United States
Department of Transportation

Roadway Safety Plan

Table of Contents

Preface

MESSAGE FROM SECRETARY RAY LAHOOD

Improving the safety of the Nation's transportation system is the highest priority of the U.S. Department of Transportation (DOT). Every year, over 30,000 people die on America's roadways. Even more suffer non-fatal injuries, ranging from minor to permanently disabling. The social and economic costs of roadway crashes, deaths, and injuries are enormous. With this in mind, the *Roadway Safety Plan* sets forth the vision to significantly reduce roadway fatalities through fresh ideas, stronger partnerships, and tremendous resolve.

Within DOT, many operating administrations share the responsibility for improving roadway safety. These efforts are actively supported by external stakeholders. The *Roadway Safety Plan* combines the efforts of multiple partners in a single, integrated plan that provides a framework to harness the collective strengths, creativity, and resources of DOT.

I thank all of those who have contributed to the development of this *Roadway Safety Plan*. I ask the transportation community to join with the Department in implementing and supporting this effort and in working hard to significantly reduce fatalities on our roadways.

Executive Summary

During the first decade of the 21st century, over 400,000 people died on America's roadways, while millions suffered life-altering injuries. Such incidents have had a profound impact, not only on those injured, but also on their families and communities. The Nation must significantly reduce roadway crashes, deaths, injuries, and the terrible social and economic costs that are consequently borne by the American public.

The U.S. Department of Transportation (DOT) developed the *Roadway Safety Plan* based on the premise that significantly reducing roadway fatalities will require fresh ideas, stronger partnerships, and tremendous resolve. DOT will continue to build upon past successes, lessons learned, and current and future trends.

Senior DOT leaders initiated this *Roadway Safety Plan* to bring an integrated focus to roadway safety issues. A Roadway Safety Plan Working Group (Working Group) was assembled that includes a cross section of representatives from the Federal Highway Administration (FHWA), the Federal Motor Carrier Safety Administration (FMCSA), the National Highway Traffic Safety Administration (NHTSA), and the Research and Innovative Technology Administration (RITA), supported by the Office of the Secretary of Transportation (OST). Each member was identified for his or her subject matter expertise.

> *"One death on our roadways is a tragedy; 100 deaths a day is an atrocity…we need to move toward ending injuries and deaths on our roadways."*
> *Ray LaHood*

The *Roadway Safety Plan* leverages multiple strategic and operational plans that have been developed over the years to address roadway safety issues, both within DOT and by external stakeholder groups. The Working Group expanded these existing plans, examining new opportunities for and methods of innovation, integration, and collaboration. Ultimately, the *Roadway Safety Plan* seeks to align with the safety focus of the strategic, legislative, budgetary, and performance planning processes that will be needed to advance its ideas.

The *Roadway Safety Plan* is built upon six principles that define key priorities intended to enhance roadway safety. The following is a brief summary of the driving force behind each principle:

PRINCIPLE 1: Collaboration for Roadway Safety
Everyone has a stake in roadway safety. The collaboration of all stakeholders will yield cross-cutting opportunities to improve roadway safety with the promise of stronger outcomes. DOT will lead this collaboration within its operating administrations and through outreach to potential partners, starting with the development of a national roadway safety goal.

PRINCIPLE 2: Safer Behaviors
The greatest potential for reducing crashes lies in the difficult task of transforming public and personal attitudes toward roadway safety. Citizens should consider roadway deaths along with the attendant suffering and economic costs as unacceptable rather than

inevitable. A shift in safety culture will bring us closer to making these changes. DOT can support the needed change by targeting at-risk operators and users through education and enforcement.

PRINCIPLE 3: Safer Vehicles
Safer and smarter vehicles will prevent crashes or mitigate their severity. DOT will continue to foster development of the engineering and technology critical to improved vehicle crash avoidance, crashworthiness, and communication. The public needs to understand and demand current and innovative vehicle technologies that save lives. Some of these innovations will enhance the safety of the user within the roadway environment through connectivity of the vehicle and the infrastructure.

PRINCIPLE 4: Safer Roadways
The Nation should have the safest roads in the world, not just for vehicles, but for all users. Safer roadways will result from expanding improved infrastructure, using technological innovations and countermeasures, and integrating safety into all phases of the roadway life cycle.

PRINCIPLE 5: Empower Communities
Local jurisdictions must be able to prioritize transportation objectives based on their own specific needs. By developing data-driven roadway safety plans, communities can meet the needs of all the road users in their locality. The Department will empower communities by enhancing State and local participation in safety planning processes, providing greater flexibility in their resources, and fostering linkages between safety and livability initiatives.

PRINCIPLE 6: Accountability and Managing for Results
The public expects its roadway investment to produce tangible program results. Program success is achieved through improved data, integrated planning, and measurable performance targets. Greater accountability and results-oriented management will provide the transparency necessary to maintain the commitment and support to significantly reduce roadway fatalities.

This plan concludes with a set of short-term initiatives that can be advanced under existing legislative authority. Additionally, the plan includes appendices that outline technical assistance and budgetary proposals supporting the six principles for Fiscal Years (FY) 2013-2017.

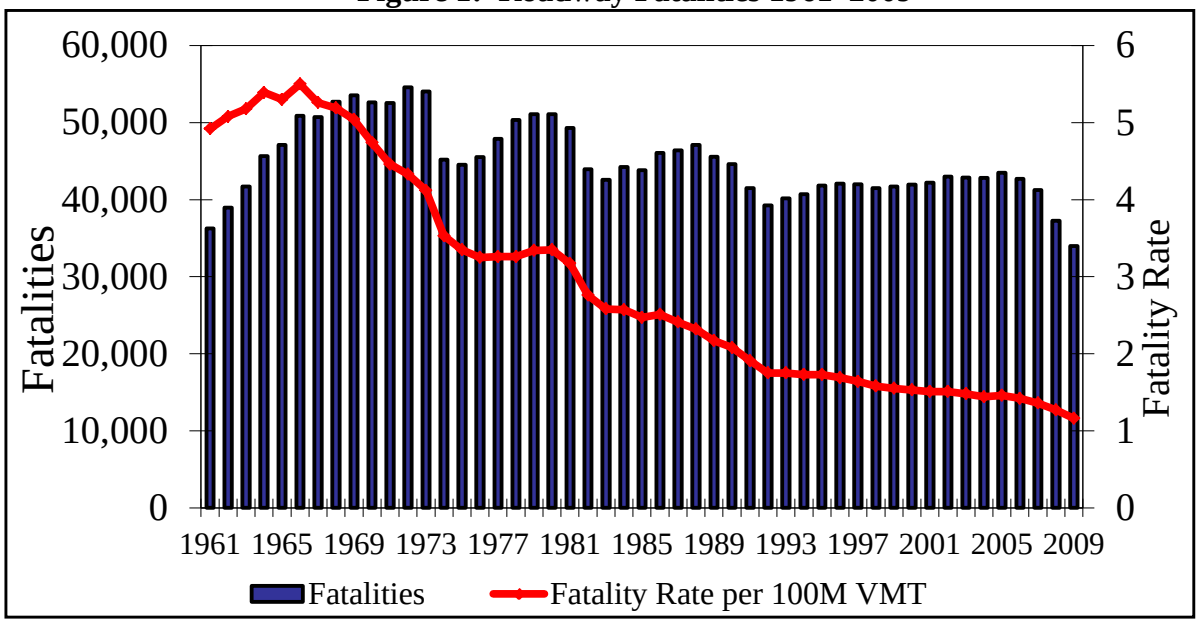
Overview

THE DOT ROADWAY SAFETY PLAN

During the first decade of the 21st Century, the United States suffered more than 400,000 fatalities and over 25 million injuries on our Nation's highways. Roadway safety continues to be one of the most compelling and challenging priorities confronting our Nation today. It impacts every facet of our society—our families, our communities, our economy, and, consequently, our global competitiveness.

In 2009, 33,808 people died in motor vehicle traffic crashes, the lowest number since 1950.[1] Despite progress, motor vehicle crashes remain one of the most critical public health problems and are a leading cause of death in the U.S. The number of lives lost annually due to crashes still exceeds the expected losses if one passenger jumbo jet were to go down each week for a year. Roadway crashes continue to be the leading cause of unintentional deaths and injuries and, sadly, are the leading cause of fatalities for ages 3 through 34 in the United States. The most recent estimate of the annual total economic cost of motor vehicle crashes is $230.6 billion.[2] Though the fatality rate and the absolute number of fatalities in the U.S. have dropped significantly over time, there are still over 30,000 fatalities a year, as shown in Figure 1.

Figure 1: Roadway Fatalities 1961–2009



Roadway crashes are one of the leading causes of traumatic brain injury, as well as quadriplegia and paraplegia, and account for a large proportion of injury-related hospital emergency room visits. They impact all road users, including passenger vehicles, pedestrians, bicyclists,

[1] U.S. Department of Transportation, Traffic Safety Facts, August 2010.
[2] The Economic Impact of Motor Vehicle Crashes 2000, available at http://www.nhtsa.gov/DOT/NHTSA/Communication%20&%20Consumer%20Information/Articles/Associated%20Files/EconomicImpact2000.pdf, accessed March 2011.

motorcyclists, motor carrier operators, and those who work to build and maintain the Nation's four million miles of roadways.

Initiating the Effort

The *Roadway Safety Plan* was initiated with the recognition that addressing the challenges of roadway safety requires the collective efforts of many people and organizations working together to significantly reduce crashes, fatalities and serious injuries on our roadways. The *Roadway Safety Plan* emphasizes the need for high-level coordination and cooperation across organizations, disciplines, and programs. This represents the first time DOT has set out to develop a coordinated plan in this fashion.

This is a time of change in the factors affecting roadway safety. As the economy recovers, travel will likely increase, and new approaches will be needed to maintain the recent reductions in fatalities and injuries. In the short term, it is increasingly important to integrate efforts for addressing roadway safety. Therefore, creating this *Roadway Safety Plan* is especially timely as it provides important internal guidance for DOT and offers external direction to assist our stakeholders and partners.

The *Roadway Safety Plan* also marks an important change within DOT. Historically, the individual modal administrations developed strategic and operational plans to tackle the specific roadway safety issues covered by their operating authority. These plans and initiatives shaped important transportation policy and legislation and the allocation of resources. While collaboration on Department-wide issues certainly occurred, the *Roadway Safety Plan* marks the first single, integrated plan for all roadway safety issues. This strategic effort builds upon our individual successes and paves the way for our continued, collective progress.

Focusing on the Plan

The *Roadway Safety Plan* draws on the following broad guidelines set forth by leadership:

- Build upon the work that has already been done by the roadway safety and transportation communities, and seek to identify any gaps or opportunities where further work is needed.
- Concentrate on coordinating the actions and initiatives of the DOT operating administrations that have the lead responsibility for roadway safety (FHWA, FMCSA, NHTSA, and RITA), as well as those offices within OST that provide the leadership needed to implement these actions. The *Roadway Safety Plan* is modally neutral and seeks out opportunities that cut across DOT's surface transportation operating administrations.
- Focus the overall Safety Goal in the DOT Strategic Plan on actions directed at improving roadway safety. The *Roadway Safety Plan* is not intended to be a substitute for the DOT Strategic Plan.
- Forge a common framework out of the core processes DOT uses to define its future program activity. Although the *Roadway Safety Plan* charts a course for DOT's future efforts, it is already referenced in key strategic documents. Specifically, the *Roadway Safety Plan* needs to provide a common link between the roadway safety elements developed for the:

  - FY 2013 and FY 2014 Budgets;
  - Authorizing Legislation;
  - Office of Management and Budget (OMB) High Priority Performance Goals (HPPG);[3]
  - Agency Strategic Plans (as applicable); and
  - The Government Performance and Results Modernization Act (GPRA).
- Identify key principles for enhancing roadway safety. Within these principles, explore strategies and areas of action to identify opportunities for improvement:
  - Strengthen those programs recognized as successful in advancing roadway safety, and reconsider efforts not demonstrating potential for return on investment;
  - Identify opportunities for integration and coordination across all operating administrations involved in promoting roadway safety; and
  - Address gaps between program needs and current activities to achieve improved program impact.
- Focus on a 5-year window of activities aligned with the typical surface transportation reauthorization cycle. Initiatives beyond FY 2017 should be considered to the extent that they would impact a long-term vision (e.g., implementation of advanced Intelligent Transportation Systems (ITS) technologies).
- Suggest actions that could be championed by multiple stakeholders and partners. Although the *Roadway Safety Plan* will guide actions within DOT, it will include all those with a stake in roadway safety. The *Roadway Safety Plan* is not intended to be a blueprint for the entire roadway community and industries, but it will hopefully be a catalyst for bringing those partners together toward a common vision.
- Engage the public's support for modifying our roadway safety behavior, building on the Secretary's efforts to put an end to distracted driving. As with the drive to eliminate distracted driving, the *Roadway Safety Plan* highlights the impact of roadway safety on health, education, and economic concerns, while enhancing partnerships within the Federal government (e.g., Health and Human Services, Education, Justice, Commerce, and Defense), as well as with external partners and stakeholders.

