



Detailed Comments on MTC's Project Performance Assessment and Project Recommendations

February 17, 2012

As MTC prepares a “preferred scenario” for Plan Bay Area, a Project Performance Assessment (PPA) has been conducted to analyze and compare the performance of projects that were not included as “committed”. While far from perfect, the results of the PPA are an excellent attempt to connect MTC’s 10 RTP targets to specific investments.

This PPA won’t definitively decide what projects are included in the RTP, but does provide critical information as MTC chooses \$70 billion worth of projects from the \$180 billion in projects that were submitted.

TransForm has been active throughout this PPA, including as a member of the technical advisory committee. We have worked with researchers from UC Davis, led by Dr. Deb Neimeier, to better understand the methodology and provide constructive feedback. This report outlines positive aspects of the PPA, some of its shortcomings and our recommendations for including or excluding specific projects from the final preferred scenario

This report, summarized in a February 17, 2012 letter to Commissioners, outlines positive aspects of the process and some of its weaknesses. Based on their project performance assessments and other factors, this report concludes with a list of 15 projects TransForm is recommending for inclusion in the preferred scenario, as well as 3 projects we believe should be excluded.

What worked well in the PPA?

This PPA has shown dramatic improvement over the 2009 RTP assessment (which was the first time MTC tried an assessment of this scale). There were a few key factors that enabled these improvements. MTC staff, in particular, deserve strong praise for a process that:

- Set up a diverse technical group, had a truly open process and made many mid-course improvements.
- Provided monetary valuations for key indicators they had not been valued in 2009, such as reduction in health care costs due to an increase in physical activity, and noise.

- Went into greater depth to ensure the qualitative assessments of projects reflected the RTP goals. Projects based on efficiency measures and most transit projects do very well, as would be expected since many of the goals reflect health, environmental and social benefits.
- Included adverse, not just positive, target impacts.
- Made the information much more accessible, providing both significant detail as well as clear summary sheets.
- Is much more forthcoming with crucial caveats including an explanation of where their model may not be accurate or complete.

In addition, two of the earliest Commission decisions in the RTP process helped the PPA become a more meaningful exercise. First setting ten well-rounded regional goals that became the basis for the qualitative assessment, and then changing the “committed” policy so that more projects were subject to analysis and comparison.

With all of these factors creating more confidence in the PPA results, MTC staff was able to suggest a more significant role for the PPA to actually guide decision-making and greater clarity on how it should be used.

Three key shortcomings

Any analysis based on a travel model, insufficient data and a certain amount of subjectivity will have shortcomings.

Travel demand models, used to estimate future travel patterns, require simplifying assumptions based on data availability and computational constraints. Only parts of MTC’s travel models were run for the PPA because of time and resource constraints.

That is part of the reason your staff has asked you to focus your attention to the “outliers” in the PPA, i.e., projects that either score very high on the Benefit/Cost (B/C) ratio and should thus be included in the RTP, or those that score low on the B/C ratio or the qualitative assessment.

Given the noise in the analysis, this makes some sense. But TransForm believes that there is likely some directionality to the modeling and methodology shortfalls, i.e., they overvalue certain types of projects while undervaluing others. These were important consideration for TransForm as we considered projects to recommend for inclusion or exclusion. We urge MTC, Congestion Management Agencies and other stakeholders to consider the three factors below as the final preferred scenario is developed.

1) The B/C ratio overstates long-term congestion reduction benefits of major highway and suburban transit projects.

MTC staff was able to do a more complete analysis than in 2009, capturing many key components of travel modeling such as trip mode choice, but there were two critical components that they were not able to capture. First, **“tour generation and destinations” did not vary based on the transportation project.** This means that the absence or presence of any given project did not affect the modeled number of trips, their purpose, or their destination. In reality, the availability of significant new transportation facilities will increase accessibility and directly affect travel behavior, especially over the long-term.

Second, land uses are kept static, so do not reflect long-term changes in growth patterns that may accrue over time based on the increased accessibility. Both of these issues are not a significant factor for smaller projects but there are a few large road and transit projects, especially ones that significantly increase capacity between counties or commute-sheds, that may unleash significant changes in both travel behavior and growth patterns that are not reflected in the model outputs.

