

Performance Data Completeness and Reliability

PERFORMANCE DATA COMPLETENESS AND RELIABILITY DETAILS

Each section includes a description of a performance measure and associated data provided by the agencies in charge of the measure. The Scope statement provides an overview of the data collection strategy for the underlying data behind the performance measure. The Source statement identifies the data system(s) from which the data for each measure was taken. The Statistical Issues statement has comments, provided by the Bureau of Transportation Statistics (BTS) and the agency in charge of the measure, which discuss variability of the measure and other points. The Completeness statement indicates limitations due to missing data or availability of current measures, and methods used to develop projections are also provided, as appropriate. The Reliability statement gives the reader a feel for how the performance data are used in program management decision making within DOT.

Appendix-I

Performance Data Completeness and Reliability

Table of Contents

Details on Safety Measures.....	4
Roadway Fatality Rate per 100 million vehicle-miles traveled (VMT) (NHTSA / FHWA / FMCSA).....	4
Passenger Vehicle Occupant Fatality Rate (NHTSA / FHWA / FMCSA).....	6
Motorcyclist Fatality Rate (NHTSA / FHWA / FMCSA).....	8
Non-occupant Fatality Rate (NHTSA / FHWA / FMCSA).....	10
Large Truck and Bus Fatality Rate (FMCSA/NHTSA/FHWA).....	12
Commercial Air Carrier Fatality Rate (FAA).....	15
General Aviation Fatal Accident Rate (FAA).....	17
Runway Incursions (Category A & B).....	19
Natural Gas and Hazardous Liquid Pipeline Incidents (PHMSA).....	21
Hazardous Materials Transportation Incidents (PHMSA).....	23
Transit Fatality Rate (FTA).....	25
Rail-related Accident and Incident Rate (FRA).....	27
Details on State of Good Repair Measures.....	29
Highway Infrastructure Condition (FHWA).....	29
Highway Bridge Condition (FHWA).....	31
Transit Capital Assets Backlog (FTA).....	33
Runway Pavement (FAA).....	35
Details on Economic Competitiveness Measures.....	36
Travel Time Index in Urban Areas (FHWA).....	36
Travel in Freight Significant Corridors (FHWA).....	38
Percent of TMAs using CMPs in making programming and project decisions (FHWA).....	40
Average Daily Airport Capacity (Core Airports) (FAA).....	41
Adjusted Operational Availability (FAA).....	42
En Route Automation Modernization (ERAM) (FAA).....	43
America’s Marine Highway (MARAD).....	45
National Airspace System (NAS) On-Time Arrivals (FAA).....	46
International Aviation (OST).....	47
St. Lawrence Seaway System Reliability (SLSDC).....	48
Transit Ridership (FTA).....	49

Appendix-I

Performance Data Completeness and Reliability

Details on Quality of Life in Communities Measures	52
Pedestrian and bicycle transportation networks that provide functional connections and transportation choices (FHWA).....	52
Americans with Disabilities Act (ADA) Compliant Transit Rail Stations (FTA).....	55
Intercity Passenger Rail Station Accessibility (FRA).....	56
Details on Environmental Sustainability Measures	58
Sustainability (FAA).....	58
Noise Exposure (FAA)	61
Lead FHWA implementation of MAP-21 and future reauthorization environmental provisions (FHWA)	63
Vulnerability assessments of the highway system (FHWA)	64
Hazardous Liquid Pipeline Spills (PHMSA)	66
Major Hazardous Liquid Pipeline Spills (PHMSA)	68
Vehicle Fleet Greenhouse Gas Emissions per Mile (OST M-93).....	70
Water Efficiency Improvement (OST M-93)	71
Recycling and Waste Diversion (OST M-93).....	73
Contracts Meeting Sustainability Requirements (OST M-93).....	74
Reduction in Greenhouse Gas Emissions – Scope 1&2 Direct Emissions (OST M-93).....	76
Reduction in Greenhouse Gas Emissions – Scope 3 Indirect Emissions (OST M-93)	77
Energy Intensity (OST M-93).....	79
Renewable Energy Use (OST M-93).....	81
Ship Disposal Program (MARAD).....	82
Ship Disposal Program (MARAD).....	83
Transit Revenue Service Fleet (FTA).....	85
Details on Organizational Excellence Measures.....	86
Improve Employee Engagement (OST).....	86
Persons With Targeted Disabilities Hiring (OST)	87
Employee Engagement of Demographic groups (OST)	88
Details on Security, Preparedness, and Other Supporting Objectives Measures.....	89
Office of Small and Disadvantaged Business Utilization (OST S-40).....	89
National Security and Emergency Response (MARAD).....	92
National Security and Emergency Response (MARAD).....	93

Appendix-I

Performance Data Completeness and Reliability

Details on Safety Measures

Roadway Fatality Rate per 100 million vehicle-miles traveled (VMT) (NHTSA / FHWA / FMCSA)

Measure

Roadway fatalities per 100 million vehicle miles traveled (VMT) are calculated for each calendar year (CY). A roadway fatality is the death of any vehicle occupant (driver, passenger, all persons riding on the exterior of a motor vehicle), including motorcycles (two- or three-wheeled motor vehicle) rider or passenger, and any non-occupants (any person not an occupant of a motor vehicle in transport, such as a pedestrian or cyclist) in a motor vehicle crash.

VMT includes all vehicle miles traveled by all types of vehicles including:

- Passenger cars,
- Motorcycles,
- Buses,
- All 2-axle 4 tire vehicles (including vans, pickup trucks, and sport/utility vehicles),
- Single unit 2-axle 6 tire or more trucks, and
- Combination trucks.

Scope

The number of fatalities is a count of deaths of a motorist or a non-motorist occurring within 30 days of a crash involving a motor vehicle traveling on a traffic-way customarily open to the public within the 50 States, the District of Columbia, and Puerto Rico.

Sources

Roadway fatality data are obtained from the National Highway Traffic Safety Administration (NHTSA) Fatality Analysis Reporting System (FARS). The FARS database is a census of fatal traffic crashes within the 50 States, the District of Columbia and Puerto Rico and is based on police accident reports (PAR).

Vehicle miles traveled (VMT) is estimated using the Highway Performance Monitoring System (HPMS), which is analyzed by FHWA Traffic Monitoring and Analysis System (TMAS). Passenger Vehicle VMT (PVVMT) is derived from the HPMS and from vehicle classification.

Roadway fatality rates for 2013 were taken from the 2013 FARS Annual Report File.

Statistical Issues

For HPMS, States provide annual average daily traffic (AADT) on all Federal-aid highway sections. These data are based on traffic counts taken at least once every three years on the National Highway System, Interstate, and Principal Arterials and at least once every six years on Minor Arterials and Collectors. Traffic counts are adjusted by the States to reflect day-of-week and seasonal variations, current year conditions, and axle corrections, as necessary.

Performance Data Completeness and Reliability

States provide summary data on the local and rural minor collector roads. The AADTs from HPMS are used as a baseline for the Travel Volume Trends (TVT) report, which compiles data from about 4,000 automated traffic recorders (ATRFs) provided by the States on a monthly basis. Because both HPMS and TVT are based on samples of the traffic, there are associated sampling errors.

Completeness

FARS has been in use since 1975 and is a census of fatal traffic crashes on the Nation's roadways. Annual traffic fatalities are currently available through CY 2013, published in December 2014.

VMT data are complete through 2013. For 2014 and 2015, VMT is projected as a percentage of the total VMT projections. The preliminary 2014 VMT estimate was released in December 2015 and the final 2014 VMT number will be available in August 2016. Similarly, the preliminary 2015 VMT estimate will be available by December 2016 and the final 2015 VMT number will be available in August 2017.

Reliability

This measure informs and guides the following programs for NHTSA, FHWA, and FMCSA:

- roadway safety policy,
- safety program planning,
- regulatory development,
- resource allocation, and
- operational mission performance.

Early indications show that fatalities have decreased and VMT has declined slightly from its peak prior to the 2008 recession. However, it is too early to tell what the final fatality rate will be, depending on the following recent trends, among others:

- Lower price of fuel,
- economic upturn,
- increased walking, bicycling, and motorcycle riding, and
- greater use of mass transit.

All of these factors are indications of fundamental changes in our mode of transportation that will adversely impact our ability to accurately estimate fatality and VMT projections for CY 2014 and beyond.

Fatality rates for CY 2013 were projected using recent passenger vehicle occupant fatality rate trend data.

Appendix-I

Performance Data Completeness and Reliability

Details on Safety Measures

Passenger Vehicle Occupant Fatality Rate (NHTSA / FHWA / FMCSA)

Measure

Passenger Vehicle Occupant fatalities per 100 million passenger vehicle VMT (vehicle miles traveled) are calculated for each calendar year (CY).

An occupant is any person inside or on top of a moving motor vehicle. This includes the driver, passengers, and all persons riding on the exterior of a motor vehicle. Passenger vehicle VMT (PVVMT) includes vehicle miles traveled by all types of passenger vehicles (e.g. passenger cars, vans, pickup trucks, and sport/utility vehicles) on public roads within the 50 States, the District of Columbia, and Puerto Rico.

Scope

The number of fatalities is a count of passenger vehicle occupant deaths occurring within 30 days of a crash involving a motor vehicle traveling on a traffic-way customarily open to the public within the 50 States, the District of Columbia, and Puerto Rico.

Sources

Roadway fatality data are obtained from the National Highway Traffic Safety Administration (NHTSA) Fatality Analysis Reporting System (FARS). The FARS database is a census of fatal traffic crashes within the 50 States, the District of Columbia, and Puerto Rico, and is based on police accident reports (PAR)

Vehicle miles traveled (VMT) is estimated from the Federal Highway Administration (FHWA) Highway Performance Monitoring System (HPMS), which is analyzed by FHWA Traffic Monitoring and Analysis System (TMAS). Passenger Vehicle VMT (PVVMT) is derived from the HPMS and from vehicle classification.

Fatality rates for CY 2013 were taken from the 2013 FARS Annual Report File.

Statistical Issues

For HPMS, States provide annual average daily traffic (AADT) on all Federal-aid highway sections. These data are based on traffic counts taken at least once every three years on the National Highway System, Interstate, and Principal Arterials and at least once every six years on Minor Arterials and Collectors. Traffic counts are adjusted by the States to reflect day-of-week and seasonal variations, current year conditions, and axle corrections, as necessary. States provide summary data on the local and rural minor collector roads. The AADTs from HPMS are used as a baseline for the TVT report, which compiles data from about 4,000 automated traffic recorders (ATRFs) provided by the States on a monthly basis. Because both HPMS and TVT are based on samples of the traffic, there are associated sampling errors.

Completeness

Appendix-I

Performance Data Completeness and Reliability

FARS has been in use since 1975 and is a census of fatal traffic crashes. Total annual roadway fatalities are currently available through CY 2013, published in December 2014.

VMT is complete through 2013. For 2014 and 2015, it is projected as a percentage of the total VMT projections. The 2014 VMT estimate will be available by December 2015 and the final 2014 VMT number will be available in August 2015. The 2015 VMT estimate will be available by December 2015.

Reliability

This measure informs and guides the following programs for NHTSA, FHWA, and FMCSA:

- roadway safety policy,
- safety program planning,
- regulatory development,
- resource allocation, and
- operational mission performance.

Early indications show that fatalities have decreased and VMT has declined slightly from its peak prior to the 2008 recession. However, it is too early to tell what the final fatality rate will be, depending on the following recent trends, among others:

- Lower price of fuel,
- economic upturn,
- increased walking, bicycling, and motorcycle riding, and
- greater use of mass transit.

All of these factors are indications of fundamental changes in our mode of transportation that will adversely impact our ability to accurately estimate fatality and VMT projections for CY 2014 and beyond.

Appendix-I

Performance Data Completeness and Reliability

Details on Safety Measures

Motorcyclist Fatality Rate (NHTSA / FHWA / FMCSA)

Measure

Motorcyclist fatalities per 100,000 motorcycle registrations are calculated for each calendar year (CY).

A motorcycle is a two- or three-wheeled motor vehicle designed to transport one or two people, including motor scooters, minibikes, and mopeds.

Scope

The number of motorcyclist fatalities is a count of motorcyclist (rider (operator) and passenger) deaths occurring within 30 days of a crash involving a motorcycle traveling on a traffic-way customarily open to the public within the 50 States, the District of Columbia, and Puerto Rico.

Sources

Roadway fatality data are obtained from the National Highway Traffic Safety Administration (NHTSA) Fatality Analysis Reporting System (FARS). The FARS database is a census of fatal traffic crashes within the 50 States, the District of Columbia, and Puerto Rico, and is based on police accident reports (PAR).

The States collect motorcycle registration data and provide the data to the Federal Highway Administration (FHWA), which then provides the data to the public.

Fatality rates for CY 2013 were taken from the 2013 FARS Annual Report File.

Statistical Issues

The FHWA estimates of registered motorcycles may be an underestimate of the true number of motorcycles that are used on the roads each year. Data collected by the Motorcycle Industry Council (MIC) corroborate this possibility and have noted that not all motorcyclists register their bikes (National Transportation Safety Board -- Safety Recommendation Date: Oct 3, 2007).

Completeness

FARS has been in use since 1975 and is a census of fatal traffic crashes. Annual motorcyclist fatalities are currently available through CY 2013, published in December 2014.

The motorcycle registration date varies among the States. Although many States continue to register specific vehicle types on a calendar year basis, all States use some form of the “staggered” system to register motor vehicles. The “staggered” system permits a distribution of the renewal workload throughout all months. Most States allow pre-registration or permit “grace periods” to better distribute the annual registration workload.

In order to present vehicle registration data uniformly for all States, the information is shown as nearly as possible on a calendar-year basis. Insofar as possible, the registrations reported exclude transfers and re-registrations and any other factors that could otherwise result in

Appendix-I

Performance Data Completeness and Reliability

duplication of the vehicle counts. Motor vehicle registrations are reported by major vehicle classes: automobiles, buses, trucks, and motorcycles.

Reliability

This measure informs and guides the following programs for NHTSA, FHWA and FMCSA:

- roadway safety policy,
- safety program planning,
- regulatory development,
- resource allocation, and
- operational mission performance.

All State reported data are analyzed by FHWA for completeness, reasonableness, consistency, and compliance with data reporting instructions contained in “A Guide to Reporting Highway Statistics.” State reported data are adjusted if necessary to eliminate mistakes and to improve data uniformity among the States. The analysis and adjustment process is accomplished in cooperation with the States supplying the data. In some instances, corrections or revisions have been made in previously published data.

The FHWA motorcycle registration data includes all vehicles that have been registered at any time during the calendar year. Data include vehicles that were retired during the year and vehicles that were registered in more than one State. In some States, it is also possible that, contrary to the FHWA reporting instructions, vehicles that have been registered twice in the same State may be reported as two vehicles. The NHTSA data include only those vehicles that are registered as of July 1 of the given year. Therefore, they do not include vehicles registered in the last half of the calendar year or vehicles that may only be registered for a part of a year such as those for farm use.

Motorcycle registration projections into future years are problematic. Contributing factors include, but are not limited to:

- increased motorcycle riding,
- the economic upturn,
- increased walking and bicycling, and
- a greater use of mass transit.

All of these factors are indications of fundamental changes in our mode of transportation that will adversely impact our ability to accurately estimate fatality and motorcycle registration projections for 2014 and beyond.

Appendix-I

Performance Data Completeness and Reliability

Details on Safety Measures

Non-occupant Fatality Rate (NHTSA / FHWA / FMCSA)

Measure

Non-occupant fatality rate per 100 million VMT is calculated for each calendar year (CY).

A non-occupant is any person who is not an occupant of a motor vehicle in transport and includes:

- pedestrians,
- bicyclists and other pedal cyclists,
- occupants of parked motor vehicles,
- joggers and skateboard riders, and
- people riding on animals and in animal-drawn conveyances.

VMT includes all vehicle miles traveled by all types of vehicles including:

- passenger cars,
- motorcycles,
- buses,
- all 2-axle 4 tire vehicles (including vans, pickup trucks, and sport/utility vehicles),
- single unit 2-axle 6 tire or more trucks, and
- combination trucks.

Scope

The number of fatalities is a count of non-occupant deaths occurring within 30 days of a crash involving a motor vehicle traveling on a traffic-way customarily open to the public within the 50 States, the District of Columbia, and Puerto Rico

Sources

Roadway fatality data are obtained from the National Highway Traffic Safety Administration (NHTSA) Fatality Analysis Reporting System (FARS). The FARS database is a census of fatal traffic crashes within the 50 States, the District of Columbia, and Puerto Rico, and is based on police accident reports (PAR).

