**National Transportation Operations Coalition**

**Planning for Operations Webinar Series**

**Benefit-Cost Analysis for Operations**

**April 4, 2012**

**Chat Transcript**

Mike Pietrzyk: For KC Scout folks, please explain any differences in your B/C analysis approach inside vs. outside construction work zones.

Giri Jeedigunta: B/C estimations on arterial networks could get complicated due to many other factors such as signals, condition of detection system, comm, timing plan, etc.. Any experience you like to share on that front?

Bob Rausch (TransCore): Care needs to be taken when relying on travel time savings and how they are factored into the quantitive evaluation; for freight operations, the savings are real and measurable - but for the traveling public, "travel time saved" needs to be tempered with reality - - hard costs vs. soft costs! I would like to know how these 2 types of savings are separated - where one is real and the other is "soft".

Giri Jeedigunta: Any studies on the B/C on arterial DMS deployments?

Carl Kneidinger New Jersey Dept. of Transportation: Costs associated with delays due to queuing of traffic are: (1) wastage of fuel; (2) environmental costs of idling vehicles; and (3) lost productivity to motorists sitting in the queue. Is it appropriate to consider each of these three factors in calculating B/C How much confidence do we have in these delay cost calculations?

Brian Fowler, HNTB: I second Giri's question... arterial benefits have to be much more difficult to capture/estimate. Also I think the "operator responsibility" for taking advantage of the technology is much greater.

Val Rader 2: Is there an aesthetic to signal timing? For example, we know that drivers will pay more for a Lexus than a Yaris. Both are great cars and if getting from here to there via the most efficient means was the only measurement 90% of drivers would own a Yaris. However, we know drivers want an aesthetic experience and are willing to pay for it. For many, maybe most, that means fewer stops even if it results in some additional initial delay for them or overall delay for others. For example, I never get a call asking me to reduce total system delay. I get calls from drivers that feel that the progression (as opposed to coordination) is not appropriate. In traffic modeling for coordinated signal timing we try to capture some of this effect by penalizing stops with an additional “delay”, e.g. 30 seconds. We can use our standard MOE’s and cost analysis to determine how much this aesthetic costs us, but how do we quantify the benefits? This is probably some sort of “willingness to pay” measure.

Jocelyn Bauer: How are the benefits of inter-agency collaboration captured in the B/C analysis tool - TOPS-B/C? Is that captured?

Jim Hunt FHWA Operations: The USDOT ITS Benefit Database is at <http://www.itsbenefits.its.dot.gov/>

Carl Kneidinger New Jersey Dept. of Transportation: Further points raised during the Webinar largely addressed the question that I raised above on the subject of delay cost calculations.

Charles Wallace: Problem with B/C analysis is, as noted, it generally only considers continuous variables that can be monetized. Years ago I developed a cost-effectiveness model that allows for creation of goals, objectives and measures of effectiveness; integrates continuous, discrete, even binary variables, whether monetizable and not; can include quantifiable and non-quantifiable variables; and includes a consensus rating system to reduce an entire alternative’s cost effectiveness to a single index value to compare with the cost of that alternative. It basically combines B/C and “effectiveness” analyses. The resulting comparison may be plotted graphically for visualization of results. We (UF TRC) applied it to actual pilot implementations on an extensive (10-mile long corridor) transit signal priority project on an arterial highway and to HOV lanes on a freeway, but it can be used in a planning process using traditional estimating/modeling techniques. Let me know if interested in more info ([Charlie.Wallace@cox.net](mailto:Charlie.Wallace@cox.net)).

David Reinke, Kittelson & Associates: Dong Chen, why do you use an 8% interest rate? This is far above OMB recommended discount rates.

Giri Jeedigunta: Dong, what may be the reasons for a spike during 2009?

Mike Pietrzyk: For Dong Chen: Your annual B/C ratio chart is interesting. Could the annual drop over recent years possibly indicate that your ITS system needs to be physically expanded and/or technically upgraded?

PennDOT: Dong, is the decrease in clearance times primarily due to reduced response times?

Giri Jeedigunta: Thanks, you answered my Q - Road Ranger program...

Caltrans HQ: how many staff members help to produce this report?

Central Office FDOT: what is the software D4 ITS used to calculate the B/C?

Mark Smith NJ DOT: What is DMS Benefit?

Greg Hatcher, Noblis: Question for Dong (and others): Looking at the trend of ITS program B/C ratio over time leads to an interesting question: Can the analysis show that in fact the benefits keep growing for the first few years, but then level off and possibly even decrease over time as the level of ITS investment reaches an optimal point, and additional investment beyond that point would not be considered to be as cost-effective? In other words, the benefits eventually level off?

Alan Norton, NJDOT: Is Adaptive Systems one of the Ops strategies in the Ops Toolbox?

Brian Fowler, HNTB: to follow up Greg's question, is the annual benefit for year X the performance for year X compared to the previous year? or compared to the base year?

Rich Israels 2: What's the website for the Desk Reference and Tops-BC tool?

Caltrans HQ: Where can we access the TOPS-BC tool?

Bob Hart, RTC: When will the TOPS-BC tool be available?

Jim Hunt FHWA Operations: The FHWA Desk Reference will be posted on the Planning for Opeations website in the next few weeks at <http://www.plan4operations.dot.gov/>. For an "early" preview of TOPS-B/C folks can contact me at [jim.hunt@dot.gov](mailto:jim.hunt@dot.gov) (717-221-4422)