









#### TIGER 2014

#### Preparing a Benefit-Cost Analysis

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





- ■\$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 <u>www.dot.gov/tiger/</u>
- 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





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#### 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)
  - SOx
  - NOx
  - 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</p>







#### **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: <u>www.dot.gov/tiger/</u>
  - 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 <a href="https://www.dot.gov/tiger/">www.dot.gov/tiger/</a> soon.
- USDOT offers technical assistance to help applicants through the TIGER process
- General inquiries to <u>TIGERGrants@dot.gov</u> about BCA before April 28, 2014







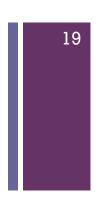
# Parting Words...

- ■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 <a href="https://www.grants.gov">www.grants.gov</a>.

# **Question and Answer Session**