Vehicle miles traveled (VMT) is estimated from the Federal Highway Administration (FHWA) Highway Performance Monitoring System (HPMS), which is analyzed by FHWA's Traffic Monitoring and Analysis System (TMAS).

Fatality rates for CY 2013 were taken from the 2013 FARS Annual Report File.

Statistical Issues

For HPMS, States provide annual average daily traffic (AADT) on all Federal-aid highway sections. These data are based on traffic counts taken at least once every three years on the National Highway System, Interstate, and Principal Arterials and at least once every six years on Minor Arterials and Collectors. Traffic counts are adjusted by the States to reflect day-of-

Appendix-I

Performance Data Completeness and Reliability

week and seasonal variations, current year conditions, and axle corrections, as necessary. States provide summary data on the local and rural minor collector roads. The AADTs from HPMS are used as a baseline for the TVT report, which compiles data from about 4,000 automated traffic recorders (ATRs) provided by the States on a monthly basis. Because both HPMS and TVT are based on samples of the traffic, there are associated sampling errors.

Completeness

FARS has been in use since 1975 and is a census of fatal traffic crashes. Annual non-occupant fatalities are available through CY 2013. The final number of non-occupant traffic fatalities in 2013, published in December 2014.

VMT is complete through 2013. For 2014 and 2015, it is projected as a percentage of the total VMT projections. The 2014 VMT estimate was released in by December 2015 and the final 2014 VMT number will be available in August 2015. The 2015 VMT estimate will be available by December 2015.

Reliability

This measure informs and guides the following programs for NHTSA, FHWA and FMCSA:

- roadway safety policy,
- safety program planning,
- regulatory development,
- resource allocation, and
- operational mission performance.

Early indications show that fatalities have decreased and VMT has declined slightly from its peak prior to the 2008 recession. However, it is too early to tell what the final fatality rate will be, depending on the following recent trends, among others:

- lower price of fuel,
- economic upturn,
- increased walking, bicycling, and motorcycle riding, and
- greater use of mass transit.

All of these factors are indications of fundamental changes in our mode of transportation that will adversely impact our ability to accurately estimate fatality and VMT projections for CY 2014 and beyond.

Appendix-I

Performance Data Completeness and Reliability

Details on Safety Measures

Large Truck and Bus Fatality Rate (FMCSA/NHTSA/FHWA)

Measure

Large truck and bus fatalities per 100 million vehicle miles traveled (VMT).

The number of large truck and bus fatalities includes all large truck/bus occupants, occupants of other vehicles and non-occupants who died in roadway crashes involving a large truck or bus. A large truck is defined as being over 10,000 pounds gross vehicle weight rating (GVWR), including single unit trucks and truck tractors. A bus is a large motor vehicle used to carry more than ten passengers, including school buses, inter-city buses, and transit buses. VMT for this measure includes all vehicle miles traveled by all types of vehicles including:

- Passenger cars,
- Motorcycles,
- Buses,
- All 2-axle 4 tire vehicles (including vans, pickup trucks, and sport/utility vehicles),
- Single unit 2-axle 6 tire or more trucks, and
- Combination trucks.

Scope

The number of fatalities is a count of deaths occurring within 30 days of a crash involving large trucks or buses traveling on a traffic-way customarily open to the public within the 50 States and the District of Columbia.

Sources

Roadway fatality data are obtained from the National Highway Traffic Safety Administration's (NHTSA) Fatality Analysis Reporting System (FARS). The FARS database is a census of fatal traffic crashes within the 50 States, the District of Columbia, and Puerto Rico, and is based on police accident reports (PAR).

Vehicle miles traveled (VMT) is estimated from the Federal Highway Administration (FHWA) Highway Performance Monitoring System (HPMS), which is analyzed by FHWA Traffic Monitoring and Analysis System (TMAS).

Fatality rates for CY 2014 were projected as a range of fatalities based on fatal crash data from CY 2007 – 2013. FMCSA analyzed the historical relationship between MCMIS and FARS fatality reporting to adjust the MCMIS number into a FARS projection for CY 2014.

Statistical Issues

The CY 2015 fatality rate projection depends on the continuation of individual and market behavior regarding highway safety policies, vehicle miles traveled, seat belt use, and alcohol related fatalities for large trucks and buses. The assumptions inherent in these projections, together with the normal levels of uncertainty inherent in statistical evaluations, may influence the accuracy of the projection. A major source of error is an inconsistent use of the definition of a large truck.

Appendix-I

Performance Data Completeness and Reliability

For HPMS, States provide annual average daily traffic (AADT) on all Federal-aid highway sections. The data are based on traffic counts taken at least once every three years on the National Highway System, Interstate, and Principal Arterials and at least once every six years on Minor Arterials and Collectors. Traffic counts are adjusted by the States to reflect day-of-week and seasonal variations, current year conditions, and axle corrections, as necessary. States provide summary data on the local and rural minor collector roads. The AADTs from HPMS are used as a baseline for the Traffic Volume Trends (TVT) report, which compiles data from about 4,000 automated traffic recorders (ATRs) provided by the States on a monthly basis. Because both HPMS and TVT are based on samples of the traffic, there are associated sampling errors.

Completeness

FARS has been in use since 1975 and is accepted as a complete measure for describing safety on the Nation's roadways. Total annual fatalities are available through CY 2014 (published in December 2015). The CY 2014 release results are preliminary, and the 2013 results are updated and considered final. The Motor Carrier Management Information System (MCMIS) fatal crash data used in the calculation for Large Trucks and Buses are reported based on a subset of the Model Minimum Uniform Crash Criteria (MMUCC) used by FARS. Total annual fatalities are available from MCMIS through CY 2014 and partial data are available through December 2015.

The 2015 VMT estimate will be available by December 2016.

Reliability

This measure informs and guides the following programs for FMCSA, NHTSA, and FHWA:

- roadway
- safety policy,
- safety program planning,
- regulatory development,
- resource allocation, and
- operational mission performance.

It also tracks progress toward the goal of saving lives and reducing injuries by preventing large truck and bus crashes.

Early indications for 2015 show that fatalities have increased slightly. The final result on the fatality rate will depend on several external factors which may include:

- the price of fuel,
- the economic recovery,
- changes in vehicle design,
- guidelines for large truck/bus drivers,
- increased walking, bicycling, and motorcycle riding,
- use of mass transit, and

Appendix-I

Performance Data Completeness and Reliability

- weather.

All of these factors impact transportation safety and impact our ability to accurately estimate fatality and VMT projections for 2015 and beyond.

Appendix-I

Performance Data Completeness and Reliability

Details on Safety Measures

Commercial Air Carrier Fatality Rate (FAA)

Measure

Number of commercial air carrier fatalities per 100 million persons onboard.

Scope

This metric includes both scheduled and nonscheduled flights of U.S. passenger and cargo air carriers (14 CFR Part 121) and scheduled passenger flights of commuter operators (14 CFR Part 135). It excludes on-demand (i.e., air taxi) service and general aviation. Accidents involving passengers, crew, ground personnel, and the uninvolved public are all included.

Sources

Commercial fatalities data comes from NTSB's Aviation Accident Data. All but a small share of the data from persons on board comes from the air carriers, who submit information for all passengers on board to the Office of Airline Information (OAI) within BTS. Additionally, FAA estimates crew on board based on the distribution of aircraft departures by make and model, plus an average of 3.5 persons on board per Part 121 cargo flight.

Statistical Issues

Both accidents and passengers on board are censuses, having no sampling error.

Crew on board is an estimate with a small range of variation for any given make and model of aircraft. Departure data and enplanements for Part 121 are from the BTS. The crew estimate is based on fleet makeup and crew requirements per number of seats. For the current fleet, the number of crew is equal to about seven percent of all Part 121 enplanements. The average number of cargo crew on board is 3.5 per departure, based on data from subscription services such as Air Claims (Ascend), a proprietary databased used by insurers to obtain information such as fleet mix, accidents and claims. Cargo crews typically include two flight crew members, and occasionally another pilot or company representative or two deadheading passengers. Part 135 data also comes from BTS and Air Claims databases, but is not as complete. The Office of Aviation Policy and Plans (APO) verifies with the operators when it identifies gaps in the data. Based on previous accident and incident reports, the average part 135 enplanement is five per departure. Crew estimates for Part 135 are based on previous accident and incident data. Any error that might be introduced by estimating crew will be very small and will be overwhelmed by the passenger census. Importantly, the fatality rate is low and could significantly fluctuate from year to year due to a single accident.

Completeness

The FAA does comparison checking of the departure data collected by BTS. This data is needed for crew estimates. However, FAA has no independent data sources against which to validate the numbers submitted to BTS. FAA compares its list of carriers to the Department

Appendix-I

Performance Data Completeness and Reliability

of Transportation list to validate completeness and places the carriers in the appropriate category (i.e., Part 121 or Part 135). The number of actual persons on board for any given period is considered preliminary for up to 18 months after the close of the reporting period. This is due to amended reports subsequently filed by the air carriers. Preliminary estimates are based on projections of the growth in departures developed by APL. However, changes to the number of persons on board should rarely affect the annual fatality rate. NTSB and FAA's Office of Accident Investigation and Prevention confer periodically to validate the accident and fatality count.

To overcome reporting delays of 60 to 90 days, FAA must rely on historical data, partial internal data sources, and Official Airline Guide (OAG) scheduling information to project at least part of the fiscal year activity data. The FAA uses OAG data until official BTS data are available. The final result for the air carrier fatality rate is not considered reliable until BTS provides preliminary numbers. Due to reporting procedures in place, it is unlikely that calculation of future fiscal year departure data will be markedly improved. This lack of complete historical data on a monthly basis and independent sources of verification increases the risk of error in the activity data.

NTSB and the Office of Accident Investigation and Prevention confer periodically to validate information on the number of fatalities. Accident data are considered preliminary. NTSB usually completes investigations and issues reports on accidents that occur during any fiscal year by the end of the next fiscal year. Results are considered final when all those accidents have been reported in the NTSB press release published early in the following year. FY2015 results will therefore be final after the 2017 press release. In general, however, the number of fatalities is not likely to change significantly between the end of the fiscal year and the date they are finalized.

Reliability

Results are considered preliminary based on projected activity data. Most accident investigations are a joint undertaking. NTSB has the statutory responsibility to determine probable cause, while FAA has separate statutory authority to investigate accidents and incidents in order to ensure that FAA meets its broader responsibilities. The FAA's own accident investigators and other FAA employees participate in all accident investigations led by NTSB investigators. The FAA uses performance data extensively for program management, personnel evaluation, and accountability.

Appendix-I

Performance Data Completeness and Reliability

Details on Safety Measures

General Aviation Fatal Accident Rate (FAA)

Measure

Number of general aviation fatal accidents per 100,000 flight hours (FY15)

Scope

This metric includes U.S. registered on-demand (non-scheduled Title 14 Code of Federal Regulations (14 CFR) Part 135) and general aviation flights. General aviation comprises a diverse range of aviation activities, from single-seat homebuilt aircraft, helicopters, and balloons, single and multiple engine land and seaplanes, to highly sophisticated, extended range turbojets.

Sources

The data for general aviation fatal accidents comes from the National Transportation Safety Board's (NTSB) Aviation Accident Database. Aviation accident investigators, under the auspices of the NTSB, develop the data.

Annual flight hours are derived from the FAA's annual General Aviation and Part 135 Activity Survey. The FAA's Forecast and Performance Analysis Division provides current year estimates.

Statistical Issues

The NTSB finalizes the actual number of general aviation fatal accidents. Since this is a simple count of accidents, there are no statistical issues relevant to this data.

The GA Survey data for activity is highly accurate with a percent-standard error of less than 1 percent. The general aviation community and the GAJSC, as part of the Safer Skies initiative, recommended development of a data collection program that will yield more accurate and relevant data on general aviation demographics and utilization. Improved GA Survey and data collection methodologies have been developed. As a result of these efforts, FAA, working with the General Aviation Manufacturers Association, the NTSB, and other aviation industry associations, has made many improvements to the survey. An improved survey was initiated in FY 2004. These annual surveys created, for the first time, a statistically valid report of activity on which the general aviation community could agree. First, the sample size has significantly increased. Second, a reporting form has been created to make it much easier for organizations with large fleets to report. Third, the agency worked with the Aircraft Registry to improve the accuracy of contact information. Each year, significant improvements are being made to substantially improve the accuracy of the data.

The GAJSC General Aviation Data Improvement Team worked closely with the general aviation community and industry to develop this performance metric and target. There was unanimous support and consensus for the metric and target.

Appendix-I

Performance Data Completeness and Reliability

Completeness

The number of general aviation fatal accidents, even when reported as preliminary, is very accurate. NTSB and the Office of Accident Investigation and Prevention confer periodically to validate information on the number of fatalities. Accident data are considered preliminary. NTSB usually completes investigations and issues reports on accidents that occur during any fiscal year by the end of the next fiscal year. Results are considered final when all those accidents have been reported in the NTSB press release published early in the following year. FY2015 results will therefore be final after the 2017 press release. In general, however, the numbers of fatalities are not likely to change significantly between the end of the fiscal year and the date they are finalized.

GA Survey calendar hours are finalized by December 31 of the following year. Hence, the fatal accident rate for FY 2015 will not be considered final/complete until early 2017.

Reliability

Results are considered preliminary based on projected activity data. Most accident investigations are a joint undertaking. NTSB has the statutory responsibility to determine probable cause, while FAA has separate statutory authority to investigate accidents and incidents in order to ensure that FAA meets its broader responsibilities. The FAA's own accident investigators and other FAA employees participate in all accident investigations led by NTSB investigators. The FAA uses performance data extensively for program management, and personnel evaluation and accountability.

Appendix-I

Performance Data Completeness and Reliability

Details on Safety Measures

Runway Incursions (Category A & B)

Measure

Rate of category A&B (most serious) runway incursions per million operations

Scope

A runway incursion is any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and takeoff of aircraft. They are grouped in three general categories: air traffic, pilot, or vehicle/pedestrian events. Runway incursions are reported and tracked at airports that have an operational air traffic control tower. Operations are defined as total takeoffs and landings.

The FAA tracks four categories of runway incursions - A, B, C, D - but includes only those with the highest risk of collision, Category A and B incursions, in the measure.

- Category A: Separation decreases to the point that participants take extreme action to narrowly avoid a collision.
- Category B: Separation decreases, and there is a significant potential for a collision.
- Category C: Separation decreases, but there is ample time and distance to avoid a collision.
- Category D: There is little or no chance of collision, but the definition of a runway incursion is met.

In FY 2002, FAA changed the focus of measurement for runway incursions from all incursions to those incursions with measurable risk of collision, Categories A and B. Since Category C and D incursions were not likely to lead to an accident or a significant risk of an accident, their inclusion in the previous total tended to mask true safety risk. The new metric reflects the focus of FAA's runway safety effort to reduce the rate of the incursions with demonstrable risk.

Sources

Air traffic controllers and pilots are the primary source of runway incursion reports. The data are recorded in the Comprehensive Electronic Data Analysis Reporting (CEDAR) system. CEDAR replaced the FAA Air Traffic Quality Assurance (ATQA) database. Preliminary incident reports are evaluated when received and evaluation can take up to 90 days.

Operation data used to calculate the runway incursion rate are provided via OPSNET, and are downloaded directly from the FAA Operations and Performance Data database.

Statistical Issues

None

Completeness

Appendix-I

Performance Data Completeness and Reliability

The data are typically not finalized for 90 days following the close of the fiscal year. Surface event reports are reviewed on a daily basis to determine if the incident meets the definition of a runway incursion. Runway incursions are a subset of the incident data collected and the completeness of the data is based on the reporting requirements and completeness for each of the incident types.

If the operations data are not up to date, these calculations must be revised. The rate may also need to be recalculated if runway incursions are reported late. Historical volume data have been changed over the last three years, resulting in adjustments to current baselines.

Reliability

The FAA verifies and validates the accuracy of the data through the initial validation process followed by quality assurance and quality control reviews. Reconciliation of the databases is conducted monthly and anomalies are explored and resolved. In cases where major problems are identified, a request to re-submit is issued. The FAA conducts annual reviews of reported data and compares them with data reported from previous years. Annual runway incursion incident data are used to provide a statistical basis for research and analysis and outreach initiatives.

Appendix-I

Performance Data Completeness and Reliability

Details on Safety Measures

Natural Gas and Hazardous Liquid Pipeline Incidents (PHMSA)

Measure

The number of pipeline incidents involving death or major injury. (CY)

Scope

Natural gas pipeline incidents are reportable under 49 CFR 191.15, and hazardous liquid pipeline incidents are reportable under 49 CFR 195.50. Both interstate and intrastate pipelines are subject to incident reporting requirements.

