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2013 State Traffic Safety Performance Measures: Report to Congress

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Contents

List of Frequently Used Abbreviations

ARF: Annual Report File (FARS)

CY: Calendar Year

FARS: Fatality Analysis Reporting System

FHWA: Federal Highway Administration

FY: Fiscal Year

GHSA: Governors Highway Safety Association

GR: Governor's Representative (for Highway Safety)

HSA: Highway Safety Act

HSIP: Highway Safety Improvement Program

HPMS: Highway Performance Monitoring System (FHWA)

HSP: Highway Safety Plan

MAP-21: Moving Ahead for Progress in the 21st Century Act, Public Law 112-141

MMUCC: Model Minimum Uniform Crash Criteria

NHTSA: National Highway Traffic Safety Administration

PM: Performance Measure

SHSO: State Highway Safety Office

TZD: Toward Zero Deaths

VMT: Vehicle Miles of Travel

Executive Summary

Performance measurement is an important tool in assessing progress and strategically directing highway safety resources.

A cornerstone of the Moving Ahead for Progress in the 21st Century Act (MAP-21) was the progression to a performance-based program. This performance based requirement continues with the Fixing America's Surface Transportation Act (FAST) Act, the current surface transportation authorization. MAP-21 codified a standardized set of performance measures that guide investments in programs to achieve State performance goals or targets; collectively these will contribute to progress toward achieving the National Highway Traffic Safety Administration (NHTSA) highway safety mission. This mission centers on saving lives, preventing injury and reducing economic costs due to traffic crashes, through education, research, safety standards and enforcement activity.

This report provides an assessment of 2013 highway safety targets and outcomes submitted by States and Territories to NHTSA in March 2013 through their Highway Safety Plans (HSPs). The HSP is the annual State planning document that describes planned behavioral highway safety expenditures and programs based upon highway safety problem identification.

MAP-21 requires States to have an approved HSP, containing both outcome and activity highway safety performance measures[1] to receive Section 402 State and Community Highway Safety Grants. The outcome performance measures and targets must include: total fatalities; total serious injuries; fatality rate; unrestrained passenger vehicle occupants fatalities; alcohol impaired fatalities; speed-related fatalities; motorcyclist fatalities; unhelmeted motorcyclist fatalities; young driver fatalities; pedestrian fatalities; and observed seat belt use rates. NHTSA reached an agreement with the Governors Highway Safety Association (GHSA), the representative organization for State and Territorial highway safety offices that implement behavioral highway programs, to add an additional traffic safety outcome measure on bicycle fatalities beginning in fiscal year (FY) 2015.[2]

Prior to setting highway safety targets, States begin by calculating a corresponding baseline value. Baselines serve as points of reference by which States measure progress. States have the flexibility and discretion to select baseline periods that are most appropriate for them. State to

[1] Core activity measures include grant activity reporting for the number of seat belt citations, impaired driving arrests and the number of speeding citations issued during grant-funded enforcement activities. An analysis of activity performance measures and progress is outside the score of this report.
[2] As required by MAP-21, NHTSA coordinated with GHSA in making revisions to the set of required performance measures. 23 U.S.C. 402(k)(4).

State comparisons are difficult when the baseline or starting point differ however, the methodologies for target selection also vary; some States set aggressive targets (e.g., 25 percent less than baseline), while others were less ambitious (e.g., one percent below baseline). Evidence-based targets are established in part from trend analysis, anticipated levels of effort and situational factors such as economic conditions, demographics, vehicle miles traveled, and legislative changes. This information guides States to focus on areas likely to have meaningful impacts on highway safety. The most commonly selected method for setting highway safety targets was selection by consensus committee that typically involves State officials and practitioners representing safety organizations. NHTSA approves State targets if the State provides justification that the targets are supported by data and evidence based.

The minimum set of performance measures developed by NHTSA and GHSA addresses core highway safety areas, but not all of the possible highway safety problem areas. NHTSA works with States to develop supplemental measurements of performance for emerging highway safety areas such as drugged and distracted driving.

In general, many States set aggressive 2013 targets, based on crash data projections, and made considerable progress toward meeting those targets. More than half of the States achieved or exceeded their 2013 total fatality targets; however, in general more populous States struggled to meet their 2013 targets. Nearly 75 percent of all States achieved or exceeded their unrestrained passenger vehicle occupant fatality targets. States that were most successful in meeting targets selected evidence based strategies and funded projects based on a sound problem identification analysis.

Despite State's progress, room for improvement exists as 22 States met half or less of the targets they set for 2013 and 5 states did not meet any of the targets set for 2013. This, coupled with preliminary data showing a a 7.7 percent increase in fatalities in 2015, highlights the need for NHTSA and our State partners to double down on behavioral-focused countermeasures. There are many factors that contribute to the success or failure of a State to meet its highway safety targets. The overall level of crashes and injuries are affected by many factors including population, traffic volumes, fuel prices, urbanization, per capita alcohol consumption and general economic conditions. Performance measures and targets allows for objective, data-driven discussions on whether anticipated levels of progress are being met and what should possibly be done to achieve highway safety goals. Performance measures offer added accountability and help to identify strategic opportunities to assist States in meeting desired safety outcomes for core behavioral highway safety areas of national significance.