DOT considered two additional ongoing efforts in the development of the *Roadway Safety Plan*:

- **United Nations' Resolution on Roadway Safety** – In December 2009, the DOT Secretary attended the International Ministerial Summit on Highway Safety in Moscow. This meeting focused on the 1.3 million roadway fatalities that occur around the world annually. The U.S. co-sponsored a major UN Resolution, advocating that 2011–2020 be declared as a Decade of Action for Road Safety, setting the objective to reduce the predicted global death toll by 50 percent by 2020. The kick-off for this Decade of Action occurred on May 11, 2011.
- **"Toward Zero Deaths: a National Strategy on Highway Safety" (TZD)** – This national effort, initiated by over 20 safety organizations and a very broad range of stakeholders, is developing a national highway safety strategy. To be successful, the strategy recognizes that the roadway safety community needs to focus on changing the public's attitudes and culture regarding safety. The FHWA, FMCSA, and NHTSA are all

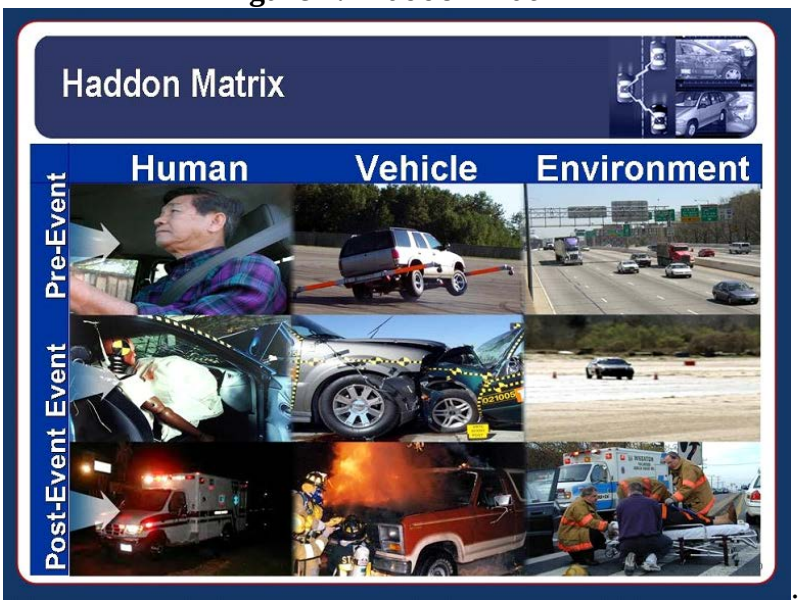
[3] In 2009, DOT established the roadway fatality rate goal as its high priority performance goal related to its "Safety" strategic objective.

engaged in this effort and participated in a major national stakeholder-input workshop in August 2010 to begin developing the framework for this plan.

Evaluating Cross-Cutting Issues

In developing the framework for the *Roadway Safety Plan*, the Working Group used the Haddon Matrix. This matrix provides a schematic tool for analyzing roadway hazards and risks in a comprehensive fashion. The value of the Haddon Matrix lies in its comprehensive considerations of the factors contributing to a crash and its ease of use. The original Haddon Matrix crosses three primary categories of contributing factors (human, vehicle, and environment) with three crash event phases (pre-event, event, and post-event) as shown in Figure 2.

Figure 2: Haddon Matrix



The Working Group used the matrix to examine existing programs and practices and identify additional opportunities to affect roadway safety. As an example, one may look at distracted driving as only a behavioral issue (i.e., human factor), and not recognize ways in which the roadway and the vehicle might be used to reduce the risk or severity of a crash (e.g., the use of rumble strips or automated warnings to bring the driver's attention back to the driving task). The Working Group was concerned that looking at issues from solely one perspective could lead to "stovepipe" solutions (e.g., all "environment factors" would be viewed as road infrastructure issues to be addressed by FHWA). For this reason, the *Roadway Safety Plan* embodies a "blended" approach, blurring the lines of the Haddon Matrix and viewing it as more of a continuous spectrum to include safer roadways, safer vehicles, and safer behaviors as three of the core principles in the plan. These elements were supplemented with three additional principles: collaboration for roadway safety, empowering communities, and accountability and managing for results, each providing critical directions for our Nation's future safety programs.

The underlying premise of the *Roadway Safety Plan* is that multiple Agencies have the potential to support each other in carrying out these cross-cutting strategies. DOT believes that the

roadway safety community needs to address all of these cross-cutting principles in order to find the best applications to further advance roadway safety. Omitting any of the six principles has the potential to generate gaps in addressing roadway safety in a comprehensive and complete manner.

Principle 1: Collaboration for Roadway Safety

Collaboration for Roadway Safety is the first principle of the *Roadway Safety Plan*, as it is the foundation on which the other principles are built. Multiple interacting factors from across the transportation industry impact roadway safety. Progress toward a national roadway safety goal requires collaboration with a diverse group of stakeholders and partners across a range of disciplines. Within DOT, the relevant operating administrations can leverage the resources and expertise of each other to more effectively achieve a safer transportation environment. Externally, DOT must collaborate with Federal, State, local, and tribal governments, Metropolitan Planning Organizations (MPOs), non-governmental organizations, foundations, associations, corporations, universities, and individuals. Such collaboration will help to integrate a broad range of factors affecting roadway safety and create more efficient and effective problem-solving synergies across the transportation industry.

Many stakeholders currently address transportation safety issues independently, through individual goals, plans, and activities. Some have implemented substantial safety initiatives, and these contributions are vital to maintaining and improving roadway safety. The involvement of multiple stakeholders provides opportunities for broader public outreach and for the development and implementation of cross-cutting roadway safety strategies reflecting the common interests of many parties.

Strategies for Change

The principle of collaboration for roadway safety emphasizes three primary strategies for change: (1) Develop a national roadway safety goal and targets for change; (2) Enhance the institutional framework for roadway safety collaboration; and (3) Create a fundamental shift in the Nation's roadway safety culture. Each of these strategies is described further below.

Develop a National Roadway Safety Goal and Targets for Change

DOT will lead the Nation toward achieving a common roadway safety goal that emphasizes roadway safety as not only a transportation issue, but also a public health and economic issue. Injuries, particularly severe injuries, impose significant long term costs and consequences upon the healthcare system, placing a burden on taxpayer dollars. This is even more important as roadway travel increases with population, economic growth, and other factors.

Establishing a national roadway safety goal will require not only the involvement of safety organizations, but also collaboration among other entities in government, business, and the community. DOT will establish challenging but realistic interim targets to encourage measurable actions that drive progress in traffic safety, as shown in Figure 3.

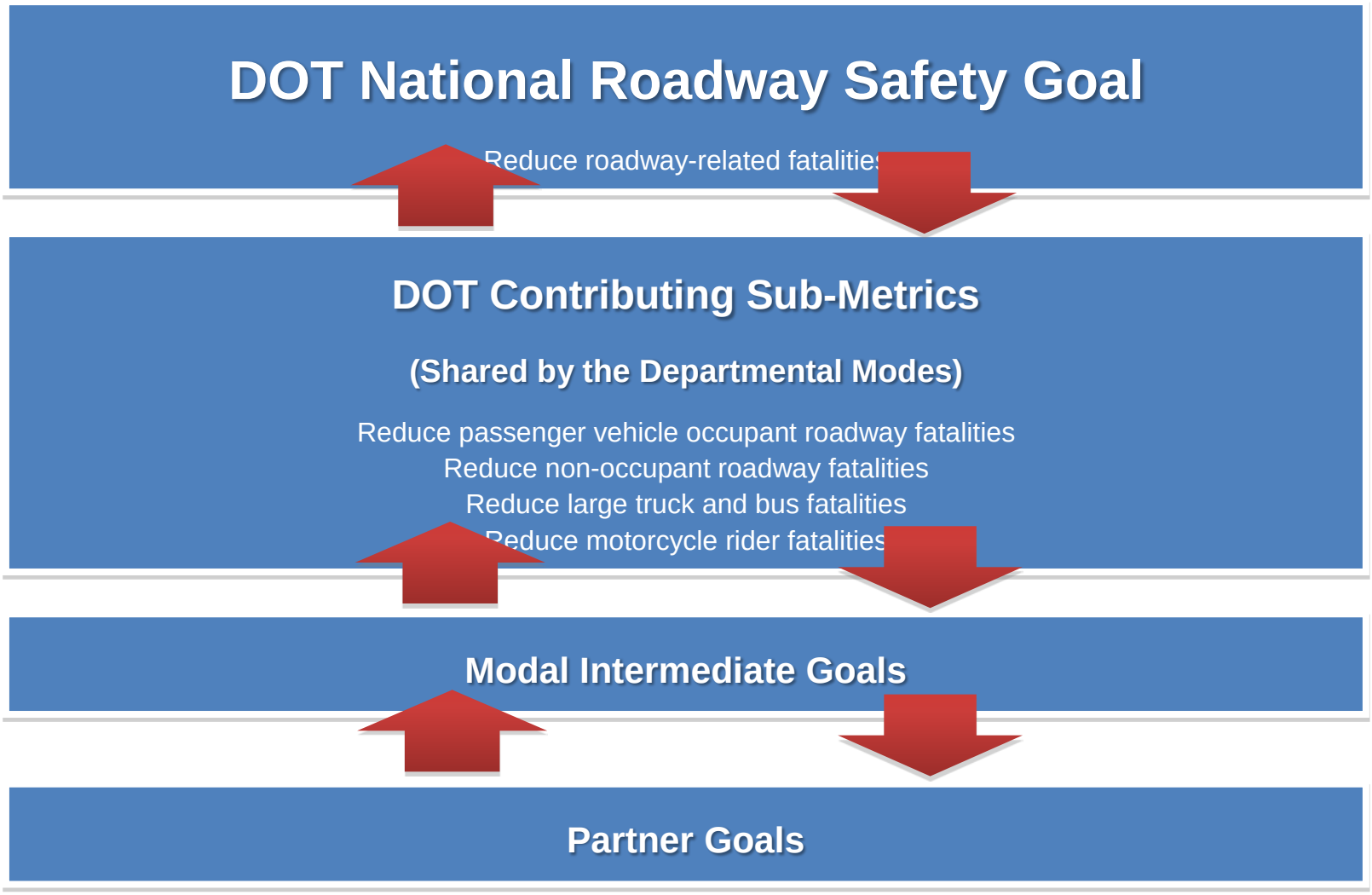


Figure 3: Roadway Safety Goals

Enhance the Institutional Framework for Roadway Safety Collaboration

As noted, the loss of lives and the serious injuries that occur on our roadways are far more than a transportation issue. Consequently, the institutions that will be needed to address the issue must be expanded further to include the health, education, and first responder communities. In particular, partnerships with entities involved in healthcare, such as the U.S. Department of Health and Human Services (HHS), the Centers for Disease Control and Prevention (CDC), and the emergency medical services (EMS) community will help elevate roadway safety as a national health issue.

Increased ties to HHS and the U.S. Surgeon General may help bring further publicity to the health aspects of the roadway safety issue. DOT already supports and partners with HHS on its Healthy People Initiative.[4] Every 10 years, HHS leverages scientific insights and lessons learned from the past decade, along with new knowledge of current data, trends, and innovations, to

[4] Healthy People 2020, available at http://www.healthypeople.gov/2020/default.aspx, accessed March 2011.

assess major risks and acknowledge emerging issues related to health, wellness, changing public health priorities, and our Nation's health preparedness and prevention. In addition, collaboration with CDC and the EMS community will enhance a broad focus on the prevention and minimization of crash-related injuries. Relationships with law enforcement, fire, and other emergency disciplines are also critical in terms of improving the safety of responders; assuring safe, quick clearance of travel lanes; and decreasing secondary crashes.

To facilitate the development and rollout of a national roadway safety goal and ensure its continuing success, DOT will establish an enduring institutional framework for collaboration within DOT. This framework would continue to build on the DOT Safety Council Executive Team, composed of the modal administrators and senior OST leaders, and a Safety Council Technical Team, composed of senior career safety officials within each DOT operating administration. The Department remains dedicated to the intermodal coordination of roadway safety efforts in multiple areas, including data collection and analysis, performance measurement, and program evaluation. DOT also maintains two standing committees focused on cross-cutting safety issues (Human Factors Coordinating Committee and Traffic Records Coordinating Committee) and has periodically formed coordination committees for specific purposes such as distraction. In addition, DOT reached out to involve multiple stakeholders in developing strategic direction, programs, and plans to address transportation-related fatalities and injuries. While the current level of Departmental roadway safety collaboration is laudable, more needs to be done.

DOT will continue to strengthen its collaboration with other Federal agencies, State and local entities, MPOs, tribal governments, safety organizations, academia, and industry to develop and achieve a national roadway safety goal and change the Nation’s safety culture. Involvement of all these parties will assure integration of the “4E’s” of safety (Enforcement, Education, Engineering, and Emergency Response).

Establishing an enduring institutional framework for collaboration will help provide a robust mechanism that can both facilitate leadership and encourage partnerships with multiple stakeholder groups. Formalizing the structures in place to meet, coordinate, and disseminate information can enhance the exchange of information and encourage collaboration. Such a framework will foster more frequent and meaningful conversation and create cohesiveness among many transportation safety partners.

Create a Fundamental Shift in the Nation’s Roadway Safety Culture

To effect lasting reductions in roadway fatalities, DOT must foster a national culture of roadway safety. First, DOT will continue to reaffirm its dedication to safety as its number one priority. Second, the Department acknowledges that its commitment plays only a part in fostering a culture that makes roadway safety a priority. The key element in establishing such a culture is to build shared responsibility. While there are many existing examples of shared responsibility, it is necessary to strengthen partnerships with safety stakeholders, industry, and most importantly, with the public. DOT recognizes its role as a catalyst for this fundamental shift. The Department’s primary role in this regard should be to encourage outside groups, organizations, industry partners, and other government entities to be advocates for change in the public’s safety culture and provide leadership to bring other Federal partners into this effort.

Fostering a culture of safety begins at our own doorstep. Within DOT and throughout all State and local transportation agencies, fostering safety culture is a key element of this plan. It is essential that all stakeholders embrace safety as an essential factor in planning for and maintaining a comprehensive transportation system. To implement this type of cultural change in agencies, required activities include: promoting awareness in management and staff; changing standard operating procedures, guidance, and manuals; and demanding accountability for results by all. As a 'thought leader' in safety among State departments of transportation and local agencies, DOT can have a powerful impact through leading by example.

By collaborating with the public and private sector, DOT can help create a sense of shared responsibility among individuals, business, and the public to establish a roadway safety culture. DOT's efforts will focus on changing not only the behavior of millions of individual road users, but also our society's attitudes and fatalistic complacency so that the over 30,000 deaths on our roadways each year are no longer acceptable. The public should demand and expect safer transportation. Just as unsafe driving, bicycling, and walking should be socially unacceptable, there needs to be greater public support for actions that thwart unsafe behavior. For example, drinking and driving is now regarded as unacceptable behavior, punishable by law. Through a cooperative effort to dissuade the public from engaging in this behavior, the general public has been made aware of the risks and negative consequences involved with alcohol-impaired driving. Seat belt and child safety seat use are other examples of the successful collaboration between individuals, government entities, and safety organizations. Everyone shares responsibility for encouraging the use of seat belts and child restraints. Parents teach children to ride restrained in a child seat or to buckle their seat belts before every trip. Ongoing public safety campaigns and enforcement efforts by government entities reinforce this early education about safety. The percentage of occupants choosing to wear seat belts in the U.S. has reached 85 percent overall and continues to rise.

