

# PD-01: Economic Analyses

2-5 points

SCORECARDS:  Paving  Rural Basic  Rural Extended  Urban Basic  Urban Extended

**Goal:** Using the principles of benefit-cost analysis (BCA) or economic impact analysis (EIA), provide evidence that the user benefits, including environmental, economic, and social benefits, and justify the full life-cycle costs.



Affected Triple Bottom Line Principles

## Sustainability Linkage

Conducting an economic analysis supports all of the triple bottom line sustainability principles by ensuring that agencies consider improvements where user benefits exceed the investment costs for the project through analysis of impacts to local businesses, emissions, safety, and others.

## Background and Scoring Requirements

### Background

For the purpose of this criterion, the key terms are defined as follows:

- **“Benefit-Cost Analysis”** – A BCA assesses the user and agency benefits of projects and programs in comparison to their costs. It normally includes all direct user and agency costs and benefits that the agency is able to estimate, including operating costs, travel time costs, and often other impacts such as crash and pollution costs, but broader economic impacts are excluded in traditional BCA. Benefit-cost analysis is typically applied in transportation studies to identify the NPV of the societal benefits that can be associated with a project or program, net of the investment costs. This includes benefits that are not reflected in any monetary transaction.
- **“Broader economic impacts”** – Broader economic impacts include: (1) indirect impacts, which occur when industries that are directly affected by goods and services from other industries, and (2) induced impacts, which occur from increased household spending due to higher regional wages. Impacts (1) and (2) are considered “follow-on” impacts, and while they are typically included in an EIA, they are explicitly excluded from a BCA.
- **“Economic Impact Analysis”** – An EIA is concerned with the monetary transactions that affect the generation of income in an area’s economy due to the investment in the program or project. It does not include the travel time or other costs or benefits for which money is not exchanged; however, it includes indirect and induced impacts on business growth that are not included in benefit-cost analysis. However, it does include much broader estimates of impacts than direct impacts. It asks the question: “What does the economy of interest look like with or without a project or program?” as measured by the quantity of and the types of transactions that are forecasted to occur under each scenario. Impacts are shown by the change in jobs, in worker income, and in GDP or gross state product (GSP) that results in future years as a consequence of the transportation programs or projects. FHWA has a primer on EIAs at <http://www.fhwa.dot.gov/infrastructure/asstgmt/primer08.cfm>.

## Scoring Requirements

### **Requirement PD-01.1**

#### **2-5 points. Perform Economic Analyses**

Scoring is based on the following, cumulative elements.

- **Requirement PD-01.1a**

#### **2 points. Benefit-Cost Analysis**

A BCA for the project must be completed using minimum acceptable industry practices. U.S. DOT provides guidance on developing a BCA under the TIGER Grant Federal Register notices (see <http://www.dot.gov/tiger/application-resources>). In addition, FHWA has developed two project-level BCA tools including: (1) BCA.Net, which is a web-based BCA tool designed to support the highway project decision-making process; and (2) STEAM, which is a corridor and system-wide analysis tool that computes the net value of mobility and safety benefits attributable to regionally important transportation projects. If using the analysis to compare alternatives, one alternative that may be included is a no-build option. Performing a BCA for a project facilitates justification that the environmental, economic, and social benefits expected justify the investment costs for the project. A BCA should not be confused with life-cycle cost analyses, which are leveraged to compare different alternatives (see PD-02) and are the starting point for a BCA.

- **Requirement PD-01.1b**

#### **3 additional points. Economic Impact Analysis**

Perform an EIA, which includes the following (if relevant):

- Forecasting and quantification of revenues and costs of the project;
- Quantification of benefits, including social, environmental, and economic factors; and
- Quantification of impacts to regions, land values, and businesses.

## Scoring Sources

The project is considered to have met this criterion if the requirements above can be reasonably substantiated through the existence of one or more of the following documentation sources (or equal where not available):

1. Results from a Benefit-Cost and/or Economic Impact Analyses.
2. Documentation of techniques and underlying assumptions for any economic model(s) used to generate results.