***Performance Measures*:**

Augment State highway safety planning

Direct resources to where most needed

Connect goals to action

Cultivate increased accountability and transparency

Evaluate safety program progress

Communicate priorities, results and the importance of traffic safety

Congressional Request Fulfilled by This Report

As part of the Moving Ahead for Progress in the 21st Century Act (MAP-21) and continuing with the Fixing America's Surface Transportation Act (FAST), Congress directed "the Secretary shall submit a report to the Committee on Transportation and Infrastructure of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate that contains—

1. an evaluation of each State's performance with respect to the State's Highway Safety Plan under subsection (k) and performance targets set by the States in such plans; and
2. such recommendations as the Secretary may have for improvements to activities carried out under subsection (k)."

This report provides an overview of fiscal year 2013 State performance measurement, highway safety planning processes, traffic safety data, target setting methodologies and recommendations. The subsequent report will provide an overview of fiscal year 2014 and 2015 State performance measurement.

Introduction

A central feature of the Moving Ahead for Progress in the 21st Century Act (MAP-21), continuing with the Fixing America's Surface Transportation Act (FAST) is the establishment of a performance and outcome-based program.[3] The objective is for States to invest resources in projects that collectively make progress toward achieving national highway safety goals.

This report begins with an overview of 2013 national motor vehicle crash data, as reported by the NHTSA Fatality Analysis Reporting System (FARS)[4] and U.S. Census Bureau demographic trends. This report examines State Highway Safety Office (SHSO) planning and performance achievements made in calendar year 2013. This report further assesses how States selected targets and the actions taken to achieve such targets.

In 2008, NHTSA was the first U.S. DOT modal administration to establish performance measurement for State highway safety programs. Four years prior to the enactment of MAP-21, NHTSA brought together an expert panel with representation from State Highway Safety Offices (SHSOs), academia, research and other key organizations to develop core performance measures for use by States in developing their behavioral highway safety programs. This effort resulted in a publication titled "Traffic Safety Performance Measures for States and Federal Agencies"[5] outlining the minimum set of performance measures.

Performance measures guide States to invest in highway safety projects that collectively make progress toward achieving national highway safety goals.

Beginning with their fiscal year 2010 Highway Safety Plans (HSPs) all States and territories, represented by the Governors Highway Safety Association (GHSA), voluntarily agreed to include performance measures: ten core outcome measures, one core behavior measure, and three activity measures.

Targets included in FY 2013 HSPs were still voluntary. States were required to report targets beginning with their 2014 Highway Safety Plans (HSPs). 2014 data is available and projected 2015 national fatality data was released July 2016; however, the purpose of this report is to provide an in-depth assessment of 2013 behavioral safety targets. An assessment of calendar year 2014 and 2015 State targets will be provided in the October 2017 Congressional report.

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[3] NHTSA implemented the use of core behavioral highway safety performance measures in an interim final rule, *Uniform Procedures for State Highway Safety Grant Programs*, 78 Fed. Reg. 4986 (January 23, 2013). The interim final rule is available online at http://federalregister.gov/a/2013-00682.

[4] FARS contains data for a census of fatal traffic crashes within the 50 states, the District of Columbia, and Puerto Rico. To be included in FARS, a crash must involve a motor vehicle traveling on a traffic way customarily open to the public and must result in the death of at least one person (occupant of a vehicle or a non-motorist) within 30 days of the crash.

[5] NHTSA (August 2008). *Traffic Safety Performance Measures for States and Federal Agencies*. Report No. DOT HS 811 025.

NHTSA has since refined the application of highway safety performance measures. Beginning in FY 2014 MAP-21 required States to include the fourteen performance measures, and data driven targets for each measure, as part of their HSP. NHTSA and GHSA since agreed to expand the initial list of measures to include a bicycle fatality measure beginning with fiscal year (FY) 2015 HSPs.

A State HSP must include a description of all funds, federal and other, to be used to improve behavioral traffic safety. The HSP must also provide documentation of the current safety levels for each performance measure, quantifiable annual performance targets and a justification for each performance measure including an explanation of why the target is appropriate and evidence-based. Each State HSP is reviewed and approved by a NHTSA Regional Administrator.

Core Measures States Use to Set Targets and Report Progress

Core Outcome Measures

- C-1) Number of traffic fatalities (FARS)
- C-2) Number of serious injuries in traffic crashes (State crash data files)
- C-3) Fatalities/VMT (FARS, FHWA-HPMS)
- C-4) Number of unrestrained passenger vehicle occupant fatalities, all seat positions (FARS)
- C-5) Number of fatalities in crashes involving a driver or motorcycle operator with a BAC of .08 and above (FARS)
- C-6) Number of speeding-related fatalities (FARS)
- C-7) Number of motorcyclist fatalities (FARS)
- C-8) Number of unhelmeted motorcyclist fatalities (FARS)
- C-9) Number of drivers age 20 or younger involved in fatal crashes (FARS)
- C-10) Number of pedestrian fatalities (FARS)
- C-11) Number of bicyclist fatalities (FARS)[6]

Core Behavior Measure

1. B-1) Observed seat belt use for passenger vehicles, front seat outboard occupants (survey)

Core Grant Activity Measures

[6] Beginning with the FY 2015 HSP, States included an additional core outcome measure on bicycle fatalities: http://www.ghsa.org/html/resources/planning/index.html.