Under Secretary LaHood's leadership, the DOT operating administrations are collaborating to reduce driver, bicyclist, and pedestrian distraction and are employing many of the lessons learned about the importance of working with a variety of stakeholders and partners to encourage safer behaviors. This momentum needs to continue. Bringing about such a cultural shift could include seeking additional White House and Congressional support in addressing roadway safety issues. Additionally, DOT operating administrations could work with the press, social media campaigns, and the entertainment industry to reinforce roadway safety culture messages. Another opportunity to change the safety culture is to accelerate consumer acceptance and adoption of advanced safety technologies (e.g., safety technologies marketed through the New Car Assessment Program, Intelligent Transportation Systems, etc.).

The Way Forward

The principle of collaboration for roadway safety involves bringing relevant parties together to address cross-cutting issues. To develop a national roadway safety goal and targets for change, enhance the institutional framework for roadway safety collaboration, and create a fundamental shift in the Nation's roadway safety culture, DOT will pursue the following actions:

Ensure the New Surface Transportation Authorization Sets Safety as a Priority
It is important to ensure that the surface transportation reauthorization establishes safety as a national priority. To support integration of internal safety programs, the Department will set performance and accountability standards that allow for tracking across modes and monitoring results against these measures to better justify necessary program authorities and funding.

Identify Needed Adjustments in Legislative Authorities or Programs
Fostering the principle of collaboration for roadway safety will require DOT to evaluate the current scope of its authority and determine if it needs any adjustment in legislative authorities or programs. The Department will also establish partnerships to promote roadway safety activities through other Federal programs. Additionally, DOT continues to seek ways to work with State legislatures to elevate the importance of effective motor vehicle and commercial motor vehicle (CMV) laws, as well as the need for their consistent enforcement.

Expand Participation of Stakeholders and Experts in Roadway Safety Programs
DOT will identify relevant stakeholders and experts in roadway safety programs and actively pursue their collaboration, establishing new partnership networks. The Department will strengthen coordination among the four operating administrations that have the primary programs dedicated to roadway safety efforts. DOT will reach out to organizations in the health care arena, such as HHS and CDC, to engage them in roadway safety. DOT will continue to encourage cabinet departments, including Education, Justice, and Defense, to engage in safety initiatives, and reach out to State, local and tribal entities, industry, safety advocacy groups, private foundations, and academia.

Expand the Messaging Campaign To Better Promote a Safety Culture
To produce a shift in culture, DOT must expand its messaging campaign, as well as the use of new social media, to reach all roadway users. The Department will seek the support of external parties to promote safety strategies that will focus on changing people's behavior with regard to roadway safety. Greater understanding of the factors that impact the Nation's safety behavior and the unique strategies to transform them need to be developed.

Principle 2: Safer Behaviors

Because of its important effect on crash probability and severity, Safer Behaviors is the second principle of the *Roadway Safety Plan*. A majority of roadway crashes result from driver error, impairment, or other behavioral factors, such as distraction. Changing human behavior has significant potential to improve the safety of the Nation's roadways, but represents an enormous challenge because of the complexity of societal and personal factors.

"Driving is a privilege, and when someone shows disregard for their own safety and those around them, they have no place on our Nation's roads. We should all be outraged by these unsafe drivers. But we also need to look in the mirror and realize every one of us needs to take personal responsibility for assuring that we are not part of the problem. We need to educate our sons and daughters that safety comes first...period."
Ray LaHood

Because Americans regard driving as an individual right, restrictive policies and regulations can encounter public resistance. This is sometimes compounded by road users who have a sense of invincibility—they believe that a crash will not happen to them. While public attitudes do not always support legislative responses to mitigate reckless behavior, research has shown that rational, uniformly-applied safety legislation does prevent fatalities. This is evident in the evaluations NHTSA completed regarding motorcycle helmet-use rates prior to and immediately following a State's repeal of its helmet use law. These studies generally found an alarming drop in helmet use after repeal, with a corresponding increase in injuries and fatalities.[5] Helmet laws save lives and reduce injuries, but public opposition led to their repeal in several States despite the positive gains in safety when the laws were in effect.

Sharply reducing roadway deaths will require fundamental changes in public beliefs and attitudes toward safety. Success in changing behavior relies on informing public attitudes, and it takes sustained effort over a long period of time. New attitudes will not evolve until individual citizens and officials regard driving as a privilege and reject vehicle-crash fatalities as the inevitable price for mobility. Individuals must adopt an attitude of personal responsibility and employ behaviors that not only reduce the frequency of crashes, but mitigate their severity. Effective education campaigns combined with strong laws that are vigorously enforced have proven effective in changing public norms and individual attitudes and behaviors.

Environmental factors also influence roadway users' behavior. For example, traffic congestion may cause drivers to become frustrated and make poor operational choices. The perceived need to be accessible may compel drivers to use cell phones or text while on the road. The public needs to understand that these behaviors behind the wheel have a direct impact on others. Changes in attitude can be influenced by establishing a culture of safety among all roadway users: a culture that is accepted by businesses and the broad society, by diverse geographic and demographic

[5] Robert G. Ulmer and Veronika Shabanova Northrup. *Evaluation of the Repeal of the All-Rider Motorcycle Helmet Law in Florida*. August 2005. available at http://www.nhtsa.gov/staticfiles/nti/motorcycles/pdf/809849.pdf.

communities, and by each individual. The traveling public has undergone such a change in attitude with respect to drunk driving and seat belt use. As discussed under Principle 1, Collaboration for Roadway Safety, these cultural changes resulted from the collaboration of many different stakeholders and a combination of education, legislation, and enforcement.

Strategies for Change

The principle of safer behaviors emphasizes three primary strategies for change: build personal, corporate, and societal responsibility for roadway safety and public intolerance of unsafe behavior through a shift in public attitudes; increase compliance with laws, regulation, and policies through stronger enforcement, penalties, and incentives; and identify and address high risk operators and users. Each of these strategies is described further below.

Build Personal, Corporate, and Societal Responsibility for Roadway Safety and Public Intolerance of Unsafe Behavior through a Shift in Public Attitudes

To significantly reduce roadway fatalities, all roadway users must take personal responsibility for their behavior. This includes promoting personal, corporate, and societal responsibility for roadway safety and public intolerance of unsafe behavior. Individuals need to recognize that safety is of paramount importance and take care to conduct their actions on the roadway accordingly. To build positive public attitudes about roadway safety, DOT and roadway users need to promote and nurture a societal safety culture and expect personal responsibility from all the roadway users. Collaboration among multiple stakeholders (e.g., roadway users, parents, schools, and the private and public sectors) is essential in achieving this goal. Best practices learned from seat belt and impaired driving campaigns should be adopted and applied in developing strategies to change other unsafe behaviors. To achieve a change in attitude will require a range of activities such as education, media campaigns, public communications, social networks initiatives, outreach efforts, and enforcement aimed at specific high-risk groups.

Drivers need to take responsibility for learning the rules of the road, paying attention to the road environment, and setting out on the roadway only when physically and mentally fit. Driving is a complex task requiring visual, motor, and cognitive skills. A safe driver has good situational awareness, is constantly evaluating the surroundings, and reacting appropriately. However, some drivers indulge in risky behavior that puts road users of all types at risk. Distraction, which is shifting attention away from the primary task of driving, can significantly impair drivers' judgment and reaction time and increase risk. But the fast pace of today's society is used to justify and even encourage the use of cell phones, personal digital assistants (PDAs), and other similar devices while driving. Impairment, whether from alcohol, drugs (prescription, over-the-counter, or illegal), fatigue, or any other condition, can also significantly impact a driver's ability to react appropriately. Drivers, rushing to fit one more activity in their schedules, may speed or engage in other unsafe behavior.

Pedestrians, bicyclists, and other non-motorized users also need to take responsibility to use safe behaviors, including crossing the road at safe locations, obeying traffic signals, wearing reflective gear so that drivers can see them, and paying attention to their environment. Bringing about a change in societal norms is necessary to improve roadway safety, and DOT actively encourages safe behaviors by all.

It is important that corporations act responsibly, because business influences individual behavior. Businesses may be receptive to ideas and actions for promoting safe driving behaviors due to the potential legal liability or the economic impact they face if their employee is involved in a roadway crash. Motor carriers play an important role by requiring adherence to safety measures (e.g., hours of service) and establishing a culture of safety in the workplace. The automobile industry can play a valuable role by not highlighting speed and other unsafe practices in promoting its vehicles. The entertainment industry also plays a significant role in what individuals believe is appropriate and acceptable behavior. Television programs and movies can influence behavior by modeling appropriate road-safety practices, such as wearing a seat belt and not driving when impaired or distracted. They can be a deterrent to unsafe behaviors by telling the public the consequences of not complying with the law. Professional sports organizations influence driving behavior by taking disciplinary action when athletes violate the rules of the road, whether driving impaired or jeopardizing their and the public's safety by engaging in other unsafe practices, such as riding a motorcycle without a helmet.

Learning about safety should start early, beginning at home with parents and reinforced later at school, so that roadway safety becomes a lifelong habit. This is an effective way to teach the next generation of road users about all aspects of roadway safety (including pedestrian and bicycle safety). As a part of a comprehensive Graduated Drivers License (GDL) program, driver education can help inform novice drivers about appropriate driving behaviors to maximize safety. Adults and older drivers also need education on the risk factors and effects of aging and other factors that affect driving skills, along with resources for other transportation options. The following points must be stressed:

- Respect for other road users;
- Zero tolerance for aggressive and impaired driving;
- Personal and corporate responsibility and accountability for one's actions on the road; and
- Consistent use of available safety measures such as seat belts, child restraints, and motorcycle and bicycle helmets.

By promoting these points, DOT can begin to modify public attitudes and build greater personal, corporate, and societal responsibility and unequivocal rejection of unsafe behavior, thereby making sustained progress in reducing roadway fatalities.

Establish Greater Compliance with Laws, Regulations, and Policies through Stronger Enforcement, Penalties, and Incentives

DOT and our State and local partners must evaluate and strengthen requirements, enforcement capability, and penalties to hold roadway users accountable for the consequences of their actions. Enacting and enforcing laws, regulations, and policies, and levying appropriate penalties for noncompliance signals public acceptance of safety. Through high-visibility enforcement, this contributes to shifting social norms and changing behavior. For example, tougher drinking and driving laws, in conjunction with increased enforcement such as roadblocks, license revocation, ignition interlocks, and even jail for repeat offenders, have had a significant impact on reducing crashes, injuries, and fatalities from drunk driving. Seat belt laws and enforcement have also increased seat belt use, in turn reducing the severity of injuries in crashes. Since State and local

governments have the key role in traffic law enforcement, coordination among States and partnerships with the Federal government are essential in promoting roadway safety.

Recognizing that Federal and State lawmakers need to balance the benefits of uniform regulation and enforcement across the Nation with the unique needs of each State, increased uniformity can help the public more easily understand and follow traffic laws. Incentives can be provided to States to facilitate additional driver record sharing across jurisdictions, which promotes more effective enforcement and monitoring of repeat offenders and high-risk users, increasing safety for all roadway users.

Involving the community in the development and implementation of laws, regulations, and policies, as well as enforcement, penalties, and incentives, helps generate awareness and buy-in among individuals, businesses, and society in general. For example, providing a forum where the public can raise concerns about unsafe roadways may help reduce crashes in those areas. Enforcement strategies and penalties for certain offenses may also benefit from additional community input.

The insurance industry can also influence changes in driver behavior through its business practices. Automobile insurance premiums are heavily dependent on a driver's past behavior and driving history. A financial incentive that rewards safer behavior and penalizes risky actions provides strong motivation for drivers to behave more safely on the road. For example, insurance companies offer discounts on insurance premiums to commercial vehicle customers that use telematics to monitor their commercial fleets and driver behavior. Companies also offer driver behavior monitoring systems for teen drivers, and may begin to extend monitoring programs to all drivers as event data recorders become more common in automobiles.

Identify and Address At-Risk Road Users with Targeted Strategies

DOT will continue to identify and address groups of at-risk users and create strategies to promote safety that specifically target each group, through legislation, education, and enforcement. The unsafe driving behaviors of these populations lead them to be involved in a disproportionately large number of serious and fatal crashes. Among the at-risk groups are younger and older drivers, drivers in rural areas, motorcyclists, and pedestrians. Table 1 indicates the number of fatalities in 2009 that involved targeted at-risk groups.

Table 1: Motor Vehicle Traffic Crash Fatalities by At-Risk Group, 2009

At-Risk Groups	# of Fatalities	% of Fatalities
Teens (16–20)	3,932	11.6
Older population (> 65)	5,288	15.6
Rural road users	19,259	57.0
Large trucks and Buses	3,619	10.7
Motorcyclists	4,462	13.2
Pedestrians	4,092	12.1
Total Motor Vehicle Traffic Crash Fatalities in 2009 = 33,808		

Source: Fatality Analysis Reporting System (FARS), 2009. Note that the categories are not mutually exclusive and the percentages do not add up to 100%.

DOT has already implemented many programs targeted at specific categories of users, based on age, geography, and type of vehicle. Current methods for focusing on the safety of specific groups include:

- Seat belt and GDL program campaigns for teen drivers;
- Individualized license determinations for driver licensing of older drivers;
- Signs, lights, and other targeted alerts provided at crash-prone areas for rural drivers;
- Driver screening, strict licensing standards, hours of service regulations, and mobile-telephone laws enforced for large truck and bus drivers;
- Helmet laws for motorcyclists;
- Public education and enforcement campaigns for motor vehicle occupants; and
- Public education campaigns for pedestrians, bicyclists, and other non-motorized users.

Some of these measures have been effective, but DOT should promote other countermeasures to further reduce fatalities. With 57 percent of fatalities occurring on rural roads, additional attention will focus on identifying and promoting targeted countermeasures that are appropriate to the rural environment, such as infrastructure enhancing center line rumble strips, behavior changing Click It or Ticket enforcement campaigns, training that increases the driver's ability to recognize and respond to road hazards, and educational outreach on the danger associated with two persistent rural problems, impaired driving and failure to use seat belts. Beyond strategies for particular groups of roadway users, DOT will continue to develop specialized approaches for individuals of special concern within a high-risk group. For example, an effective strategy for increasing safety among CMV carriers and drivers is to identify and target for improvement companies and individuals within that group that pose the greatest danger to safety. This is the objective of the Department's new Compliance, Safety, Accountability (CSA) enforcement and compliance initiative. The CSA initiative is designed to provide motor carriers and drivers with information about potential safety problems before crashes occur.

