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

August 17, 2011
• $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)
  – SOx
  – NOx
  – 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
Additional Application Help

TIGER Website: www.dot.gov/tiger/

Special Topics Webinars

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

Archived Webinars

- July 18th: How to Compete for TIGER
- July 27th: “Talking Freight”
TIGER

Question and Answer Session