2. A-1) Number of seat belt citations issued during grant-funded enforcement activities
3. A-2) Number of impaired driving arrests made during grant-funded enforcement activities
4. A-3) Number of speeding citations issued during grant-funded enforcement activities

Achievement of Traffic Safety Targets by Performance Measure Area

Overall, States made progress toward achieving highway safety targets. Twenty-five States and the District of Columbia met or exceeded their 2013 total fatalities target; twenty-seven States met or exceeded their 2013 total serious injury targets; and twenty-five States met or exceeded their 2013 fatality rate per 100 Million VMT targets. The percentage of States achieving highway safety targets by performance measure area ranged from a low of 26 percent to a high of 74 percent. Among the different performance measures, the number of unrestrained passenger vehicle occupant fatalities, the number of drivers age 20 or younger in fatal crashes, and the number of serious injuries had the highest proportions of states meeting their targets, while the number of pedestrian fatalities had the lowest target meeting rate.

States were required to submit performance measures and targets beginning with their fiscal year (FY) 2014 Highway Safety Plans (HSPs). Targets included in FY 2013 HSPs were voluntary; as a result not all States included targets for all measures. NHTSA recognizes more needs to be done and continues to work with States to establish evidence-based targets and promote proven countermeasure to reduce traffic-related fatalities and injuries.

Percentage of States Achieving Performance Targets, 2013

Performance Measure:[7]	Percentage of States Achieving Target
Total Fatalities (n=49)	53%
Serious Injuries[8] (n=42)	61%
Fatality Rate (n=44)	57%
Unrestrained Passenger Vehicle Occupants Fatalities (n=50)	74%
Alcohol-Impaired Fatalities (n=50)	50%
Speed Related Fatalities (n=49)	55%
Motorcyclist Fatalities (n=49)	43%
Unhelmeted Fatalities (n=48)	44%
Young Driver Involvement in Fatal Crashes (n=47)	64%

[7] N = the number of states reporting targets for the respective performance measure area.
[8] Two States 2013 serious injury data are not yet available; four States changed their methodology for reporting serious injuries from when the targets were set to present; and an additional four States did not report serious injury targets for 2013. As a result 2013 serious injury targets cannot be assessed for these 10 States.

Pedestrian Fatalities (n=47)	26%
Observed Seat Belt Use Rate (n=50)	38%

Traffic Safety in the USA (2013 Data Overview)

In 2013 in the United States, 32,719 people died and an estimated 2.31 million people were injured in motor vehicle traffic crashes. In 2014, fatalities declined to 32,675 however, preliminary data released July 2016 projects an estimated 35,200 fatalities in 2015. The economic cost of motor vehicle crashes that occurred in 2010 totaled $242 billion; this is equivalent to approximately $784 for every person living in the United States and 1.6 percent of the U.S. Gross Domestic Product.[9] While these numbers are far too high, progress is being made.

NHTSA is analyzing 2015 data to determine what factors contributed to the increase in fatalities. At the same time, we are aggressively testing new ways to improve driver behavior and to analyze the data we have, as we work with the entire road safety community to take this challenge head-on. NHTSA's preliminary 2015 estimate shows 9 out of 10 regions within the United States had increased traffic deaths in 2015, with pedestrians and bicyclists experiencing the largest increases.

The 2015 data are preliminary and requires additional analysis, and are outside the scope of this report. For context highlights from 2013 data are provided.

2013 National Highlights[10]:

- In 2013, there were an estimated 5,687,000 police-reported traffic crashes, in which 32,719 people were killed and an estimated 2,313,000 people were injured.
- 10,076 people lost their lives in alcohol-impaired driving crashes.
- Among fatally injured passenger vehicle occupants, almost half (49%) were unrestrained.
- Thirty-four percent of all motorcycle riders involved in fatal crashes were speeding.
- 5,668 pedestrian and cyclist were killed.

Driving Trends

Driving in the United States is increasing. In June 2015, the Federal Highway Administration (FHWA) estimated Americans drove 987.8 billion miles the first four months of the year

[9] NHTSA (May 2015). *The Economic and Societal Impact Of Motor Vehicle Crashes, 2010 (Revised)*. Report No. DOT HS 812 013.
[10] National Center for Statistics and Analysis. (2014, December). 2013 motor vehicle crashes: Overview. (Traffic Safety Facts Research Note. Report No. DOT HS 812 101): National Highway Traffic Safety Administration.

underscoring the need for highway safety programs.[11] In April 2015, the AAA Foundation for Traffic Safety published results from the first iteration of the American Driving Survey.[12] The survey found that drivers, on average, traveled 29.2 miles per day during the study period (May 2013 thru May 2014). Women reported more driving trips but men drove 35 percent more miles and spent 25 percent more time driving. Teens and seniors over 75 drive the least while drivers aged 30-49 drive the most. The survey also found that respondents who reported living "in the country" or in "a small town" drove an estimated 12,264 miles annually, compared to an estimated 9,709 mile annually for those living in a "medium-sized town" or "a city".