In other words, as the projects create faster roads through expansion or efficiency measures they will likely lead to more and longer trips, an increase in vehicle miles travelled (VMT) and thus higher vehicle operating and other costs. In the long-term, induced growth would reduce the long-term congestion benefits on that particular segment. If both of these factors were more accurately represented then these major capacity-enhancing projects – especially those in highly congested corridors and/or connecting areas of high potential housing growth – would have lower B/C ratios. It may even dramatically lower some ratios since travel-time savings accounted for approximately 80% of the overall benefits.

Note: it would have been extremely resource and time intensive to overcome both of these shortcomings and TransForm is not suggesting that it should have been done. For example to look at land use changes would have required constructing unique land use scenarios for each major project. MTC staff notes that these two shortcomings are primarily in the PPA, but that the issue is somewhat dealt with in scenario analysis. Our main point here is to note these weaknesses so when you are selecting projects you can assume that large road and transit expansion projects, especially connecting high growth areas, likely deserve lower B/C ratios. The whole reason for the PPA is that the impact of individual projects is too difficult to assess in the larger scenario process.

2) The B/C ratio may understate the land use benefits of transit projects that serve core areas.

Transit expansion projects, especially those that serve already walkable communities and are linked to supportive land use policies, can be expected to encourage more intensive development near station areas. Since land use is kept static in the model, the implementation of a given project has no influence on land use intensification near stations. The ridership benefit of such intensification would be most pronounced for two types of projects. The first type is where transit is given a dedicated lane and able to avoid any growth in congestion – including Bus Rapid Transit or Commuter Rail – rather than just transit efficiency or frequency improvements. The second type is with infill transit stations, such as the proposed Fairfield/Vacaville station. In many cases the main benefits of these stations are the planned transit villages that would be built nearby, which could shorten many trips (not just those new commute trips taken by transit) by creating more mixed-use, walkable compact centers. Since there is no change in the land uses between scenarios the benefits of these stations is generally undervalued.

3) The sensitivity analysis that reduces the value of vehicle and truck travel time savings should be used as the primary B/C ratio for many projects.

Reducing vehicle and truck travel times is not a stated RTP target or goal. Yet for most of the assessed projects more than half of the monetized benefits were from reductions in vehicle travel time or delay. Ironically, many of these projects may lead to long-term vehicle miles travelled increases – and VMT growth goes against a host of targets such as climate protection, safe communities, etc.

And as mentioned above, the initial faster vehicle speeds that result from some large road or transit expansions leads to new induced demand and induced growth over the long-term, thus diminishing travel time benefits in a way that is not captured in the model.

MTC staff, acknowledging these concerns, ran sensitivity analyses that decreased the value of travel time saving by 30% and 50%. We feel these scenarios better reflect the true value of these transportation projects. It should be noted that many of the transit projects TransForm supports, including Bus Rapid Transit projects, were negatively impacted by the 50% scenario.

While there are dozens of other fine points that affect the assessment, the net result of the three main points raised here is that highway projects, on the whole, end up scoring much higher on the b/c ratio than most other projects in part because of overstated vehicle travel time benefits.

TransForm Project Recommendations

Based on the PPA, we want to draw your attention to three projects that should be excluded from the 2013 RTP, and a host of “slam dunk” projects that we feel should definitely be included. This list does not reflect all of TransForm’s recommendations for the RTP. Some other projects, such as the Express Lane Network, require more discussion and nuance than was reflected in the PPA and is possible in this report.

TransForm also supports many of MTC’s regional programs such as Lifeline, Transportation Climate Action Program, Transportation for Livable Communities, etc. They are not indicated below since the travel model, and therefore the PPA, was really not able to give a robust assessment of their B/C ratios. Rather, these recommendations focus on projects that we feel strongly should be included or excluded with a particular focus on projects that may have been over- or under-valued in the PPA.

1) Exclude: SR 239 Expressway Construction (Brentwood to Tracy)

This project to connect Brentwood to Tracy with a 4-lane expressway is a perfect storm of what can go wrong with the model and methodology. The project is being touted as a way from keeping Eastern Contra Costa County, which is receiving tremendous investment already in the form of E-BART and SR-4 expansions, from being a “cul-de-sac” by connecting the area to Tracy and San Joaquin County. It is also touted as creating more economic development potential and jobs in Antioch and Brentwood. In other words, this new expressway is being built to dramatically increase, over time, in-commuting from San Joaquin County.