An injury is reportable if it requires in-patient hospitalization resulting from a failure in a pipeline system in which there is a release of a hazardous liquid, CO₂, or natural gas being transported. This includes operator employees, contractors working for the operator, other workers in the right of way, emergency responders, and the general public. If the person dies within 30 days of the incident date it is counted as a death, not as an injury. In-patient hospitalization means hospital admission *and* at least one overnight stay (detailed guidance is on the PHMSA website at www.phmsa.dot.gov).

Sources

DOT/Pipeline and Hazardous Materials Safety Administration (PHMSA) incident data are used. These data are derived from pipeline operator reports submitted on PHMSA Form F-7100.1 and F-7000.1. Most incidents are reported online through the PHMSA website.

Statistical Issues

Results in any single year should be interpreted with caution. There is some normal annual variation in the number of reported incidents each year, particularly given the small number of these incidents, and this variation might not reflect real changes in the underlying risk.

Targets are presented as ranges to account for this variation. The target each year is set at one standard deviation from the trend line to account for normal variation year-to-year (which shows a decline of about 10 percent on average every three years over the past 28 years (1988-2015)). This provides about 80 percent probability of achieving the target if the risk continues to follow the trend line. An exponential trend line is used to reflect the concept of diminishing returns as the numbers decline.

The performance measure is not normalized for changes in exposure—external factors like changes in pipeline mileage, energy consumption, or U.S. population—that could affect the number of incidents with death or major injury.

Completeness

Compliance in reporting is very high and most incidents that meet reporting requirements are submitted. Operators must submit reports within 30 days of an incident or face penalties for

Appendix-I

Performance Data Completeness and Reliability

non-compliance. There may be a 30- to 60-day lag in reporting and compiling information in the database for analysis.

Projections from partial-year data include all months for which we have reliable data plus an estimated number for the missing months based on the historical fraction those months represent in the final totals over the past five years.

Reliability

PHMSA routinely cross-checks incident/accident reports against other sources of data, such as the telephonic reporting system for incidents requiring immediate notification provided to the National Response Center (NRC). PHMSA inspectors also regularly discuss incidents with operator personnel during routine inspections. PHMSA continues to work to improve Best Management Practices to ensure quality of the incident data.

Performance Data Completeness and Reliability

Details on Safety Measures

Hazardous Materials Transportation Incidents (PHMSA)

Measure

The number of hazardous materials transportation incidents involving death or major injury. (CY)

Scope

Hazardous materials transportation incidents are reportable under 49 CFR Parts 171.15 and 171.16. All modes of transportation (air, water, rail, and highway) except pipelines are covered. In maritime transportation, tank vessels (where the vessel itself is the container) are exempt from reporting. This measure is limited to transportation-related releases of hazardous materials that are in commerce.

An injury is reportable if a person receives an injury requiring admittance to a hospital as a direct result of a hazardous material—during the course of transportation in commerce (including loading, unloading, and temporary storage). This includes employees, emergency responders, and the general public. Hospitalization means admittance to a medical facility, not treated and released for a facility such as a hospital emergency room where the person was never admitted to the hospital proper (detailed guidance is on the PHMSA website at www.phmsa.dot.gov).

Sources

DOT/Pipeline and Hazardous Materials Safety Administration (PHMSA) incident data are used. These data are derived from reports submitted on Form DOT F 5800.1 and maintained in the Hazardous Materials Information System (HMIS).

Statistical Issues

Results in any single year should be interpreted with caution. There is some normal annual variation in the number of reported incidents each year, particularly given the small number of these incidents, and this variation might not reflect real changes in the underlying risk.

Targets are presented as ranges to account for this variation. The target each year is set at one standard deviation from the trend line to account for normal variation year-to-year (which shows a decline of about 10 percent on average every eight years over the past 28 years (1988-2015)). This provides about 80 percent probability of achieving the target if the risk continues to follow the trend line. An exponential trend line is used to reflect the concept of diminishing returns as the numbers decline.

The performance measure is not normalized for changes in exposure—external factors like changes in the amount of hazmat shipped, number of shipments, or U.S. population—that could affect the number of incidents with death or major injury.

Completeness

Appendix-I

Performance Data Completeness and Reliability

Compliance in reporting is very high and most incidents that resulted in death or major injury are reported. Each person in physical possession of a hazardous material at the time an incident occurs (loading, unloading, and temporary storage) during transportation must submit a Hazardous Materials Incident Report on DOT Form F 5800.1 (01-2004) within 30 days of discovery of the incident. There may be a 30- to 60-day lag in reporting, verifying, validating and compiling information in the database for analysis.

Projections from partial-year data include all months for which we have reliable data plus an estimated number for the missing months based on the historical fraction those months represent in the final totals over the past five years.

Reliability

PHMSA routinely cross-checks incident data against other sources of data, including matching incident reports with reports made to the National Response Center (NRC) and the use of a news clipping service to provide information on significant hazmat incidents that might not be reported. If sufficient information exists, PHMSA follows up with carriers who may need to file an incident report.

Incidents with death or major injury are considered to be the most reliable of the incident data. These incidents have additional verification and validation procedures to include follow-up contact with the company or individual who made the report, contact with state and local law enforcement and/or emergency response officials, and matching data with initial reports made to the NRC.

Performance Data Completeness and Reliability

Details on Safety Measures

Transit Fatality Rate (FTA)

Measure

Transit fatalities per 100 million passenger-miles traveled. (CY)

Scope

Transit fatality data include passengers, revenue facility occupants, trespassers, employees, other transit workers (e.g. contractors), pedestrians and others. A transit fatality is a death within 30 days of an incident related to transit revenue service. Excluded are deaths due to medical conditions or natural causes occurring on public transportation systems. Additionally, fatalities on all commuter rail (CR) modes, PATH heavy rail (HR), Portland Tri-Met hybrid rail (YR), and Austin Cap Metro hybrid rail (YR), all of which are regulated by Federal Railroad Administration.

Sources

These data are reported annually by operators of urbanized area transit systems to the FTA National Transit Database (NTD).

Statistical Issues

The fatality counts in FTA's NTD data cover all major urbanized area systems. Systems in urbanized areas with 30 or more vehicles or fixed-guideway operations must report fatalities to the NTD within 30 days. Systems in urbanized areas below this threshold, as well as systems in rural areas, do not report passenger miles to the NTD, and also report their fatalities to the NTD annually, and are not included in this measure.

Fatality rates are calculated by dividing calendar year fatalities by NTD report year passenger miles. The major source of uncertainty in the measure relates to passenger-miles traveled. Passenger-miles are an estimate typically derived from reported passenger trips and average trip length. Passenger-miles are the cumulative sum of the distances ridden on passenger trips.

An unlinked trip is recorded each time a passenger boards a transit vehicle, even though the rider may be on the same journey. Transit authorities do not routinely record trip length. To approximate passenger-miles, total unlinked trips are multiplied by average trip length. To obtain an average trip length for their bus routes, transit authorities use Automatic Passenger Counters (APCs) with GPS Technology or an FTA-approved sampling technique. To obtain passenger mile data on rail systems, ferry boats and paratransit, transit authorities often use computerized tracking systems, such as the Smart Card. In some cases, such as small fare-free systems or large free-transfer systems (e.g. the New York City subway), passenger miles are sampled directly since a 100 percent count of unlinked passenger trips is not available. Validation based on annual trend analysis is performed on the passenger mile inputs from the transit industry. The validation is performed by analysts at the NTD program.

Appendix-I

Performance Data Completeness and Reliability

Completeness

The NTD collects a census of transit fatalities from its reporters. A small number of urbanized area transit operators do not report to the NTD because they are neither a recipient nor a beneficiary of urbanized area formula program funds (Section 5307), and also choose to not report to the NTD on a voluntary basis.

Reliability

The transit agency's Chief Executive Officer certifies that data reported to the NTD are accurate. Submitted data are reviewed by analysts and compared to trend data for the transit system and to National benchmarks. Validation analysts also monitor published media reports of transit fatalities to ensure that all such incidents are ultimately reported to the NTD.

Appendix-I

Performance Data Completeness and Reliability

Details on Safety Measures

Rail-related Accident and Incident Rate (FRA)

Measure

Number of rail-related accidents and incidents per million train-miles (FY)

Scope

The Railroad Safety Information System is FRA's principal repository for data relating to:

- Railroad accidents and incidents;
- Railroad inspections;
- Highway-rail grade crossings; and,
- Other rail safety-related information.

The Railroad Accident/Incident Reporting Subsystem compiles rail-related accident and incident data that railroads submit as required under 49 CFR Part 225. This subsystem contains approximately 40 years of data on railroad casualties, train accidents, highway-rail grade crossing collisions, and operating statistics.

Each railroad subject to FRA oversight must have an accident and incident recordkeeping system that meets or exceeds Federal standards. Requirements to report an event to FRA apply when the event's consequences exceed the annually adjusted damage threshold. The reporting threshold for calendar year 2015 was \$10,500. A rail equipment (including train) accident is any collision, derailment, fire, explosion, act of God, or other event involving the operation of railroad on-track equipment (standing or moving) that results in damages greater than the current reporting threshold to railroad on-track equipment, signals, track, track structures, or roadbed. Railroads must also maintain internal records on accountable events (those that are generally less impactful than reportable events), employee on-duty injuries, and occupational illnesses that are not required to be reported to FRA. These internal records are subject to FRA review.

FRA's systems and periodic audits help validate railroad-submitted data to ensure that it is timely, complete, accurate, and reliable. After verification and validation, FRA provides public access to the data through its Web site, <http://safetydata.fra.gov>.

Railroads report train accidents on FRA form F6180.54, Rail Equipment Accident/Incident Report and operational data, including train-miles, on FRA form F6180.55, Railroad Injury and Illness Summary.

Sources

FRA's Railroad Accident/Incident Reporting Subsystem compilation of railroad-reported data.

Appendix-I

Performance Data Completeness and Reliability

Statistical Issues

None.

Completeness

Railroad systems that do not connect with the general rail system are excluded from reporting to FRA. Examples include: subway systems (e.g., Washington, D.C., Metro; New York City Subway); track existing inside an industrial compound; and, insular rail (e.g., rail not connected to the general system and not intersecting a public highway-rail grade crossing or navigable waterway).

Although railroads are generally required to report accidents and incidents within 30 days after the end of the month in which the event occurred, FRA keeps its data files open for amendment for five years to capture late reports, audit findings, and other updates. Data must be updated if the costs of a particular accident are more than 10 percent higher or lower than the initially reported cost. Data processing requires up to 30 days to prepare the information for merging into the database. As a result, FRA measures are subject to change and might differ from previous reports. A more detailed explanation of this process is available in FRA's Guide for Preparing Accident/Incident Reports at <http://safety.data.fra.dot.gov>.

Reliability

FRA audits railroads' reporting and internal records. If railroads do not report accurately, completely, and timely, FRA can assess civil monetary penalties.

Appendix-I

Performance Data Completeness and Reliability

Details on State of Good Repair Measures

Highway Infrastructure Condition (FHWA)

Measure

Percent of travel on National Highway Systems (NHS) that meets pavement performance standards for a “good” rated ride (CY).

Scope

Data include Vehicle-Miles Traveled (VMT) on the Highway Performance Monitoring System (HPMS), reported NHS sections and pavement ride quality data reported using the International Roughness Index (IRI). IRI is a quantitative measure of the accumulated response of a quarter-car vehicle suspension experienced while traveling over pavement. An IRI of less than 95 inches per mile is generally considered indicative of a good rated ride. VMT represents the total number of vehicle-miles traveled by motor vehicles on public roadways within the 50 States and the District of Columbia.

Sources

Data for this measure are collected and reported to FHWA by the State Highway Agencies using measurement devices that meet industry set standards. Measurement and reporting procedures are included in the FHWA *HPMS Field Manual*. The VMT data are derived from the HPMS.

Statistical Issues

The major source of error in the percentages is from data collection equipment error and differences in data collection methodologies between the States.

States provide annual average daily traffic (AADT) on all Federal-aid highway sections. The data are based on traffic counts taken at least once every three years on the NHS. Traffic counts are adjusted by the States to reflect day-of-week and seasonal variations, current year conditions, and axle corrections, as necessary. States provide summary data on the local and rural minor collector roads. VMT is calculated from this traffic data.

Completeness

The 2014 actual results for this measure are based on data available as of December 2015. The estimate for 2015 was made using the most recent trend data.

Reliability

HPMS data are collected by the 50 States and the District of Columbia in cooperation with local governments. While many of the geometric data items such as type of median rarely change; other items such as traffic volume change annually. Typically, the States maintain data inventories that are the repositories of a wide variety of data. The HPMS data items are simply extracted from these inventories, although some data are collected just to meet Agency requirements.

Appendix-I

Performance Data Completeness and Reliability

FHWA provides guidelines for data collection in the *HPMS Field Manual*. Adherence to these guidelines varies by State, depending on issues such as staff, resources, internal policies, and uses of the data at the data provider level. An annual review of reported data is conducted by FHWA, both at the headquarters level and in the division offices in each State. The reported data are subjected to intense editing and comparison with previously reported data and reasonability checks. A written annual evaluation is provided to each state to document potential problems and to encourage corrective actions. Data re-submittal is requested in cases where major problems are identified.

Performance Data Completeness and Reliability

Details on State of Good Repair Measures

Highway Bridge Condition (FHWA)

Measures

The percent of deck area on National Highway System bridges considered structurally deficient (CY).

Scope

This measure serves as an indicator of trends in bridge conditions on the National Highway System (NHS). The surface area, i.e., length multiplied by width, of bridge decks is viewed as a more meaningful measure than simply a count of structurally deficient bridges. The area measure recognizes the size difference among bridges and avoids the pitfall associated with counting bridges where every bridge is treated the same regardless of size.

The National Bridge Inspection Standards (NBIS) requires the inspection of all highway bridges located on public roads and the submission of the collected bridge inventory and inspection data to FHWA for inclusion in the National Bridge Inventory (NBI). FHWA maintains the NBI, which contains data on more than 600,000 highway bridges. The information in the NBI contains 95 data items for each of the bridges as required by the Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges. From the data provided, the FHWA monitors the condition of the Nation's bridges, which includes identifying those bridges that are structurally deficient.

Sources

Data used to determine if a bridge is structurally deficient are contained in the NBI and are currently assembled from annual data submittals from States, Federal agencies, and Tribal governments. The deck area is calculated from length and width data also reported to the NBI.

Statistical Issues

As with any very large dynamic database, there is always the potential for data quality issues. However, procedures are in-place to identify and correct data issues as part of the annual submittal process. Because the performance measure relies on data associated with nearly 143,000 NHS bridges, the impact of any localized data quality problem is minimized in the overall national analysis.

Completeness

The NBI is the world's most comprehensive database of bridge information. States, Federal agencies, and Tribal governments are required to report their data by April 1 of each year. However updates are accepted until end of year at which time the full data set is archived and published.

Reliability

Appendix-I

Performance Data Completeness and Reliability

The bridge inventory and inspection data are collected by the States, Federal agencies, and Tribal governments and are submitted to the FHWA annually. The accuracy and reliability of the submitted NBI information are evaluated through data checks by both Headquarters and Division office personnel, and as part of FHWA's annual NBIS compliance reviews.

Performance Data Completeness and Reliability

Details on State of Good Repair Measures

Transit Capital Assets Backlog (FTA)

Measure

Backlog of transit capital assets in need of replacement or refurbishment (as defined by an estimated condition rating of 2.5 or lower)

Scope

This measure includes all capital assets of the U.S. transit industry and, as such, incorporates all transit systems in the country both urban and rural. The replacement value of all U.S. transit assets is estimated at \$678.9 billion, of which some \$85.9 billion are currently in need of replacement or refurbishment (2013 Conditions and Performance Report to Congress, the most recently available report). FTA estimates a need of \$2.5 billion per year in funding from all sources of government (State, local, and Federal) to keep the backlog from growing. It is FTA's goal to try to reduce this backlog over time.

Sources

The size of the national state of good repair backlog is estimated by the Transit Economic Requirements Model (TERM) based on capital asset data from the National Transportation Database (NTD) and other ad hoc capital asset surveys. Data on transit vehicles are reported annually to the NTD but that only represents about a quarter of the total value of transit assets. FTA updates other capital asset information included in the model on a periodic basis.

Statistical Issues

This metric relies on a comprehensive database of transit assets most of which is reported by transit agencies, with some (at small agencies) being inferred from other data. The backlog is the sum of the replacement values of all assets that are determined to be past their average useful life expectancy. Calculation of average useful life is based on surveys of a limited number of assets that provides only a moderate level accuracy in the estimates and that is subject to obsolescence in an undetermined time frame. However, During FY 2015, FTA took substantial steps towards implementing the National Transit Asset Management System envisioned by MAP-21. In September, FTA published a Notice of Proposed Rulemaking (NPRM) that proposed FTA's first-ever definition of state of good repair, requirements for each FTA grantee to establish a transit asset management plan, and a suite of state of good repair performance measures against which each of our grantees would be required to set targets. Concurrently, FTA also published in the Federal Register a proposal to expand the National Transit Database to collect additional capital asset inventory information, as well as condition data towards the state of good repair performance measures proposed in the NPRM. Once implemented, this rule will change "business as usual" for much of the public transportation industry by requiring a systematic and strategic approach across the industry towards measuring and prioritizing state of good repair.

