



TIGER 2014

Preparing a Benefit-Cost Analysis

Presented by the Office of the Assistant Secretary for Transportation Policy
United States Department of Transportation



TIGER

- \$600 million multimodal, merit-based discretionary grant program
 - \$120 million for rural areas
 - \$35 million for planning grants
- Strong focus on creating “ladders of opportunity”
- Modal and geographic equity requirements
- No Pre-Application required



+ How is TIGER different?

- Broadly multimodal
- Open to any governmental entity
- Outcome-based
- Strict time limits on funding
- Performance measures
- Extremely competitive
- *Use of economic analysis*



+ Why Benefit-Cost Analysis (BCA)?

- President's commitment to data-driven decision-making
- Requirement has applied in all five rounds of TIGER grants
 - No funding for projects for which $C > B$
- Value of BCA in project selection
 - BCA quality matters more than size of the B/C ratio
 - Focus your analysis on how it demonstrates need for your project



+ Additional Information in BCA Guidance & Resource Guide

- Available at www.dot.gov/tiger/
- Recommended monetization values:
 - Value of Statistical Life
 - Value of injuries
 - Property damage
 - Travel time
 - Emissions
- Guidance on converting crash data (KABCO to MAIS)
- Additional background & reference texts



+ Basic Requirements

- Project Summary
 - Base case (“no-build”)
 - Project description
 - Justification and impact on long-term outcomes
 - Affected population(s)
 - Expected economic benefits
 - Alternatives

- Monetized estimates of benefits & costs
 - Year-by-year stream of benefits and costs
 - Discounted to present value (3% & 7%)

- Replicable methodology

- Demonstrate Independent Utility





Ridership

- Most benefits depend on ridership (“usership”) estimates
- Provide forecast estimates
 - Basic underlying assumptions
 - Data sources
 - Methodology
- Provide forecasts for intermediate years
 - Not just single forecast year
- Assess reliability of forecasts





BCA vs. EIA

- Economic Impact Analysis (EIA) focuses on local benefits
 - Ignores costs to other localities
 - Includes transfer payments as “impacts”
 - Payrolls, tax revenues, real estate investments

- BCA focuses on national benefits (including local)
 - Nets out costs to other areas
 - Includes only productivity increases resulting from job creation, increases in property values



+ Benefits – Quality of Life

- Quality of Life benefits are often associated with:
 - Accessibility
 - Improved access to jobs, amenities
 - Accessibility to wider range of transportation modes
 - Transit, bicycle lanes, walking
 - Accessibility for disadvantaged communities
- Land use changes that bring destinations closer
- Important to show ridership/usership
 - Try to estimate value per user
 - Increases in property values may indicate value



+ Benefits–Economic Competitiveness

- Benefits in this category typically include:
 - Savings to passengers, carriers, and shippers
 - Lower operating costs
 - Travel time savings
 - Improvements in reliability
 - Positive impacts on national exports
 - Ladders of Opportunity: new or improved connections between people and centers of employment, education, and services
- Take care in estimating:
 - Job creation benefits (focus on productivity increases)
 - Leave out multiplier effects
- Can include increases in labor and land productivity
 - But avoid double-counting



+ Benefits – Safety

- Safety benefits are typically associated with reducing fatalities, injuries, crash costs, and hazmat releases
- Benefits should be based on good crash data and valid analysis of cause (crash causation factors)
 - Available crash data may need to be converted from KABCO to MAIS (see BCA Resource Guide)
- Recommended values for Value of Statistical Life (VSL), injuries, property damage are available in BCA Resource Guide



+ Benefits – State of Good Repair

- State of Good Repair benefits can include:
 - Reducing long-term maintenance and repair costs (life-cycle costs)
 - Travel time savings (from preventing closures of facilities, lack of speed and weight restrictions)
 - Other user benefits from better pavement, improved safety
- Need to consider benefits and costs of alternatives
 - Replacement vs. rehabilitation
- Risk analysis



+ Benefits – Environmental Sustainability

- Environmental sustainability benefits are typically from reduced emissions
 - Greenhouse gases (e.g., CO₂)
 - SO_x
 - NO_x
 - Particulate matter (PM)
 - Volatile organic compounds (VOC)
- May also be water quality, habitat benefits
- Recommended values are available in BCA Resource Guide





Costs

- Provide costs from all sources (local, State, other Federal grants, private)
- Direct capital costs: construction, design, land acquisition
- Beyond capital costs
 - O&M, rehabilitation, life-cycle costs
 - External costs: noise, congestion, pollutants
 - Cost to users during project construction: increased delay, vehicle operating costs
- Costs of whole project should be compared with benefits of whole project (no “leveraging”)
 - Can’t just compare TIGER costs to whole-project benefits
 - Can compare benefits and costs of just one phase if it has independent utility



+ BCA Review Process

Each BCA is reviewed by two Departmental economists, and assigned two consensus-based ratings:

- **BCA Usefulness**
 - Very Useful
 - Useful
 - Marginally Useful
 - Not Useful

- **BCA Assessment**
 - Benefits > Costs
 - Uncertain, but Probably Benefits > Costs
 - Uncertain
 - Uncertain, but Probably Benefits < Costs
 - Benefits < Costs



+ Lessons Learned

- We don't rank projects by B/C Ratio
 - Better to be conservative and get a modest excess of benefits over costs than to exaggerate benefits to get a big B/C Ratio
- Always document and provide reliable sources for data and calculations
- Be realistic in assumptions and estimates
- Qualitative discussion of benefits helps supplement understanding for difficult-to-measure benefits
- Consider the viewpoint of objective reviewers
 - Are estimates plausible and reasonable?



+ BCA Resources

- TIGER Website: www.dot.gov/tiger/
 - March 3, 2014 Federal Register NOFA
 - BCA Guidance & Resource Guide
 - BCA Examples
 - Tribal BCA Examples
 - Preparing a BCA for a Rural TIGER Grant Application (August 2011)
 - 2010 archived webcast for *Benefit-Cost Analysis for Transportation Infrastructure: A Practitioner's Workshop*
- The Value of Statistical Life (VSL) and Value of Time (VOT) guidance will be updated and posted on www.dot.gov/tiger/ soon.
- USDOT offers technical assistance to help applicants through the TIGER process
- General inquiries to TIGERGrants@dot.gov about BCA before April 28, 2014



+ Parting Words...

- BCA is an opportunity to objectively demonstrate the need for your project
 - Highlight benefits that are well-documented and align well with program's selection criteria
 - Don't forget to include all the costs of the project
 - Include a ridership/usership estimate, and estimate benefits per user
- Document, document, document
- Be realistic in your assumptions and estimates





TIGER

Must have submitted Applications on or before
April 28, 2014 at 5:00 p.m. EDT via
www.grants.gov.

Question and Answer Session

