



Association for Commuter Transportation Response to FHWA 2013-0054

National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program

Below are the Comments to Federal Highway Administration (FHWA) Docket 2013-0054 submitted on behalf of the members of the Association for Commuter Transportation (ACT):

Background/Summary of Comments:

The Association for Commuter Transportation (ACT) will focus its comments on items and subparts related to 'The Performance of the National Highway System' (Subparts E) and the Congestion Mitigation & Air Quality Program (CMAQ) (Subparts G & H). Below are some highlights of our comments:

The Association for Commuter Transportation whole heartedly opposes the proposed rule as it currently stands. Specifically, ACT opposes the sole use of 'Travel Time Reliability' & 'Hours of Excessive Delay' as the only metrics to describe system performance and congestion. ACT believes that per-Person Throughput (PPT) and/or Average Vehicle Occupancy (AVO) should be incorporated as a metric and FHWA should propose a schedule for phasing this in as discussed later in these comments.

The metrics identified by this rule are vehicle focused and yet our transportation system should be focused on moving people. Cars are never late to pick up kids from daycare. Vehicles aren't late to meetings. Performance measures should focus on the people that use the transportation system rather than the vehicles they use.

These measures are too important to get wrong. As management guru Peter Drucker said, "Management is doing things right. Leadership is doing the right things." USDOT has the opportunity to lead. As proposed, these measures cause a policy bias in terms of highway investments. As clearly stated on page 7 of the NPRM, "State DOTs would be expected to use the information and data generated as a result of the new regulations to better inform their transportation planning and performance decision making. This fact underscores the importance of getting the metrics and the measures correct. These measures are not just a way to describe the current state of the national highway system, it is a guidebook for States to determine how to spend billions of dollars investing in our transportation system and achieving goals related to increasing mobility options, developing sustainable communities and addressing climate change.

The metrics selected will halt progress that is being made. Over the past several years, technology, new stakeholders, and intriguing business models have begun to reshape the landscape of our transportation system. The 21st century transportation system is interconnected and focuses on efficiencies. These new technologies and business models will greatly reshape our transportation system, yet the metrics proposed stem from policies and practices from the last century and run counter to the agenda of progress that DOT has helped lead. Billions of dollars are being invested by both the public and private sector to make advancements in vehicle technologies, freight movement, and mobility. Yet, the metrics proposed ignore



these potential advancements to improve access, reduce emissions and improve quality of life and only looks at the reliability of getting X amount of vehicles through a point in Y amount of time.

Good should not be the enemy of perfect. There is not a perfect solution, FHWA identifies this throughout the proposed rule. However, this rule in many ways serves as a lowest common denominator, selecting a metric and measure based off of what we currently collect and have access to. This rule will lock us in to using data and metrics that are decades old. This rule presents an opportunity to reach higher and to truly improve our transportation system. The technologies are available, however, work needs to be done to purpose that technology for use in measuring PPT and AVO. We shouldn't close the book on PPT or AVO because the technology is not perfect, moreover, this rule should be used to inspire advancements in measuring those metrics.

In addition to ACT opposing the sole use of the metrics identified, ACT also has concerns about the way those metrics are measured. ACT believes there are a number of issues with the proposed rule in regard to how States and MPOs use data to measure reliability and delay. In our comments, we will outline specific areas that we believe need to be improved.

Average Vehicle Occupancy/Per Person Throughput Should be Incorporated

ACT believes in the idea that transportation performance measures should be more about measuring people rather than counting cars alone. The National Online Dialogue clearly identified "person throughput" and multi-modal travel to be important performance measures. ACT believes the necessary data can be collected on a nationally consistent basis and that the cost will be more than offset by better, more cost-effective decision making, and greater leveraging of dwindling transportation resources.

Traditionally, most data related to highway performance has measured the number, speed, and distance of vehicles travelling on our nation's highways. These are important data points, but when considering the goal of a transportation system is to move people and goods efficiently, it cannot be the only data relied upon.

The NPRM states that performance management increases the accountability and transparency of the Federal-aid highway program and provides for a framework to support improved investment decision-making through a focus on performance outcomes. ACT believes in this statement, but it also underscores the importance and weight the metrics have. The travel time reliability index and hours of delay as proposed will require states to focus on getting more vehicles through a segment faster. While ACT supports intelligent investment in infrastructure and believes there is great need around the nation to expand highway capacity, the metrics, as outlined by this measure, would suggest to States that building more lane miles is the only way out.

ACT calls on FHWA to incorporate Average Vehicle Occupancy (AVO)/ Per-Person Throughput (PPT) and Average Vehicle Trip Rate into Subparts E, G. and H.