Completeness

Appendix-I

Performance Data Completeness and Reliability

Most of the large, and many medium-sized, agencies have provided asset inventory data to the database that is used for this calculation. This has occurred over the last five years but may not include recent changes to the assets and may not have included consistent replacement cost data as there are several different ways to estimate replacement costs. Estimates for non-replaceable items, such as tunnels, are somewhat speculative.

Reliability

The transit agency's CEO certifies that the vehicle data reported to the NTD are accurate. These data are reviewed by analysts and compared to trend data for the transit system and to National benchmarks. The other three quarters of transit assets are updated on an ad hoc basis, and do not require a CEO certification.

Appendix-I

Performance Data Completeness and Reliability

Details on State of Good Repair Measures

Runway Pavement (FAA)

Measure

Percent of runway pavement in excellent, good, or fair condition for paved runways in the National Plan of Integrated Airport Systems (NPIAS).

Scope

This metric covers all paved runways at federally funded NPIAS airports. Maintaining runway pavement conditions requires careful coordination, often years in advance, of a runway rehabilitation project. Projects must be timed precisely, regardless of whether they involve the phased reconstruction of a single-runway airport or the sequential resurfacing of multiple runways over a period of several years. Some of the nation's largest airports resurface one runway every year on a revolving basis. As a result, FAA is able at times to exceed the goal. However, this does not necessarily represent a sustainable trend. For major reconstruction, runways must typically be taken out of service for a full construction season or longer. It can be particularly challenging to rehabilitate one runway while keeping intersecting runways operational. FAA works with airports to ensure that the system never has too many runways out of service at any given time.

Sources

Data and information is collected through visual inspection of runway pavement in accordance with existing FAA guidance; including Advisory Circular 150/5320-17 Airfield Pavement Surface Evaluation and Rating Manuals provide uniformity to field observations made by individuals collecting data for the Airport Master Record (FAA Form 5010). The pavement condition is reported in the 5010 Airport Master Record database and results of the inspections are entered into FAA's National Airspace System Resource.

Statistical Issues

None

Completeness

The inspection and reporting of conditions are conducted in accordance with existing FAA guidance. The data are publicly available and therefore can be examined and evaluated by any federal auditor.

Reliability

N/A

Appendix-I

Performance Data Completeness and Reliability

Details on Economic Competitiveness Measures

Travel Time Index in Urban Areas (FHWA)

Measure

Travel time reliability in urban areas as measured by the Travel Time Index (FY).

Scope

The Travel Time Index (TTI) is a measure of peak hour travel times versus average travel times and is used to gauge the extent of peak hour congestion. Data are from the National Performance Management Research Data Set (NPMRDS) for Interstates and other limited access highways i.e., Functional Class 2, in 52 urban areas over 1,000,000 in population. The data reflect actual, observed travel times on freeway networks in the urban areas, reported as an average every 5 minutes.

Sources

Data are collected by a private company, HERE Traffic, and provide to FHWA as the NPMRDS. The vehicle probe data can be from cell phones, in-vehicle navigation units, and/or fleet (e.g., truck, delivery vehicles, taxi) management systems. FHWA's Highway Performance Monitoring System (HPMS) provides related volume data for weighting the measure. The Texas A&M Transportation Institute utilizes these data sources under contract to FHWA to derive the above measure. The selection of urban areas is based on the list of Metropolitan Statistical Areas from 2010 U.S. Census.

Statistical Issues

The methodology used to calculate performance measures was developed by the Texas A&M Transportation Institute and has been used by FHWA in its Urban Congestion Report (UCR) program since 2007. The HPMS volume data are collected by the States in cooperation with local governments. FHWA provides guidelines for data collection in the HPMS Field Manual. Adherence to these guidelines varies by State, depending on issues such as staff, resources, internal policies, and uses of the data at the data provider level. An annual review of reported data is conducted by FHWA, both at the headquarters level and in the division offices in each State. All reported data are subjected to intense editing, comparison with previously reported data, and reasonability checks. A written annual evaluation is provided to each State to document potential problems and to encourage corrective actions. Data resubmittal is requested in cases where major problems are identified.

Completeness

Missing data in the NPMRS do occur, either due to short road segment length (i.e., between interchanges in urban areas where cars pass too quickly through that they are not reporting speed and location) and where there are low volumes and no probe vehicles

Appendix-I

Performance Data Completeness and Reliability

traveling through during a particular five minute period especially overnight and in some rural areas. Texas A&M Transportation Institute compensates for the missing data by using day of the week averages across all days in a month to develop a monthly average travel time for each day of the week during the 15 minute time periods measured.

Reliability

NPMRDS data are validated in limited locations by comparing to ground truth travel time data. Results are within specifications of the contract. Recently available volume data from HPMS are used to calculate the results. Typically, there is a lag in data availability and of conflation to the NPMRDS location referencing network. The 2015 and 2016 TTI measures will be weighted with 2013 HPMS data.

Performance Data Completeness and Reliability

Details on Economic Competitiveness Measures

Travel in Freight Significant Corridors (FHWA)

Measure

Maintain Travel Time Reliability in Top 25 Domestic Trade Corridors (CY)

Scope

Travel time reliability is a key indicator of transportation system performance. FHWA uses measured speed data to calculate a Buffer Index (BI) to illustrate the performance of freight movement in these economically important corridors. The BI is a measure of travel time reliability and variability that represents the extra time (or time cushion) that would have to be added to the average travel time to ensure on-time arrival 95 percent of the time. The top 25 domestic freight corridors with the highest tonnage flows are identified using the Freight Analysis Framework (FAF). On these corridors, probe data are used to calculate an average travel time and the 95th percentile speed. FHWA is using the ratio of the two to calculate a buffer index, the percent of time it takes beyond average speed to make a trip on these corridors and ensure on-time delivery. This is then averaged for the 25 corridors. While this is a significant amount of roll-up, it does provide a national indicator that will increase or decrease to reflect national performance of these critical corridors.

Sources

Travel time data for freight significant corridors are derived using time and location data from satellite communications equipment on-board mobile commercial vehicles. A Global Positioning System (GPS) or other communication devices in the vehicle transmits a continuous or periodic signal to an earth orbit satellite. This technology allows commercial vehicles to serve as probes and enables direct measurement of commercial vehicle average operating speeds and travel rates and travel times. Selection of freight significant corridors and highway segments is largely based on the volume of freight moved on the segment.

Statistical issues

The key issues are long term viability of data sources, sampling size of the commercial vehicle probes, and frequency of the time and position sampling. FHWA has made progress in addressing the issues of sample size and the frequency of sampling by increasing the sources of the probe data and the number of vehicles providing position information. Growth in sources and probes increases the percentage of local truckload carriers, increases the coverage area, and provides access to the data that more accurately pinpoints a vehicle's location, direction and speed.

Completeness

FHWA is partnering with vendors that collect automatic vehicle information from a customer base, which consists primarily of interstate long-haul carriers. The following data are transmitted: a unique truck identifier; latitude; longitude; date and time; and interstate route. Signals range from the second to as often as 15 minutes. The data provide nationwide coverage from approximately 500,000 vehicles, i.e., trucks and trailers, in the U.S., Canada,

Performance Data Completeness and Reliability

and Mexico. The majority of the data are from fleets that have signals sent to vehicles with readings taken as often as every 15 minutes. The interval between probe readings depends on the subscription and the services the individual carriers have authorized. The intervals vary and may range from every two minutes to every two hours.

FHWA processes and manages the data provided by the vendors to gather the information for this measure. On average the data set produces over 340,000,000 truck positions monthly and over 4,000,000,000 positions annually.

Reliability

Probe vehicle performance systems are designed to provide travel time and speed or delay information without traditional fixed-location traffic monitoring and data collection systems. Probe-based systems enable coverage of much larger geographic areas (e.g. entire roadway networks) without the cost of building fixed-location traffic data collection systems throughout those networks. This technique takes advantage of the significant reductions in the cost of GPS devices that report current location and time information with a high degree of accuracy. When placed in vehicles and combined with electronic map information, GPS devices are the primary component of excellent vehicle location systems. Storage and analysis of the GPS location data allow for very accurate roadway performance measurement. To provide reliable roadway performance estimates, a large enough number of vehicles must be equipped with GPS to provide an unbiased measure of roadway performance, and to provide the temporal and geographic diversity desired by the performance measurement system. A significant drawback to probe vehicle-based performance monitoring is that it does not provide information about the level of roadway use (e.g. vehicle volume) or the commodities carried. Probe data only provides information about the speeds and travel times being experienced.

Appendix-I

Performance Data Completeness and Reliability

Details on Economic Competitiveness Measures

Percent of TMAs using CMPs in making programming and project decisions (FHWA)

Measure

Percent of Transportation Management Areas (TMA) using a Congestion Management Process (CMP) in making programming and project decisions

Scope

All Metropolitan Planning Organizations (MPOs) serving a TMA will develop a congestion management process that identifies and evaluates strategies that manage demand, reduce single occupancy vehicle (SOV) travel, improve transportation system management and enhance integration across modes, and most importantly, make use of the CMP information in making programming and project decisions. FHWA monitors the efforts of these MPOs to develop a congestion management process (CMP) that identifies and evaluates strategies to support decision-making on transportation investments that will improve congestion. By ensuring that all States and MPOs are utilizing the CMP as part of their decision-making process within five years, more effective strategies can be selected to address traffic congestion during the planning and programming phase.

Sources

Program assessments conducted by Division offices of all MPOs responsible for TMA data collection to determine those that have developed and are utilizing a CMP in making programming and project decisions.

Statistical Issues

Data for this measure are based on an assessment of the functionality of a specific CMP in meeting the intended purpose of providing information, data, and tools for a TMA to use in making programming and project decisions that will reduce congestion. The accuracy of this information is sufficient for making program level decisions regarding capacity building for the TMAs that have not yet reached this level of implantation in meeting this objective. As the Federal-aid highway program completes the transition to a performance-based program, specific measures will be implemented to assess the success of these efforts.

Completeness

FHWA will assess the status of all of the TMAs over a five year period in using a CMP in making programming and project decisions. There are currently 181 TMAs.

Reliability

This measure provides an assessment at the program level of the capabilities of TMAs to use the CMP in making programming and project decisions. The transition to a performance-based program places importance on the use of the CMP for these purposes. This measure provides an appropriate level of assessment for measuring progress toward the goal for all TMAs to be using the CMP for this purpose within five years.

Appendix-I

Performance Data Completeness and Reliability

Details on Economic Competitiveness Measures

Average Daily Airport Capacity (Core Airports) (FAA)

Measure

Average daily airport arrival and departure rates at the Core Airports

Scope

Only the Core Airports are included in this metric. The Core Airports are those which have 1% or more of total U.S. enplanements (the DOT large hub airports) or 0.75% or more of total U.S. non-military itinerant operations.

Reportable hours are based on a review of called rates and actual flight counts for each of the Core Airports.

Each airport facility determines the number of arrivals and departures it can handle for each hour of each day, depending on conditions, including weather. These numbers are the called arrival and departure rates of the airport for that hour. Data are summed for daily, monthly, and annual totals.

Note: in FY 2011, FAA revised the Average Daily Airport Capacity measure to include a new set of airports, renamed “Core Airports,” which replace the original 35 Operational Evolution Partnership airports. The Core airports are those which have 1% or more of total U.S. enplanements (the DOT large hub airports) or 0.75% or more of total U.S. non-military itinerant operations. The revised list of airports includes the current most congested airports in the country.

Sources

The Aviation System Performance Metrics (ASPM) database, maintained by the FAA’s Office of Aviation Policy and Plans, provides the data for this metric. The individual air traffic facilities for the Core Airports provide arrival and departure rates. Staffers in the Air Traffic Organization feed this information into the ASPM database.

Statistical Issues

None

Completeness

Fiscal year data are finalized approximately 90 days after the close of the fiscal year.

Reliability

The reliability of ASPM is verified on a daily basis by the execution of a number of audit checks, comparison to other published data metrics, and through the use of ASPM by over 1,500 registered users.

Appendix-I

Performance Data Completeness and Reliability

Details on Economic Competitiveness Measures

Adjusted Operational Availability (FAA)

Measure

Percentage of hours operational availability for the reportable facilities that support the Core Airports during the maximum facility/service hours at those airports.

Scope

The National Airspace Performance Reporting System (NAPRS) facilities necessary to maintain the provision of service in the National Air System (NAS) overall have been determined and are monitored. For this metric, those NAPRS reportable facilities necessary for the provision of service at the Core Airports have been separately measured. Time out of service is adjusted to exclude hours when equipment is unavailable due to scheduled improvement (cause code 62) down time.

The Core Airports are those which have 1% or more of total U.S. enplanements (the DOT large hub airports) or 0.75% or more of total U.S. non-military itinerant operations.

Sources

Data is taken from the National Airspace System Performance Analysis System (NASPAS). NASPAS was developed to analyze outages of the air traffic control facilities in the NAS maintained by the FAA. NASPAS receives monthly updates of outage data from the National Outage Database (NODB). The Remote Monitoring and Logging System (RMLS) contains individual equipment outage data as recorded by system specialists

Statistical Issues

The National Airspace Performance Analysis (NASPAS) tool has been in place for 20+ years. The algorithms have been well proven over time. No statistical issues.

Completeness

The FAA's Quality Assurance and Performance Team, under ATO-W, conducts a monthly review of all Log Interrupt Reports (LIRs) that are entered into the RMLS to ensure the data, which resides in the NODB, are as complete and accurate as possible.

Reliability

The National Airspace System Performance Analysis System is the official source of equipment and service performance data for the Federal Aviation Administration

Performance Data Completeness and Reliability

Details on Economic Competitiveness Measures

En Route Automation Modernization (ERAM) (FAA)

Measure

Number of continental U.S. Air Route Traffic Control Centers that achieve Operational Readiness Date (ORD) on En Route Automation Modernization (ERAM)

Scope

This metric measures the ATO success in achieving ORD on ERAM at ARTCCs (Air Route Traffic Control Centers). The ERAM System replaces the 40-year-old En Route HOST Computer System used to manage high-altitude air traffic.

Sources

Declaration of ORD is closely coordinated across ATO lines of business. It is communicated to the ERAM program office and other ATO lines of business by facility managers. Close coordination and communication is maintained across these stakeholder groups in the period leading up to and immediately following the declaration of ORD.

Statistical Issues

This metric has no statistical issues.

Completeness

ORD Entrance Criteria: To be considered ready for ORD, the site will have completed the following:

Achievement of continuous operations - the site will have achieved continuous operations and progressed beyond the Pre-Operational National Automation Issues Management System (AIMS) Review process on ERAM and as defined per the processes outlined in the ERAM Operational Benchmarking Standard Operating Procedure (SOP).

Finalized Local Site Decommissioning and Disposition Plan – these plans are completed in collaboration with local facility teams and the ERAM Implementation Manager. Final draft coordination includes review and approval by Air Traffic Services (AJT).

Completed Joint Acceptance Inspection (JAI) – the ERAM Implementation Manager works with the Planning and Requirements (PNR) organization to initiate the JAI process. Once initiated, the Technical Operations District Manager (TODM) at each facility collaborates with Air Traffic, Labor, Field Automation Support Team (FAST), Program Operations Field Manager (POFM), Technical Operations (AJW), Program Office, and other relevant stakeholders at the facility to ensure the contents of the checklist reflect the perspective of each group appropriately. Attachment I to this memorandum contains a copy of a JAI checklist. The results of the JAI will drive either a) passing or acceptance of all defined criteria, or b) identification of one or more exceptions that require completion. A site can declare ORD with minor exceptions but not with major exceptions. For any exceptions

Appendix-I

Performance Data Completeness and Reliability

identified, a time by which the exception must be fixed is defined. Details on the JAI are governed by FAA Order 6010 7A.

Decision-making to Declare ORD: The decision to declare ORD rests with the TODM with concurrence of the Air Traffic Manager and NATCA Facility Representative (FACREP).

Reliability

This metric has no reliability issue. The ARTCC either achieves ORD on ERAM, or it does.

Appendix-I

Performance Data Completeness and Reliability

Details on Economic Competitiveness Measures

America's Marine Highway (MARAD)

Measure

Number of Twenty Foot Equivalent (TEU) containers transported across America's Marine Highway (AMH) routes.