Population Trends

In the context of traffic safety, particularly in assessing performance, it is important to understand changing demographic trends and its impact on highway related fatalities and injuries. According to the U.S. Census Bureau[13], from 2000 to 2010, regional growth was much faster for the South and West than for the Midwest and Northeast. The South grew by 14.3 million people over the decade to 114.6 million, while the West increased by 8.7 million to reach 71.9 million people—surpassing the population of the Midwest. The Midwest gained 2.5 million, increasing that region's population to 66.9 million, and the Northeast's gain of 1.7 million brought that region's population to 55.3 million. Overall, the South and West accounted for 84.4 percent of the U.S. population increase from 2000 to 2010.

Nevada was the fastest-growing State between 2000 and 2010, growing by 35.1 percent. It was followed by Arizona (24.6 percent), Utah (23.8 percent), Idaho (21.1 percent), and Texas (20.6 percent). Rhode Island, Louisiana, and Ohio were the slowest increasing States, all of which grew by less than two percent. Unlike the 1990s in which every state grew, one state (Michigan) declined over this decade, losing 0.6 percent of its population. Between 2000 and 2010, Texas experienced the highest numeric increase, up by 4.3 million people. California, which had the largest population increase in the previous decade, increased by 3.4 million over the same period; followed by Florida (2.8 million), Georgia (1.5 million), North Carolina (1.5 million), and Arizona (1.3 million).

Serious Injuries and Economic Impact

Traffic injuries provide substantially greater counts than fatalities. In 2013, there was an estimated 2,313,000 injuries (about 70 injuries for each fatality). According to the Centers for Disease Control and Prevention (CDC), it is estimated Americans spend more than 1 million days in the hospital each year from crash injuries. In 2012, more than 2.5 million Americans went to hospital emergency departments (ED) because of traffic crashes, and nearly 200,000 were then hospitalized for crash injuries.[14] According to a May 2015 NHTSA report titled "The Economic and Societal Impact of Motor Vehicle Crashes, 2010 (Revised)", each critically

[11] Federal Highway Administration. (June 2015). U.S. Driving Nears 1 Trillion Miles In First Four Months of 2015. Washington, DC.
[12] AAA Foundation for Traffic Safety (April 2015). American Driving Survey: Methodology and Year 1 Results, May 2013 – May 2014
[13] U.S. Census Bureau, 2010 Census and 2000 Census: http://www.census.gov/prod/cen2010/briefs/c2010br-01.pdf
[14] Centers for Disease Control and Prevention (October 2014). CDC Vital Signs: *Motor Vehicle Crash Injuries*.

injured survivor cost an average of $1.0 million. Medical and rehabilitation costs, as well as the loss in wages resulting from serious injury, can be catastrophic to the victim's economic well-being in addition to their physical and emotional condition.

State Planning and Target Setting

The Highway Safety Plan (HSP):

- ✓ Defines the State's highway safety program;
- ✓ Serves as the application for all highway safety grants;
- ✓ Communicates vision and program direction to partners and constituents; and
- ✓ Establishes and identifies a strong data based decision making process.

Highway Safety Planning

The Highway Safety Act of 1966, as amended, requires States to have a highway safety program designed to reduce traffic crashes and deaths, injuries and property damage resulting therefrom.[15] A State Governor, through an appointed Governor's Representative (GR) for highway safety, is responsible administering this program through the State Highway Safety Office (SHSO). Each year, SHSOs conduct extensive planning, beginning with comprehensive problem identification and ending with resource allocations. The culmination of this planning is the annual Highway Safety Plan (HSP), a critical document that illustrates linkages between data, planning, strategies, performance and funding. MAP-21 amended Section 402 to require States to submit, for fiscal year 2014 and thereafter, a HSP with performance measures and current safety levels for each performance area, quantifiable annual targets and a justification for each target. This requirement continues with the FAST Act.

Planning Cycle

The general highway safety planning cycle is circular, continuous and overlapping; at any point States may be working on the previous, current and upcoming fiscal year plans. Because crash data takes time to compile, the planning process is complicated by the fact that data used for benchmarks and achievements are typically several years behind the actual situation for that point in time. The planning cycle involves examining outcomes from previous years, implementing current programs, and developing plans for the next year. However, safety problems tend to change slowly and performance measures can improve the planning processes and foster linkages between State highway safety programs and safety outcomes.

[15] Codified at 23 U.S.C. 402.

With ten Regional offices geographically dispersed throughout the country, NHTSA plays a mission critical role in the highway safety planning process and ensuring State performance targets are established using an analysis of data trends and a resource allocation assessment. An essential activity for NHTSA is the review and approval of State HSPs. The Regional office teams offer evidence-based recommendations to guide State Highway Safety Office[16] planning and assist with compliance of current regulations.

Program Linkage

[16] As of September 2015, 27 SHSOs are located within the State Department of Transportation, whereas the remaining SHSOs fall under State Departments of Public Works/Public Safety, State Police, Department of Motor Vehicles or other independent State agencies/commissions. While this distinction has little to no impact on the NHTSA/State relationship, nuances in varying practices among States are acknowledged.

NHTSA and the Federal Highway Administration (FHWA) are harmonizing highway safety performance measures common to both agencies (total fatalities, total serious injuries and fatality rate measures). This coordination is expected to promote uniform measures of progress used by both agencies. Targets for the NHTSA and FHWA common safety measures are coordinated through the HSP and Strategic Highway Safety Plan (SHSP) which is a separate overarching safety planning document that is required to be regularly updated. The SHSP is a major component of the Highway Safety Improvement Program (HSIP) and is developed by the State Department of Transportation in a cooperative process with Local, State, Federal, Tribal and private sector safety stakeholders, including the SHSO. The SHSP is a Statewide-coordinated safety plan that provides a comprehensive framework for reducing highway fatalities and serious injuries on public roads.

