IntelliDrive Benefit-Cost Analysis

July 22, 2010
Previous BCA Work

• Two rounds of benefit-cost analysis for initial VII concept (2006-2008)

• Goals:
  – Understand magnitude of impacts (esp. safety) and length of phase-in period
  – Assess case for continued federal involvement

• Limitations:
  – Simplified deployment scenario & set of applications
  – Very preliminary data on equipment costs and potential impacts of applications
BCA Framework

• Societal perspective: all benefits and costs, incl. non-monetary impacts
• Benefits = value of safety, mobility, and environmental impacts of VII applications, compared to non-VII baseline
• Costs = upfront installation costs of equipment plus ongoing operations & maintenance costs
• Used 40-year time period and 7% discount rate
BCA Approach

• Identified key parameters, e.g. standard USDOT values for travel time savings
• Built model of US light-duty vehicle fleet (current stock, annual sales & scrappage) to estimate diffusion of onboard technology through fleet
• Researched proposed applications and their potential impacts – e.g. improved ramp metering
  – Collaborated with Volpe Center experts on vehicle safety systems and crash typologies
BCA Approach

• Estimated upfront and ongoing system costs based on equipment and telecom needs
• Held a series of teleconferences with a “Benefit-Cost Task Force” to gain further info, e.g.:
  – Power and telecom equipment options and costs
  – Costs of application development and onboard equipment for vehicles
  – Impacts of safety and mobility applications
Current Activities

1. Update fleet model to help guide development of deployment scenarios
   - Recent declines in vehicle sales and VMT
   - Reconcile with long-term VMT forecast
   - Account for possible retrofit / aftermarket scenarios

2. Go beyond conventional BCA to assess direct impacts on stakeholders
   - For example, state DOT cost savings from reduced use of loop detectors for traffic monitoring
   - Is there a “business case” for participation?
Today’s Discussion Topics

1. Baseline scenario: vehicle sales forecasts and long-term VMT growth

2. Impacts on stakeholders:
   – State/local DOTs
   – Tolling authorities
   – Private sector
State/Local DOT Topics

- Traffic monitoring, reporting/ accountability
- Traveler info
- Winter maintenance
- Litigation
- Signal timing and ramp metering
- Travel demand data
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