



Preparing a Benefit-Cost Analysis for a USDOT TIGER Grant

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

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TIGER₃

- \$527 million multimodal, merit-based competitive grant program
- \$140 million for rural areas
- Up to \$150 million for TIFIA payments
- Last round the average award was \$13.25 million
- Geographic diversity requirement

Why Benefit-Cost Analysis (BCA)?

- President's commitment to data-driven decision-making
- Requirement from TIGER I and II
 - 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 for Current Round

- 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



Basic Requirements

- 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

EIA vs BCA

- 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 – Livability

- Livability benefits are often associated with:
 - Accessibility
 - Improved access to jobs, amenities
 - Accessibility for disadvantaged communities
 - Land use changes linked to transportation
 - Transit and bicycle-pedestrian improvements
 - Affordability (transportation, housing)
 - At least 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:
 - Lower operating costs
 - Travel time savings
 - Savings to passengers, carriers, and shippers
 - Improvements in reliability
- Take care in estimating:
 - Job creation benefits (focus on productivity increases)
 - Omit 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
 - Available crash data may need to be converted from KABCO to MAIS (conversion tables available in NOFA)
- Recommended values for VSL, injuries, property damage are available in NOFA



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 – 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)
- Recommended values are available in NOFA



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”)**
 - Or, if TIGER funds only a part of a project, you can compare costs and benefits for TIGER-funded portion only
 - But only if that portion has independent utility



BCA Ratings

- BCAs are reviewed and rated by BCA Review team
 - Very Useful
 - Useful
 - Marginally Useful
 - Not Useful



Lessons Learned

- **ALWAYS** document and provide reliable sources for data and calculations
- Be realistic in assumptions and estimates
- Qualitative discussion helps supplement understanding for difficult-to-measure benefits & costs
- Consider the viewpoint of objective reviewers
 - Are estimates plausible and reasonable?
- Focus on overall evaluative process, **not** just the B/C ratio



BCA Resources

- August 12, 2012 Federal Register NOFA – *Appendix A: Additional Information on Benefit-Cost Analysis*
- 2010 archived webcast for [*Benefit/Cost Analysis for Transportation Infrastructure: A Practitioner's Workshop*](#)
- General inquiries to TIGERGrants@dot.gov about BCA before October 31, 2011



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 about true costs of the project
- Document, document, document
- Be realistic in your assumptions and estimates

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Additional Application Help

TIGER Website: www.dot.gov/tiger/

Special Topics Webinars

- | | |
|-------------------------|--|
| August 17 th | <u>Benefit Cost Analysis</u> |
| August 22 nd | <u>Project Readiness/NEPA</u> |
| August 24 th | <u>Public Private Partnerships & TIFIA</u> |
| August 24 th | Rural and Tribal – NADO Annual Conference |
| August 30 th | <u>MARAD Port Outreach</u> |

Archived Webinars

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| July 18 th | <u>How to Compete for TIGER</u> |
| July 27 th | <u>“Talking Freight”</u> |



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Question and Answer Session