Target selection by consensus committee is the most common method for setting highway safety targets

Relevance

Performance measures and the target setting process require States to systematically assess trends, external factors and available tools and resources. NHTSA uses performance measures to provide added scrutiny on program performance versus program activity, and to systematically determine if States are allocating resources proportionally to their targets.

Prior to the implementation of core traffic safety performance measures, no single measure was used by all States. Just two measures were used by a little more than half of the States; observed day-time seat belt use rates and total fatalities per 100 million VMT. States used different outcome measures to assess highway safety problem areas. States also differed in what to count (all crashes, injury crashes, serious injury crashes and/or fatal crashes) and how to normalize crashes (rates per VMT, per population, per registered drivers, etc.). [17] Standardized core performance measures let everyone measure progress against the same parameters.

Methodologies

[17] NHTSA, "Performance Measures for States and Federal Agencies". August 2008 (DOT HS 811 025)

States used a variety of approaches to select targets, with the most common practice being consensus selection among informed partners. Other methodologies for target selection include, but are not limited to, statistical forecasting or selecting targets mandated by policy-makers and prevailing highway safety strategies e.g., the National Strategy on Highway Safety Toward Zero Deaths (TZD).

Baseline Analysis Periods

For every projected target, States begin by calculating a corresponding baseline value, using available highway safety data. Baselines serve as a starting point or point of reference by which progress is measured. At State discretion, 2013 baselines included varying data years (e.g., a single year data, average of 3 years and average of 5 years). SHSOs select baselines that are appropriate depending on factors unique to each State. For example, a small State that experienced a high fatality count in a given year due to a crash with a large number of victims may not select that year for an annual baseline. NHTSA provides technical assistance and training to guide States in identifying appropriate and evidence-based baselines.

Each approach for establishing a baseline has its own strengths and limitations. For example, multi-year baselines rely on historical data, but they are slower to recognize changes in a trend. A multi-year average approach would include years with significant increases or decreases (perhaps as a result of economic or severe weather conditions). This provides States meaningful information about the overall fatality and serious injury data over time.

Annual counts may be subject to random fluctuations. This is especially true in small States or program areas where few crashes occur. Depending upon the methodology used, a State may determine different outcome projections despite using identical data points.

There has been a marked increase in States use of 5-year baseline periods, with 44 States relying on 5-year baselines in their 2016 HSP for the total fatality measure. In 2013, only 17 States used a 5-year baseline, with an additional 17 using an annual baseline, and 15 using a 3-year baseline. The remaining jurisdictions did not specify or used other baseline periods. A 5-year rolling average provides a balance between the stability of the data (by averaging multiple years) and providing an accurate representation of the data.

Setting Targets

Evidence-based targets are derived from a variety of factors that include but are not limited to trend analysis, programmatic evaluations, anticipated levels of effort, realistic limitations and hurdles, economic conditions and legislative changes. States analyze highway safety data for areas showing significant problems and identify emerging issues. Input is gathered from various disciplines and stakeholders, and States evaluate current strategies and assess past performance.

Evaluation is critical to inform planners of needed correction for future year planning cycles. A key component of the overall planning process is the link between problem identification, performance targets and evidence-based countermeasures.

Additional Factors States Should Consider When Establishing Targets:

In October 2012, the Federal Highway Administration (FHWA) distributed a survey about safety target setting methods to representatives of the State Highway Safety Offices (SHSO) and Departments of Transportation (DOT) for the 50 States, Puerto Rico, and the District of Columbia. The survey results were documented in FHWA's report titled, *A Compendium of State and Regional Safety Target Setting Practices*[18]. Forty-seven jurisdictions responded; the most common methodology, used by 33 of the 47 jurisdictions (44 states and 3 MPOs), was target setting by committee, consensus, or leadership group. The other most common approaches were setting a target based on a linear fatality reduction trend line (24) and adoption of the Toward Zero Deaths vision (23). Six jurisdictions indicated they used other methods to determine targets.

Beyond decision by committee, leading target setting and statistical forecasting methods include linear trend analyses, alternative baseline calculations and norm comparisons. As with baseline methodologies, each target setting approach has strengths and weaknesses. For example, linear trend analyses are perhaps the most straightforward way to express how much a change in one variable (e.g., fatalities) can be explained, or accounted for, by a change in another variable (years). However, this method by itself may lead to unrealistic targets. Linear models can be problematic where there is significant variability from year-to-year. Because of sensitivity to recent year performance at the expense of long term performance, simple linear models may give an inaccurate picture of conditions in a State.

Some States use a series of alternative baseline calculations to suggest a future performance target. This approach weights historical performance more heavily than recent year changes. This calculation involves multiple comparisons of past multi-year averages to inform selection of future performance targets. This approach places a proportionally greater emphasis on historical data, potentially underweighting the impact of current trends in a State.