Incorporating AVO/PPT

As we will discuss later, there are a number of existing surveys and technologies that allow States and MPOs to establish a baseline for AVO/PPT along an NHS route. ACT believes that PPT/AVO can and should be phased in. Initially survey data, the American Community Survey, and other data gathering technologies can be used to gather an initial measure on per person throughput. We would encourage FHWA to provide



States and MPOs with a variety of interim data sources and acceptable data measuring techniques (to be discussed later).

We would encourage FHWA to utilize this rulemaking process to determine a timeline and process by which it will integrate AVO/PPT into this rule over the next several years. In addition to the baseline that will be established by States and MPOs, FHWA should create a schedule by which it will work to create data sets as a part of its NPMRDS and/or establish acceptable standards and practices for technology based solutions that can measure AVO. These measures and practices should not only take into account measuring the AVO of along an NHS route, but should will also take into effect Vehicle Trip Rate (VTR) by including the impact of trips taken by bike/ped and rail/light-rail. We believe that FHWA should set a target to complete this process within three years, at which point, States and MPOs would be charged with creating baseline and target AVO/PPT measures based upon preliminary data that it collected over those three years.

We believe that this phase in will give FHWA a significant amount of time to test and deploy data gathering techniques and it would provide States and MPOs an appropriate amount of time to prepare for such measurements.

What is Vehicle Trip Rate?

A common performance measure now in use is average vehicle occupancy (AVO). AVO represents the ratio of travelers in private vehicles (e.g., drive alone, carpools and vanpools) to the number private motor vehicles used. The number of vehicle trips depends upon the employee's commute mode. Thus, a solo driver generates one vehicle trip and a traveler in a two-person carpool accounts for 0.5 vehicle trips. However, AVO ignores the number of travelers who ride transit or bicycles and result in zero private vehicle trips. Using VTR calculates the actual number of vehicle trips for all travelers regardless of mode. While VTR is not currently available at the same level of granularity as vehicle speed, ACT recognizes that expressing the situation in terms of person throughput like VTR will reduce the bias toward vehicle capacity solutions and engage the community in discussion of meeting travelers' needs. We believe that this phase in will give FHWA a significant amount of time to test and deploy data gathering techniques and it would provide States and MPOs an appropriate amount of time to prepare for such measurements.

Costs Associated with New Measures

ACT is aware of the potential cost associated with such measurement, but we believe that the price of collecting such data pales in comparison to the benefits associated with a more effective and efficient transportation system. This is a point that FHWA recognized in the 'costs and benefits' section of its response. FHWA stated that its worst case scenario showed a cost of \$224.5 million over 11 years. When breaking this figure down per State and MPO, it's almost de-minimis when considering that these performance measures and the planning process determine how to spend nearly \$50 billion a year. Said a different way, we can't afford to not be spending more on better performance based planning.

AVO/PPT Technologies

ACT believes that technologies such as Bluetooth, infrared, and in-vehicle sensors are capable of accurately measuring average vehicle occupancy, however, work needs to be done in order to purpose that technology for such activities. We are aware of several instances in which Bluetooth technology is used to verify vehicle occupancy along HOT lanes including projects in Austin and the Bay Area that use Bluetooth technology to verify occupancy as part of an HOV toll rebate program.



On page 77, FHWA states that ‘almost a complete lack of data availability makes throughput data impractical as a measure of performance’. ACT wholeheartedly disagrees with this statement. There is data available and techniques to ascertain such data. Its lack of use by State DOTs and MPOs should not be mistaken with its lack of availability. Further, the lack of use should underscore the need for PPT to be a part of the metrics.

The argument that measures should rely on readily available data and data collection should not be burdensome.

INTERIM METHODS OF COLLECTING AVERAGE VEHICLE OCCUPANCY/VEHICLE TRIP RATE

1. **American Community Survey** – “The American Community Survey (ACS) is an ongoing statistical survey that samples a small percentage of the population every year -- giving communities the information they need to plan investments and services” – US Census. Included in that data is a great deal of information on how people commute on a regular basis. According to the Census Bureau, ACS selects about 3.5 million housing unit addresses annually, across every county in the nation, to survey. They produce 1-year estimates annually for geographic areas with a population of 65,000 or more. The 5-year estimates provide information down to the Census tract level. The information is collected on an annual basis and has a high statistical dependency. The information can be broken down to a variety of geographic and demographic levels, but could not be used on an individual corridor level, however, it would help States and MPOs get a sense of existing mode split.
2. **Corridor Surveys** – Some counties, MPOs, employers and groups such as transportation management organizations and commuter assistance programs conduct surveys that analyze commuting habits. Much like the American Community Survey, this data could help develop a picture of how people are commuting. By requesting addresses of travelers’ to and from commuting patterns, impacted routes can be analyzed.
3. **Other Existing Measures Including NTD Data** – States, counties, MPOs and other organizations collect a variety of other data that could be easily used or transformed to be used towards determination of performance. One example would be data submitted via National Transit Database being submitted by transit agencies. The data includes information about how transit passenger trips and in many communities includes the number of vanpool passengers. This data can be determined for a specific NHS route as well as time of day.
4. **Manual Collection** – This data could be collected manually such as via video, while this mechanism provides some statistical and logistic difficulties, it is a simple way to collect the data.