DOT is continuously looking for new data and analytical tools to help more accurately identify those individuals most likely to exhibit high risk behaviors on the roadways, as well as develop strategies for addressing these risks. In addition to targeting the at-risk groups included in Table 1 above, it is imperative to consider other ways of defining high risk operators. Systemic data collection and analysis must be used to support the determination of at-risk users, as well as strategies for addressing their behavior. These tools are indispensable in improving safety performance. Once risky behaviors and at-risk users are identified, the traffic safety community can determine which areas to emphasize and develop appropriate countermeasures.

The Way Forward

The principle of Safer Behavior involves changing the actions of roadway users. To build personal, corporate, and societal responsibility for roadway safety and unequivocal rejection by the public of unsafe behavior through a shift in public attitudes; establish greater compliance with existing laws, regulations, and policies through stronger enforcement, penalties, and incentives; make changes to strengthen existing laws and regulations when needed; and address high risk operators and users, DOT will pursue the following actions:

Take Additional Steps To Build Public Support for Safer Behavior
DOT is the catalyst to focus attention on changing safety culture, both within DOT and throughout all State and local transportation agencies. In particular, DOT will seek to implement training; promote awareness of safe behaviors in management and staff; make changes in standard operating procedures, guidance, and manuals; and emphasize accountability for results. State strategic roadway safety plans need to identify safe behaviors and use performance measures to monitor program success. DOT will continue to promote the use of seat belts and helmets, initiate new programs that build upon these successful safety tools, and advance proven, effective countermeasures and best practices. While encouraging compliance, the Department should create incentives to generate public and private support for safety programs, encourage personal responsibility, and foster partnerships for education and outreach.

Strengthen Targeted Safety Education Initiatives To Help Change Behavior
DOT will foster behavioral change by developing roadway-safety educational messages and programs. Roadway safety education and training should be based on age and skill level and available through various channels, such as schools and national organizations. To facilitate targeted safety education, DOT will promote cross-modal data-driven approaches to address roadway safety issues and identify at-risk users (e.g., crash files, driver history). In addition, DOT needs to raise the safety bar by supporting the continuous improvement of CMV operator performance programs.

Enhance CMV Operator Monitoring and Enforcement Capabilities
To determine where changes are needed, it is essential that DOT evaluate existing monitoring and enforcement programs. Specifically, this includes increasing CMV operator monitoring and enforcement capabilities with a particular focus on at-risk populations. To do this, DOT will promote advanced data sharing across jurisdictions and industries. Loopholes in driver record systems, which include moving violations, drug and alcohol testing and medical fitness, allow unsafe behavior to go unnoticed and must be closed." DOT will continue to encourage training and education on the impact of unsafe driving behaviors for judges and prosecutors in the CMV arena.

Collaborate with Stakeholders To Bring About Change
DOT is dedicated to ongoing collaboration with stakeholders to educate roadway users and promote change in their attitudes as well as the attitudes of businesses and society in general. By working with stakeholders, DOT can raise awareness of the need for safe behaviors, identify best practices to consider in addressing the challenges, and build buy-in for specific improvement strategies.

Enhance Program Flexibility To Support Safer Behavior
To enhance program access, the transportation community needs to streamline grant programs and processes and enhance the flexibility to apply for grant program funds. Based on problem identification and feasibility, DOT will use resource allocation tools to address emerging trends in driver behavior and other data-driven needs. DOT intends to continue to focus on research

addressing behavioral and human factors and create new strategies to enhance State data collection and analysis with regard to driver behavior.

Principle 3: Safer Vehicles

The third principle of the *Roadway Safety Plan* is Safer Vehicles. This principle encompasses efforts to prevent crashes through emerging in-vehicle crash avoidance technologies, to improve the crashworthiness of vehicles, and to enable more rapid and appropriate response to emergency situations. By fostering advances in engineering and technology and encouraging rapid deployment of new technologies and safer vehicles, DOT can improve roadway safety for all users.

Early efforts to make vehicles safer focused on creating a vehicle capable of withstanding a crash by improving structural design, materials, and vehicle safety systems, such as air bags and antilock braking systems. The next evolution in vehicle safety employs crash avoidance technology to prevent crashes from taking place. This technology makes vehicles more "intelligent," able to sense and communicate with other vehicles and the roadside infrastructure. It may also improve post-crash response by providing information from crash sites to emergency medical personnel to enable more rapid and effective rescue response.

The deployment and use of enhanced safety technologies require the development of new safety standards and communications infrastructures. Both original and aftermarket equipment manufacturers need to be engaged in the development of testing protocols to optimize performance and proactively mitigate unintended side effects of new technologies. The interaction of the driver with these new technologies will be very important to their effectiveness and therefore must be thoroughly researched and evaluated.

A vital advocate of safer vehicles is the consumer. As with any new technology, vehicle safety technologies rely heavily upon the acceptance of potential users. Drivers need to be aware of the safety benefits of new technologies and educated about their proper use. Once users are comfortable and knowledgeable about safety benefits in vehicles, they increase the demand for safer vehicles and help drive both industry and government to continuously improve vehicle safety.

Innovations in technology and engineering have the potential to assist roadway users and reinforce safer behaviors by increasing a driver's situational awareness. As discussed elsewhere in the *Roadway Safety Plan*, new technology is used to engineer vehicles and roadways to encourage safer behaviors from users. Current and emerging in-vehicle technologies include devices that monitor driver condition and performance, warn of distraction or drowsiness, avoid forward collisions, alert the driver in order to prevent lane departures, monitor the roadway environment, and deter unsafe behavior with systems such as alcohol ignition interlocks and seat belt sensors.

While it is not meant to replace a driver's responsibility to be safe while on the road, the increasing use of the technology will make the driver, the vehicle, and the roadway a more tightly integrated system with the strong potential for greatly improving roadway safety.

Strategies for Change

The principle of Safer Vehicles emphasizes three primary strategies for change: expand the use of advanced technologies; increase enforcement of and compliance with standards for safer vehicles; and nurture public awareness, understanding, and adoption of safer vehicles. Each of these strategies is described below.

Expand the Use of Advanced Technologies

DOT will encourage expanding research, development, and deployment of advanced vehicle technologies. Engineering and technology advancements will continue to produce safer vehicles and higher levels of road safety. At the same time, transportation stakeholders, including original and aftermarket equipment manufacturers, must vigilantly assess any unintended consequences of new technologies, such as increased driver workload, to avoid new safety challenges. For example, hands-free cell phone devices enable vehicle operators to drive without the constraint of holding a cellular phone. However, the added convenience of this new technology may increase the frequency or length of in-vehicle calls, extending the time an operator is distracted. Near-silent hybrid and electric vehicles may pose a safety hazard for pedestrians, especially the visually impaired who rely on engine noise to detect vehicles, and motorcyclists. Further, aftermarket and retrofit equipment can interfere with original equipment manufacturer safety system performance.

Vehicle crashworthiness improvements have already reduced fatalities and injuries through enhanced structural design, materials, and occupant restraint devices. Vehicles produced today include advanced airbags and seat belts that respond to the specific characteristics of a crash as it occurs. Other improvements include ejection mitigation technologies, glazing of windows, and mechanisms for enhancing roof strength. Manufacturers also have assessed the potential to reduce the impact on pedestrians in the event of a collision, through changes in design and materials. The Department will continue to monitor these advances to determine how much additional safety is provided and which features should be mandated for segments of the vehicle fleet.

New technologies improve a driver's situational awareness through such features as auditory proximity warnings, lane departure warning signals, and forward collision warnings, while other technologies can provide and relay information on roadway-related weather conditions. Future technological developments will include better detection capability, more intuitive warning signals, and increased deployment in less expensive vehicles. These devices can provide additional input to the driver to assist in immediate decisionmaking, but it is essential that they do not increase driver burden or distraction. Therefore, DOT will continue to evaluate that human factors are incorporated in assessing the effectiveness of these devices.

Current and emerging solutions also focus on reducing crashes through the use of crash avoidance and other advanced technologies where the vehicle is wholly or partially controlling operation. Crash avoidance technology enables a vehicle to monitor its operating environment, including the driver, and intervene to avoid a crash or the precursors to a crash through automated braking, throttle control, and steering. Current applications include electronic stability control, forward collision braking systems, lane-keeping assistance, and rollover

prevention. Future gains in safer vehicles will rely substantially on the development and deployment of ITS technologies that wirelessly connect vehicles to each other and to the supporting roadway infrastructure as well as communicate with other road users, including bicyclists, and pedestrians. Applications resulting from the DOT Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I) Communications programs have the potential to dramatically improve safety by preventing crashes through real-time advisories, warnings, and potential automatic vehicle control. The Department has outlined a multi-year program of research to develop these critical safety systems and facilitate their future deployment on our roadways.

Road geometry warning systems can warn drivers of potentially dangerous conditions that may cause rollover or run-off-road crashes on ramps, curves, or downgrades, and provide over-height warnings at tunnels and overpasses. Highway-rail crossing warning systems can reduce the potential for collisions at railroad crossings, including catastrophic crashes involving school buses or hazardous materials carriers. Intersection collision warning systems use sensors to monitor traffic approaching dangerous intersections and warn vehicles of approaching cross-traffic via roadside or in-vehicle displays. Animal warning systems can detect large animals near the roadway, alert travelers, and deter animals from crossing while traffic is present.

Systems to improve the driver's situational awareness of vulnerable populations, such as pedestrians, bicyclists, and motorcyclists, have the potential to dramatically improve safety if they are carefully designed to prevent distraction. Pedestrian safety systems can potentially notify the vehicle of the presence of pedestrians in crosswalks. Bicycle warning systems can detect bicyclists on narrow stretches of roadway and provide drivers with advance notice when entering bridges and tunnels. To address the previously intractable problem of poor motorcycle conspicuity, motorcycle warning systems can detect motorcyclists approaching head on, from the left or right, or from behind.

Technologies that improve emergency response after a crash continue to evolve. They aim to maximize survivability after a crash through the rapid deployment of appropriate emergency responders based on a real-time, onsite assessment of the crash. Other technologies can assist with capturing key crash information to identify the causes of crashes and injuries and support improvement of vehicle safety systems and standards for future prevention and mitigation.

Advanced technologies are developed, manufactured, and marketed more rapidly than ever before. While DOT is already researching and analyzing advanced technologies for safer vehicles, it is critical to proceed at a pace that matches industry deployment. This includes making buyers aware of and comfortable with the technologies in their vehicles. In the near future, this means fostering consumer demand for such technologies as standard options, rather than dispensable luxury items, in all vehicles.

Increase Enforcement of and Compliance with Standards for Vehicles

To support new technology, DOT will continue to establish and enforce safety standards as the vehicle market evolves. DOT will promote the development of safety standards and testing protocols to enhance the investigation and use of crash avoidance technologies, including V2I and V2V communication technology, and ensure the crashworthiness of private, commercial, and emergency response vehicles. DOT will demand greater accountability of vehicle and

equipment manufacturers to help identify problems and prevent compliance avoidance. DOT will facilitate coordination both within the Department and between DOT and other cabinet departments (e.g., Environmental Protection Agency) to synchronize and develop standards.

> *"I don't want any truck, bus, car, or motorcycle that is not safe operating on our Nation's roadways. We need to employ technology to help drivers avoid crashes, but when those crashes do occur, we need to do everything we can to protect the driver and their passengers, and reduce the severity of their injuries."*
> *Ray LaHood*

To increase the likelihood that vehicles meet established safety standards as early in the design process as possible, DOT will work with original and aftermarket equipment manufacturers, including those for emergency vehicles and ambulances. In particular, DOT can encourage equipment manufacturers to develop and implement measures to incorporate safety and guard against unintended consequences during the design process. As the entities most closely involved with designing products, equipment manufacturers have the greatest ability to ensure standards are met at the earliest possible stage of development. This greatly improves efficiency both for equipment manufacturers and DOT.

Based on the implementation of advanced technologies in the past, DOT and stakeholders have developed best practices that can be used to proactively monitor new technologies for unintended effects. These best practices can be grouped as follows:

- Comprehensive data collection and analysis;
- Collaboration among multiple stakeholders;
- Public education and awareness campaigns;
- Coordinated law enforcement efforts; and
- Legislative and regulatory actions.

DOT can help ensure roadway safety as the vehicle market evolves by actively establishing standards for safety and compliance in support of advanced technologies, as well as incorporating best practices learned in previous deployments.

Nurture Public Awareness, Understanding, and Acceptance of Safer Vehicles

DOT can nurture public awareness, understanding, and acceptance of safer vehicles. Consumers must be both aware of and comfortable with the technology put in place to improve vehicle safety. If a new technology is not properly presented to consumers, they can easily ignore it, or worse, misuse it, negating the intended safety benefits. Therefore, DOT will seek to improve public education about the safety benefits of existing technologies that help consumers avoid a crash, mitigate the severity of a crash, and improve response once a crash occurs.

To build acceptance, the public must know how these safety mechanisms work and be convinced that the safety advantages outweigh any perceived disadvantages. For example, the wireless technologies used in safer vehicles utilize information about the location of roadway users and

may raise concerns over privacy. Demonstrating how personal privacy is protected, while at the same time showing how the technology provides an important safety benefit, will be key to ensuring public acceptance.

Public acceptance of safer vehicles will require not only education and promotion, but also a shift toward a more robust safety culture. Because many of the safe-vehicle mechanisms will result in higher cost vehicles, incentives may be useful early on to promote these mechanisms and encourage consumers to purchase vehicles so equipped. Additionally, consumers must know when vehicles are unsafe. DOT will improve its outreach to consumers to encourage further reporting of defects to the Department to facilitate investigation and removal of unsafe vehicles from the road. Consumers must understand recall notifications and pursue the remedies outlined in those recalls. The Department must seek to foster a Nation that actively believes in safety.