Traffic safety performance targets must be reasonable and acceptable to stakeholders working toward safety goals. NHTSA requires States to base target setting on problem identification, planning needs and resource allocation assessments. NHTSA affords States flexibility in setting targets and the Agency approves targets if the State can demonstrate they are supported by data and are evidence-based. A key strength of the most common method, target setting by consensus committee, is that it incorporates the experience and expertise of safety professionals involved in developing the HSP.

Data Sources

The Fatality Analysis Reporting System (FARS) is the predominant data source for highway safety performance measures. FARS is a census of fatal motor vehicle crashes in which there

[18] Federal Highway Administration (July 2013*) A Compendium of State and Regional Safety Target Setting Practices* Report No. FHWA-SA-14-009: http://safety.fhwa.dot.gov/hsip/tpm/docs/compendium.pdf

was a qualifying fatality that occurred within the 50 States, the District of Columbia, and Puerto Rico since 1975. To qualify as a FARS case, the crash must involve a motor vehicle traveling on a traffic-way customarily open to the public, and must have resulted in the death of a motorist or a non-motorist within 30 days of the crash.

FARS data are obtained from various State documents, such as Police Accident Reports (PAR), death certificates, vehicle registration files, coroner/medical examiner reports, State driver licensing files, medical reports, State highway department data, pre-hospital reports, vital statistics and other State records. While NHTSA is pursuing ways to expedite the timeliness of FARS data, the nature of this data and the need for extensive quality control inevitably introduces a time lag. Typically FARS data lag behind the current calendar year. For example, when States submitted fiscal year 2016 HSPs, 2013 FARS data was the latest data available, and States had to project targets three years into the future. States may have to wait until 2018 to assess if their 2016 targets were met.

Traffic injury counts come from State crash data systems, and currently there is no national data system comparable to FARS that catalogs State-level injury data. NHTSA, FHWA and our safety partners are working to better report serious injuries and move toward common injury data definitions and reporting practices through the FHWA rulemaking effort for National Performance Management Measures.[19]

Extensive data modernization efforts are underway to better describe the crash environment and changing demographics, including an overhaul of the NHTSA crash report sampling program to estimate national injury counts. These efforts will assist States in evaluating their consistency with the Model Minimum Uniform Crash Criteria (MMUCC), voluntary guidelines designed to help States determine what crash data to collect on their police accident reports. States often use different formats and names for data elements and attributes or they may combine (or split) elements and attributes. As a result, it is very difficult to compare or share crash data among States, and between State and Federal data sets. NHTSA released a new tool titled "Mapping to MMUCC: A Process for Comparing Police Crash Reports and State Crash Databases to the MMUCC"[20] that will standardize how States compare both their crash reports and databases to the 77 MMUCC data elements and attributes collected at the scene of a crash. The purpose of this tool is to assist each state in identifying where there are big discrepancies between the state crash report and MMUCC so that the state can make improvements the next time it updates its police crash report.

State Examples

The following pages provide examples of State total traffic fatalities, total serious injuries and fatality rate performance measures to showcase the wide variety of target setting practices States use. The examples included are among States who experienced a decrease in traffic fatalities in

[19] Notice of Proposed Rulemaking (NPRM) for the National Performance Management Measures; Assessing Pavement Condition for the National Highway Performance Program and Bridge Condition for the National Highway Performance Program 80 FR 326 (proposed January 5, 2015) http://www.gpo.gov/fdsys/pkg/FR-2015-01-05/pdf/2014-30085

[20] NHTSA (July 2015*). Mapping to MMUCC: A Process for Comparing Police Crash Reports and State Crash Databases to the MMUCC*. Report No. DOT HS 812 184.

2013 from the preceding year[21]. Highlights of the processes undertaken to establish targets were excerpted from the State fiscal year 2013 Highway Safety Plan available at www.nhtsa.gov/.Since 2013 States have become increasingly more sophisticated and evidence-based in establishing highway safety performance targets.

[21] FARS Annual Report File (ARF). Note: When States set their 2013 targets, decisions were based on preliminary 2011 FARS data. For 2016 targets, States used 2013 preliminary FARS data.

Alabama

Decrease total traffic fatalities from 893, using a 3-year (2008-2010) baseline period, to 875 in 2013

Decrease severe injuries in traffic crashes from 15,323, using a 3-year (2008-2010) baseline period, to 15,016 in 2013

Decrease total fatalities/VMT from 1.45 using a 3-year (2008-2010) baseline period, to 1.42 in 2013

Traffic Fatalities (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					875	875	885	859
Actual	848	862	895	865	852			

Serious Injuries (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					15,016	7,750	10,600	9,900
Actual	21,761	18,757	15,705	12,949	10,622			

Fatalities/VMT (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					1.42	1.35	1.40	1.34
Actual	1.38	1.34	1.38	1.33	1.31			

Embracing the concept of Toward Zero Deaths, the Alabama Strategic Highway Safety Plan set a goal of reducing fatalities by 50% over the next 25 years. Based on the 2010 fatality count of 862, this 2 percent (of the base year) per year reduction averages about 17 fatalities. While this might seem to be a modest number, if maintained over the 25 year period an estimated 5,603 lives would be saved. This will represent continuation of the downward trend that was established in the 2007-2010 time-frame.

Florida	Decrease traffic fatalities 5 percent from the 2010 calendar base year total of 2,445 to 2,323 by December 31, 2013.
	Decrease incapacitating traffic injuries 8 percent from the 2010 calendar base year total of 21,501 to 19,781 by December 31, 2013.
	Decrease fatalities/VMT 5 percent from the 2010 calendar base year total of 1.25 to 1.19 by December 31, 2013.

