

Commuter Connections TERM Analysis July 2011-June 2014 (FYs 2012-2014) Evaluation Framework Update Summary

Review of FYs 2009-2011 Framework and Proposed New Elements for FYs 2012-2014

September 13, 2012

What is the “Evaluation Framework?”

- The TERM Evaluation Framework is both a method and a report:
 - Methodology to be used to evaluate TERM results
 - Report documenting the evaluation methodology and how evaluation data will be used / reported
- Framework is updated for each triennial evaluation cycle – last update was in 2009 for 2008-2011 evaluation
- Framework components:
 - Goals, performance indicators, data collection tools, and analysis approach for assessing TERM impacts
 - Key enhancements and changes to TERM evaluation process from last framework
 - Anticipated TERM evaluation issues and opportunities

Proposed Framework Document Outline

1. Overview
2. Evaluation objectives and issues
3. Performance measures
4. Evaluation components for each TERM
5. Data collection sources and tools
6. Basic method for calculating program impacts
7. Reporting and communicating evaluation results
8. Evaluation schedule and responsibilities

Evaluation Objectives

- Measure impacts of the TERMS implemented by Commuter Connections, using meaningful performance measures
- Communicate TERM performance information to stakeholders:
 - Regional policy makers (Contributions to regional transportation goals)
 - Program funders (Effectiveness and cost-effectiveness of investment)
 - Commuter Connections staff and local program partners (Program effectiveness and enhancement opportunities)
 - Employers, commuters, and other travelers (Organizational, personal, societal benefits)

Evaluation Principles / Issues

Results are useful to decision-making and management

- Measure performance on indicators that are related to regional goals for transportation and TERMS
- Use common, quantitative performance measures to facilitate comparisons among TERM and between TERMS and other strategies
- Facilitate ongoing activity reporting and estimate of benefits for day-to-day program management
- Track both continued (baseline) impacts and new impacts during the analysis period

Methodological efficiency and reliability

- Report only impacts that are directly associated with TERMS and that can reasonably be measured
- Avoid double-counting benefits by addressing service overlap
- Follow accepted and recognized evaluation techniques that are compatible with regional, state, and national practices
- Be resource efficient and unobtrusive for COG partners
- Use locally-collected data that reflect actual travel experience

TERMs to be Evaluated – 2011-2014

1. Telework (Maryland)
2. Guaranteed Ride Home
3. Employer Outreach (including EO-Bicycling)
4. Mass Marketing

Also, Commuter Operations Center (Basic Services and Software Upgrades)

Performance Measures

Performance measures must be “meaningful” for TERM decision-making.

Awareness – mode options, programs / services

Attitudes – travel, mode options

Program participation – use of Commuter Connections services, desired improvements

Satisfaction – satisfaction with services

Impacts of service use:

- Utilization / travel change – New “placements” in alternative modes
- Travel impacts – Vehicle trips reduced and VMT reduced
- Environmental impacts – Emissions and energy reduced
- Cost impacts – Consumer cost saving, cost-effectiveness of programs

Proposed Data Collection and Analysis Tools

Data collection tools and tracking systems to collect data for 2008-2011 evaluation:

- **Surveys** (*TERMs evaluated*)
 - Employee surveys administered by employers (*Employer Outreach*)
 - State of the Commute survey (*Telework, Mass Marketing*)
 - Guaranteed Ride Home survey (*GRH*)
 - Telework employer follow-up survey (*Telework, Employer Outreach*)
 - CC applicant Placement Rate survey (*Commuter Operations Center, Software Upgrades*)
 - Bike-to-Work Day survey (*Mass Marketing*)
- **Databases/other tracking data** (*TERMs evaluated*)
 - ACT! Employer Contact database (*Employer Outreach*)
 - Telework Assistance database (*Telework*)
 - Online service users database (*Commuter Operations Center*)
 - Online GRH registrant database (*GRH*)
 - Commuter Operations Center website and call volume tracking (*Mass Marketing*)
 - Documentation of media / marketing activities (*Mass Marketing*)
 - Event participation tracking (*Mass Marketing*)
- **Analysis tools**
 - EPA COMMUTER model v2.0 (*Employer Outreach*)

Basic Impact Calculation Methodology Steps

Consistent for all TERMS (except Employer Outreach). The methodology starts with a “population of interest,” population of commuters who potentially were influenced by the TERM, and applies calculation factors derived from surveys of a sample of the population to estimate travel shifts among the full population and the impacts of the change.