Scope

MARAD's measure of performance for the AMH program is volume of containers, or TEUs, moved by program-assisted services. The container TEU metric is an indicator of direct grant-related program performance and permits further downstream calculation of program benefits. In addition, all program grant agreements contain "volume of containers or TEUs transported" as the primary performance measurement criterion, which they are required to report to MARAD on a regular basis. As a note, TEU activity includes the shipment of empty containers and loaded containers. The benefits of moving a container over Marine Highway as opposed to truck or rail are similar regardless of whether the container is loaded or empty.

Sources

The Maritime Administration's data are derived from quarterly reports submitted by the Marine Highway grantees.

Statistical Issues

None

Completeness

The final fourth quarter results are due to MARAD by the grant recipients no later than the end of October. Therefore, final results are not available until November.

Reliability

The data are reasonably reliable and is submitted quarterly by Marine Highway grant recipients to MARAD. Data received are tracked and a trend analysis for the data is maintained, seeking to identify seasonality slumps, and anomalies in reporting. Unusual or erratic reports are returned to the grantee and questioned for correctness.

Appendix-I

Performance Data Completeness and Reliability

Details on Economic Competitiveness Measures

National Airspace System (NAS) On-Time Arrivals (FAA)

Measure

Percent of all flights arriving no more than 15 minutes late.

Scope

A flight is considered on time if it arrives no later than 15 minutes after its published, scheduled arrival time. This definition is used in both the DOT Airline Service Quality Performance (ASQP), and Aviation System Performance Metrics (ASPM) reporting systems. Air carriers, however, also file up-to-date flight plans for their services with the FAA that may differ from their published flight schedules. This metric measures on-time performance against the carriers' filed flight plan, rather than what may be a dated published schedule.

The time of arrival of completed passenger flights to and from the Core Airports is compared to their flight plan scheduled time of arrival. For delayed flights, delay minutes attributable to extreme weather, carrier caused delay, security, and a prorated share of delay minutes due to a late arriving flight at the departure airport are subtracted from the total minutes of delay. If the flight is still late, it is counted as a delayed flight attributed to the National Aviation System (NAS) and the FAA.

The Core airports are those which have 1% or more of total U.S. enplanements (the DOT large hub airports) or 0.75% or more of total U.S. non-military itinerant operations.

Sources

The ASPM database, maintained by the FAA's Office of Aviation Policy and Plans, and the DOT's ASQP causation database, provides the data for this metric. By agreement with the DOT, certain major air carriers file ASQP flight data for all flights to and from most large and medium hubs. Flight records contained in the Traffic Flow Management System (TFMS) and flight movement times provided by Aeronautical Radio, Inc. (ARINC) supplement the flight data.

Statistical Issues

Data are not reported for all carriers; at present, only 14 operating carriers report monthly into the ASQP reporting system.

Completeness

Fiscal year data are finalized approximately 90 days after the close of the fiscal year.

Reliability

The reliability of ASPM is verified on a daily basis by the execution of a number of audit checks, comparison to other published data metrics, and through the use of ASPM by over 1500 registered users. ASQP data are filed monthly with DOT under 14 CFR 234, Airline Service Quality Performance Reports, which separately requires reporting by major U.S. air carriers on domestic flights to and from reportable airports.

Appendix-I

Performance Data Completeness and Reliability

Details on Economic Competitiveness Measures

International Aviation (OST)

Measure

Reach three or more bilateral or multilateral agreements to remove market distorting barriers to trade in transportation.

Scope

One of DOT's key missions is to negotiate liberalized, bilateral aviation agreements that result in increased air service opportunities and lower fares for consumers.

Sources

These negotiations require DOT, in cooperation with the Department of State, to conduct formal international meetings with foreign government counterparts with the goal of achieving less restrictive agreements and ultimately, "open skies" agreements.

Statistical Issues

Data collection is a manual process involving regular updating of our internal tracking device (spreadsheet) and updating OST's external website.

Completeness

The data are as complete as possible and under the supervision of OST.

Reliability

The data are reliable.

Appendix-I

Performance Data Completeness and Reliability

Details on Economic Competitiveness Measures

St. Lawrence Seaway System Reliability (SLSDC)

Measure

Percentage of time the U.S. portion of the St. Lawrence Seaway is available to commercial users

Scope

The reliability of the U.S. sectors of the St. Lawrence Seaway (including the two U.S. Seaway locks in Massena, NY) are critical to continuous commercial shipping during the navigation season (late March to late December). System downtime due to any condition (weather, vessel incidents, malfunctioning equipment) causes delays to shipping, affecting international trade to and from the Great Lakes region of North America. Downtime is measured by:

- hours/minutes of delay for weather (visibility, fog, snow, ice)
- vessel incidents (human error, electrical and/or mechanical failure)
- water level and rate of flow regulation
- lock equipment malfunction

Sources

Saint Lawrence Seaway Development Corporation (SLSDC) Office of Lock Operations and Marine Services

Statistical Issues

None

Completeness

SLSDC is the agency responsible for the operation and maintenance of the U.S. portion of the St. Lawrence Seaway. Furthermore, SLSDC's lock operations unit gathers primary data for all vessel transits through the U.S. Seaway sectors and locks, including any downtime in operations.

Data are collected on site, at the U.S. locks, as vessels are transiting or as operations are suspended. This information measuring the System's reliability is compiled and delivered to SLSDC senior staff and stakeholders each month. In addition, SLSDC compiles annual System reliability data for comparison purposes. Since SLSDC gathers data directly from observation, there are no limitations. The SLSDC historically reports this performance metric for its navigation season (typically late March to late December).

Reliability

SLSDC verifies and validates the accuracy of the data through review of 24-hour vessel traffic control computer records, radio communication between the two Seaway entities and vessel operators, and video and audiotapes of vessel incidents.

Appendix-I

Performance Data Completeness and Reliability

Details on Economic Competitiveness Measures

Transit Ridership (FTA)

Measure

Number of urban and rural transit boardings

Scope

This metric includes passenger boardings from urban and rural transit systems in every state and territory, as well as in many Indian tribal areas. More than 2,300 U.S. transit systems report to the National Transit Database (NTD).

Sources

Each transit system reports total boardings on all the transit modes they operate to the NTD.

Statistical Issues

Data are reported by the individual transit systems at the end of their fiscal years. All transit systems that receive or benefit from FTA's Formula Grants are required to report to the NTD. The quality of this metric is largely reliant upon the quality of the data collected and submitted by the individual transit systems.

Although FTA requires a 100 percent count of boardings to be reported whenever it is available, not every system has a 100 percent count available. In particular, some smaller bus systems still rely on statistical sampling data to estimate the number of boardings each year.

Since transit agencies operate on different fiscal years the data do not represent a concurrent period of time. With year-end reporting from June 30 through December 31 the metric represents an 18 month period so events may not impact ridership equally at all agencies.

Completeness

This measure includes most U.S. transit systems, however, there are a few rural providers that neither receive nor benefit from FTA Rural Area Formula Grant funds and thus are not required to report to the NTD.

Reliability

The transit agency's CEO certifies that data reported to the NTD are accurate. Submitted data are reviewed by analysts and compared to trend data for the transit system and to National benchmarks. Since these data are used to apportion grant funds FTA carefully validates the submitted data. Reporters often lack technical resources and sophistication. Occasional reporting errors may remain undetected.

Performance Data Completeness and Reliability

Details on Economic Competitiveness Measures

Transit “Market Share” (FTA)

Measure

Transit market share among commuters to work in the top 50 urbanized areas

Scope

This metric indicates the relative share of transit as the transportation choice of commuters in the 50 largest U.S. Urbanized Areas (defined by population in the 2010 Census). It reports the number of these cities that show a statistically significant increase in transit mode share minus the number of cities that show a statistically significant decrease relative to the 2011 baseline. These 50 systems account for over 90 percent of all transit boardings in the US.

Sources

This metric relies on American Community Survey 3-year data for workers over the age of 16, at the 90 percent confidence level. The Census Bureau collects annual data on mode of transportation to work for workers over the age of 16 as part of its ongoing American Community Survey. Survey numbers are aggregated into 3-year rolling averages to increase sample size and thus statistical accuracy. FTA is targeting a statistically significant increase in the percentage of commuters who use transit to ride to work in at least ten of the largest 50 urbanized areas. The current average mode share for transit across these areas is 5.2 percent in based on 2014 data.

Statistical Issues

The American Community Survey (ACS) is a continuous monthly survey that collects the data historically collected by the decennial census long-form sample. ACS samples approximately three million housing unit addresses, in all counties and county equivalents in the 50 states, the District of Columbia, and Puerto Rico.

To improve accuracy, several years of ACS sample are pooled together to create “period” estimates. The first estimates based on three years of pooled ACS data were published in 2008 for all areas with a population of at least 20,000 using data from 2005 through 2007.

Small changes in transit market share from one survey release to the next often fall within the survey’s statistical margin of error. This metric counts the number of cities for which the change in transit market share from the 2010 survey release to the current survey release falls outside the statistical margin of error.

Completeness

This measure only includes the 50 largest urbanized areas. The urbanized areas studied contain approximately 46 percent of the nation’s population.

Reliability

Appendix-I

Performance Data Completeness and Reliability

Census Bureau data are highly reliable but represent a relatively small sample of commuters and questions used may not fully capture the extent of transit use. For example, the survey is only filled out for workers over the age of 16.

Appendix-I

Performance Data Completeness and Reliability

Details on Quality of Life in Communities Measures

Pedestrian and bicycle transportation networks that provide functional connections and transportation choices (FHWA)

Measure

Original FY 2015 Measure: Number of new or significantly improved pedestrian and bicycle transportation networks that provide functional connections and transportation choices (FY).

New FY 2016-17 Measure: Number of States and MPOs taking programmatic steps to correct gaps in connectivity and accessibility (FY)

Scope

Networks are interconnected transportation facilities that allow people of all ages and abilities to safely and conveniently get where they want to go. Networks are significantly improved when major gaps and barriers are addressed and seamless transitions exist between different facility types; and/or if there are functional connections to, from, and between important community destinations such as schools and transit stations. FHWA collects examples of new or improved connected networks that access important community destinations and/or essential services for the purpose of highlighting noteworthy examples.

In FY 2015, FHWA offices identified a number of pedestrian and bicycle networks, compiled from work performed by State DOTs, MPOs, counties, cities, and other local entities, that illustrated the best examples nationwide. In FY 2016 and FY 2017, FHWA is revising the performance measure to more specifically track progress among States and MPOs in developing seamless walking and bicycling networks that will become more important as the state-of-the practice matures.

Sources

Data for this measure are based on a review and assessment of example projects representing new or significantly improved pedestrian and bicycle networks that provide functional connections to important community destinations and/or essential services for all users. FHWA offices review projects completed by State DOTs, MPOs, local governments and other agencies. Data for the original measure of example projects are complete through 2015. Data for the projects that enable FHWA to assess progress towards the new measure will be available beginning in December 2016.

Statistical Issues

FHWA works with partners and stakeholders, including communities, states, and others, to identify of performance appropriate to the local context, while also providing information on available data, collection methods and analysis techniques.

Completeness

Hundreds of communities and many States have established Complete Streets policies. DOT will continue to encourage policies that improve transportation choices. This measure focuses

Appendix-I

Performance Data Completeness and Reliability

on tracking the successful implementation of pedestrian and bicycle networks (i.e. interconnected pedestrian and/or bicycle facilities that allow people of all ages and abilities to safely and conveniently get where they want to go). Tracking significantly improved and the creation of new pedestrian and bicycle networks is the next logical step in measuring the success of Complete Street policies.

Reliability

The accuracy and utility of this information is sufficient for making program level decisions regarding capacity building on pedestrian and bicycle networks as essential components of the overall transportation system.

Appendix-I

Performance Data Completeness and Reliability

Details on Quality of Life in Communities Measures

States with ADA Transition Plans (FHWA)

Measure

Number of State DOTs with ADA transition plans that include the Public Rights of Way

Scope

ADA transition plans are required by law and regulation. State and local governments with 50 or more employees are required to perform a self-evaluation, or inventory, of their current services, practices, and facilities such as curb ramps and sidewalks that do not or may not meet ADA requirements. The transition plan, which follows this self-evaluation, describes in detail the methods that will be used to make the public entity's facilities accessible. The plan also specifies the schedule for taking the steps necessary to achieve compliance, which are prescribed in 28 CFR 35.150(d).

The minimum attributes of an ADA Transition Plan include: i) identification of the official responsible for implementing the plan; ii) an inventory of barriers (i.e., identification of physical obstacles); iii) a schedule for upgrading ADA elements identified in the inventory of barriers in the short term, and a strong commitment over time toward prioritizing curb ramps at walkways serving entities covered by the ADA; and iv) a description of the methods that will be used to make the facilities accessible.

Sources

FHWA Division Offices (accepted transition plan), State DOTs and site visits determined by reviews.

Statistical Issues

Not applicable

Completeness

Transportation agencies from all 50 States, the District of Columbia, and Puerto Rico reported.

Reliability

Plans are obtained for FHWA internal review and must be made available to the public, e.g., posted on a State Transportation Agency's website. The criteria for determining whether or not a State is in compliance with the ADA transition plan regulations are among the more clearly defined ones.

Appendix-I

Performance Data Completeness and Reliability

Details on Quality of Life in Communities Measures

Americans with Disabilities Act (ADA) Compliant Transit Rail Stations (FTA)

Measure

Number of key transit rail stations verified as accessible and fully compliant.

Scope

Under the Americans with Disabilities Act of 1990 (ADA), existing rail transit systems were required to identify “key” stations according to a set of criteria that would be made accessible to and usable by persons with disabilities, including wheelchair users, by a date certain, regardless of the entity’s other short or long term plans. This was necessary to ensure that such systems achieved a basic degree of accessibility within the near term. Key stations were to have been completed by July 26, 1993, with extensions available through July 26, 2020 in cases where extraordinarily expensive structural changes to, or replacement of, existing facilities would be necessary. Of the 680 existing rail stations designated as “key” using criteria established under the Americans with Disabilities Act of 1990 (ADA), 607 are accessible and fully compliant; 30 are functionally accessible but not yet fully compliant; and 31 are self-certified as compliant. In 2015, 98 percent of the stations are compliant.

Sources

Data are reported annually by rail transit operators to the FTA Office of Civil Rights.

Statistical Issues

This measure is a census of a finite number of stations of which all characteristics are known; at this time there are no known statistical issues.

Completeness

This is a comprehensive annual review of key rail stations. This is a subset of all rail stations established by law.

Reliability

Each transit agency’s CEO certifies which stations are accessible. These certifications are periodically reviewed by FTA as part of its oversight process.

Performance Data Completeness and Reliability

Details on Quality of Life in Communities Measures

Intercity Passenger Rail Station Accessibility (FRA)

Measure

1. Percentage of stations* that are functionally accessible
2. Percentage of stations* that have accessible restrooms
3. Percentage of stations* that have ADA-compliant passenger information display systems installed where required

* Where Amtrak is responsible for compliance

For the purposes of this goal, the following definitions apply—

- Functionally accessible means that passengers have an accessible path from the public right of way to the train platform.
- Accessible restrooms mean the station restrooms meet 2006 U.S. Department of Transportation standards, which provide minimum requirements for all facilities in a restroom to ensure all Americans, including those in wheelchairs, can use the facilities.
- Passenger information display systems mean integrated messaging services that deliver synchronized audible and visual messages regarding train service (arrival and departure times, gate and track assignments, boarding locations, stops and train status) and general announcements (passenger paging, emergency messages, etc.).

Scope

Amtrak is solely responsible for ADA compliance of stations and related facilities where Amtrak (a) owns a greater than 50 percent share, or (b) provides more than 50 percent of the intercity and commuter rail passenger boardings. In addition, Amtrak shares responsibility for ADA compliance with other public entities at stations where less than 50 percent is owned by any one entity. Amtrak provides service to approximately 500 stations in the National System that are required to be made accessible. Amtrak has sole responsibility for 130 stations, and shared responsibility for 239 stations. States, local governments, and others are responsible for accessibility compliance at another approximately 130 stations that have Amtrak service.

ADA requires Amtrak to ensure that individuals with disabilities, including individuals who use wheelchairs, have ready access to station facilities, the ability to board and alight from trains, and have access to parking facilities and the public rights-of-way at stations where Amtrak has ADA responsibility. ADA implementing regulations provide certain flexibility for achieving compliance—each station presents unique characteristics resulting in differing requirements to ensure each station is accessible and usable by people with disabilities. In situations where strict compliance is technically infeasible, the regulated entity must comply to the maximum extent feasible.