Traffic Fatalities (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					2,323	2,056	2,078	1,980
Actual	2,560	2,444	2,400	2,431	2,407			

Serious Injuries (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					19,781	16,348	15,739	18,700
Actual	22,743	21,501	19,365	18,358	12,930			

Fatalities/VMT (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					1.19	1.01	1.09	1.22
Actual	1.30	1.25	1.25	1.27	1.25			

Florida used a 5-year trend line to project 2013 targets. Trend lines indicated Florida will not meet its target reduction of 5 percent annually. However, Florida expects the projects chosen for funding will continue the downward trend in the reduction of fatalities.

Kansas	Decrease traffic fatalities two percent annually from the 2006-2010 calendar base year average of 417 to 392 by December 31, 2013.
	Decrease serious traffic injuries two percent annually from the 2006-2010 calendar base year average of 1,731 to 1,630 by December 31, 2013.
	Decrease 2.5 percent annually fatalities/VMT from the 2006-2010 calendar base year average of 1.39 to 1.28 by December 31, 2013.

Traffic Fatalities (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					392	390	386	363
Actual	386	431	386	405	350			

Serious Injuries (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					1,630	1,458	1,536	1,445
Actual	1,763	1,731	1,698	1,655	1,602			

Fatalities/VMT (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					1.28	1.31	1.23	1.21
Actual	0.47	0.56	0.47	0.51	0.50			

Developing performance measures and targets is done collaboratively by the SHSO staff and SHSP teams. To establish 2013 impact goals, Kansas used the average of 2006-2010 data for problem identification and for baseline measures. This group met to examine the core performance measures and evaluate progress toward the goals established in the most recent HSP. Kansas decided upon targets/goals for the upcoming HSP and ensured these targets were in line with current goals/targets in the SHSP. The team has focused on developing goals based upon historical data from the data sources listed above, 5-year trend-lines of established performance measures, ensuring goals are realistic, achievable and resources are available.

New Jersey	Decrease traffic fatalities by 1% from the 2009-2011 calendar base year average of 589 to 584 by December 31, 2013.
	Decrease serious traffic injuries by 1% from the 2009-2011 calendar base year average of 1,704 to 1,687 by December 31, 2013.
	Decrease fatalities/VMT from the 2009-2011 calendar base year average of 0.77 to 0.76 by December 31, 2013.

Traffic Fatalities (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					584	584	581	571
Actual	584	556	627	589	542			

Serious Injuries (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					1,687	1,786	1,767	1,871
Actual	2,557	2,210	2,111	1,926	1,721			

Fatalities/VMT (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					0.76	0.76	0.74	0.76
Actual	0.80	0.76	0.86	0.79	0.73			

In New Jersey, an analysis of statewide crash data is conducted to identify the most significant problems and determine what projects should be funded to address them. Each of the following was reviewed as part of the problem identification process: crash severity, driver age, driver sex, time of day and where the crashes were occurring. Following the problem identification process, the SHSO reviewed the statistical information. Program managers examined the data from the past five years, reviewed projects recommended for funding and how these projects would impact the identified problems. Crash data, VMT and population were also used to establish goals for priority areas. In addition, past trends and staff experience were considered in setting goals.

Oregon

Decrease traffic fatalities from the 2008-2010 calendar base year average of 370 to 348 by December 31, 2013.

Decrease serious traffic injuries to 1,600 by December 31, 2013.

Decrease fatalities per 100 million VMT from the 2008-2010 calendar base year average of 1.10 to 1.03 by December 31, 2013.

Traffic Fatalities (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					348	348	300	289
Actual	377	317	331	337	313			

Serious Injuries (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					1,600	1,600	1,382	1,351
Actual	1,231	1,382	1,541	1,619	1,418			

Fatalities/VMT (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					1.03	1.03	0.90	0.87
Actual	1.11	0.94	0.99	1.02	0.93			

Performance goals for each program were established the by Oregon HSO personnel, taking into consideration data sources that are reliable, readily available, and reasonable as representing outcomes of the program. Oregon used a change rate of 3 percent, plus or minus, to establish performance targets. This level of predicted change is generally representative of one standard deviation. Oregon sets both long-range and short-range goals which are updated annually.

Wyoming

Decrease traffic fatalities 9 percent from the 2006-2010 calendar base year average of 159 to 145 by December 31, 2013

Decrease serious traffic injuries to 561 by December 31, 2013.

Maintain the Wyoming Fatality Rate/VMT downward trend to the projected 1.32 for CY2013.

Traffic Fatalities (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					159	130	106	125.5
Actual	134	155	135	123	87			

Serious Injuries (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					561	439	410	516
Actual	640	572	488	455	457			

Fatalities/VMT (annual)	*Year*							
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Target					1.32	1.01	1.41	1.49
Actual	1.40	1.66	1.46	1.33	0.93			

Wyoming's performance goals were based on a trend line analysis of annual information provided in Final FARS data, problem identification State data and Emphasis Areas (seat belts, impaired driving, speeding and young drivers). The Wyoming SHSP and the HSP are complementary and share the same planning process. There are coordinated efforts in the implementation, evaluation and revision of safety projects.