The five calculation factors are:

- 1) **Placement rate** (percent of commuters in the population of interest who shifted to alternative modes as a result of the TERM)
- 2) **Vehicle trip reduction** (VTR) factor (average number of vehicle trips reduced per day by each “placement” - commuter who shifts to a commute alternative)
- 3) **Commute distance** – Average one-way commute trip distance of placements
- 4) **Drive alone access** – Percentage of carpoolers/vanpoolers and transit users that drive alone to the location where they meet their carpool, vanpool, bus, or train
- 5) **Drive alone access distance** – Distance commuters travel to carpool/vanpool/transit meeting points

Impacts are calculated by applying the factors within the following methodology steps.

- Step 1) **Define population** – Estimate commuter population “base” for the TERM (e.g., all commuters, GRH applicants, online service users, etc.)
- Step 2) **Estimate new commute alternative placements** – Multiply number of commuters in the population of interest by the placement rate for that population
- Step 3) **Estimate vehicle trips reduced** – Multiply number of placements by the Vehicle Trip Reduction (VTR) factor for that TERM
- Step 4) **Estimate VMT reduced** – Multiply number of vehicle trips reduced by average commute distance
- Step 5) **Adjust vehicle trips and VMT for access mode** – Discount vehicle trips reduced and VMT reduced to account for commuters who drive alone to meet rideshare modes and transit
- Step 6) **Estimate emissions reduced** – Multiply adjusted vehicle trips and VMT reduced by emissions factors consistent with the regional planning process to estimate NO_x, VOC, PM_{2.5}, and GHG emissions reduced.

Proposed Framework Enhancements – 2011-2014

Continue the basic methodology outlined above, but integrate enhancements to the method and to specific TERMS:

Method / Tool Updates to Reflect 2011 TERM Analysis

1. Update Framework to reflect TERM changes and methods applied in 2011 TERM analysis
2. Update description of State of Commute survey methodology to include cell-phone only households in survey sample.
3. Refine the methodology for the GRH and Commuter Connections Applicant Placement surveys to document used of combined telephone and Internet administration.

Measurement and Communications Enhancements

4. Apply life-cycle assessment to mode shifts to capture full duration of benefits for TERM impacts – e.g., do benefits extend beyond the three-year evaluation period?
5. Expand range of benefits of Commuter Connections programs to encompass comprehensive TDM results beyond mode split, VMT, emissions.
6. Document TERM impacts on transportation system performance to help Commuter Connections better position itself in regional performance-based planning
7. Quantify benefits of Commuter Connections programs in business terms to encourage greater involvement of employers in commute programs.
8. Develop enhanced tools to report and communicate TERM results and other Commuter Connections' program benefits to regional and local decision-makers.

Method / Tool Updates to Reflect 2011 TERM Analysis

1. Update Framework to reflect TERM changes and methods applied in 2011 TERM analysis

Background – Since the 2008-2011 Framework was prepared, Commuter Connections has made a few changes to the TERMS covered by the evaluation. Additionally, the methodology described in the framework was refined for several TERMS during the 2011 evaluation.

Recommendation – Update framework as described below:

- All TERMS – Update trip, VMT, and emissions reduction goals to be consistent with COG Conformity Tracking Sheet.
- Maryland and Virginia Telework – Delete references to the Virginia component, which ended on June 30, 2009. Impacts will be calculated only for availability of service in Maryland.
- Guaranteed Ride Home – No changes since 2008-2011 methodology
- Employer Outreach
 - Continue basic methodology (continued programs, new programs).
 - Check COMMUTER Model coefficients against coefficients in COG regional travel model and adjust if needed to ensure consistency.
 - Confirm program elements that constitute a Level 3 program – ensure that employers included in the calculation meet the required Level 3 / Level 4 test for the TERM.
- Mass Marketing – Add methodology for ‘Pool Reward and Car-Free Day. Define data needed to assess impacts for other special events that might be implemented.
- Commuter Operations Center – Add methodology to calculate impacts from use of bicycle / walking information and bulletin boards in online information system.

2. Update description of State of Commute survey methodology to include cell-phone only households in survey sample.

Background – One issue that has become extremely important in telephone surveys is how to reach residents whose only telephone is a cell phone. The past four SOC surveys (2001, 2004, 2007, and 2010) sampled from respondents who had a landline telephone. By definition, this excludes “cell phone only” (CPO) households. In 2008, the COG Household Travel Survey analysis found that about 10% of households in the Washington region were “cell phone only” (CPO) households. But the incidence of CPO households has ballooned since that time to an estimate as high as 30% region-wide and even higher in some jurisdictions. Due to the high prevalence of CPO households, combined with data that suggest the commute patterns of CPO households could be different from those with landline phones, the methodology for the 2013 SOC survey will include a sizable share from a cell phone set.