Appendix-I

Performance Data Completeness and Reliability

Amtrak is managing projects to bring these stations into compliance through its Amtrak ADA Stations Program. FRA monitors Amtrak's progress through its oversight program and project review process.

Sources

- Amtrak ADA Stations Program
- FRA oversight activities

Statistical Issues

None at this time.

Completeness

FRA is focusing on three aspects of compliance because they have a significant influence on the usability of stations and the Amtrak system. Amtrak identified them as its priority areas in the ADA Stations Program Five Year Strategic Plan. However, other elements are relevant for determining whether a station is fully accessible and compliant. For example, ADA regulations require regulated entities to ensure that its personnel have adequate training to assist individuals with disabilities properly, respectfully, and courteously, and with appropriate attention to the differences among individuals with disabilities. As Amtrak makes progress on the three current measures, FRA will consider whether to track other or additional elements.

Reliability

The number of stations where Amtrak is responsible for ADA compliance fluctuates with changes in ownership and leasing arrangements and variations in station owners' ability and willingness to support compliance projects. Such changes can affect responsibility for station improvements and the scope of station improvements as design reviews progress. From year to year, FRA expects the number of stations for which Amtrak is responsible to remain around 70 percent of the 500 stations it serves.

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Sustainability (FAA)

Measure

1. Mature quieter aircraft technologies via the Continuous Lower Energy, Emissions and Noise (CLEEN) II Program.
2. Support sustainable airport development
3. Improve National Airspace System (NAS) energy efficiency

Scope

This measure focuses on three aspects: (1) Accelerating maturation of aircraft technologies and sustainable alternative jet fuels that reduce emissions and fuel burn, (2) Health-related emissions released from certain types of airport vehicles and all U.S. commercial operations, and (3) Improving system wide energy efficiency by incorporating advanced technologies and more efficient operations, using a metric of fuel consumption per revenue-ton miles.

NAS-wide energy efficiency is based on annual jet fuel burned to move revenue throughput (passengers & cargo) per kilometers traveled. The units of the metric are [kg/tonne kilometers].

Sources

1. Data will be provided per the terms of FAA's Other Transaction Agreement with each company under the CLEEN program. FAA is also facilitating information exchange among the alternative jet fuel stakeholder community through Commercial Aviation Alternative Fuels Initiative (CAAFI). FAA is focused on leveraging resources and efforts for sustainable alternative jet fuels and has established strong partnerships with the private sector, international partners and other Federal agencies.
2. The Voluntary Airport Low Emissions (VALE) Program currently utilizes the FAA's Emissions and Dispersion Modeling System (EDMS) model to calculate air emission reductions.
3. For the NAS-wide Energy Efficiency goal, the Aviation Environment Design Tool (AEDT) model uses radar-based data from the Enhanced Traffic Management System (ETMS) and Official Airline Guide (OAG) schedule information to generate annual inventories of fuel burn and total distance flown data for all U.S. commercial operations. The Bureau of Transportation Statistics (BTS) provides the payload factors for commercial aircraft.

Statistical Issues

1. CLEEN II companies will provide test data with calculated levels of uncertainty and error. The extent to which aircraft technology improvements cannot be sufficiently modeled

Performance Data Completeness and Reliability

because of a lack of manufacturer proprietary data may also influence the performance target results. In this case, attempts will be made to characterize such aircraft with the best publicly available information, recognizing that newer aircraft types in the fleet will likely exist in significantly lesser numbers, thus minimizing the influence upon the results. Under the CLEEN II program, the companies will also provide data to support the approval of new alternative jet fuels. FAA is seeking alternative jet fuel solutions that offer environmental benefits over petroleum jet fuels and that have the potential to be cost competitive and produced at commercial scale. This is needed as improvements in aircraft/engine technology, operational procedures, and enhancements in the national airspace system (NAS) will not be sufficient on their own to allow us to achieve our goal of achieving carbon neutral growth in 2020 with carbon dioxide emissions levels equal to that of 2005 and further reductions by 2050.

2. In the VALE program, actual air emissions reductions are dependent upon the airport sponsor using the equipment at the levels assumed in the EMDS model. The model is a well-established and has a robust database of air emissions sources that enable accurate air emissions calculations. The model incorporates air emissions data as determined by the EPA, which also enhances the model results.

3. Potential seasonal variability and variability from year-to-year can be expected when analyzing air traffic data and commercial operations.

The extent to which enhancements are incorporated to improve model accuracy, for example via more robust aerodynamic performance modeling algorithms and database of aircraft/engine fuel burn information, will impact the overall results and thus the performance target. This could create some statistical variability from year-to-year if not properly taken into account. In cases where such enhancements have the potential to create a significant shift in baseline, annual inventories may need to be re-processed and/or adjusted to ensure consistency and accuracy of results.

The extent to which aircraft fleet improvements cannot be sufficiently modeled because of a lack of manufacturer proprietary data may also influence the performance target results. In this case, attempts will be made to characterize such aircraft with the best publicly available information, recognizing that newer aircraft types in the fleet will likely exist in significantly lesser numbers, thus minimizing the influence upon the results.

Completeness

1. Data provided under the CLEEN II agreements will be sufficient to meet CLEEN II test and assessment objectives, including test results for alternative jet fuels.

2. The completeness of the VALE emissions calculations is ensured by an independent review of the proposed VALE project by a State Air Quality agency prior to issuing FAA grants. By legislative requirement, State Air Quality agencies must review the model inputs

Performance Data Completeness and Reliability

and provide assurance to the FAA on the accuracy of the emission calculations and commitment to provide AERC's in the future before the FAA can issue a VALE grant.

3. For the NAS-wide Energy Efficiency goal, data used to measure performance against the target is assessed for quality control purposes. Input data for the AEDT model are validated before proceeding with model runs. Radar data from the ETMS are assessed to remove any anomalies, check for completeness, and pre-processed for input to the AEDT model. ETMS data are verified against the OAG information in order to avoid any duplication of flights in the annual inventory.

In some cases ETMS data lack appropriate fields to conduct quality control and in these cases the data is removed. Data from the AEDT model is verified by comparing output from previous years and analyzing trends to ensure that they are consistent with expectations. In other cases monthly inventories may be analyzed to validate the results. Model output is subsequently post-processed through excel worksheets to perform the calculations for the performance target. Formulae and calculations are checked in order to ensure accuracy.

Full documentation of this target is determined when the annual inventories have been accomplished and the post-processing calculations have been completed, resulting in a percentage reduction in fuel consumption per miles flown (or increase in fuel efficiency) relative to the baseline. The standard for this documentation is set by the FAA Office of Environment and Energy, which is separate from the organization (DOT Volpe National Transportation Systems Center) responsible for input and output associated with the AEDT model runs and annual inventories.

Reliability

1. Aircraft technology tests and demonstrations will be at full-scale using engines and aircraft representative of the current fleet. Acquired data in such ground and flight tests will be considered reliable representations of actual performance within uncertainty of the measuring test equipment. Under the CLEEN II program, necessary data for alternative jet fuel testing will be provided for their approval through the ASTM ballot process.

2. The measurement of air emission reductions for the VALE program is highly reliable due to the use of FAA's EDMS model. The reliability of the VALE emissions calculations also benefits from the independent review of the air emissions reduction calculations by the State Air Quality agencies for each project prior to issuing grant funding. The State Air Quality agencies review the model inputs and provide assurance to the FAA on the accuracy of the emission calculations and commitment to provide AERC's in the future.

3. The measuring procedure used for this performance target is highly reliable. That is to say that the processing of data through the AEDT model including the performance of algorithms is not subject to random factors that could influence the results. However, as mentioned above, this performance target is potentially influenced by factors outside the control of the FAA.

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Noise Exposure (FAA)

Measure

Number of persons exposed to significant aircraft noise around airports.

Scope

The metric tracks the residential population exposed to significant aircraft noise around U.S. airports. Significant aircraft noise is defined as aircraft noise at or above DNL 65 dB. In 1981, FAA issued 14 CFR Part 150, Airport Noise Compatibility Planning, and as part of that regulation, formally adopted DNL. DNL, symbolized as Ldn, is the 24-hour average sound level, in dB, obtained from the accumulation of all events with the addition of 10 decibels to sound levels in the night from 10 PM to 7 AM. The weighting of the nighttime events accounts for the increased interfering effects of noise during the night when ambient levels are lower and people are trying to sleep.

In the promulgation of 14 CFR Part 150, FAA also published a table of land uses that are compatible or incompatible with various levels of airport noise exposure in DNL. This table established that levels below DNL 65 dB are considered compatible for all indicated land uses and related structures without restriction.

Sources

Aviation Environmental Design Tool, AEDT, is used to track airport noise exposure. AEDT uses updated population data from the 2000 and 2010 Census projected to the current year to account for population growth. The data source for airport traffic is FAA's Enhanced Traffic Management System (ETMS). This database has replaced the original source, the Official Airline Guide (OAG). Unlike the OAG, the ETMS database includes unscheduled air traffic, which allows for more accurate modeling of freight, general aviation, and military operations. The ETMS also provides more details on aircraft type for a more accurate distribution of aircraft fleet mix.

The current year's result is the number of people exposed in the previous calendar year. Data on the number of people relocated through the Airport Improvement Program are collected from FAA regional offices. Local traffic utilization data are collected from individual airports and updated periodically.

A task group formed to review MAGENTA and AEDT by the Committee on Aviation Environmental Protection (CAEP) under the International Civil Aviation Organization (ICAO) has thoroughly reviewed both model's population exposure methodology and has validated it for several airport specific cases. MAGENTA played an important role in the setting of new international aircraft noise standards by CAEP in 2001 and AEDT played that same role in setting of new international aircraft noise standard by CAEP in 2013.

Performance Data Completeness and Reliability

Statistical Issues

This metric is derived from model estimates that are subject to errors in model specification. Trends of U.S. noise exposure may change due to annual improvements to the noise exposure model. A major change to AEDT (Aviation Environmental Design Tool) may result in a significant change in the estimate of the number of people exposed to significant noise levels around U.S. airports.

Completeness

No actual count is made of the number of people exposed to significant aircraft noise. Aircraft type and event level are current. However, some of the databases used to establish route and runway utilization were developed from 1990 to 1997, while others have been updated more recently. Changes in airport layout including expansions may not be reflected. The FAA is reviewing these databases and is currently updating appropriate databases. The determination of which databases will be updated is based on several factors. The benefits of federally funded mitigation, such as relocation, are accounted for.

Reliability

The Integrated Noise Model (the core of the AEDT model) has been validated with actual acoustic measurements at both airports and other environments such as areas under aircraft at altitude. AEDT has gone through extensive validation through an ICAO workgroup and through its own design review group. The AEDT population exposure methodology has been thoroughly reviewed by an ICAO task group and was most recently validated for a sample of airport-specific cases.

Appendix-I

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Lead FHWA implementation of MAP-21 and future reauthorization environmental provisions (FHWA)

Measure

Submit three reports to Congress annually on MAP-21 Section 1306 regarding the status of environmental impact statement and environmental assessment processes

Scope

MAP-21 requires FHWA to report Congress, at least every 120 days, on the status and progress under of: projects under National Environmental Policy Act (NEPA) that require a financial plan; a sampling of at least five percent of projects requiring an EIS or EA in each State, and includes major projects.

Sources

Data are gathered from the Project and Program Action Information System (PAPAI) and from periodic queries to the FHWA division offices.

Statistical Issues

Data quality and completeness for any specific reporting period is dependent on the accuracy and timeliness of the information entered into the PAPAI database. The information in PAPAI uses actual project milestone dates, which minimizes the potential for anomalies in the data.

Completeness

Completeness of the information is dependent on the timeliness with which information is updated in PAPAI or otherwise provided to the Division Offices by the States.

Reliability

Reliability of the information is dependent on the accuracy of the information entered in PAPAI, and provided in periodic surveys. Although this information is self-reported, this information is very reliable because it reports on actual project dates for commencement and completion of project milestones.

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Vulnerability assessments of the highway system (FHWA)

Measure

This measure tracks the number of States, MPOs serving Transportation Management Areas (TMAs), and Federal land management agencies (FLMAs) that have conducted vulnerability assessments of the highway system to climate change and/or extreme weather events.

Scope

A total of 280 States, MPOs serving a TMA, and FLMA areas are being tracked for this measure. The total includes 183 MPOs serving a TMA, 52 States, and 45 FLMAs. These assessments are accomplished through a variety of means by examining vulnerabilities or risks at the system or program level, or by being included as part of the development of a long range plan or program. Examples of State, MPO, or FLMA work that could count towards the measure include: i) System or area vulnerability assessments (not project-level assessments) that are well underway or complete; ii) Assessments conducted by or with substantial involvement of the State, MPO, or FLMA area; iii) Assessments included in a State plan or program, or that applies to the State or a portion of the State; iv) Assessments conducted as part of an MPO Long Range Transportation Plan (LRTP) or Transportation Improvement Program (TIP), or that applies to the MPO planning area or a portion of it (e.g., a corridor assessment); v) Assessments conducted as part of an FLMA plan or program; vi) Assessments of vulnerability or risk, and; vii) Asset management or similar studies focused on climate change or extreme weather event impacts.

Sources

Office files based on a periodic, informal survey of Division Offices, States, MPOs, and other agencies.

Statistical Issues

Professional judgment is involved in determining whether any particular vulnerability assessment work counts toward the measure. The universe of examples for this measure is growing steadily, but is dependent on the improving capability of the States, MPOs and FLMAs conducting vulnerability assessments. The accuracy and utility of this information is sufficient for making program level decisions regarding the need for additional capacity building and assessments for transportation system improvement and protection.

Completeness

There is no formal requirement to report this data to FHWA. As a result, some vulnerability assessments may not be identified or included until a year or more after completion. This indicator depends increasingly on the willingness and ability of communities to embrace the essential role that vulnerability assessments play in managing the transportation system against the effects of climate change and extreme weather events, and perform them. Once

Appendix-I

Performance Data Completeness and Reliability

they do that, they will be in a position to implement strategies to improve and protect the system from those impacts. The information will be more complete as that occurs.

Reliability

Although this information is self-reported, it is very reliable because it based on actual completed projects that are representative examples of this type of work and that serve as valuable examples for other communities to consider.

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Hazardous Liquid Pipeline Spills (PHMSA)

Measure

The number of hazardous liquid pipeline spills with environmental consequences

Scope

Hazardous liquid pipeline incidents are reportable under 49 CFR 195.50. This measure tracks the number of spills, of five barrels or more, where the accident report noted any environmental consequences (fish, birds, terrestrial wildlife, soil, or water)—from hazardous liquid pipelines in the U.S.

Sources

DOT/Pipeline and Hazardous Materials Safety Administration (PHMSA) incident data are used. These data are derived from pipeline operator reports submitted on PHMSA Form F-7000.1. Most incidents are reported online through the PHMSA website.

Statistical Issues

Results in any single year should be interpreted with caution. There is some normal annual variation in the number of reported incidents each year, particularly given the small number of these incidents, and this variation might not reflect real changes in the underlying risk.

Targets are presented as ranges to account for this variation. The target each year is set at one standard deviation from the trendline to account for normal variation year-to-year (which shows a decline of about 10 percent on average every 12 years over the 14 year period (2002-2015)). This provides about 80 percent probability of achieving the target if the risk continues to follow the trendline. An exponential trendline is used to reflect the concept of diminishing returns as the numbers decline.

The performance measure is not normalized for changes in exposure—external factors like changes in pipeline mileage, petroleum consumption, or ton-miles moved through pipelines—that could affect the number of incidents with environmental consequences.

Completeness

Compliance in reporting is very high and most or all incidents that meet reporting requirements are submitted. Operators must submit reports within 30 days of an incident or face penalties for non-compliance. There may be a 30- to 60-day lag in reporting and compiling information in the database for analysis.

Projections from partial-year data include all months for which we have reliable data plus an estimated number for the missing months based on the historical fraction those months represent in the final totals over the past five years.

Appendix-I

Performance Data Completeness and Reliability

Reliability

PHMSA routinely cross-checks incident/accident reports against other sources of data, such as the telephonic reporting system for incidents requiring immediate notification provided to the National Response Center (NRC). PHMSA inspectors also regularly discuss incidents with operator personnel during routine inspections. PHMSA continues to work to improve Best Management Practices to ensure quality of the incident data.

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Major Hazardous Liquid Pipeline Spills (PHMSA)

Measure

The number of major hazardous liquid pipeline spills

Scope

Hazardous liquid pipeline incidents are reportable under 49 CFR 195.50. This measure tracks the number of major hazardous liquid spills (greater than 10,000 gallons), from hazardous liquid pipelines in the U.S.

Sources

DOT/Pipeline and Hazardous Materials Safety Administration (PHMSA) incident data are used. The data is submitted online by pipeline operators using PHMSA Form F-7000.1.