The Way Forward

The principle of safer vehicles involves developing and adopting technology and related standards that help to reduce the incidence of crashes, decrease the severity of crashes, and improve the response to crashes. To expand the use of advanced technologies; increase enforcement of and compliance with standards for safer vehicles; and nurture public awareness, understanding, and acceptance of safer vehicles; DOT will pursue the following actions:

Expedite Research to Address Human Factors, Technology, and System Infrastructure Enhancements

DOT will continue to explore research technology solutions to driver safety/fitness issues (e.g., alcohol interlocks, distraction, fatigue, drowsy driver). The Department will ensure an appropriate focus on the important ITS research and development of cooperative V2V and V2I technologies, which could contribute to substantial reductions in crashes, injuries, and fatalities. In addition, development of the first set of harmonized vehicular-based ITS standards within the international ITS community will be developed. All of this needs to be done in a way that assures that communication with the driver increases safety and minimizes the unintended consequence of distraction. Finally, DOT will continue collaborative research with manufacturers, industry, and the EMS community on the benefits of automatic collision warning systems to improve EMS response and crash outcomes.

Develop Models for Public-Private Partnership for Advancing Innovation

DOT's effectiveness will improve by developing models for public-private partnerships for advancing innovation. This will include working with businesses to accelerate the advancement of safer vehicles. DOT will seek opportunities to accelerate the deployment of integrated safety technologies. To help ensure that new safety technologies reach the market as quickly as possible, the Department will examine opportunities to obtain funding, support field tests, and offer incentives where required or necessary to encourage innovation.

Establish Standards and Testing and Certification Protocols for Facilitating Compliance and Enforcement

DOT has a primary role in setting and promoting safety standards and test procedures that will enhance vehicle crash avoidance and crashworthiness. DOT will continue to identify vehicle and

equipment manufacturers and implement enforcement capabilities to prevent non-compliance with policies and regulations.

Increase Targeted Safety Programs/Initiatives in Support of Safer Vehicles Development
DOT recognizes the need to reward commercial motor carriers who deploy safety technologies in their fleet. To the extent possible, DOT will consider options for investments in V2V and V2I communications programs to integrate CMV safety and intervention strategies, such as the Smart Roadside Initiative, which have the potential to achieve significant heavy-vehicle safety improvements and relieve freight bottlenecks.

Generate Public and Private Support for Safer Vehicles
DOT will actively try to generate public and private support. Partnering with media and automobile dealers is one way to promote public awareness of safer vehicles highlighted by the 5-Star Safety Ratings. The Department should continue to encourage the use of available technologies and safety devices, such as seat belts and child restraints, and educate the public on the proper use of safety equipment. While DOT educates consumers on the advantages of available safety advances, it will actively pursue intra- and inter-departmental coordination of programs and initiatives to guard against the unintended consequences of emerging technologies. Finally, safety will improve with enhancements to vehicle defect reporting, making the process easier and more transparent for consumers, and increasing the rate at which consumers respond to recall notifications.

Principle 4: Safer Roadways

Safer Roadways is the fourth principle on which the *Roadway Safety Plan* is built, encompassing roadway infrastructure improvements, technology implementation, and countermeasure utilization. Although roadway deficiencies are rarely cited as the primary cause of a crash, they can significantly affect the driver's ability to avoid a crash or mitigate its severity. For this reason, a great deal of emphasis continues to be placed on creating forgiving highways that provide operators with a roadway environment that keeps them informed and alert, provide a travel corridor free of danger, and assist in maintaining proper control of their vehicles. These functions apply to the safe movement of motor vehicles, as well as assuring the safety of other roadway users, including pedestrians and bicyclists.

The Nation's existing transportation infrastructure includes an extensive network of over 4 million miles of roads and hundreds of thousands of bridges. To maintain viability, the network must be maintained, repaired, and improved. Much of this infrastructure is nearing, or exceeding, its expected service life and is in need of not only structural improvements, but also updating to incorporate modern safety features and technologies. Through the "State of Good Repair" goal in the Department's Strategic Plan, DOT proposes a performance goal of increasing the percentage of travel on National Highway System roads with pavement performance standards rated good, and increasing the percentage of bridges with deck area (the roadway surface of a bridge) rated good or fair. As part of such improvements, substantial emphasis has been placed on leveraging any infrastructure investments as an opportunity to also invest in roadway safety, by including bicycle lanes, shoulders, clear zones, crash-tested roadside hardware, median barriers, retroreflective signing and striping, and rumble strips, or redesigning intersections. Where specific safety problems occur, funding needs to be directed to improve those locations. However, quite often the needs are system-wide (e.g., preventing roadway departure crashes on horizontal curves).

> *"There is no reason why Americans should not have the safest roads in the world. We need to use our resources to eliminate roadway dangers, not just for vehicles, but for pedestrians and bicyclists."*
> *Ray LaHood*

Complementing this philosophy, specific Federal funding is also allocated to the States solely for roadway safety improvements to assure that they have resources dedicated to reducing fatalities and serious injuries. The core program for funding highway infrastructure safety improvements is the Highway Safety Improvement Program (HSIP). Although DOT will continue to work to increase the investment in HSIP, States can also use their allocations for Interstate Maintenance (IM), Surface Transportation Program (STP), and the National Highway System to fund safety improvements from these programs.

As part of infrastructure improvements, new technology, enhancements, and countermeasures may be incorporated into roadway designs to improve safety. Together with our partners, DOT is evaluating advancements in technology for effectiveness and suitability for wider use. Technological advances cover a range of areas, including: providing information about weather

conditions; detecting and avoiding potential crossing-path crashes at intersections; integrating management across modes in a single corridor; providing information on changed or expected conditions due to work zones; providing public emergency communications following a crash; and integrating infrastructure, vehicle, and passengers' wireless devices to provide continuous real-time connectivity to all system users. Pedestrian safety systems not only adjust traffic signal timing to provide an appropriate "walk" phase (e.g., countdown signals and audible messages for the visually impaired), but can also activate in-pavement lighting or roadside warning messages to alert drivers of pedestrian presence. Roadway enhancements that assist users include brighter pavement markings and signs, shoulder rumble strips, raised medians, raised/lighted crosswalks, and pedestrian overpasses.

DOT also encourages the appropriate use of proven countermeasures in roadway design. Countermeasures currently in use include rumble strips and rumble stripes, median barriers, the safety edge, roundabouts, left and right turn lanes at stop-controlled intersections, yellow change intervals, medians and pedestrian refuge areas in urban and suburban areas, and walkways. The widespread deployment of low-cost countermeasures has been shown to have positive safety benefits.

Strategies for Change

The principle of Safer Roadways emphasizes two primary strategies for change: strengthen the roadway safety program, and expand the use of new technologies and countermeasures for safer roadways. Each of these strategies is described further below.

Strengthen the Roadway Safety Program

The State DOTs, counties, local agencies and authorities, and other owners are responsible for designing, developing, and maintaining the expansive roadway system throughout the Nation. The physical roadways have a significant impact on safety outcomes for roadway users. From rural to urban roads, freeways to scenic byways, the United States needs to improve its roads. *These improvements are essential to the safety of roadway travel and once they are in place they will help save lives for many years to come.* Therefore, safety should be integrated into all phases of the roadway lifecycle, including the design, development, and maintenance/repair phases. To attain this integration requires resources for improving infrastructure and facilitating greater local community participation and collaboration in the roadway safety program. Particular attention needs to be paid to rural roads where a disproportionate number of fatal crashes occur. Based on the 2009 Fatality Analysis Reporting System (FARS data), of the at-risk groups (see earlier Table 1), rural roads had the highest percentage of fatalities (57.0%). While, in general, rural roadways have the greatest problems, the owners of rural roads face the most significant limitations on awareness of options and access to funding for repair and improvements.

The HSIP provides much of the funding for roadway safety, yet some funding is not being used for the projects that need it most. For example, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) allows States to allocate up to 50 percent of their HSIP funds to non-safety-related projects. Additionally, eligibility requirements and related issues can place limitations on access to funds. DOT encourages greater adoption of the Highway Safety Manual (HSM) and development of more sophisticated

analysis tools for systemic improvements to provide better information to determine the best course of action to take with limited safety funds to save the most lives. This type of data-driven decisionmaking could also support developing the political will needed to spend the funding on safety-related projects rather than diverting the funds for non-safety-related projects.

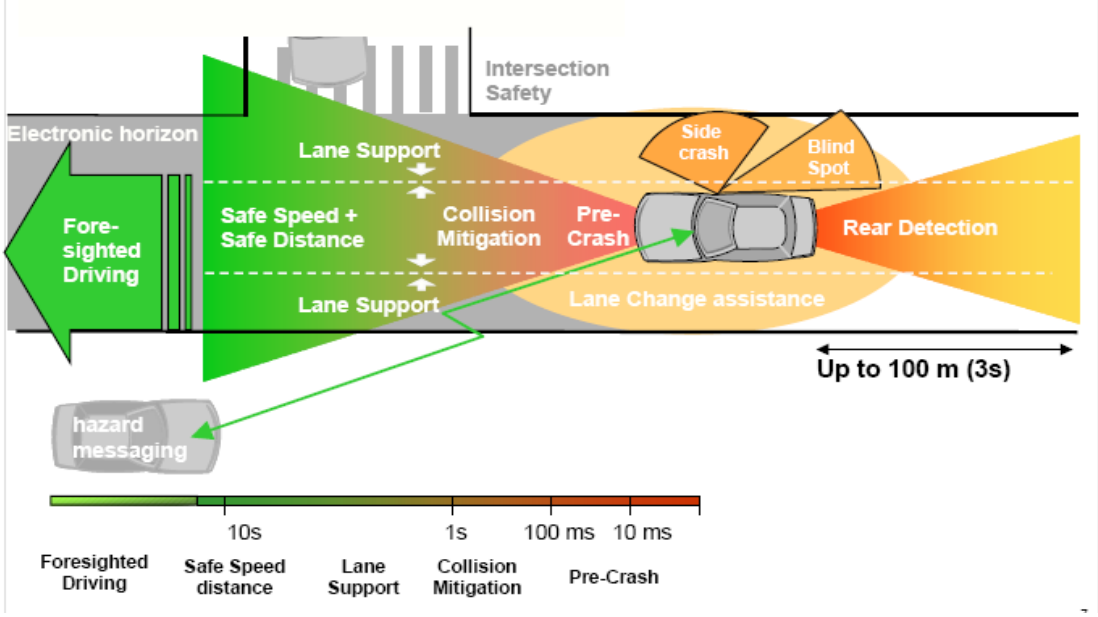
Expand the Use of New Technologies and Countermeasures for Safer Roadways

It is imperative that DOT continue to research available technologies and countermeasures for safer roadways and support their use. DOT intends to advance a systematic program of data coordination to improve the collection and inventory of roadway elements; prioritize projects based on safety needs, resources, and options; advance projects of the greatest need; and evaluate effectiveness and benefits of safety programs.

There are many advances in technologies for safer roadways. DOT's ITS initiatives are an area for leveraging ITS applications to help reduce roadway hazards. The Department needs to examine these initiatives from a roadway safety perspective and integrate the best components of their programs:

- Develop and demonstrate an integrated surface transportation weather observing, forecasting, and data management system to provide information to all transportation system managers and users, to alleviate the effects of adverse weather on the roadway system, such as the *Clarus* Initiative.
- Integrate infrastructure and vehicle based technologies to detect and avoid potential crossing-path crashes at intersections, such as the Cooperative Intersection Collision Avoidance System (CICAS).
- Improve operations by integrating transportation management across modes in a single corridor.
- Improve public emergency communications in a mobile, wireless society, leading to greater safety on our roadways and facilitating the effective evacuation of disabled citizens in national emergencies, such as Next Generation 9-1-1.
- Expand the V2V and V2I Communications programs for safety, which together will integrate the infrastructure, the vehicle, and passengers' wireless devices to provide continuous real-time connectivity to all system users.

Figure 4: Illustration of Sample ITS Technologies



As part of the speed management program, DOT is considering variable speed limits (VSL) and automated speed enforcement (ASE). VSLs are speed limits that change based on road, traffic, and weather conditions. VSLs offer considerable promise in restoring the credibility of speed limits and improving safety by restricting speeds during adverse conditions. DOT along with partners are carrying out field tests to implement and analyze the effectiveness of VSLs in roadway work zones. Several European countries have used VSLs and ASE with considerable success. A review of 13 international evaluations of automated speed camera enforcement systems and 7 evaluations of automated red light camera systems indicates generally positive effects from these systems; however, at times the public pushes back against their implementation. DOT can respond by further promoting public awareness, understanding, and acceptance of technology.

DOT encourages the use of additional methods for decreasing the incidence of crashes and mitigating their severity, such as:

- Increasing the wide-scale installation of shoulder and centerline rumble strips to alert drivers that they are leaving the driving lane;
- Increasing the use of cable barrier systems on highway segments to reduce the severity of median encroachments, head on collisions, and run-off-the-road crashes and to protect vehicles from roadside hazards such as canals;
- Converting a significant number of intersections to roundabouts;
- Employing the concept of the “self explaining” roadway, where the appropriate speed is obvious from the features of the roadway;
- Increasing the use of ITS devices such as Transportation/Traffic Management Centers, dynamic message signs, and 511 systems to provide warning information on crashes to roadway users to reduce the potential for secondary crashes;

- Increasing the use of Traffic Incident Management (TIM) to provide faster clearance of crashes from roadways to reduce the potential for secondary crashes and increase emergency responder safety; and
- Improving emergency medical service infrastructure and effectiveness, particularly in rural communities.

By implementing advanced technologies and countermeasures, DOT continues to evaluate the feasibility of these methods and to promote the use of those that have the greatest impact on safety.

The Way Forward

The principle of Safer Roadways involves elements of the roadway infrastructure, including roadway design, equipment, speed management, and related research and technology. To strengthen the roadway safety program and expand the use of new technologies and countermeasures for safer roadways, DOT will pursue the following actions:

Expand the Resources Available to Improve Roadway Safety

State Strategic Highway Safety Plans should identify the requirements associated with safer roadways and use performance measures to ensure that results are achieved. DOT will pursue additional investment for research for improved roadway safety and implement technology that is deemed effective in reducing the incidence and severity of crashes. The Department needs to develop a better capability for predicting the impact that countermeasures have on safety, which could result in greater adoption of proven countermeasures.

