Memorandum

To: TPB Long-Range Plan Task Force

From: ICF Team and TPB staff

Date: September 14, 2017

Re: Proposed Measures of Effectiveness for Long-Range Plan Task Force Study

---

The Resolution Establishing the Mission and Tasks for Phase II of the Long-Range Plan Task Force (R16-2017, as amended May 17, 2017) charges the task force and staff "to develop measurable goals and performance metrics considering the best practices in long range transportation plans - including in the areas of performance measures, project evaluation and selection, and scenario analysis." In analyzing the ten initiatives selected by the task force, a set of performance measures – or measures of effectiveness (MOEs) – will assess whether the initiatives make "significantly better progress towards achieving the goals laid out in TPB and COG's governing documents" compared to the CLRP. The MOEs will also serve as a basis for the task force to "develop a process by which the TPB will later endorse a final selection from among these for future concerted TPB action."

Preceding the recommended MOEs, this memo presents the desired MOE characteristics, the task force's regional goals and challenges for which the MOEs will measure progress, and an overview of some relevant best practices in performance measures. The recommended MOEs are then shown as rows in a table with the task force challenges as column headings; checkmarks indicate which challenge(s) each MOE helps to measure. The ICF Team/TPB staff seek the task force's feedback on the MOEs.

Desired MOE Characteristics

The recommendations for MOEs provided here were developed based on several desired outcomes:

1. The MOEs should address the regional goals and challenges that the task force hopes these initiatives will address, which articulate the specifics of the task force's dissatisfaction with the anticipated long-term performance of the transportation system in the CLRP.
2. The same MOEs will be reported for each initiative and will be reported at the regional level, and no MOEs will be reported at a jurisdictional or sub-regional level.
3. The MOEs should reflect best practices in measuring what matters to the public and transportation system performance outcomes.
4. The number of MOEs should be manageable (ideally no more than about 12-16) to facilitate comparisons and clearly communicate the most important issues to the region. The number of MOEs currently shown may be more than is appropriate for final reporting, and the ICF team seeks the task force's input on whether to prioritize or eliminate any.

5. For some MOEs, it may be more meaningful to present the final results as a percentage change from the CLRP rather than reporting raw numbers.
6. Finally, the MOEs must be assessable within the context of the rapid sketch planning-level analysis being conducted. Quantifiable measures that would take significant time to develop or calculate cannot be used in the context of this study timeframe, and qualitative ratings will be used where quantified figures cannot be developed.

Regional Goals and Challenges

Here, we highlight the Long-Range Plan Task Force goals and challenges as the "policy framework" for this work. Ultimately, the MOEs should assess how well the initiatives address these issues, and the task force specifically charged the study team to develop MOEs that address the challenges.

Goals for Long-Range Plan Task Force Activities

- Provide a comprehensive range of transportation options to promote a strong regional economy and address regional congestion, accessibility, and mobility.
- Provide reasonable access at reasonable cost to everyone.
- Develop and maintain an interconnected system, including a healthy regional core and dynamic activity centers with a mix of jobs, housing and services in a walkable environment.
- Prioritize state of good repair: Give priority to asset management, performance, maintenance and safety of all modes and facilities.
- Use the best available technology to maximize system effectiveness.
- Plan and develop a system that enhances and protects natural environmental quality, cultural and historic resources and communities.
- Achieve better inter-jurisdictional coordination of transportation and land use planning.
- Achieve enhanced funding for regional and local priorities that cannot be met with current/forecast funding sources.
- Support inter-regional and international travel and commerce.

Challenges Long-Range Plan Task Force Seeks to Address

- **Roadway Congestion**
  The region's roadways are among the most congested in the nation, making it harder for people and goods to reliably get where they need to go.
- **Transit Crowding**
  The transit system currently experiences crowding during peak hours and lacks the capacity to support future population and job growth without reducing ridership.
- **Inadequate Bus Service**
  Existing bus service is too limited in its capacity, coverage, frequency, and reliability, making transit a less viable option, especially for people with disabilities and limited incomes.
- **Unsafe Walking and Biking**
  Too few people have access to safe pedestrian and bicycle infrastructure or live in areas where walking and bicycling are not practical options for reaching nearby destinations.
- **Development Around Metrorail**
  Too many Metrorail stations, especially on the eastern side of the region, are surrounded by undeveloped or underdeveloped land, limiting the number of people who can live or work close to transit and leaving unused capacity in reverse-commute directions on several lines.

- **Housing and Job Location**
  Most housing, especially affordable housing, and many of the region's jobs are located in areas outside of Activity Centers where transit, bicycling, and walking are not safe and viable options.
- **Metrorail Repair Needs**
  Deferred Metrorail maintenance over the years has led to unreliability, delays, and safety concerns today, as well as higher maintenance costs.
- **Roadway Repair Needs**
  Older bridges and roads are deteriorating and in need of major rehabilitation to ensure safe, reliable, and comfortable travel for cars, trucks, and buses.
- **Incidents and Safety**
  Major accidents and weather disruptions on roadways and transit systems cause severe delays and inconvenience. Reducing injuries and fatalities for all users of the transportation system must be prioritized, with particular focus on protecting vulnerable users.
- **Pedestrian and Bicyclist Safety**
  The number of bicycle and pedestrian fatalities each year is holding steady even as the number of vehicle fatalities has declined steadily.
- **Environmental Quality**
  Increasing amounts of vehicle travel resulting from population and job growth could threaten the quality of our region's air and water.
- **Open Space Development**
  Wildlife habitat, farmland, and other open spaces are threatened by construction of new transportation facilities and residential and commercial development.
- **Bottlenecks**
  Bottlenecks on the highway and rail systems cause delays in interregional travel for both freight and passengers, hurting the region's economic competitiveness.
- **Travel Time Reliability**
  Travel times to and from the region's airports are becoming less reliable for people and goods movement.