Statistical Issues

Results in any single year should be interpreted with caution. There is some normal annual variation in the number of reported incidents each year, particularly given the small number of these incidents, and this variation might not reflect real changes in the underlying risk.

Targets are presented as ranges to account for this variation. The target each year is set at one standard deviation from the trendline to account for normal variation year-to-year (which shows a decline of about 10 percent on average every two years over the 30 year period (1986-2015)). This provides about 80 percent probability of achieving the target if the risk continues to follow the trendline. An exponential trendline is used to reflect the concept of diminishing returns as the numbers decline.

The performance measure is not normalized for changes in exposure—external factors like changes in pipeline mileage, petroleum consumption, or ton-miles moved through pipelines—that could affect the number of major hazardous liquid spills.

Completeness

Compliance in reporting is very high and most or all incidents that meet reporting requirements are submitted. Operators must submit reports within 30 days of an incident or face penalties for non-compliance. There may be a 30- to 60-day lag in reporting and compiling information in the database for analysis.

Projections from partial-year data include all months for which we have reliable data plus an estimated number for the missing months based on the historical fraction those months represent in the final totals over the past five years.

Reliability

Appendix-I

Performance Data Completeness and Reliability

PHMSA routinely cross-checks incident/accident reports against other sources of data, such as the telephonic reporting system for incidents requiring immediate notification provided to the National Response Center (NRC). PHMSA inspectors also regularly discuss incidents with operator personnel during routine inspections. PHMSA continues to work to improve the quality of the incident data.

Appendix-I

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Vehicle Fleet Greenhouse Gas Emissions per Mile (OST M-93)

Measure

Percent reduction of vehicle fleet greenhouse gas emissions per mile compared to the 2014 baseline. (FY)

Scope

This measure includes greenhouse gases emitted by all owned- and leased-vehicles in the fleets of the Department and its Operating Administrations.

Sources

Executive Order 13693 requires a reduction of greenhouse gas emissions per mile for agency fleets of 20 or more by 30 percent by 2025. Leased vehicle fuel consumption and mileage data and is provided by GSA to the Department. Owned vehicle fuel consumption and mileage data provided by the individual Operating Administrations. The Office of the Secretary is responsible for compiling this data into the Integrated Logistics Management System (ILMS). ILMS is owned and operated by the Department. Vehicle consumption data are formatted and uploaded into the Federal Automotive Statistical Tool (FAST) which is maintained by the Department of Energy.

Statistical Issues

DOT and its Operating Administrations are responsible for examining vehicle data and validating for accuracy. After validating these data against internal sources, all known major errors in the data are eliminated. However, inaccurate coding of alternative fuel may occur within the GSA system which is beyond the scope of DOT.

Completeness

The FAST data system is prescribed by regulations as the official comprehensive data collection mechanism for DOT vehicle fleet information. A 2014 baseline for these data has been established. At the time of reporting, data related to 2015 were still being developed and verified.

Reliability

There is extensive review of fuel consumption and mileage data that occurs at the field, Operating Administration, and OST level prior to entry into the DOE FAST data system. The DOE FAST system is used to prepare many reports to Congress and others regulatory agencies. Performance goals follow data as reported in ILMS and FAST, and is the reliable basis for petroleum reduction as required under Executive Order 13693.

Appendix-I

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Water Efficiency Improvement (OST M-93)

Measure

Percent reduction of potable water use (as measured by intensity) compared to the 2007 baseline (FY).

Scope

This measure includes potable water consumed by all owned, direct-leased (non-GSA) and GSA leased-buildings (where utilities are paid separately) by the Department and its Operating Administrations.

Sources

Executive Order 13693 requires Federal Agencies to reduce water consumption intensity (gallons per square foot) two percent annually, and by 36 percent at the end of FY 2025. DOT utilizes multiple data sources for water information, some of which are actual and some of which are estimated from expense data. For those OAs (four of the five) that own ten or fewer buildings, the Department has actual water consumption information stemming from monthly invoices. However, FAA who owns more than ten buildings generally does not have actual water consumption for the majority of their facilities since their utility bills are centralized for payment processing. To calculate annual water consumption where actual water use data are not readily available, the Department uses water expense data from the DELPHI accounting system and a conversion factor (average \$/gal rate per city). The Office of the Secretary is responsible for compiling this data from each Operating Administration as part of the Department's annual greenhouse gas inventory.

Statistical Issues

DOT and its Operating Administrations are responsible for examining water consumption data and validating for accuracy. However, where actual water use data are not readily available, the Department uses water expense data from the DELPHI accounting system and a conversion factor (average \$/gal rate per city) to calculate annual water consumption. Therefore some of the data are actual and some of them are estimated.

Completeness

Approximately 20-30 percent of the Department's total water consumption is based on actual data from monthly invoices. Approximately 70-80 percent of the Department's total water consumption is estimated from expense data within the DELPHI accounting system. A 2007 baseline for these data has been established.

Reliability

Appendix-I

Performance Data Completeness and Reliability

There is extensive review of water consumption, when actual utility bills are available, that occurs at the field, Operating Administration and OST level prior to entry into the Department's greenhouse gas inventory. When water consumption is estimated from expenses within the DELPHI accounting system, the conversion factor used (average \$/gal rate per city) may be a source of variability.

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Recycling and Waste Diversion (OST M-93)

Measure

Percent of non-hazardous solid waste diverted from landfills on an annual basis

Scope

This measure includes all owned, direct-leased (non-GSA) and GSA leased-buildings (where utilities are paid separately) greater than 5,000 gross square feet (gsf) by the Department and its Operating Administrations.

Sources

Executive Order 13693 requires the Department to divert at least 50 percent of non-hazardous solid waste, excluding construction and demolition waste, from landfills annually. Data regarding recycling and waste diversion efforts are currently being measured and collected from appropriate DOT facilities. The methods of data collection and estimation also vary from site to site. The Department recently developed a comprehensive methodology for measuring recycling and waste diversion efforts at all appropriate DOT facilities.

Statistical Issues

DOT and its Operating Administrations are responsible for measuring and reporting recycling and waste diverted from landfills. However, few DOT facilities have implemented a system for tracking this performance measure such as receiving actual data from waste management companies. Where actual waste and recycling data are not readily available, waste and recycling data is estimated using a visual inspection or per capita estimation factor. Therefore some of the data are actual and some of them are estimated.

Completeness

Since 2013, all Operating Administrations have followed the comprehensive methodology developed by OST for measuring recycling and waste diversion efforts. The recycling and waste diversion data currently collected by the Department represent the actions of facilities that are greater than 5,000 gsf, all owned, direct-leased (non-GSA) and GSA leased-buildings (where utilities are paid separately) by the Department and its Operating Administrations.

Reliability

The recycling and waste diversion data currently collected by the Department represent the actions of the majority of the facilities. Following the comprehensive methodology developed by OST, recycling and waste diversion data in some cases were provided by the waste management company (actual data) and in other cases estimated using a visual inspection or per capita estimation factor. It is anticipated the data will become more accurate over time as more actual data is collected or provided by waste management companies.

Appendix-I

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Contracts Meeting Sustainability Requirements (OST M-93)

Measure

Percent of all applicable contracts that meet sustainability requirements (FY)

Scope

This measure includes all applicable contracts issued by the Department and its Operating Administrations.

Sources

Executive Order 13693 requires the Department to advance sustainable acquisition to ensure that 100 percent of applicable new contract actions including task and delivery orders meet sustainable acquisition requirements each quarter and annually. Sustainable acquisition data are provided quarterly by individual Operating Administrations to OST via the sustainable acquisition compliance template. A secondary source for acquisition data is the Federal Procurement Data System (FPDS). The Office of the Secretary, Office of Procurement (M-60) is responsible for compiling these data. Sustainable acquisition data are formatted and uploaded into the OMB MAX Collect system annually as part of the Department's OMB Energy/Environmental Scorecard submission. The White House Office of Management and Budget has prescribed that a determination can be made by the Department sampling five percent of applicable contract actions quarterly to determine whether 100 percent of the sampled contracts meet the sustainability requirements. This is the methodology used by the Department.

Statistical Issues

DOT and its Operating Administrations sample five percent of applicable contract actions quarterly to determine whether 100 percent of the sampled contracts meet the sustainability requirements. These samples are based on priority product and service codes that are likely to include sustainable requirements. DOT and its Operating Administrations are responsible for examining applicable contracts and validating for accuracy. After validating these data against internal sources, all known major errors in the data are eliminated.

Completeness

Each Operating Administration is responsible for reviewing its applicable contracts and reporting quarterly performance to OST using the sampling methodology described under sources.

Reliability

The quarterly data received from the Operating Administrations is considered a reliable source of sustainable acquisition information as required under Executive Order 13693. All

Appendix-I

Performance Data Completeness and Reliability

applicable contract actions are not required to be reviewed; therefore there may be errors or omissions if the sample is not representative of all contracts.

Appendix-I

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Reduction in Greenhouse Gas Emissions – Scope 1&2 Direct Emissions (OST M-93)

Measure

Percent reduction in scope 1 and 2, direct greenhouse gas emissions (GHG) compared to 2008 baseline (FY)

Scope

This measure includes all scope 1 and 2 greenhouse gas emissions, including those from facilities and fleet vehicles owned and operated by the Department and its Operating Administrations.

Sources

Executive Order 13693 requires the Department to reduce overall scope 1 and 2 GHG emissions by 35 percent by 2025 relative to a FY 2008 baseline. Greenhouse gas emissions from fleet vehicles are provided by the Federal Automotive Statistical Tool (FAST) which is maintained by the Department of Energy. Facility related greenhouse gas emissions are collected at the field level and reviewed by the Operating Administrations. The Office of the Secretary is responsible for compiling all greenhouse gas emission data from each of the Operating Administrations' facilities and fleet vehicles into the Sustainability and Greenhouse Gas Inventory workbook maintained by the Department of Energy.

Statistical Issues

DOT and its Operating Administrations are responsible for examining greenhouse gas emission data and validating for accuracy. After validating these data against internal sources, all known major errors in the data are eliminated.

Completeness

The Sustainability and Greenhouse Gas Inventory workbook is prescribed by regulations as the official data collection mechanism for DOT greenhouse gas emissions. The annual submission from DOT to DOE is considered the most complete data set available. A 2008 baseline for these data has been established.

Reliability

There is extensive review of greenhouse gas emission data that occurs at the field, Operating Administration and OST level prior to entry into the Sustainability and Greenhouse Gas Inventory workbook. The Sustainability and Greenhouse Gas Inventory workbook is used to prepare many reports to Congress and others regulatory agencies. Performance goals follow data as reported in the Sustainability and Greenhouse Gas Inventory workbook, and is the reliable basis for greenhouse gas emission data as required under Executive Order 13693.

Appendix-I

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Reduction in Greenhouse Gas Emissions – Scope 3 Indirect Emissions (OST M-93)

Measure

Percent reduction in scope 3, indirect greenhouse gas emissions (GHG) compared to 2008 baseline (FY)

Scope

Includes all scope 3 greenhouse gas emissions, including those from employee business travel, commuting, waste disposal and transmission and distribution losses by the Department and its Operating Administrations

Sources

Executive Order 13693 requires the Department to reduce overall departmental scope 3 GHG emissions by 35 percent by 2025 relative to a FY 2008 baseline. Greenhouse gas emissions from employee commuting are calculated using the results of the Department's bi-annual Commuter Choice Survey. Greenhouse gas emissions from employee business travel are provided by the TravelTRAX Travel Management Information System and E2S Travel Voucher System which are maintained by the General Services Administration. Data on waste disposal comes from the Department's comprehensive methodology developed for measuring recycling and waste diversion efforts (described above). Transmission and distribution losses are derived from the energy data entered into the Greenhouse Gas Inventory workbook. The Office of the Secretary is responsible for compiling all greenhouse gas emission data from employee business travel and commuting into the Sustainability and Greenhouse Gas Inventory workbook maintained by the Department of Energy.

Statistical Issues

DOT and its Operating Administrations are responsible for examining greenhouse gas emission data and validating for accuracy. After validating these data against internal sources, all known major errors in the data are eliminated.

Completeness

The Sustainability and Greenhouse Gas Inventory workbook is prescribed by regulations as the official data collection mechanism for DOT greenhouse gas emissions. The annual submission from DOT to DOE is considered the most complete data set available. A 2008 baseline for these data has been established.

Reliability

There is extensive review of scope 3 greenhouse gas emission data that occurs at the Operating Administration and OST level prior to entry into the Sustainability and Greenhouse Gas Inventory workbook. The Sustainability and Greenhouse Gas Inventory workbook is used to prepare many reports to Congress and others regulatory agencies.

Appendix-I

Performance Data Completeness and Reliability

Performance goals follow data as reported in the Sustainability and Greenhouse Gas Inventory workbook, and is the reliable basis for greenhouse gas emission data as required under Executive Order 13693.

Appendix-I

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Energy Intensity (OST M-93)

Measure

Percent reduction in building energy use (measured as intensity) compared to the 2015 baseline (FY).

Scope

This measure includes all owned, direct-leased (non-GSA) and GSA leased-buildings (where utilities are paid separately) in the Department and its Operating Administrations.

Sources

Executive Order 13693 requires a reduction of energy use (measured as intensity) by 2.5 percent each year through FY 2025 from a FY2015 baseline. DOT utilizes multiple data sources for building energy use, some of which are actual and some of which are estimated from expense data. For those OAs (four of the five) that own ten or fewer buildings, the Department has actual energy consumption information stemming from monthly invoices. However, FAA who owns more than ten buildings generally does not have actual energy consumption for the majority of their facilities since their utility bills are centralized for payment processing. To calculate annual energy consumption where actual energy use data are not readily available, the Department uses energy expense data from the DELPHI accounting system and a conversion factor (average \$/kWH rate per state). The Office of the Secretary is responsible for compiling all appropriate building energy use data from each of the Operating Administrations' buildings into the Sustainability and Greenhouse Gas Inventory workbook maintained by the Department of Energy.

Statistical Issues

DOT and its Operating Administrations are responsible for examining building energy use data and validating for accuracy. However, where actual water use data are not readily available, the Department uses energy expense data from the DELPHI accounting system and a conversion factor (average \$/kWH rate per state) to calculate annual energy consumption. Therefore some of the data are actual and some of them are estimated.

Completeness

The Sustainability and Greenhouse Gas Inventory workbook is prescribed by regulations as the official data collection mechanism for DOT building energy use. The annual submission from DOT to DOE is considered the most complete data set available. A 2015 baseline for these data has been established.

Reliability

Appendix-I

Performance Data Completeness and Reliability

There is extensive review of building energy use data that occurs at the Operating Administration and OST level prior to entry into the Sustainability and Greenhouse Gas Inventory workbook. The Sustainability and Greenhouse Gas Inventory workbook is used to prepare many reports to Congress and others regulatory agencies. Performance goals follow data as reported in the Sustainability and Greenhouse Gas Inventory workbook, and is the reliable basis for building energy use data as required under Executive Order 13693.

Appendix-I

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Renewable Energy Use (OST M-93)

Measure

Percent of total building electric energy consumed from renewable sources on an annual basis.

Scope

This measure includes all owned, direct-leased (non-GSA) and GSA leased-buildings (where utilities are paid separately) in the Department and its Operating Administrations.

Sources

Executive Order 13693 requires no less than 30% of total building electric energy consumed comes from renewable sources by FY 2025. Building renewable energy use data are collected at the field level and reviewed by the Operating Administrations. The Office of the Secretary is responsible for compiling all renewable energy use data from each of the Operating Administrations' buildings into the Sustainability and Greenhouse Gas Inventory workbook maintained by the Department of Energy.

Statistical Issues

DOT and its Operating Administrations are responsible for examining building renewable energy use data and validating for accuracy. After validating these data against internal sources, all known major errors in the data are eliminated.

Completeness

The Sustainability and Greenhouse Gas Inventory workbook is prescribed by regulations as the official data collection mechanism for DOT building renewable energy use. The annual submission from DOT to DOE is considered the most complete data set available.

Reliability

There is extensive review of building energy and renewable use data that occurs at the Operating Administration and OST level prior to entry into the Sustainability and Greenhouse Gas Inventory workbook. The Sustainability and Greenhouse Gas Inventory workbook is used to prepare many reports to Congress and others regulatory agencies. Performance goals follow data as reported in the Sustainability and Greenhouse Gas Inventory workbook, and is the reliable basis for building renewable energy use data as required under Executive Order 13693.

Appendix-I

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Ship Disposal Program (MARAD)

Measure

Cumulative number of ships (2010-2017) safely removed from the Suisun Bay Reserve Fleet for disposal per consent decree.