Recommendation – Approximately 20% of the 2013 SOC survey interviews will be conducted with cell phone users. This will require several changes in the sampling, survey interview, and sample weighting methodologies for the survey. The 2012 Framework will be updated to describe these changes from the 2010 SOC methodology.

3. Refine the methodology for the GRH and Commuter Connections Applicant Placement surveys to document use of combined telephone and Internet administration.

Background – In 2008, Commuter Connections transitioned to an online ridematching and GRH system that facilitates the use of the internet for some data collection. Additionally, a sizeable majority of Commuter Connections service users now provided email contact information that can be used to invite them to participate in evaluation surveys.

Both the 2010 GRH and the 2011 Placement surveys used combination data collection methods that included both email and postal mail alert letters to potential respondents and Internet and telephone survey interviews.

Recommendation – The 2013 GRH survey and the 2014 Placement survey both will be conducted using a combination of Internet and telephone methods for interviewing, with the Internet survey programmed and hosted by COG’s online database vendor and the telephone survey administered by the evaluation consultants. The evaluation consultant will compile the combined data and perform the evaluation analysis. The 2012 Framework will be updated with more complete descriptions of the sampling methodologies for these two surveys.

Measurement and Communications Enhancements

4. Apply life-cycle assessment to mode shifts to capture full duration of benefits for TERM impacts – e.g., do benefits extend beyond the three-year triennial cycle?

Background – In previous TERM evaluations, mode shifts motivated by TERMS were assumed to extend through the three-year cycle, that is, a commuter who made a mode shift in the first month of the cycle was assumed to be still using the mode in the last month. But impacts were not assumed to be longer than three-years, so were not carried over to the next evaluation cycle. If mode shifts do extend beyond three years, additional impacts could be retained one three-year evaluation cycle to the next.

Recommendation – Two approaches could be used for this issue.

As a first review, examine national research on average duration of “assisted” rideshare arrangements from similar services and apply duration factors as appropriate. Two studies, one in Virginia (Virginia Highway & Transportation Research Council in 1985) and a second in the San Francisco Bay area (Rides for Bay Area Commuters, 1994), addressed this question. The first study outlined a methodology for determining carpool and vanpool average life bases to help evaluate Virginia’s ridesharing programs. The RIDES study examined the duration of rideshare arrangements among ride-match applicants through quarterly calls to a sample of applicants to determine if they continued carpooling. A review of literature might identify other, more recent results that could be applied to the Commuter Operations Center calculation.

A second approach could be to establish a panel of TERM users who made a shift to a non-SOV mode and are willing to be recontacted periodically about their travel over time to assess the drop-out or change rate of their alternative mode experience. This could be accomplished through a brief email survey about mode use to users. The major concern with this method is how to reduce panel attrition. To do so would necessitate maintaining contact with respondents between waves, devel-

oping a protocol for tracking respondents who relocate, giving respondents incentives in advance of their participation to keep engaged, and dropping only steadfast refusals from the panel. Technology also might facilitate the collection of data for extended periods at minimum respondent burden.

5. Expand range of benefits of Commuter Connections programs to encompass comprehensive TDM results beyond mode split, VMT, emissions.

Background – Since 1997, TERMS’ impacts have focused on travel and emission reduction. Now, sustainability, climate change, mobility, health/safety, and livability are joining congestion and air quality as forces shaping the region’s transportation policies. Commuter Connections could be proactive in collecting and reporting data on the broader contributions TERMS can make to regional social objectives and demonstrate the full value of Commuter Connections programs to the community. Such justification is a common expectation for other transportation investments, thus could elevate Commuter Connections role in the transportation system.

Recommendation – Define possible new TERM benefits that relate to broader regional objectives. Identify data collection needs and methods to analyze data on the measures. Begin to collect data through SOC and user surveys. Also utilize existing tools, such as the Trip Reduction Impacts of Mobility Management Strategies (TRIMMS) model methods to estimate economic impacts from VMT. The procedures are well-documented. EPA recently used the TRIMMS model for an analysis of how travel efficiency affects greenhouse gases. FHWA also has recommended TRIMMS as a desk reference evaluation application for practitioners.

(Sources: EPA: Potential Changes in Emissions Due to Improvements in Travel Efficiency. Environmental Protection Agency. March 2011. <http://www.epa.gov/oms/stateresources/policy/420r11003.pdf>
FHWA: <http://www.fhwa.dot.gov/resourcecenter/teams/planning/lut.cfm>)

6. Document TERM impacts on transportation system performance to help Commuter Connections better position itself in regional performance-based planning

Background – Transportation decision-making and investment is increasingly focused on system performance – travel speed, volume, congestion, delay, and travel time reliability – measures that require an understanding of the temporary and spatial distribution of travel. The current TERM analysis evaluates Commuter Connections’ impacts only at a regional / aggregate level; it does not estimate where and when reductions in vehicle trips and vehicle miles of travel due to Commuter Connections and its partners are occurring.