Best Practices in Regional Performance Measures

While the region's performance measures should relate directly to regional goals and challenges, it is important to consider best practices of how other metropolitan regions measure the effectiveness of their long-range transportation plans. Beyond the new federally-required performance measures, a number of MPOs around the country have developed performance measures to assess issues of regional importance. Some MPOs with strong performance reporting and innovative measures include the Metropolitan Transportation Commission (MTC) in the San Francisco area; the Puget Sound Regional Council (PSRC) in the Seattle area; Oregon's Portland Metro; the San Diego Association of Governments (SANDAG); and the Atlanta Regional Commission (ARC). Some observations are highlighted below:

- Rather than using traditional traffic congestion measures, which focus on vehicle delay and roadway level of performance (often leading to a focus on roadway capacity solutions), MPOs are increasingly seeking alternatives for assessing traffic congestion from the perspective of the traveler rather than the vehicle (e.g., person-based measures, rather than vehicle-based measures). Person-based measures better capture the benefits of strategies such as bus rapid transit, transit signal priority, and high-occupancy vehicle (HOV) strategies, which can help move more people in fewer vehicles. Some regions have presented person-delay per capita to better demonstrate the impact per person when exploring trends over time, particularly in fast growing regions. Due to limitations associated

with the sketch planning framework and modeling being used for this study (particularly limitations in the ability to estimate changes in delay on transit across the different initiatives), the team believes it will not be possible to develop a measure of person-delay for this study. Rather than simply falling back on the traditional measure of vehicle hours of delay, we have proposed several other alternative measures that are complementary and address traveler choices and characteristics experienced by travelers. For instance, "average travel time" for auto and transit trips is proposed as a measure of experienced congestion, reflecting not only changes in the speed of travel but also the potential for reducing average trip lengths.

- MPOs are increasingly interested in measuring reliability as a key congestion performance measure, recognizing that the public and freight shippers place significant importance on having consistent, or reliable, travel times. Variability in travel times can be very frustrating to travelers and require them to plan for significantly more time than the average trip will take due to this variability. Reliability is challenging to assess in the context of forecasting future performance, so some areas have used simplified measures (e.g., the Atlanta region uses "number of reliable trips in PM peak period" calculated based on the number of person trips using more reliable modes such as express lanes and transit rail). We have proposed to use a measure of the share of trips on reliable modes, reflecting trips on facilities with express lanes, Metrorail, commuter rail, and bus rapid transit (BRT)/transitway services, which should provide consistent, reliable travel times, when operating under a state of good repair.
- Accessibility (e.g., addressing the number of destinations accessible within a certain travel time) and connectivity measures, as well as measures showing coverage of sidewalks, are also an increasing focus. We have proposed several measures that address accessibility and access to travel choices.

Performance measures used for tracking current system performance may be different than the measures available to forecast future performance, given limitations in forecasting methods.

Recommended MOEs

The recommended MOEs reflect regional goals and challenges, as well as best practices. They also are limited based on the sketch planning framework of this Long-Range Plan Task Force analysis. Consequently, in addition to a limited set of quantitative measures, we are anticipating including several qualitative measures (e.g., high, medium, or low impact). The table below summarizes these recommended MOEs in relation to the regional challenges identified by the task force.

Recommended Measures of Effectiveness

Measures x Challenges	Roadway Congestion	Transit Crowding	Inadequate Bus Service	Unsafe Walking and Biking	Development at Metrorail	Housing and Job Location	Metrorail Repair Needs	Roadway Repair Needs	Incidents and Safety	Ped and Bike Safety	Environmental Quality	Open Space Development	Bottlenecks	Travel Reliability to Airports
Travel Time: average travel time per trip for each mode	✓		✓										✓	
Traditional Congestion: vehicle hours of delay	✓										✓		✓	
Accessibility by Transit: % change in # of jobs accessible within 45 min transit commute	✓	✓	✓		✓	✓							✓	
Accessibility by Auto: % change in # of jobs accessible within 45 min car commute	✓					✓							✓	
Mode Share: non-SOV, transit	✓	✓	✓	✓										
Reliable Trips: share of trips on reliable modes (e.g., express lanes, BRT, etc.)	✓		✓										✓	✓
VMT and VMT per capita	✓					✓			✓		✓			
Rail Transit Crowding: % of person miles on rail transit in crowded conditions		✓											✓	
Transit Options for Households: share of households in high-quality transit zones			✓		✓	✓						✓		
Transit Options for Employment: share of jobs in high-quality transit zones			✓		✓	✓						✓		
Airport Access: Average best travel time (using best available option; e.g., transit, express lanes) to regional airports (from households and jobs)					✓								✓	✓
Emissions: Report separately on VOC, NOx, and CO_2											✓			
Qualitative Assessments (derived from quantitative MOEs, other assessments)				✓			✓	✓	✓	✓	✓	✓		✓