This road would undoubtedly lead to additional in-commuter based growth in Mountain House, Tracy, and beyond. As noted above, the model doesn’t account for these potentially powerful land use changes in the long-term. But even in the shorter term, according to MTC staff “because the land uses outside of the 9-county Bay Area are not explicitly represented, the

model does not fully understand the likely impact of projects located near the boundaries of the planning region.”

This project scores a negative 3.5 on the overall targets score. Yet it received a strong B/C ratio of 7 with annual total benefits of \$143.8 million. This high B/C ratio plummets if auto and truck travel time savings, which are likely greatly exaggerated in the long-term, are taken out. Without auto and truck travel savings the total annual benefits decrease by 99% to \$1.6 million and the B/C ratio would be a fraction of about 0.1. Even in the 50% reduction scenario it drops from a ratio of 7 to 3.

In Contra Costa County’s materials about the project they discuss how the project could “stimulate job development in Eastern Contra Costa County to alleviate the severe job/housing imbalance.” Yet the primary purported benefit of jobs/housing balance is to create a situation where local residents will find local jobs to reduce the need for, and impact of, long-distance commuting. Yet a basic premise of the need for the expressway is that it opens up east county jobs to the huge labor pool of San Joaquin County. It quite possible that that the overall impact on overall commute distances is to increase them, not decrease them, and to strengthen the cycle of exporting housing to the Central Valley.

Since the planning for SR 239 is taking place through 2013, and it would then require project approvals and environmental review through at least 2015, it seems premature to include SR 239 in the 2013 RTP. TransForm will participate constructively in the EIR process and believes the project should be revisited in the 2017 RTP, when more is known about the potential impacts, both positive and negative, of the project.

- 2) Exclude: BART to Livermore (Phase 1: 1 station extension with Bus Enhancements)**
- 3) Support: I-580 Express Bus (Dublin to Livermore)**

BART to Livermore Phase 1 to Isabel Ave. barely escaped the greater scrutiny of a low B/C ratio – the ratio is actually about 0.95 but was rounded up to 1. Even then its benefits are probably overstated – in the second most congested corridor, and one connecting to the high-growth San Joaquin County – it has all the characteristics of a project that will lose many of its long-term benefits as it induces longer commutes and additional car commuters replace those that shift to BART. If the project is successful from a new rider perspective, for example, about 2/3 of those riders would be coming from San Joaquin County, meaning it would likely be growth-inducing in the long-term.

Finally, on February 9, 2012, the BART Board of Directors passed a resolution to study a wide range of alternatives in this corridor and “to seek external funding sources to advance the project with no impact on funding for essential BART capital needs.” With a price tag of up to \$1.4 billion in escalated dollars to move the BART terminus just five miles down the highway median it certainly will have almost no chance at federal New Starts funding (given its highway-median location will constrain its development potential within ½ mile of the station). It is hard to see where funding for this project would come from.

To better serve Livermore in this RTP, the PPA's most cost-effective project connecting BART to Livermore was the I-580 Express Bus. While all of these options will soon be studied by BART, express bus with direct connectors from the I-580 HOV/HOT lanes that are under construction could, if found to be the preferred alternative, reasonably have construction begin during this RTP period as funding would already be in place from Regional Measure 2.

4) Exclude: Marin-Sonoma Narrows (Phase 2: HOV Lanes)

5) Support: SMART (Phase 2: Extensions to Cloverdale & Larkspur)

This expansion of US 101 barely escaped scrutiny by scoring a 1.0 on the B/C ratio. But this project would certainly induce additional trips in the short and mid-term that were not picked up in the model. It would also induce more auto commuter-based growth in the long-term that would reduce travel time benefits and the B/C ratio considerably.

TransForm supports, instead, funding to upgrade of the Narrows to a freeway, correct operational deficiencies that now pose serious safety problems, and build queue jump access for buses and carpools from both the North and South entrances to the Narrows. In addition SMART Phase 2 (both the extension north to Cloverdale and South to Larkspur) should be included in the RTP. Even though these projects scored a combined 0.7 on the B/C ratio, we believe it would score higher if the land use changes were able to be modeled. A SMART system that did not end at Larkspur would be less useful and see much lower ridership.