Supplemental Performance Measures[22]

Some States use performance measures for safety programs beyond the minimum required targets. This is encouraged for emphasis areas such as, older drivers, emergency medical services, and unrestrained fatalities in pick-up trucks or non-restraint use at night, where an agreed upon measure has not been established. States have considerable flexibility in selecting targets for supplemental measures e.g., States may project and assess progress using any appropriate data source, which may include self-reported or observed survey behaviors. Supplemental performance measures are an important tool in assessing progress towards addressing emerging and evolving highway safety problems. NHTSA will continue to assess the impact of State supplemental highway safety performance measures.

Limitations

The use of performance measures and target setting has aided States in prioritizing projects as part of the larger in highway safety planning process. However the variation in methodologies used by the States does present some challenges. While MAP-21 originally codified a standard set of performance measures among States, there are no standardized methodologies for how States set their performance targets for these measures. In addition, many factors affect traffic safety including, but not limited to, population and demographic changes, varying VMT rates, legislation and economic variables. The aggressiveness of targets among States also differs considerably. States account for their unique circumstances by selecting baselines (or benchmarks) and targets consistent with local conditions.

States with few traffic fatalities have difficulty in projecting future year trends. In 2013, four States and the District of Columbia had fewer than 100 fatalities, and seven States had between 100 and 200 fatalities. When the numbers are disaggregated by fatality type, such as pedestrian, the counts become even smaller. One major crash can produce a large proportionate change. To address these limitations, NHTSA strongly encourages States to use a multi-year baseline period and to employ a case-study like analysis that examines local conditions and planned countermeasures (e.g., laws, enforcement and infrastructure, to establish meaningful target projections).

Next Steps

[22] See Appendix B for examples of State supplemental highway safety performance measures.

Performance measurement affords NHTSA additional data to better monitor State progress toward achieving annual targets and longer term highway safety goals. States assess current and past performance to select projects that have a higher likelihood of reducing fatalities and serious injuries. As a result, States are paying closer attention to reviewing data and setting reasonable, achievable and evidence-based targets. NHTSA has learned that performance measures are an important tool in program planning and program execution in the States and will continue to promote promising target setting practices.

Promising State Target Setting Practices

States that were most successful in meeting their targets tend to:

- ✓ Conduct comprehensive problem identification; query many data sources to identify who (e.g., age, sex, gender) is crashing and what (e.g., single vehicle fixed object crash, multiple vehicle crash, pedestrian-motor vehicle crash) specifically occurred.

- ✓ Make project selections that are aligned with the State traffic safety problem areas and tie all projects with a specific performance measure.

- ✓ Select targets to direct resources and efforts.

- ✓ Fund programs that are proven effective such as sustained highway safety enforcement activities in addition to the national high-visibility enforcement (HVE) seat belt mobilizations and impaired driving crackdowns

- ✓ Make allowances for community-based approaches giving communities flexibility to structure highway safety programs in a way that meets localized needs in a manner consistent with broader statewide goals.

- ✓ Coordinate with a diverse group of partners on the problem identification process.

- ✓ Consistently monitor progress and program effectiveness to adjust and amend strategies as needed.

Since the implementation of MAP-21, the linkage between problem identification, performance measurement, strategy selection and allocations of funding to projects has improved. Performance measures focus State efforts on evidence-based higher-impact projects and serve to limit projects unsupported by evidence or positive safety outcomes.

Performance measurement and target setting has strengthened collaboration among State DOTs and SHSOs. Performance measurement has also bolstered intermodal collaboration among NHTSA and FHWA on common highway safety measures (total fatalities, total serious injuries and fatality rate measures).

While significant progress has been made since 2013, work remains, and NHTSA will utilize lessons learned to make refinements to behavioral safety performance measurement in subsequent implementing regulations and guidance documents, as appropriate. NHTSA is

currently developing a new information and technology system, titled Grants Management and Solutions Suite (GMSS), to accept State section 402 and section 405 (incentive National Priority Safety Programs) highway safety grant applications. This automated system will allow for a more robust assessment of State performance and ultimately will enable NHTSA to conduct more robust national analyses and comparisons of State target achievement and program outcomes.

Conclusions

Performance measures set the stage for a frank and informed discussion of States performance, including an assessment of State behavioral traffic safety programs and activities, barriers to improvement, countermeasures, and the expected benefits of safety activities.

> Performance measures open the door for an objective, data-driven discussion on whether safety progress can be made and what can be done to achieve highway safety goals in the States.

Performance management emphasizes transparency and accountability. A performance based approach further enables State and local leaders to make appropriate investments and policy decisions to achieve State highway safety goals and directs targets to be developed based on evidence-based strategies. In 2013, safety performance targets were set mostly based on crash data projections. More recent progress has been made in transforming State highway safety programs to performance- and outcome-based programs. NHTSA will continue analysis and evaluation of State performance measurement as data are available.

Performance measures are a valuable planning tool that will advance highway safety by placing increased emphasis on the critical need to integrate data, planning and action using proven countermeasures. Proper planning enables States to make greater safety gains and evidence-based execution drives progress. NHTSA is exploring new opportunities for improving program execution and outcome measurement in the States. NHTSA will continue to offer training, education and technical assistance on performance measurement and showcase States which have successful used performance measurement to advance highway safety.