

Urban Mobility Report Point-Counter-Point

2014

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In May 2013, UMR author Tim Lomax posted a 9-page paper, *Congestion Measurement in the Urban Mobility Report: Response to Critique by Mr. Todd Litman* (<http://tti.tamu.edu/documents/TTI-2013-4.pdf>). It is a helpful contribution to this dialogue, but is vague and incomplete. It makes numerous statements but includes no specific quotes or citations, is often unclear, and ignores many of the issues raised in this Critique.

For example, Lomax claims that, “much of our work has been peer reviewed and included in the best professional guidance on the topic” and their methodologies “have been peer-reviewed in reports published by the National Cooperative Highway Research Program (NCHRP) and Strategic Highway Research Program (SHRP2),” yet the UMR includes no references to these documents or summaries of their findings. Most peer reviewed documents by UMR authors listed in the *Related TTI Reports and Presentations* webpage (<https://bit.ly/2MD8v4P>), are either old or focus on technical issues; none provides an overview of recent congestion costing technical literature, discuss key issues such as how to select baseline speeds or evaluate generated traffic impacts, or provides the sort of guidance that policy analysts, planners and economists need to evaluate potential congestion reduction strategies.

For example, the report, *The Keys to Estimating Mobility in Urban Areas Applying Definitions and Measures That Everyone Understands* (TTI 2005), is the Texas Transportation Institute’s most recent overview of congestion costing methods. It discusses various technical issues related to congestion costing but includes no overall literature review, fails to discuss how different assumptions (such as the selection of baseline speeds or speed emission curves) affect outcomes, and lacks an economic efficiency perspective. It is largely self-referential; many of cited documents are previous TTI reports, some many years old. For comparison see Grant-Muller and Laird’s 2005 report, *International Literature Review of the Costs of Road Traffic Congestion*, Wallis and Lupton’s 2013 report, *The Costs Of Congestion Reappraised*, or Transport Canada’s 2006 report, *The Cost Of Urban Congestion In Canada*, all of which contain numerous and diverse references, discuss in detail how various methods and assumptions affect results, and discuss how economic efficiency concepts can be applied to congestion costing.

Similarly, Lomax states, “We have included appropriate caveats to ensure readers and analysts are aware of [the Travel Time Index’s] strengths and weaknesses,” but provides no specifics. In fact, the UMR includes virtually no discussion caveats of possible omissions and biases in its methodologies, no discussion of criticisms, or sensitivity analysis. Many of the UMR’s key indicators, such as comparisons between cities, are based on the travel time index.

Lomax tries to frame this as an ideological debate, implying that UMR critics want to restrict transport and housing options. For example, he claims that I want everybody to “live close to work, attend a nearby church and take full advantage of a superior school down the block” and my desired solutions are “denser and more diverse land use, more public transportation, more bicycle and pedestrian treatments.” That is unfair. If he wants to challenge my opinions he should cite specific quotes from my writing rather than try to guess my motives.

His guesses are inaccurate. My criticism of the UMR is due to specific methodological problems in the ways it quantifies congestion costs and evaluates potential congestion reduction strategies: its use of freeflow baseline speeds, excessive travel time values, inaccurate speed-fuel consumption curves, and failure to account for induced travel external costs. These are technical rather than ideological issues.

It is true that I have pointed out that the URM methods reflect an automobile-oriented planning paradigm (it evaluates urban transport system performance based on automobile travel conditions), and its methodological problems tend to exaggerate roadway expansion benefits and undervalue transportation demand management strategies, but it is wrong to frame this as an ideological issue; virtually all related professional organizations (the Institute of Transportation Engineers, Transportation Research Board, AASHTO, and most state, regional and local transport agencies) support more comprehensive and multi-modal transportation planning (LaPlante 2010).

Lomax states, “We are not suggesting that our congestion cost value describes the size of the problem a region should attack; it is simply the size of the problem.” This statement is either unclear or inaccurate. Monetized estimates of regional congestion costs are useful exactly because they quantify the size of problem and therefore the cost effectiveness of potential congestion reduction strategies. Larger congestion cost values cause transport agencies to devote more resources to congestion reduction efforts, which reduces the resources available for addressing other planning objectives.