Increase the Use of Reliable Roadway Safety Data and Risk Analysis to Guide Safety Investment Decisions

DOT will continue to support stakeholders' and partners' use of existing data and analysis programs to advance roadway safety decisionmaking. The Department also envisions a new program, the Highway Safety Data Improvement Program, to develop base maps of every public road and collect roadway data. This effort will align with the FHWA's Highway Performance Monitoring System program and the Transportation for the Nation initiative, both of which require such base maps. It is also very important that States have a reliable crash data system to enable them to identify safety problems and opportunities on all public roads. Each State's Strategic Highway Safety Plan process must analyze and consider this data. Reliable data and risk analysis should drive investment decisions by States and localities, working through their MPOs in urbanized areas, to ensure that safety improvements are implemented where they are needed the most. This information also has the potential to assist in the emergency response arena.

Increase Research and Analysis of Advanced Roadway Safety Technologies

DOT will continue to invest in research for improved roadway safety infrastructure and increase awareness of best practices in roadway safety improvements. V2V and V2I Communications programs focus on roadway safety and must be integrated into the appropriate portions of action plans flowing from the *Roadway Safety Plan*. The ITS Management Council and the ITS Strategic Planning Group will continue to have relevant safety personnel present at discussions focused on safer roadways and related research.

Conduct Public Outreach Campaigns to Change Attitudes about Roadway Safety

To promote safer roadways, DOT will conduct outreach to change public attitudes toward the annual cost in lives, property, and production from roadway crashes. This includes promoting public outreach campaigns that are strong, results oriented, data-driven, and consistent. The Department will learn from and build upon existing outreach efforts to expand public awareness of, and demand for, proven technology such as rumble strips, roundabouts, and lighting. Public outreach is particularly critical if a decision is made to use VSL, ASE, and vehicle sensors that transmit information to other vehicles or to infrastructure because some perceive that this information transfer impinges upon individual privacy rights.

Principle 5: Empower Communities

Because one size does not fit all when considering transportation programs, Empower Communities is the fifth principle of the *Roadway Safety Plan.* Over time, communities adapted transportation networks to their local economic and demographic environments, resulting in disparities across communities. An analysis of safety concerns might show that one community may need to focus more on impaired driving, while another may require greater emphasis on improving emergency response capability. To utilize resources and investments most effectively, each community needs to develop a comprehensive, data-driven roadway safety plan that allows State and local agencies the flexibility to effectively tailor safety countermeasures to the local issues.

In particular, individual communities need to consider their emerging needs and demographic factors including:

- Population growth and income level;
- Age distribution and the percentage of disabled population;
- Ethnic mix and associated cultural norms with respect to transportation;
- Urban/rural character of community;
- Travel patterns within the community (e.g., population that buys online, short versus long trips, willingness to use alternative forms of transportation);
- Commercial activity, both local and interstate;
- Number, location, and state of roadways, and pedestrian and bicycle facilities;
- Availability of public transit; and
- Accessibility of all transportation facilities.

As attitudes change regarding alternative mobility options, transportation planning, programs, and investments will more often need to consider the safe use of roadways by pedestrians, joggers, bicyclists, motorcyclists, golf carts, scooters, other low-speed vehicles, and users of novel means of transportation.

Strategies for Change

The principle of empowering communities emphasizes three primary strategies for change: enhance participation and flexibility in the safety planning process, create greater access to safety resources for all communities, and advance safety in livable communities for all road users. Each of these strategies is described further below.

Enhance Participation and Flexibility in the Safety Planning Process

One of the greatest strengths of the highway safety program is the focus on comprehensive data-driven planning. SAFETEA-LU emphasizes this approach by requiring every State to develop a strategic highway safety plan. That plan should serve as a roadmap for all roadway safety initiatives, across jurisdictions and disciplines. The process is intended to be inclusive of stakeholders, including local governments and traffic enforcement officials, regional and metropolitan transportation planning organizations, and other necessary entities. Recognizing its value, DOT encourages States to tie the use of Federal safety money to that planning process.

Currently, States are required to respond to separate DOT requests for modal safety and infrastructure plans. DOT could improve the process using a coordinated safety-planning approach. Communities report frustration with the perceived level of responsiveness to regional, local, and citizen concerns and the needless complexity, rigidity, and stove-piping of Federal and State transportation programs. This is felt particularly as communities increasingly want to pursue multi-modal and holistic solutions to their transportation needs, including transportation safety planning. DOT will promote collaboration among all levels of government and local citizens to determine the priority for addressing roadway safety needs and provide greater flexibility in achieving those priorities.

DOT will work with States, MPOs, local, and tribal communities to ensure that safety strategic plans are coordinated, consolidated State planning documents that will provide rational tools communities can use to drive effective investment in the transportation network. As an example, communities may see strategies that move more travelers to transit as a means to both improve mobility and safety. Moving away from the traditional stove-piped relationships among agencies and building stronger partnerships will enhance highway safety.

Create Greater Access to Safety Resources for All Communities

One challenge that State and local governments face is the need to apply for and implement a myriad of Federal safety grant programs. Many of these grant programs were created to address specific safety needs, which results in limiting the flexibility of communities to direct safety resources where they are most needed. DOT has heard from State, local, and county officials that greater flexibility should be provided in the use of these funds.

DOT intends to streamline safety grant program processes, making it easier for communities to access these funds and put them to work faster to reduce fatalities and serious injuries. The Department may be able to administratively reduce the complexity of some of these programs. However, consolidating programs or expanding eligibility criteria would require legislative action. With these changes, DOT envisions that more of the communities' efforts can be applied to solving problems than to administering these Federal grants.

The Nation cannot fully address our roadway safety problems without the direct support of local governments. In many States it has been a challenge to give local government entities greater access to these funds. Working with the States, DOT hopes to lift the barriers that prevent local safety issues from being addressed.

Advance Safety in Livable Communities for All Road Users

DOT is concerned about the safety of all road users and will assist in fostering the development of mobility options in livable communities, which will allow for greater reliance on walking, bicycling, and public transit. With an expected increase in the older adult population and an associated increase in cognitive disorders such as Alzheimer's disease, DOT will develop research to assist communities in making decisions that not only increase mobility for those citizens, but also mitigate risk to transportation system users. Transportation planning and infrastructure project design will incorporate a design philosophy that includes safety countermeasures appropriate to the environment.

Consistent with past efforts, DOT will compile information and provide technical assistance, training, and best practices to Federal, State, local, and tribal governments and MPOs to advance non-motorized projects and consider the accommodation of all users (e.g., pedestrians, bicyclists, public transit users, children, older adults, persons with disabilities, drivers, and motorcyclists) in planning and developing mobility-enhancing projects.

In addition, DOT will assess best practices for implementing a "complete streets" philosophy, which will provide additional information on its feasibility. Subsequently, DOT will issue guidance on implementing design policies that accommodate all users.

"Safety starts in our own homes and our own communities. We want to give our States and communities the resources to improve safety, as well as the flexibility to use those resources where they can do the most good." Ray LaHood

The Way Forward

The principle to Empower Communities involves giving localities greater flexibility to determine which projects are the most important and providing funding. To enhance participation and flexibility in the safety planning process, create greater access to safety resources for all communities, and advance safety in livable communities for all road users, DOT will pursue the following actions:

Increase Flexibility to Use Federal Funds for More Localized Safety Projects

Smaller, localized safety projects need Federal funding and DOT will identify strategies to more effectively use Federal safety funds to address local government needs. DOT will streamline the requirements for small Federal safety projects to allow communities to obtain funds in a timely manner, support the development of regional or community safety plans, and implement the introduction of advanced safety technologies.

Build Capacity of Communities to Make Better Safety Decisions

DOT will partner with States, local, and tribal entities to develop tools for better safety decisions. To promote systematic improvement, DOT will assist these entities in integrating and applying those tools to evaluate and predict risk across the transportation system. The ability to identify risk helps determine the best use of funds.

Raise Community Awareness of Roadway Safety Improvement Options

There is a range of options for solving safety issues faced by a community. It is important for a community to consider its specific problems and determine the best option for addressing the issues. DOT will promote outreach to raise community awareness of options so that the relevant parties are sufficiently informed of research and technology, available funding alternatives, and grant processes.

To address safety issues, one approach is to use locally-based groups of highway safety advocates who are committed to solving roadway safety problems through a comprehensive,

multi-jurisdictional, multi-disciplinary approach. Florida, for example, uses Community Traffic Safety Teams (CTSTs) with members that include local, city, county, State, and occasionally Federal agencies, as well as private industry representatives and local citizens. Community boundaries are determined by the individuals comprising the team, and can include a city, an entire county, a portion of a county, multiple counties, or any other jurisdictional arrangement.

Similar efforts in other States bring together several agencies (State, county, city, and tribal), plus other groups and organizations, to work toward the common goal of improving roadway safety in their community. They integrate the four "E" disciplines that work in highway safety: engineering, education, enforcement, and emergency response. By working together with interested citizens and other traffic safety advocates within their communities, these groups help to solve local safety problems related to the driver, vehicle, and roadway.

Principle 6: Accountability and Managing for Results

Accountability and Managing for Results is the sixth principle on which the *Roadway Safety Plan* is built, recognizing that roadway safety depends on emphasizing outcome measures and establishing performance targets, backed up by sanctions and rewards. The complex initiatives for roadway safety frequently involve multiple stakeholders, time periods, and resources. Therefore, it is important to establish metrics, monitor performance, and tie funding to outcomes. DOT will ensure that the many stakeholders (including the States) involved in implementing safety projects are held accountable, which will support efficient and effective use of resources and achievement of program results. Ultimately, this will improve roadway safety.
To bring about greater accountability and monitor performance more effectively, Congress enacted several laws that place additional requirements on Agencies. The Government Performance and Results Act (GPRA) of 1993 required Agencies to establish strategic plans, annual performance metrics, and regular reviews of their performance. In 2001, the Office of Management and Budget (OMB) established the Program Assessment Rating Tool (PART) and required all Federal agencies to review all of their programs over 4 years. OMB requires agencies to justify their budget requests in terms of the additional products and services they would deliver to the public.

To further improve the performance of the Federal Government, in June 2009, OMB launched its latest performance management strategy, "Use Performance Information to Lead, Learn, and Improve Outcomes through Setting High Priority Performance Goals (HPPG)." Agencies were asked to identify and commit to a limited number of HPPGs with high value to the public. At this time, DOT made reducing the highway fatality rate its top HPPG.

While DOT has taken additional steps to manage for results and improve accountability in roadway safety programs, more still needs to be done. In a report to Congress in March 2008, the Government Accountability Office (GAO) noted, "Federal funding for transportation has increased significantly in recent years, but because spending is not explicitly linked to performance, it is difficult to assess the impact of these increases on the achievement of key goals."[6]

In particular, DOT needs to establish better measures against which performance can be tracked and results tied to funding. In addition, the Department will expand the requirements for State accountability and support development of the mechanisms they use to respond to those standards. Creating greater accountability and managing for results in highway safety programs means changing how States plan, helping them improve their data collection and the use of that data, assisting them as they develop their performance management systems, and encouraging them to conduct regular program evaluations.

Strategies for Change

The principle of Accountability and Managing for Results emphasizes four primary strategies for change. These include: improve safety data, analysis, and decisionmaking; integrate safety

[6] U.S. Government Accountability Office**.** S*urface Transportation: Restructured Federal Approach Needed for More Focused, Performance-Based, and Sustainable Programs* GAO-08-400. Washington, DC: March 6, 2008. p.29.

planning processes; enhance performance management; and expand program evaluation. Each of these strategies is described further below.

Improve Safety Data, Analysis, and Decision Making

In order to identify appropriate safety issues and develop strategies to address them, it is critical that DOT work with the States to improve the quality, timeliness, and consistency of safety data and develop analysis and decisionmaking tools. The Department needs complete and accurate safety data from States. It is important for the States to take responsibility for this data collection because a substantial amount of the pertinent safety data is related to roadways that are part of the State system.

Since NHTSA began awarding Section 408 State Traffic Safety Information Improvement grants in 2006, States have made significant strides in the collection and use of highway traffic safety data. This typically consists of six categories of data: crashes, a roadway inventory, driver histories, vehicle registration, emergency medical services/injuries, and citation/adjudication information. By 2010, GAO found that 71 percent of States had high quality vehicle data systems.[7] Sixty percent had quality data on licensed drivers and their driving history. Less than half of the States, however, had complete and accurate crash data; and even fewer had complete roadway data. This means that many States are unable to identify the precise locations of crashes and, therefore, of traffic safety problems.

"The only way we can make better decisions is with better data. States need to recognize that they have a responsibility for the traveling public in their State, regardless of who owns the roads. Crashes don't stop where the State roadway ends...nor does our obligation to the public."
Ray LaHood

DOT requested $300 million for a new program, the Highway Safety Data Improvement Program, to fill this gap. States will use this funding to develop base maps of every public road in the State and to conduct roadway inventories. With these maps, States will be better positioned to know precisely where crashes occur and to analyze the infrastructure characteristics of the road that may contribute to crashes. With this information in hand, they will be able to apply more targeted and effective solutions at specific crash sites, as well as sites across the State that share similar characteristics.

Beyond targeting specific crash sites, better overall data would allow DOT to quickly identify trends and match them to relevant strategies. For example, the recognition of a national trend in pedestrians being involved in accidents while under the influence may allow funding for proven strategies specifically targeted at solving that problem.

Integrate Safety Planning Processes

DOT will develop integrated planning processes that foster coordination across Federally-funded safety programs and lead to a single, roadway-safety strategic plan in each State. Funding should be targeted at specific goals and objectives in those strategic plans, and results should be tracked. Most highway funds are distributed through congressionally-mandated formulas, which

[7] U.S. Government Accountability Office. *Traffic Safety Data: State Data System Quality Varies and Limited Resources and Coordination Can Inhibit Further Progress* GAO-10-454. Washington, DC: April 15, 2010.

GAO has found have only an indirect relationship to needs, performance, or outcomes.[8] Formula grants have been the vehicle for distributing surface transportation funds for decades, and it is unlikely that will change. It is possible, however, to incorporate accountability mechanisms into grant structures and regulation to strengthen the indirect connection between funding and needs. To help address this, State planning processes should be better integrated. To achieve greater coordination at the State level, each State should establish a highway safety coordinating committee that will draw its membership from a cross-section of agencies responsible for aspects of public safety, provide a forum for discussion of highway safety issues, and have the authority to create a single State Strategic Highway Safety Plan. Ultimately States would be encouraged to make a stronger tie between their strategic safety plan and their decisions on the best use of resources to make safety improvements.