Commuter Connections could better document the congestion-reduction benefits of its programs by estimating where and when travel impacts are occurring and expressing the impact in terms related to congestion levels, such as reduction in delay and increase in travel time reliability. This would require measuring or estimating the spatial and temporal distribute of trip and VMT reduction, to assess impacts on a given facility or corridor.

Recommendation – Develop a methodology to convert VMT reduction into delay improvements. What data would be needed and are any methods currently available for sketch planning application? If, as appears likely, this analysis would require that Commuter Connections collect and analyze data to pinpoint the location of TERM trip and VMT reductions, the following elements would need to be addressed:

- Geographic subsets for analysis (corridor, activity center, state, etc.)
- Calculation and/or modeled approaches to define travel locations
- New data elements that will be required to identify travel paths of program users who shift travel modes (e.g., O-D pairs, travel routes)
- Data sources, data collection methods (e.g., surveys, mobile applications) to collect location data
- Method to assign credit/impacts when trips cross analysis area boundaries
- Method to report impacts by location - how can the results best be reported to decision-makers, planners and engineers to assess buy-in?

7. Quantify benefits of Commuter Connections programs in business terms to encourage greater involvement of employers in commute programs.

Background – A large component of the overall TERM impacts is generated by the Employer Outreach program, thus employers' willingness to engage in TDM activities is a fundamental element of the success of the overall program. Employers will be most likely to engage in commuter programs if they perceive a tangible organizational benefit (e.g., reductions in office space and parking, reductions in payroll taxes from commute benefits, receiving LEED certification, recognition from Best Workplaces for Commuters). Some empirical evidence exists for a limited number of TDM services (e.g., telework productivity), but documentation is limited for other modes (e.g., carpool promotion) and TDM services. A systematic method that collects data to document the role of TERM and employer actions in use of alternative modes and commuters' attitudes could help quantify benefits that accrue to employers. This information could help outreach staff to more effectively market Commuter Connection services and, ultimately, yield more TERM results.

1. Personnel operations (absenteeism/tardiness, turnover, recruitment/retention)
2. Employee morale, teamwork, communication
3. Facility impacts (parking reduction, worksite congestion)
4. Cost elements (corporate taxes with pre-tax benefit program, productivity, health insurance saving/company wellness)
5. Social recognition / corporate good will (e.g., image, LEED)

Recommendation – Seek opportunities through COG / Commuter Connections surveys to identify business benefits. For example, include questions in the SOC survey to estimate reduced tardiness from use of alternative modes, productivity gains when commuters perform work tasks while using transit or riding in a carpool/vanpool, and how availability of commuter options improves job access and affect turnover/recruitment. Prepare talking points and brief results summaries from research studies that jurisdiction partners could use when meeting with employers.

8. Develop enhanced tools to report and communicate TERM results and other Commuter Connections' program benefits to regional and local decision-makers.

Background – The objective of the TERM evaluation process is to provide meaningful information on the performance of TERMS to regional and local decision-makers, funders, and program staff. To this end, the TERM evaluation produces a technical assessment of performance to apply to the region's conformity tracking. However, the many surveys and analyses performed for the evaluation also col-

lect a wealth of data on current travel patterns and trends, traveler attitudes, and customer satisfaction that could be useful for other audiences and other purposes beyond conformity determination.

By expanding the range of data transmitted and by focusing the presentation of data on the needs and interests of other audiences, Commuter Connections could expand the value of its data collection and analysis investment and provide value to various new audiences.

Recommendation – Define new communications tools to be produced by Commuter Connections and or consultants to convey information of value to Commuter Connections stakeholders at a level of detail appropriate to each audience (e.g., Commuter Connections program partners, Commuter Connections funders, local transportation planners, state / local policy makers and elected officials, employers, and the public at large).

As a first step, prepare for key surveys (SOC, GRH, Applicant placement rate) a 1-3 page survey brief that presents the “top 10 findings” of the survey that would be of interest to non-technical audiences. Post the brief on the Commuter Connections website, distribute it to funders and local program partners, and excerpt from the brief for outreach to media contacts and elected officials.

To target other tools for the most effective outreach, solicit input from COG marketing staff and local jurisdiction staff on how they currently communicate with stakeholders such as local decision-makers, planning staff, employers, and commuters and the research information that is likely to resonate with each stakeholder group. Explore options for new information formats and online distribution methods (e.g., social media, targeted emails, blogs, podcasts, videos, net-conferences, etc.).