Lomax states, “We have advocated only two positions: 1) data and performance measures have a role to play in informing transportation professionals, the public and decisions makers, and 2) performance measures should serve the economic, social and policy goals in each jurisdiction.” That is a wonderful statement to which all transport planners and engineers would agree. However, as the [Congestion Costing Critique](#) points out, the UMR does not achieve this claimed goal. Its data and performance indicators evaluate one mode (automobile travel) and one impact (congestion costs); it provide no useful information for evaluating other economic, social or policy goals, and because it lacks a literature review, discussion of possible omissions and biases, and sensitivity analysis, it fails to truly inform transportation professionals, the public and decisions makers about this issue.

I asked the UMR authors to respond to specific criticisms. Table 7 shows these criticisms, Lomax’s responses, and my comments. I believe that this is an interesting and useful way to explore these issues.

Table 7 Point-Counter-Point Dialogue Summary

Original Criticisms	Lomax 2013 Responses	My Comments
Lacks a current literature review and so fails to identify best current congestion evaluation practices.	<i>We have participated in writing much of the relevant literature and developing the analysis techniques through NCHRP and SHRP2 projects. We examine the literature every year; we do not agree with all of Mr. Litman’s interpretations of that literature.</i>	If true, this information should be included in the UMR with a comprehensive literature review which describes other studies, discusses research issues, and puts the UMR into context with current best practices. The UMR and its website lack this information.
Fails to explain its assumptions.	<i>The methodology is posted on the website with assumptions explained.</i>	Website documents describe methods but fail to explain key assumptions, such as the basis for selecting baseline speeds, travel time values, and speed-emission curves. Sources are poorly cited.

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Assumes that <i>transportation</i> means automobile travel. Uses “commuter” when only automobile travel is considered.	<i>It is impossible to read the 2012 report and be unsure as to what data are being used or what modes are included. In many places, the word “commuter” is preceded by “auto”.</i>	Many key statements (pages 3, 5, 6, 11 & 23) use “commuter” or “resident” when actually referring just to auto commuter. This exaggerates congestion costs in cities with lower auto mode share.
Ignores important accessibility factors and impacts, including the quality of non-automobile modes, transport network connectivity and land use proximity.	<i>Our report is about one, but not all, of the important aspects of the problem. These accessibility factors are important to the discussion about specific solutions, as are many other factors.</i>	Alternative modes, connectivity and land use factors affect urban accessibility, and some of the UMR’s recommended strategies reduce other forms of access. The UMR should either be comprehensive or change its title to avoid implying that it evaluates overall urban transport system performance.
Exaggerates congestion costs by using higher baseline speeds and travel time values than most economists recommend.	<i>There is no economist consensus. We detail the assumptions and analysis procedures in the report appendices and other supporting technical memoranda. We will include at least one other speed comparison in the next report, but we will also point out the most relevant fact - the level at which “undesirable congestion” begins varies by a large degree from city to city and state to state.</i>	Recent publications by respected economists clearly recommend capacity-maximizing or efficiency-optimizing baseline speeds, and criticize use of freeflow baseline speeds. The appropriate level of “undesirable congestion” in a particular situation should be based on users’ willingness-to-pay. Freeflow speeds are virtually always higher than users’ willingness-to-pay in large cities.
Fails to consider ways that some congestion reduction strategies can reduce accessibility and increase costs.	<i>We do not examine any solution in detail. We offer estimates of the general level of benefit from public transportation service and improved operations. We also prominently recommend that all mobility improvement strategies should be considered. (See page 17 of the 2012 report).</i>	The UMR certainly does recommend specific solutions including roadway expansion (p. 17 and 20), and fails to acknowledge the negative impacts this can have on other forms of access, and the increased external costs (downstream congestion, parking costs, accidents and pollution emission) caused by induced travel.
Fails to compare congestion with other transport costs. It calls congestion costs “massive,” although they increase travel time and fuel consumption by 2% at most.	<i>We believe total congestion cost in excess of two years worth of FHWA’s funding is “massive”.</i>	FHWA expenditures are an inappropriate reference; consumers and businesses bear congestion so it should be compared with their transport costs. This allows analysis of trade-offs between different costs, such as if a congestion reduction strategy may increase parking costs, vehicle costs, or accident costs, or reduce mobility options for non-drivers.
Exaggerates roadway expansion benefits by ignoring induced travel impacts.	<i>The only references to roadway expansion benefits rely on empirical analyses, which explicitly include induced travel effects.</i>	The UMR ignores the incremental external costs caused by induced travel, although this is a critical issue to consider when evaluating urban roadway expansions.
Exaggerates congestion environmental impacts by using a constantly declining speed-emission curve which assumes that increasing traffic speeds always reduces fuel consumption and pollution emission rates.	<i>We used the EPA’s most recent emissions curve; we look forward to improvements in EPA’s estimation procedure and will use their most current model.</i>	The UMR lacks a specific citation for this curve. Figures 1 and 2 in the Critique show USEPA speed-fuel/emission curves which indicate that fuel consumption and emission rates increase above 55 mph. As a result, the UMR’s estimates of energy conservation and emission reduction impacts are inaccurate.

