cost Benefit Analysis (CBA). It sets out when and how CBA should be carried out together with information on the various phases of appraisal and the approval process. It also outlines the principles and economic theory and how these are to be applied to road schemes.

### **2.2 PAG Unit 6.2 - Preparation of Scheme Costs**

This PAG Unit addresses how scheme cost estimates are converted into a format to be used in the Cost Benefit Analysis of road schemes. It details the content of the respective construction, supervision, land/property, planning/design and archaeology elements. It also states how maintenance and operations should be accounted for and how costs should be inflated or discounted in line with TII guidelines. The PAG Unit also sets out procedures for the calculation of scheme costs associated with each project phase i.e. Phase 2 Option Selection, Phase 3 Design and Environmental Evaluation, etc.

The guidelines provide worked examples for converting scheme cost estimates to CBA format, for utilising shadow pricing factors and for preparing Target Cost and Total Scheme Budget estimates for input into the CBA.

### **2.3 PAG Unit 6.3 – Guidance on using TUBA**

This PAG Unit provides information on the inputs and processes associated with undertaking a Transport Users Benefit Appraisal (TUBA) assessment. TUBA is a computer program developed to undertake an economic appraisal for transport schemes. It deals with data collection, the links with the transport model, and the parameter values that should be used for assessments at the different phases of a road scheme. It also deals with the data requirements and layouts of the TUBA Input Files, namely the Economics File and the Scheme Data File.

This PAG Unit also provides advice on where to seek guidance on using the TUBA program, how to check the inputs and outputs and outlines how TUBA assessments should be audited.

### **2.4 PAG Unit 6.4 – Guidance on using COBALT**

This PAG Unit provides information on the processes required to undertake a Cost and Benefit to Accidents – Light Touch (COBALT) assessment. COBALT is the software used to assess and quantify the change in the number of collisions and casualties as a direct result of a road scheme. It also deals with data collection, the relevant inputs from the traffic model and the parameter values that should be used for the assessment.

The structure of the COBALT input file, the economic parameter file and how they may be prepared and edited for input into the COBALT program is also addressed in this Unit. The Unit provides information on checking and verifying the inputs and outputs together with details on performing audits of the assessment.

## **2.5 PAG Unit 6.5 - TUBA & COBALT Sample Input Files**

The unit provides sample input files for TUBA and COBALT. With respect to TUBA, this Unit discusses the scheme input sample and economics input file. For COBALT Ireland this Unit discusses the input sample and parameters.

## **2.6 PAG Unit 6.6 - CBA Audit Checklist**

This PAG Unit sets out the requirements for auditing CBA reports and outputs and sets out the responsibilities of the respective audit team members. Audits and checks for both TUBA and COBALT assessments are detailed, comprising consideration of the individual elements within the inputs used and outputs generated. It outlines expected relationships between various output variables to inform the sense checking of results together with information on errors/warnings.

The Unit also provides a detailed checklist for the undertaking of CBA assessments and the validation of CBA reports and outputs.

## **2.7 PAG Unit 6.7 - CBA Report**

This PAG Unit sets out the guidelines regarding the structure and content of CBA Reports for all TII schemes. The guidelines apply equally to CBA using TUBA and COBALT or other manual methods. This Unit also provides a sample CBA report.

## **2.8 PAG Unit 6.8 – Appraisal of Motorway Service Areas**

This PAG Unit provides information on the inputs and processes associated with developing a Business Case for Service Areas.

## **2.9 PAG Unit 6.9 - Wider Impacts**

This Unit considers the role of Wider Economic Impacts (WEI), which is; the term given to the welfare impacts of changes in the wider economy in addition to transport user benefits. These WEI include changes in productivity, output and employment. The Unit sets out the rationale for incorporating WEI as part of the CBA process, however the inclusion of WEI is not standard in the PAG process. The inclusion of wider impacts in the CBA is subject to the development of a bespoke methodology and subsequent approval by TII on a project specific basis.


## **2.10 PAG Unit 6.10 - Reliability & Quality**

This Unit provides general guidance in relation to Reliability and Quality which are considered as part of a qualitative appraisal. The Unit provides an overview of methods to assess the impact of a road scheme in terms of Reliability and Quality. It also provides an overview of potential methods to quantify Reliability and Quality benefits however the inclusion of reliability and quality impacts in the CBA is subject to the development of a bespoke methodology and subsequent approval by TII on a project specific basis.

## **2.11 PAG Unit 6.11 - National Parameter Values Sheet**

This Unit provides the National Parameters Value Sheet, which summarises the economic, traffic and collision related parameters, together with parameters relating to the appraisal of motorway service areas, to be used in the Cost Benefit Analysis of Irish road schemes. The parameters contained within this Unit are consistent with those contained within the DTTAS Common Appraisal Framework for Transport Projects and Programmes (March 2016). .





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