Scope

This measure concerns MARAD's settlement agreement with the Circuit Court of California against MARAD in 2007, which resulted in a court ordered consent decree. The consent decree specifies a cumulative number of SBRF vessels required to be removed annually for fiscal years 2010 through 2017 until the 57 ships specified in the consent decree are permanently removed from the SBRF.

Sources

The Maritime Administration's Office of Ship Disposal Program records and tracks the data.

Statistical Issues

None.

Completeness

After award of the ship recycling contract, the vessel is removed from the SBRF and towed to the recycling facility for disposal. Upon notification by the SBRF that the vessel has been removed from the fleet, the vessel is counted towards the cumulative total for the metric.

Reliability

The data collected are from the program office source and is considered reliable.

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Ship Disposal Program (MARAD)

Measure

Reduce risk of environmental contamination from disposal of Federally-owned vessels by maintaining a 1:1 ratio of incoming vessels to vessels removed.

Scope

This measure quantifies the annual and long-term progress made by the program to reduce the environmental risks posed by non-retention ships at the reserve fleet sites. MARAD is the disposal agent for Federal government owned merchant-type vessels totaling 1,500 gross tons or greater (as required by Section 3502 of the National Heritage Act as amended) and has custody of a fleet of non-retention ships owned by the Federal government. These include obsolete merchant ships moored at National Defense Reserve Fleet (NDRF) sites that are not assigned to the Ready Reserve Force, or otherwise designated for a specific purpose. When ships are no longer considered useful for defense or aid missions, MARAD arranges for their responsible disposal, on a worst-first basis, as identified in Section 203 of the Federal Property and Administrative Services Act of 1949. All of the vessels in the NDRF are disposed pursuant to this authority.

Sources

The Maritime Administration's Office of Ship Disposal Program records and tracks the number of vessels at the reserve fleet sites designated as obsolete, versus number of vessels actually removed for disposal. The reserve fleet sites includes the James River site in Virginia, the Suisun Bay site in California, the Beaumont site in Texas, and decommissioned Navy Vessels located in Hawaii and Pennsylvania.

Statistical Issues

None.

Completeness

Once a ship is designated as obsolete and added to the reserve fleet inventory report it is included in the cumulative total of incoming vessels. After award of the ship recycling contract, the vessel is removed from the fleet site and towed to the recycling facility for disposal. Upon notification by the fleet site that the vessel has been removed from the fleet, the vessel is counted towards the cumulative total for the number of vessels removed from the reserve fleets. A rate of at least 1.0 is the target for each fiscal year and indicates that the program removed at least one ship for every new ship that is designated obsolete and added to one of the fleet sites. An actual annual value that is less than 1.0 indicates the target was exceeded with the removal of more ships for disposal than have been designated for disposal on an average annual basis.

Appendix-I

Performance Data Completeness and Reliability

Reliability

The data are from the program source and is considered reliable.

Performance Data Completeness and Reliability

Details on Environmental Sustainability Measures

Transit Revenue Service Fleet (FTA)

Measure

Percent of alternative-fuel and hybrid vehicles in the transit revenue service fleet

Scope

This measure includes all fixed-route transit vehicles in urbanized areas not operating on diesel or gasoline. This includes bio-diesel, Compressed Natural Gas (CNG), dual fuel, electric battery, electric propulsion, ethanol, grain additive, hybrid diesel, hybrid gasoline, kerosene, Liquefied Natural Gas (LNG), Liquefied Petroleum Gas (LPG) and other non-gasoline/non-diesel fuels. This measure includes all buses in rural and urban service, small, medium, and large. Articulated buses, commuter buses, and bus rapid transit buses are all part of this measure as well. All rail vehicles are also included as they are almost entirely electric.

Sources

These data are reported annually by operators to the FTA National Transit Database (NTD). These data are then aggregated across all U.S. transit systems. This metric is the total percentage of alternative-fuel and hybrid-propulsion vehicles in the fleet.

Statistical Issues

Data are reported by the individual transit systems at the end of their fiscal years. All transit systems that receive or benefit from FTA's Rural or Urbanized Area Formula Grants are required to report to the NTD. The quality of this metric is largely reliant upon the quality of the data collected and submitted by the individual transit systems.

FTA requires a full inventory of revenue vehicles from each agency. This metric counts all revenue vehicles regardless of size. This size range is extensive, from 10-seat vans to 65-seat articulated buses.

Completeness

This measure includes essentially all U.S. transit systems in urbanized areas. There are a very few that do not receive FTA Formula Grant funds and choose not to participate.

Reliability

The transit agency's CEO certifies that data reported to the NTD are accurate. Submitted data are reviewed by analysts and compared to trend data for the transit system and to National benchmarks.

Appendix-I

Performance Data Completeness and Reliability

Details on Organizational Excellence Measures

Improve Employee Engagement (OST)

Measure

Percentage of employee positive responses on the employee engagement index

Scope

The employee engagement index measures employees' sense of purpose that is evident in their display of dedication, persistence and effort in their work or overall attachment to their organization and its mission. The employee engagement index is a summary of employee positive responses to 3 indices: the Supervisor Index, and the Intrinsic Work Experience Index. Each of the indices reflects a different aspect of the engaged environment.

Sources

The Office of Personnel Management's (OPM) Federal Employee Viewpoint Survey.

Statistical Issues

OPM administers the Federal Employee Viewpoint Survey (FEVS) that asks Federal employees to provide their opinions on all aspects of their Federal employment experience – from views on their job and agency, through views on their immediate supervisors, managers and ultimately, senior leaders.

Data collected from survey respondents are weighted to produce survey estimates that accurately represent the survey population. The weights developed take into account the variable probabilities of selection across the sample domains, nonresponse, and known demographic characteristics of the survey population. The final data set reflects the agency composition and demographic makeup of the Federal workforce within plus or minus 1 percentage point. Demographic results are not weighted.

Completeness

The data are as complete as possible and under the supervision of OPM.

Reliability

The data are reliable.

Appendix-I

Performance Data Completeness and Reliability

Details on Organizational Excellence Measures

Persons With Targeted Disabilities Hiring (OST)

Measure

The annual percentage of employees with targeted disabilities that are hired

Scope

This measure identifies the number of employees with targeted disabilities that DOT hires on an annual basis. This supports the President's commitment to expand access to employment by having the Federal Government lead by example in hiring persons with disabilities (PWD). In July 2010, the President issued Executive Order 13548, which directs Executive departments and agencies to hire 100,000 persons with disabilities into the Federal Government over 5 years, including persons with targeted disabilities (PWTD). DOT has maintained a 3 percent goal for hiring persons with targeted disabilities since 2006.

Sources

Hiring data from the Interior Business Center's Federal Personnel and Payroll System.

Statistical Issues

None

Completeness

Data are complete by the end of the fiscal year.

Reliability

The data are reliable.

Appendix-I

Performance Data Completeness and Reliability

Details on Organizational Excellence Measures

Employee Engagement of Demographic groups (OST)

Measure

Percent difference between the score of a demographic group and the DOT-wide average employee engagement index score

Scope

To measure the inclusiveness of DOT's demographic groups by assessing the differences between demographic groups employee engagement scores and the DOT average.

The employee engagement index measures employees' sense of purpose that is evident in their display of dedication, persistence and effort in their work or overall attachment to their organization and its mission. The employee engagement index is a summary of employee positive responses to 3 indices: the Supervisor Index, and the Intrinsic Work Experience Index. Each of the indices reflects a different aspect of the engaged environment.

Sources

The Office of Personnel Management's (OPM) Federal Employee Viewpoint Survey.

Statistical Issues

OPM administers the Federal Employee Viewpoint Survey (FEVS) that asks Federal employees to provide their opinions on all aspects of their Federal employment experience – from views on their job and agency, through views on their immediate supervisors, managers and ultimately, senior leaders.

Data collected from survey respondents are weighted to produce survey estimates that accurately represent the survey population. The weights developed take into account the variable probabilities of selection across the sample domains, nonresponse, and known demographic characteristics of the survey population. The final data set reflects the agency composition and demographic makeup of the Federal workforce within plus or minus 1 percentage point. Demographic results are not weighted.

Completeness

The data are as complete as possible and under the supervision of OPM.

Reliability

The data are reliable.

Appendix-I

Performance Data Completeness and Reliability

Details on Security, Preparedness, and Other Supporting Objectives Measures

Office of Small and Disadvantaged Business Utilization (OST S-40)

Measure

1. Percent share of the total dollar value of DOT direct contracts that are awarded to women-owned businesses. (FY)
2. Percent share of the total dollar value of DOT direct contracts that are awarded to small disadvantaged businesses. (FY)

Scope

Includes contracts awarded by DOT Operating Administrations through direct procurement. It does not include FAA contracts exempt from the Small Business Act.

Sources

New data reports will come directly from the Federal Procurement Data System (FPDS). Data are compiled by USDOT Contracting staff from Department contract documents. Selected information is either transmitted from the operating administration contract writing systems, or manually data-keyed into the FPDS database. The FPDS website can be queried to compute all needed statistics.

All USDOT contracts are itemized.

Statistical Issues

DOT is currently required to examine FPDS/NG data and resubmit it for validation. After re-verifying these data against internal sources, all known major errors in the data are eliminated. Business types are identified in the System for Award Management (SAM) database. However, random variation in the number of DOT contracts, as well as the number of women-owned and small disadvantaged businesses each year results in some random variation in these measures from year to year.

Completeness

The Federal Procurement Data System (FPDS) is prescribed by regulations as the official data collection mechanism for DOT acquisitions.

Reliability

There is extensive regulatory coverage to ensure data reliability. The system is used to prepare many reports to Congress, the Small Business Administration (SBA), and others. Performance goals follow actual data, as finalized by the SBA, and is the only reliable basis for program evaluations as mandated by the Small Business Act, Section 644(g).

Appendix-I

Performance Data Completeness and Reliability

Details on Security, Preparedness, and Other Supporting Objectives Measures

National Security and Emergency Response (MARAD)

Measure

Maintain a U.S. presence in foreign maritime commerce through ships enrolled in the Maritime Security Program (MSP) at 19,200 vessel operating days each fiscal year, ensuring availability of sealift capacity for the Department of Defense (DOD) during times of war or national emergency.

Scope

The MSP was established to ensure that a core fleet of militarily-useful U.S.-flag commercial vessels operating in U.S. international trade with U.S. citizen mariner crews would be available to meet the economic needs of the United States, while also providing the DOD with assured access to vessels and mariners in support of national defense. The Maritime Security Act of 2003 establishes the MSP fleet for fiscal years 2006 through 2015. On January 2, 2013, the President signed the National Defense Authorization Act which included a provision extending the program through fiscal year 2025. The program authorizes payments and MSP operating agreements for 60 ships. Each MSP ship is required to operate in foreign commerce a minimum of 320 days in a fiscal year to receive full authorized MSP payments. If all 60 ships are operating at least 320 days this equates to 19,200 operating days each fiscal year. MARAD monitors MSP ships on a monthly basis to ensure that ships are available to meet the economic and national security requirements of DOD.

Sources

Ships enrolled in the MSP have signed MSP Operating Agreements which require MSP participants to have ships enrolled in an Emergency Preparedness Program to support DOD requirements. MSP operators have met this requirement by signing Voluntary Intermodal Sealift Agreements (VISA) for dry cargo vessels and Voluntary Tanker Agreements for tank vessels with MARAD. Any requests to leave the MSP must be approved by MARAD in consultation with the U.S. Transportation Command. MSP operators are required to provide MARAD with monthly vouchers detailing the days of operation for each MSP vessel. Days of non-operation are also reported.

Statistical Issues

None.

Completeness

The total number of operating days are tracked and managed on a regular basis, and considered final by the end of the fiscal year.

Appendix-I

Performance Data Completeness and Reliability

Reliability

The data are reasonably reliable and useful in managing the MSP. Because of the monthly vouchers and independent verification by MARAD using available vessel operating databases, these data are reliable.

Appendix-I

Performance Data Completeness and Reliability

Details on Security, Preparedness, and Other Supporting Objectives Measures

National Security and Emergency Response (MARAD)

Measure

Percentage of DOD required shipping capacity complete with crews available within mobilization timelines. (MARAD).

Scope

This measure is based upon the number of available ships in MARAD's Ready Reserve Force (RRF) and ships enrolled in the Voluntary Intermodal Sealift Agreement (VISA) program (compared to the total number of ships in the RRF and VISA) that can be fully crewed within the established readiness timelines. The VISA program currently includes 58 ships enrolled in the MSP, and one ship awaiting scrapping replacement. MARAD's emergency preparedness programs provide DOD and civilian agencies with assured access to commercial and government-owned vessels during times of national emergency. Crewing of the RRF vessels is accomplished by commercial mariners employed by private sector companies under contract to the government.

Sources

The RRF, MSP, and VISA fleet readiness are monitored on a monthly basis by MARAD to ensure availability of sufficient capacity and U.S. mariners. MARAD also maintains records of the sealift ships enrolled in the MSP and VISA and their crew requirements.

Statistical Issues

None

Completeness

MARAD's measure for shipping capacity and crew availability is to ensure that the level of both commercial and government-owned sealift is sufficient to meet current and projected DOD requirements to transport cargo to support U.S. military and during times of national emergency.

Reliability

The data collected are from the program offices and is considered reliable and useful in managing the readiness programs.

Appendix-I

Performance Data Completeness and Reliability

Details on Security, Preparedness, and Other Supporting Objectives Measures

National Security and Emergency Response (MARAD)

Measure

Percentage of DoD designated commercial ports available for military use within DoD established timelines.

Scope

The measure consists of the total percentage of DOD-designated commercial strategic ports and their readiness to support DOD force deployment during contingencies and other defense emergencies. Ports must forecast their ability to be able to meet DOD-readiness requirements within 48 hours of written notice from the Maritime Administration, expressed as a percentage of the total number of DOD-designated commercial strategic ports. Port readiness is based on quarterly forecasts submitted by the ports and annual port readiness assessments by the Maritime Administration in cooperation with other National Port Readiness Network partners.

Sources

MARAD's data are derived from quarterly reports submitted by the commercial strategic ports and from MARAD/DOD annual port assessments.

Statistical Issues

None.

Completeness

MARAD conducts frequent port visits and assessments, and communicates regularly with the ports. MARAD's measure for availability of commercial ports allows the agency to assess the readiness of the commercial ports that will be used to transport military equipment and supplies. All identified Port Planning Order facilities are available to support the deployment of the U.S. Armed Forces and other national emergency requirements.

Reliability

The data is reasonably reliable and useful in managing MARAD's port readiness program.

Appendix-I

Performance Data Completeness and Reliability

Details on Security, Preparedness, and Other Supporting Objectives Measures

United States Merchant Marine Academy (MARAD)

Measure

Number of U.S. Merchant Marine Academy (USMMA) graduates with merchant mariner credentials.

Scope

This measure identifies the number of highly qualified mariners that graduate on an annual basis to contribute to maintaining the nation's pool of skilled merchant mariners and be available for service during national emergencies, to support strategic sealift, and serve the nation's commercial maritime transportation needs. These young men and women graduate after receiving an education and essential on-the-job maritime training along with the necessary qualifications to crew merchant vessels. This program supports the competitiveness of a viable and robust merchant marine, and contributes to national defense, homeland security, and economic competitiveness.

Sources

Information is collected in the Comprehensive Academic Management System by the Registrar, and verified and cross checked with the Midshipmen Personnel Office.

Statistical Issues

None.

Completeness

Data is complete by the end of the fiscal year.

Reliability

The data is reliable as reported, reviewed and cross checked by the Registrar and Midshipmen Personnel Office, and verified by the Deputy Superintendent.

Appendix-I

Performance Data Completeness and Reliability

Details on Security, Preparedness, and Other Supporting Objectives Measures

State Maritime Academy Program (MARAD)

Measure

Number of State Maritime Academy (SMA) graduates with merchant mariner credentials.

Scope

This measure identifies the number of highly qualified U.S. Coast Guard (USCG) credentialed mariners that graduate on an annual basis from the six SMAs to contribute to maintaining the nation's pool of skilled merchant mariners, and available for service during national emergencies, to support strategic sealift, and serve the nation's commercial maritime transportation needs. These young men and women graduate after receiving essential on-the-job training and a maritime education with the necessary qualifications to crew merchant vessels. This program supports the competitiveness of a viable and robust merchant marine, and contributes to national defense, homeland security, and economic competitiveness.

Sources

The total number of graduates per academy is provided by the registrars from the six State Maritime Academies.

Statistical Issues

None.

Completeness

The State Maritime Academies have up to three graduations a year, and sometimes as late as October-November time-frame. Therefore, final results on the number of graduates by fiscal year are not final until the end of December.

Reliability

The data are reasonably reliable according to the information we receive from the SMAs.