Enhance Performance Management

DOT will enhance performance management for roadway safety programs. Performance management is the process of using data and other information to set programmatic goals, track progress, determine program effectiveness, identify problems, determine solutions, and record and evaluate results.

Some States have fully developed performance management systems, while others have only rudimentary processes. DOT proposes to expand requirements to strengthen States' accountability for performance measures, while providing them the flexibility to meet their unique roadway safety needs. For example, States are required to develop systematic methods for identifying and prioritizing their safety needs as a part of the development of their Strategic Highway Safety Plans. They may use tools such as the Highway Safety Manual, developed jointly by FHWA and the American Association of State Highway and Transportation Officials (AASHTO), and the AASHTO's *Safety Analyst*, a set of software tools that helps States identify preferred solutions to infrastructure-related traffic safety problems. States will track and report on progress in achieving performance targets. DOT will encourage development of a single annual performance report, comparing planned activity with actual activity.

To encourage achievement of results, the Department could give States the flexibility to transfer up to 50 percent of the safety funds to other, non-safety programs once they have met their performance targets. In cases where a State does not meet its performance targets, flexibility could be limited by requiring that the portion of a State's obligation authority that is equal to its safety apportionment be used for safety projects.

Expand Program Evaluation

DOT will increase program evaluations in its safety research, deployment, and operations to facilitate continuous process and program improvement. States will be able to use HSIP funds to conduct regular program evaluations. These program evaluations will measure the progress made against goals and objectives and analyze the impact of projects to determine what is working and what is not working.

[8] U.S. Government Accountability Office**.** S*urface Transportation: Restructured Federal Approach Needed for More Focused, Performance-Based, and Sustainable Programs* GAO-08-400. Washington, DC: March 6, 2008, p.4.

The Way Forward

The principle of accountability and managing for results involves establishing metrics, monitoring performance, and tying funding to outcomes. To improve safety data, analysis, and decisionmaking; integrate safety planning processes; enhance performance management; and expand program evaluation, DOT will pursue the following actions:

Continue To Provide Leadership for Performance Measurement and Management

DOT will continue to provide leadership for performance measurement and management. The Department needs to set appropriate standards for monitoring performance and addressing issues at the Agency level. In addition, it needs to work with States to help them establish better methods for performance measurement and management.

Expand Program Authority and Funding for Data Improvement Programs

The Department will continue efforts to expand data improvement programs and explore opportunities to create a cross-modal program to support data collection, analysis, and reporting. This entails examining the feasibility of a central source of transportation information, and, in support of this, expanding program authority and funding. The Department has requested additional funding for a new program, the Highway Safety Data Improvement Program, to fill this gap.

Enhance the Links Between Data-Driven Safety Needs and Resources

To ensure greater accountability from the States for the highway safety funds they receive, DOT will establish and further promote standards that link resources to data-driven safety needs. The FHWA, FMCSA, and NHTSA will jointly determine requirements for State strategic highway safety plans and annual safety investment plans.

Develop Guidance on Topics Related to Accountability and Managing Results

DOT will develop guidance on several topics: the requirements for Highway Safety Coordinating Committees, a single annual investment plan, and analytical methods for determining a State's safety needs. The guidance will be used to coordinate with States.

Increase Monitoring of Progress against Performance Measures

Through an open process, DOT has developed a national set of leading indicators that States use to measure safety progress. DOT will continue to provide technical assistance to the States to help them develop, make progress, and measure improvements in the State of safety in their jurisdiction.

A Call to Action

Deaths and serious injuries that occur on our Nation's roadways exact a devastating toll on the individuals and families involved, and the echoes of this devastation are felt throughout the economy and society as a whole. The Roadway Safety Plan has been crafted with the understanding that while a reduction in these terrible costs will require considerable time and tremendous effort, it is a goal worth pursuing. This vision is shared by every family member and friend who has lost a loved one in a roadway crash. For this reason, the Roadway Safety Plan is a call to action.

> *"Americans should be outraged that over 30,000 people… friends, family members, children, colleagues…die each year on our Nation's roadways."*
> *Ray LaHood*

The most important opportunity to effect this change is through the upcoming authorization and the budget supporting that legislation. This is why a great deal of effort has already been expended on ensuring that the current administration's authorization and budget proposal fully align with and support this Plan. Included in the appendices to this Plan is a summary of the legislative initiatives that are being proposed to achieve this (Appendix B).

Although this Plan sets a framework for legislative changes, some actions can be taken within existing authorities. These should be viewed as opportunities for immediate action that can move forward prior to final action on the reauthorization legislation.

- **Integrate the Six Principles into Existing Programs:** The most obvious short-term opportunity that exists is that DOT can use the principles upon which the *Roadway Safety Plan* was built to refine implementation of existing programs. In many cases, this can be done through modifying current administrative processes or policy interpretation. The goal is to identify such opportunities and press forward with changes, even as legislation is under consideration.

- **Enhance Collaboration:** Virtually nothing in the *Roadway Safety Plan* can be put into action without the support and efforts of stakeholders. Therefore, as the first order of business in implementation, DOT will build understanding of the guiding principles and seek input on how these thoughts can be put into action. This effort reaches beyond the stakeholders that have traditionally been involved in roadway safety and engage the health, education, and business communities.

- **Build Institutional Connections:** One of the core elements highlighted in the *Roadway Safety Plan* is the need to build a stronger connection between roadway safety programs and the policies in DOT. These include those actions of FHWA, FMCSA, NHTSA, RITA, and other agencies that may have specific safety impacts. The Administrators and senior managers of FHWA, FMCSA, NHTSA, and RITA were personally involved in the development of the *Roadway Safety Plan*, and their continued involvement in its implementation will support its success. This regular involvement, through the DOT Safety

Council or similar coordinating groups, will also ensure that key emerging policy issues are considered and addressed.

- **Integrated Roadway Safety Programs:** Although many strategies, programs, and activities appear in the individual Agency proposals, the Nation will benefit from cross-modal collaboration and coordination of the agencies' respective key safety initiatives consistent with the following overarching themes:
    - Performance management and evaluation to establish an outcome-based approach to develop and achieve national roadway safety performance goals;
    - Strategic planning to encourage development and implementation of coordinated roadway safety plans;
    - Coordinating cross-modal safety data collection and analysis, for improved decisionmaking; and
    - Grant streamlining to continue efforts to provide flexibility and simplification in the guidance and administration of programs.

Building the institutional framework for addressing these issues will strengthen the speed and effectiveness of the *Roadway Safety Plan's* implementation.

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- **Performance Management and Accountability:** Prior to legislation, DOT will make a specific effort to strengthen the emphasis on performance, accountability, and evaluation. Through its performance management processes, the Department has mechanisms in place to provide the public with a summary of the activities undertaken in developing and implementing integrated motor vehicle and highway traffic safety programs.

Appendix A – Outline of Major Principles

Outline of Major Principles for *Roadway Safety Plan*

Collaboration for Roadway Safety

Suggested Talking Point: One death on our roadways is a tragedy; 100 deaths a day is an atrocity… we need to move toward ending injuries and deaths on our roadways. Americans should be outraged that over 30,000 people --friends, family members, children, colleagues --die each year on our Nation's roadways.

Emphasis Areas	Possible Program Impact

• Establish a National Roadway Safety Goal
  • Establish national targets for change
• Foster a roadway safety culture which leads to changes in personal behaviors and generates public demand for safer transportation
  • Create a national strategy for bringing about these cultural changes through collaboration and innovation
  • Seek White House and Congressional support in addressing roadway safety issues
  • Identify opportunities to work with the media and entertainment industry reinforce these messages
  • Accelerate consumer acceptance and adoption of new, advanced safety technologies
• Continue to expand our focus on roadway safety as a national health issue
  • Increase the focus on severe injuries and their long-term costs
  • Increase tie to HHS and the Surgeon General to address the problem
  • Collaborate with CDC and the EMS community to enhance our focus on crash-related injuries
• Provide aggressive national leadership on roadway safety beyond USDOT
  • Develop coordinated programs with other Cabinet Departments (DOE, DOJ, DOD)
  • Collaborate with external organizations to advance safety priorities and strategies
	• Ensure that the Reauthorization establishes safety as a national priority, and provides the necessary program authorities and funding
	  • Set performance and accountability standards and establish authority to set performance targets
	  • Integrate these requirements across the DOT safety programs
	• Expand participation of health stakeholders and experts in roadway safety programs
	  • Include in State safety planning processes
	  • Focus on operator fitness
	  • Explore ways to provide better connected vehicle telematics to identify potential injury type and severity for advance notification of EMS personnel
	• Provide leadership in developing and advancing initiatives to strengthen America's safety culture
	• Identify needed adjustments/changes in legislative authorities or programs to advance this effort.
	  • Enhance efforts to coordinate and focus programs directed at critical roadway safety issues (distraction, operator fitness, at-risk road-users) and draw national attention to the Nation's safety problems
	  • Establish partnerships to promote roadway safety programs through other Federal programs
	  • Work with State judicial trainers to elevate the importance and uniformity of motor vehicle and CMV moving violations

Safer Behaviors

Suggested Talking Point: Driving is a privilege, and when someone shows disregard for their own safety and those around them, they have no place on our Nation's roads. We should all be outraged by these unsafe drivers. But we also need to look in the mirror and realize every one of us needs to take personal responsibility for assuring that we are not part of the problem. We need to educate our sons and daughters that safety comes first…period.

Emphasis Areas	Possible Program Impact

• Work to build personal responsibility for roadway safety and unequivocal rejection by the public for unsafe behaviors
  • Foster partnerships to create education and outreach efforts to advance this priority
• Identify and address high risk operators and users
• Evaluate effectiveness of existing enforcement programs and develop alternatives
• Support continuous improvement of operator performance programs
• Advance a systemic program of technical assessments
	• Renew DOT emphasis on personal responsibility and safety culture
	• Build a lifetime roadway safety educational system (grade, middle, high, adult, older)
	  • Create an age and skill level appropriate roadway safety education and training program. In all DOT safety messaging, work to build personal responsibility and unequivocal rejection by the public of unsafe behaviors.
	• Enhance focus on behavioral safety research
	• Increase monitoring of operator behaviors
	  • Advance data sharing across jurisdictions and industries Close loopholes in driver record systems , that allow unsafe behavior to go unnoticed.
	  • Focus on at-risk populations (youth, older)
	• Increase funding, resources and programmatic authority for implementing new enforcement programs
	• Create a cross-modal grant to enhance State data collection and analysis
	• Advance proven, effective countermeasures and best practices among the roadway safety community (internally and externally)
	• Promote cross-modal data-driven safety approaches
	  • Use data to identify trends and address at-risk operators, users, and risks (e.g., crash files, driver history)
	• Enhance program evaluation capabilities and use results to develop and implement future programs and countermeasures
	• Based on problem identification, use resource allocations to address emerging trends and other data-driven needs
	• Encourage more participation in State safety plan development
	• Streamline grant programs and processes
	  • Enhance grantee flexibility to apply grant program funds

Safer Vehicles

Suggested Talking Point: Any unsafe truck, bus, car, or motorcycle should not operate on our Nation's roadways. We need to employ technology to help drivers avoid crashes, but when those crashes do occur, we need to do everything we can to protect drivers and their passengers, and reduce the severity of their injuries.

Emphasis Areas	Possible Program Impact

• Advance safety standards, compliance, and enforcement
  • Set and promote safety standards and testing protocols that will enhance the crash avoidance and crashworthiness of vehicles
  • Require greater accountability of vehicle and equipment manufacturers to identify and address problems
  • Ensure intra- (within DOT) and inter- (EPA, etc.) departmental coordination of standards to guard against unintended consequences
  • Increase enforcement capabilities to prevent compliance avoidance
• Accelerate and enhance vehicle research, development and deployment activities that can support improvements in standards, compliance, and enforcement
  • Seek solutions to address the following areas:
  • Crash prevention;
  • Crash mitigation;
  • Crashworthiness and occupant protection; and
  • Crash emergency response
  • Seek opportunities to accelerate the deployment of integrated safety technologies, such as ITS
	• Increase DOT role
	  • Increase R&T funding for exploring the feasibility of advance safety technologies (roll-over crash avoidance, stability control, etc.)
	  • Reward carriers who deploy the Safety Suite of technologies (see prior item)
	  • Invest in V2V and V2I Communications for Safety programs to integrate CMV safety and intervention strategies to test significant traffic safety improvement and freight bottleneck relief
	• Increase safety research funding to address human factors, technology, and system infrastructure enhancements
	• Increase funding for data collection and safety performance monitoring of vehicles
	• Ensure appropriate focus of ITS research and development on wireless V2V and V2I technologies to contribute to substantial reductions in crashes, injuries, and fatalities
	  • Conduct an operational test demonstration of V2V and V2I communications for safety applications
	  • Expand *Clarus* transportation weather observing, forecasting, and data management network coverage. Develop the first set of harmonized vehicular-based ITS standards within the international ITS community
	  • Continue focus on technology solutions to address driver safety issues (alcohol, distraction)

Safer Roadways

Suggested Talking Point: There is no reason why Americans should not have the safest roads in the world. We need to use our resources to eliminate roadway dangers, not just for vehicles, but also for pedestrians and bicyclists.

Emphasis Areas	Possible Program Impact

• Strengthen the roadway safety program
  • Provide greater resources for improving safety infrastructure
  • Revise statutory requirements to allow local communities greater participation and collaboration in the program
• Require safety considerations in planning, design, and construction of roadways (e.g., State of Good Repair)
• Develop an effective process to consider the safety needs of all roadway users (buses, bicyclists, pedestrians, scooters, etc.)
• Advance a systemic program of roadway safety assessments
  • Improve collection and inventory of roadway elements
  • Use safety analysis tools to assess roadways
  • Prioritize projects based on safety needs, resources, and options
  • Advance high priority safety projects
  • Evaluate effectiveness and benefits of safety improvements
• Require the appropriate use of proven safety countermeasures
• Advance research and deployment of ITS and other safety infrastructure technologies
• Improve EMS infrastructure and effectiveness, particularly in rural communities
	• Increase the impact of the roadway safety program
	  • Increase the resources available to improve roadway safety
	  • Tie to performance targets
	  • Provide flexibility based on performance
	  • Emphasize allowances for system improvements
	• Based on problem identification, build a stronger link between roadway safety program expenditures and safety strategic planning
	  • Encourage participation of all transportation users in development of State safety plans
	• Invest in research for improved roadway safety infrastructure
	  • Increase awareness of best practices in roadway safety improvements

Empower Communities

Suggested Talking Point: Safety starts in our own homes and our own communities. We want to give our States and communities the resources to improve safety, as well as the flexibility to use those resources where they can do the most good.