Original Criticisms	Lomax 2013 Responses	My Comments
Exaggerates future congestion problems by ignoring demographic and economic trends which are reducing motor vehicle traffic growth and increasing demand for alternative modes.	<i>The 2012 UMR uses the recent past as a guide to estimating the near-term future. We describe this process as a “simplified estimation procedure.” We stand by that characterization; we will offer more than one simplified estimate for the 2013 report based on different assumptions.</i>	Numerous popular and technical publications (Metz 2011, The Economist, etc.) describe how demographic and economic trends, new technologies and improved transport options are reducing urban-peak vehicle travel and congestion costs. The UMR’s predictions are almost certainly inaccurate.
Ignores positive trends, including recent declines in congestion, improved technologies and travel options that allow travelers to avoid congestion, and increasing effectiveness of demand management strategies.	<i>None of the urban congestion estimates we’ve seen show lower congestion levels in the future. The “positive trend” ignores the effect of the economic downturn and the commensurate lower employment and retail consumption activity. The UMR has a long history of referring to demand management strategies and an acceptance of congestion as methods that should be used to address congestion problems.</i>	The UMR’s own analysis shows that average hours of delay per automobile commuter declined from 43 in 2005 to 38 in 2011. New technologies and transport options allow travelers to anticipate, avoid and mitigate congestion, and these are likely to increase in the future. These positive trends should be recognized and incorporated into projections of future congestion costs.
Lacks independent peer review.	<i>We are interested in working with anyone who wishes to help us improve the UMR. We benefitted from a TRB-sponsored peer review in 2006, and would be happy to participate in a similar process again.</i>	Independent peer review is critical for accurate and trustworthy analysis and required for most academic research. It could have prevented many of the UMR’s errors and biases. There is no legitimate excuse to forego this quality control step.
Ignores criticism.	<i>It is impossible to look at versions of the UMR over the last few years and conclude that we have not responded to criticism. We have improved the data, analytical options and performance measures. We have not responded in detail to those who post comments on internet sites before they ask us for comment; we assume those comments are not seeking to understand or improve our methods. We will continue to adjust our methods when we find useful ideas.</i>	I see no evidence that the UMR responds to legitimate criticisms of its methods and recommendations. The UMR includes no discussion of criticisms by Goodwin (2003), Transport Canada (TC 2006), Grant-Muller and Laird (2007), Wallis and Lupton (2013), Cortright (2010 and 2011) and myself (Litman 2012). Such discussions are critical to help improve methodologies and help users understand analysis results; the UMR would be a better document if it included transparent discussion of these issues.

This table continues the dialogue concerning UMR methodological problems.

Reference

Todd Litman (2019), *Congestion Costing Critique: Critical Evaluation of the ‘Urban Mobility Report,’* Victoria Transport Policy Institute (www.vtpi.org); at www.vtpi.org/UMR_critique.pdf.

www.vtpi.org/UMR_pcp