FUTURE METHODS OF COLLECTING AVERAGE VEHICLE OCCUPANCY/VEHICLE TRIP RATE

In addition to perfecting survey collection and other techniques described above, there have been significant advancements in a variety of technologies that would allow FHWA, State DOTs, and MPOs to more accurately measure AVO including:



- **Bluetooth technologies** – using Bluetooth technologies, we can verify vehicle occupancy within a car. Technology is currently available and used to verify occupancy in an HOV lane. The technology would not need to be improved, moreover, the utilization of this technology for the purposes of gathering corridor level AVO would need to be tested in order to determine best practices.
- **In-vehicle capabilities** – USDOT is leading the way in working to improve how vehicles communicate with each other and with the road. Sensors within vehicles are able to detect the presence of a human passenger. The technology, is included in most, if not all new vehicles. However, this technology is not currently reported or used in any way other than to improve passenger safety. Work would need to be done and some technological and infrastructure improvements would need to be made in order to make this viable. This includes setting standards for communication and privacy. However, USDOT is already working in this arena with automakers and it's possible to envision this type of data being readily available within a few years if an emphasis was made to make such data available.
- **Infrared** – Technologies that allow infrared and similar technologies is improving and becoming more cost effective. Utilizing this technology does bring some privacy concerns that would need to be addressed. Several states have laws that make such 'picture' illegal to take. Thus, this cannot be the sole measurement tool available.
- **Other** – Technology is advancing daily, consider this, when this rulemaking process began, Uber and Lyft were mere blips on the mobility scene. ACT truly believes that if FHWA set a mandate for AVO/PPT to be measured within three-years, the private sector would be driven to find answers.

In many cases, the technologies are readily available, however, they have never been used to generate such data and ACT recognizes that FHWA and other stakeholders need time to work with stakeholder to gather and purpose this data.

ACT disagrees with the notion on page 76 that states near constant vehicle count/volume would be needed to gather PPT/AVO. ACT believes that data can be generated in similar fashion as described in subpart-E. In the case of generating AVO, data bins would not need to be every 5-min. An AVO figure could be determined by looking at data throughout the reporting segment because as a figure, the timing and frequency of the reporting have little impact on the figure, so long as a statistically significant number of vehicles are used to gather AVO.

ACT believes DOT should focus on establishing people throughput as one of the key performance measures, assist stakeholders in testing the methods to collect the data, and perhaps more importantly, invest in research on improving methods for collecting this data in order to make this a readily available data set within three years of this rule being finalized.

ACT Comments on Metrics as Proposed by NPRM

Overarching Comments

- **Missing Data (page 266)** – ACT strongly disagrees with the proposal to allow States to utilize the posted speed limit for missing segments. This will drastically skew data gathering if even just one 5-min bin does not have data.



ACT recommends FHWA require States to use the average of the segment before and after a missing segment for an open data segment or two consecutive open data segments. Provided the strong statement of the 'readily available' nature of this data set, there should never be a case in which more than two data segments are empty. However, if there were to be an instance where three data consecutive data segments were empty, that section should be considered null and reported as such.

Subpart A

- **CMAQ Performance Plan** – ACT believes that the CMAQ performance plan should include a complete look at projects and programs that improve air-quality and reduce vehicle usage. Specifically, ACT recommends that FHWA call on States and MPOs to identify employer based commuter programs and highlight their effectiveness as a part of the CMAQ plan, regardless of whether or not those projects and programs are funded with CMAQ funds. ACT understands that it is impossible to identify all projects within a State or region, however, we believe this plan should focus more upon the success of a region to reduce congestion and improve air quality and focus less on the type of money used.

Subpart E

- **Reliability** – The use of reliability alone does not account for the degree to which a segment is unreliable, page 253 mentions reliability as a way to determine if a traveler needs to add time to its trip. The reliability measure only determines that the segment is not reliable, it does not determine how poorly the segment is. Said a different way, it could take a driver 60 minutes to drive through a segment intended to take 20. That section would be as 'unreliable' as if it took that driver 50 minutes to drive through the same section.