Finally, it needs to be noted that there are likely some real travel time disbenefits (and real commuter inconveniences) that are not picked up by the model. If the Narrows is expanded to three lanes, and those lanes eventually are at capacity, then the project will be moving 2,000 more vehicles onto Marin's portion of US 101 during the morning commute, essentially just leaving one lane for Marin commuters in the northern part of the county. The reverse will be true in the afternoon peak, when the nearly 6,000 cars that would be heading north through the Narrows represents the same 3-lane ultimate capacity of US 101 through all of Sonoma. In other words, local, in-county commuters will suffer as this project encourages yet more long-distance inter-county commutes.

6) Support: BART Metro Program.

This project had the highest B/C ratio in the PPA (scoring >60) and was essentially off the charts since it has a "negative" annual cost of \$10 million per year. It has the potential for annual operational savings by providing new turnbacks so trains can more quickly head back to the East Bay and by providing express service. This program should be a top priority for inclusion in the RTP.

7) Support: Fairfield/Vacaville Capital Corridor Station

8) Support: Union City Commuter Rail Station (Amtrak and potentially Dumbarton)

Because the model held land use constant, with or without these stations, it undervalues the likelihood for greater Transit-Oriented Development in the event these stations are built. Large scale TOD is already underway in Union City and would get a boost from also having an Amtrak

station (and setting up the potential for a Dumbarton Station.) Fairfield has plans for a more compact walkable community near their station in their latest General Plan, but that is not reflected in the older land use scenario used for this analysis. According to MTC staff the Fairfield General Plan land uses “could significantly increase ridership and the corresponding B/C ratio”.

9) Support: Innovative San Francisco projects with very high B/C ratios

- a. Treasure Island Congestion Pricing**
- b. SFMTA Transit Effectiveness Project**
- c. Better Market Street**

San Francisco is a critical center of the Bay Area’s economy and public transportation network. As the city takes on more growth as part of the Sustainable Communities Strategy, with no ability to add space to its road network and tremendous shortfalls just to maintain its existing public transit system, it must get extraordinarily innovative. All three of these projects reflect different forms of innovation that will greatly increase transit ridership by giving transit more physical space and pricing incentives. All of these score as high performing projects but have not been in previous RTPs and are not fully funded.

10) Support: Cost-effective Bus Rapid Transit projects

Bus Rapid Transit, especially projects that would have dedicated lanes for part or all of their route, will greatly increase transit speed and reliability for existing riders, while attracting a host of new riders to our region’s bus system. In some areas, in particular along El Camino and International Blvd in Oakland, BRT will also form an important part of the infrastructure for revitalized and more walkable communities.

a. VTA and Samtrans El Camino BRT

These projects have a B/C ratio of 2.0, but that is likely undervalued as BRT may be a catalyst for more compact, walkable communities near the stations.

b. Geary and Van Ness BRT (San Francisco)

Van Ness BRT is considered a high-performing project, but Geary BRT will create a vastly improved east-west connection for the 50,000 plus existing riders, while attracting new riders. This project is essential as San Francisco’s streets, and therefore Muni, continue to slow down causing a massive strain on Muni and much higher operating costs.

c. AC Transit: East Bay BRT (Oakland and San Leandro), Alameda- Oakland BRT, Grand-MacArthur BRT

East Bay BRT is particularly urgent to include as the project is in line for small starts funding. This project just missed the cutoff for high performing projects with a B/C ratio of 5 and a target score of 5.5. Since there is an award-winning community based land

use plan for East Oakland that has significant housing and intensification plan, but this land use change was not reflected in the model, it should really be considered as a high-performer.

TransForm again wishes to thank MTC for conducting this groundbreaking assessment. The precedent is incredibly important and may lead to smarter decision-making here in the Bay Area, and ultimately other regions that are already expressing interest in conducting similar assessments. The timing couldn't be better as we face tremendous funding shortfalls and will need to invest transportation funds more strategically than ever.

Transportation is about much more than moving people, cars and buses around as quickly as possible. It helps shape the way our cities and regions grow, it determines what jobs we can get to, especially if you don't have access to a car, it can create much healthier environments if done right, and it's the largest source of greenhouse gas emissions in CA (38% of emissions). This PPA is a way to help answer which of the hundreds of projects MTC must choose between get us further from these goals, and which can help meet MTC's 10 important RTP targets.

For More information please contact Stuart Cohen, TransForm Executive Director and member of the Project Performance Assessment Technical Advisory Committee or Jeff Hobson, TransForm Deputy Director.

Additional information available at www.TransFormCA.org