ACT believes that reliability is a good measure, so long as other measures are also incorporated to gather a better picture of system performance.

- **Reporting Segments** – ACT is concerned with the process by which States and MPOs will be selecting reporting segments. The primary enforcement mechanism of this rulemaking is public appeal. It is possible that a State/MPO could select segments that perform better in order to create the illusion that it is doing a good job.

ACT recommends that FHWA require States and MPOs to include segments which have the greatest amount of congestion based upon visual observation, car counts, or other data-based methods. ACT also believes that segment selection process should be something that is transparent.

- **Weight of Segments** – Similar to the degree of reliability, the weight of each segment is uneven. On a four mile stretch of highway, there may be a 1-mile stretch that is significantly congested. However, those two segments would have the same weight in the formula as a 2 segments that are slightly congested.

Additionally, a road may have just one choke point, but because the severity of that choke point is not recognized in the formula, the road itself may be considered reliable.



- **Speeds below 2 MPH** – On page 270, FHWA says that speeds below 2 MPH should be excluded from the calculation. ACT objects to this. As anyone who has driven on I-66 or I-95 in the Washington DC metro area can attest to, speeds below 2 MPH are common. ACT recognizes the intent to eliminate statistical anomaly's, but States and MPOs should not be able to blindly exclude such data sets. Prior to excluding such data sets, States and MPOs should consult other data and information to verify that the data set was in fact an anomaly and not the actual state of congestion.
- **LOTTR Target Threshold** – ACT believes that threshold for a reliable segment is too low and should be raised to 1.25 (compared to existing level of 1.5) of expected travel time. Under the current proposal, a 1 mile segment with a speed limit of 60 MPH would be considered reliable if it took 50 seconds to transverse. Extrapolate that over a 60 mile segment and you would be ten minutes behind expected pace. Most of the commuting public would consider being ten minutes late as a state of 'unreliable'.

Subpart G

- **Congestion metric is vehicle focused** – 'hours of excessive delay' is a vehicle based formula that would drastically change the focus of the CMAQ program.
- **Does not account for trips not taken and trips on transit/alternative modes** – The metric 'hours of excessive delay' does not account for trips deferred, or those trips taken on transit, bike/ped, carpool, or other alternative form.
- **Similar Concerns with Measuring Congestion Metric as concerns with subpart E** – Like subpart E, ACT has concerns with the congestion metric and how it is measured. Referring to our comments on subpart E, we have concerns with the unequal weight of segments, how missing segments are handled, and how segments are selected.
- **15/35 MPH baselines** – The baseline reliable speed for Non-interstate NHS and Interstate NHS is laughable and needs to be dramatically adjusted to reflect posted speed-limits or 55 MPH for Interstate MPH and no less than 35 MPH for Non-Interstate NHS roads

Subpart H

- **Capturing Emissions Reductions from Non-CMAQ or FHWA funded projects** – ACT opposes focusing only on CMAQ funded projects. ACT recommends that FHWA call on States and MPOs to identify employer based commuter programs and highlight their effectiveness as a part of the CMAQ plan, regardless of whether or not those projects and programs are funded with CMAQ funds. ACT understands that it is impossible to identify all projects within a State or region, however, we believe this plan should focus more upon the success of a region to reduce congestion and improve air quality and focus less on the type of money used.
- **CMAQ Modeling** – ACT is concerned by FHWA's CMAQ modeling and urges FHWA to invest heavily in better modeling techniques. ACT and its members have found the modeling of CMAQ projects to be wildly inaccurate in many cases. Significant efforts need to be undertaken in order to accurately reflect true emission reductions.



Comments on GHG Emissions as a Measure

On page 101 of the NPRM, FHWA asks stakeholder to consider a Greenhouse Gas Emissions measures (GHG). ACT is in strong support of including GHG emissions as a CMAQ measure. Below are ACT's responses to some of questions posed by FHWA

- The GHG measure should address all on-road mobile sources and should include all transportation projects that reduce GHG regardless of how they are funded.
- The GHG should account for people rather than by vehicle. Per-capita is one way that ACT finds to be optimal.
- GHG measure should focus on direct emissions and not focus on upstream emissions
- GHG measure should include only transportation related sources, we believe this includes highway construction and maintenance equipment
- GHG emissions should not be estimated based on gasoline and diesel fuel sales. Resources should be dedicated to better modeling data.
- The measure should apply to all States and MPOs
- Yes, a GHG performance measure would help with transparency
- ACT believes that a GHG measure should be implemented as soon as possible.

ACT is grateful for the opportunity to submit these comments. If you have any questions, please contact Jason Pavluchuk (Pavluchuk@actweb.org) at 202-285-6414.