Emphasis Areas	Possible Program Impact

• Decision tools
  • Partner with States and communities to develop and apply the tools needed to better assess their roadway safety problems
  • Assist communities in integrating and applying these tools in their own planning processes
• Greater funding flexibility
  • Enhance communities' flexibility to use Federal funds to address their highest safety priorities
• Increase the resources available to address their safety issues
• Streamline
  • Simplify the processes through which Federal safety funds can be used by State and local governments
• Mobility choices
  • Foster communities that improve safety, expand transportation services and options, and enhance livability (Complete Streets, SRTS, transit)
  • Identify areas where safety could be enhanced by the expanded use of transportation alternatives (e.g., those serving older drivers)
• Promote competition through enhanced participation
  • Ignite innovation… accelerate progress
  • Use competition for funding as a way to showcase new ideas and implement best practices
	• Build State and local capacity to use a variety of tools to predict safety risk across the transportation system where systemic improvement can be made
	• Increase the percentage of HSIP funds that can be flexed to other safety programs based on eligibility criteria
	• Assure that decisions to increase funding and provide greater flexibility among enforcement programs are based on problem identification
	• Improve the opportunities to use Federal safety funds to address local government needs
	• Streamline project requirements for small Federal aid safety projects
	• New competitive grant program to promote road safety technology and regional or community State safety plans

Accountability and Managing for Results

Suggested Talking Point: The only way we can make better decisions is with better data. States need to recognize that they have a responsibility for the traveling public in their State, regardless of who owns those roads. Crashes don't stop where the State roadway ends…nor does our obligation to the public. Just as we showed in the American Recovery & Reinvestment Act (ARRA), anyone who receives Federal dollars must be accountable for how that money is spent and the result. The public expects accountability, and we need to demand it.

Emphasis Areas	Possible Program Impact

• Improve safety data
  • Enhance standards to improve quality, timeliness, and consistency of crash data
  • Work with States to develop standards on the reporting of "severe injuries"
  • Develop methods to improve exposure data (e.g., VMT)
  • Explore costs and implications associated with requiring data to be collected on all roads (not just those on the State System)
• Integrate safety planning
  • Develop integrated processes that would foster streamlining and coordination across the Federally- funded safety programs, and lead to:
  • One coordinated roadway safety strategic plan in each State
  • Coordinated program evaluation processes and program performance assessment
• Performance management
  • Establish roadway safety metrics emphasizing outcome measures for roadway safety programs
  • Establish performance targets for each of those measures
  • Provide for Federal evaluation of program results
  • Provide greater program flexibility to those States that achieve their performance targets
  • Have authority to levy sanctions or limit flexibility to those States that do not make progress
	• Expand program authority and funding for data improvement programs
	  • Create a cross-modal program to provide this support
	  • Increase total funding for data collection, analysis and reporting
	  • Explore feasibility of a central source for transportation safety data
	• Deploy and fund grants management and oversight
	  • Validate performance and accountability measures and methodology for DOT and uphold the statistical quality and confidentiality
	• Broaden State safety strategic plan coverage and strengthen requirement for all safety expenditures to directly link to the plan
	• Focus Safety funding on Safety improvements
	  • Eliminate transfer of HSIP funds to non-safety programs
	  • Provide HSIP with its own obligation limitation
	• Increase implementation of program/project evaluation in DOT's safety research, deployment, and operations to facilitate continuous process/program improvement

Appendix B – FY13 Budget Proposal Summary

Overview

- The budget proposals submitted by FHWA, FMCSA, NHTSA, and RITA support a total $4.3 billion direct investment in Roadway Safety for FY 2013.
- The submissions also provide a legislative framework that improves integration across those four agencies, particularly in the areas of program planning and evaluation, performance management, data collection and analysis, and grant streamlining.
- Both the Department's policy positions and FY 2013 Budget proposals have been built upon the principles in the *Roadway Safety Plan*, and reflect the priorities in that Plan.

Background

In the first decade of the 21st century, there have been more than 400,000 deaths and over 25 million injuries on our Nation's roadways. Recognizing the need for DOT to take a comprehensive approach to addressing these losses, Department leadership, including the Deputy Secretary, the Assistant Secretaries for Budget and Policy, and the Administrators of FHWA, FMCSA, NHTSA, and RITA, agreed in Spring 2010 to develop a coordinated cross-organizational *Roadway Safety Plan*. This Plan would provide a common foundation for the roadway safety elements of the FY 2013 budget submission, and strategic plan implementation, and in so doing, create a "roadmap" for maintaining recent gains and for achieving further reductions in roadway fatalities and serious injuries. This summary reflects the "first installment" of the legislative and budgetary agenda that is being set forth to implement that roadmap.

Principles and Budget Review

This document provides a cross-walk between the *Roadway Safety Plan* principles and the FY 2013 budget submissions for NHTSA and FMCSA, as well as the portion of the FHWA and RITA budgets focused on roadway safety. Included under each principle are several of the key emphasis areas and a summary of these four agencies' budgets as they align with the following six principles: Collaboration for Roadway Safety, Safer Behaviors, Safer Vehicles, Safer Roadways, Empower Communities, and Accountability and Managing for Results. The *Roadway Safety Plan* provides a strategic plan for moving ahead, establishes a new national roadway safety goal, and provides greater detail on the *Roadway Safety Plan* principles and ideas.

Principle 1: **Collaboration for Roadway Safety**

- Establish a National Roadway Safety Goal
    - An "Integrated Safety Program" will support development of a cross-modal national roadway safety goal. Such an integrated program will further emphasize the need to involve a broad coalition of safety and health partners to achieve this goal.
    - There is strong emphasis placed on collaboration with other agencies, but the primary responsibility for roadway safety rests within DOT. The FHWA, FMCSA, NHTSA, and RITA are to work together in the following areas:
        - Performance Management and Evaluation to establish an outcome-based approach to develop and achieve national roadway safety performance goals;
        - Strategic Planning to encourage development and implementation of coordinated roadway safety plans;
        - Data Coordination to coordinate cross-modal safety data collection and analysis for improved decisionmaking;
        - Grant Streamlining to continue efforts to provide flexibility and simplification in guidance and administration of programs; and
        - Funding is also provided for research to develop better analytic tools for establishing safety targets.
- Foster a roadway safety culture which leads to changes in personal behaviors and generates public demand for safer transportation.
    - It is anticipated that DOT's primary role in this area will be to encourage outside groups, organizations, industry, partners, and other government entities to be advocates for changes in the public's safety culture, and provide leadership to bring our other Federal partners into this effort.
    - HSIP funds are eligible for public outreach and cross-organizational coordination efforts consistent with State SHSPs.
    - The *Roadway Safety Plan* and the National Initiative "Towards Zero Deaths" identify changes in safety culture as a primary element to achieve significant reductions in fatalities and serious injuries.
- Continue to expand our focus on roadway safety as a national health issue and provide aggressive national leadership on roadway safety beyond DOT.
    - Encourage States through guidance to invite representatives of the public health community to participate in the development of Strategic Highway Safety Plan.
    - Develop a common definition for "severe injury" and an approach for collecting that data.
    - Collaborate with external organizations to advance safety priorities, goals, and strategies (it is likely that some of these costs will be carried as part of the general operating expense (GOE) budgets of the roadway safety agencies).

Principle 2: **Safer Behaviors**

- Enable States to address their specific highway safety issues to reduce highway injuries and fatalities at the local level.
    - The NHTSA Highway Traffic Safety Grants Program includes significant changes in the suite of grants offered, to include new grant programs and the consolidation of existing programs.

    - Occupant Protection Incentive Grants – The $35 million Occupant Protection Incentive grant program proposes consolidation of existing Section 405 (Occupant Protection Incentive Grants) and Section 2011 (Child Safety and Child Booster Seat Safety Incentives) into one streamlined grant program. The new consolidated program includes revised eligibility criteria to encourage statewide occupant protection plans while maintaining the criteria of enacting and enforcing a primary seat belt law.
    - Distracted Driving Prevention Grants – This is a continuation of the $50 million incentive-based grant program for States to enact and enforce laws to prevent distracted driving. Up to $5 million will be used for development and placement of broadcast and print media in support of enforcement.
    - High Visibility Enforcement – $37 million in funding for this existing successful program will support the "Over the Limit Under Arrest" campaign, as well as an additional Click It or Ticket campaign. This funding will also support increased visibility through online and broadcast media, and authorize more frequent national enforcement mobilization efforts.
  - The FMCSA has also reformatted its overall grant program by establishing 3 grant programs (instead of 11 existing and 7 new grant programs) to allow for greater flexibility. This will allow FMCSA to be more responsive to new initiatives or identified areas of needed safety improvement.
    - Compliance, Safety, Accountability Grant – $260 million for this successful program which is focused on both safer behaviors and safer vehicles. This grant also accounts for an increase in the successful Ticketing Aggressive Cars & Trucks (TACT) program.
    - Driver Safety Grant - $38 million for this successful program which is focused on raising the bar for commercial drivers.
    - The third grant is described under Principle 6: Accountability and Managing for Results.
- Provide national leadership in the research, development, delivery and evaluation of programs designed to positively affect driver and passenger behaviors.
  - There is continued research funding in behavioral areas such as distraction, alcohol and drug countermeasures, and occupant protection, as well as ongoing support of the SHRP2 Naturalistic Driving Study.
  - Support an increase in the number of States participating in the National Emergency Medical Service (EMS) Information System, and establish a clearinghouse on older driver medical and licensing issues.
- Identify, characterize, and quantify traffic safety problems, and measure the impact of safety investments and decisions through data collection and analysis.
  - Launch a multi-year redesign of the National Automotive Sampling Systems (NASS) to provide the highest quality of data to further improve traffic and vehicle safety. Additional funding for NASS data collection will expand its sampling units to ensure a more representative sample size of crashes and statistical integrity.
  - Initiate the consolidation of the Fatality Analysis Reporting System (FARS) with the Electronic Data System with a funding increase.
  - Support the National Driver Register (NDR), which provides an efficient and timely database that helps to keep problem drivers from operating private and commercial

vehicles and aids in the decisionmaking for other transportation modes' certification procedures. FY 2012 will be the first year of operating the modernized NDR.

Principle 3: **Safer Vehicles**

- Accelerate and enhance vehicle research, development, and deployment activities that can support improvements in standards, compliance, and enforcement.
  - Seek solutions to address the following areas:
    - Crash prevention;
    - Crash mitigation;
    - Crashworthiness and occupant protection; and
    - Crash emergency response.

- Seek opportunities to accelerate the deployment of integrated safety technologies, such as Intelligent Transportation Systems (ITS).
  - Ensure continued focus and priority attention is given to research and development on wireless vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) technologies to contribute to substantial reductions in crashes, injuries, and fatalities.
    - Conduct operational test demonstrations of V2V and V2I communications for safety applications;
    - Expand *Clarus* transportation weather observing, forecasting, and data management network coverage;
    - Develop the first set of harmonized vehicular-based ITS standards within the international ITS community; and
    - Continue focus on technology solutions to address driver safety issues (alcohol, distraction, fatigue, etc.).
  - Invest in V2V and V2I communications for safety program research and development to integrate commercial motor vehicle safety and intervention strategies to jointly achieve significant traffic safety improvement and freight bottleneck relief.

- Improve vehicle safety.
  - Establish a new research program under the Center for Vehicle Electronics and Emerging Technologies to identify and solve the problems that can arise from the increased use of electronic technologies in vehicles.
  - Increase support for the New Car Assessment Program (NCAP) to maintain crash test ratings coverage of new fleet vehicles at 80% and fund a consumer awareness campaign to promote the enhancements.
  - Improve Biomechanics and Crash Avoidance Research through an increase in funding to purchase a new family of advanced crash dummies, add two new Crash Injury Research and Engineering Network centers, and increase crash avoidance research, including the DOT Distracted Driving initiative.
  - Improve the accessibility and functionality of the vehicle safety database, which will enhance the quality of information supporting our safety defects investigations.

Principle 4: **Safer Roadways**

- Strengthen the roadway safety program.

  - Increase the investment in the Highway Safety Improvement Program (HSIP) to a total level of $2.3 Billion (10% of State's annual apportionment is set aside for rural roads as described in Principle 5: Empower Communities). This is the core program for funding highway infrastructure safety improvements, and the expansion of the program marks recognition of the benefits this program has brought in the long-term reduction of fatalities and serious injuries.
  - The HSIP program has also been changed to provide greater flexibility to State and local recipients. Specifically, eligibility for HSIP funding is expanded to more explicitly support systemic project improvements, public outreach activities, and support of EMS communication.
  - Increase the amount of HSIP funding that can be "flexed" by States from the current 10% to 25% for projects that contribute to the education of the public on highway safety, enforce highway safety laws, and support emergency services' infrastructure needs that are consistent with the State's SHSP.
  - States would only be allowed to use current flexibility to move up to 50% of HSIP funds to non-safety projects if they meet their safety performance targets (see Principle 6: Accountability and Managing for Results).
- Advance a systemic program of roadway safety improvements.
  - Create a new Highway Safety Data Improvement Program that would provide a common and integrated platform for safety decisionmaking. To assure this integration, the program would be supported by FHWA, in coordination with FMCSA, NHTSA, and RITA. (This program is discussed further under Principle 6: Accountability and Managing for Results.)
  - NHTSA's National Center for Statistics and Analysis directly supports decisions regarding the planning and programming of roadway and vehicle safety improvements, and NHTSA has attributed a portion of the Center's program funds to this purpose.
  - Similarly, $25 million of the FMCSA Data and Information Technology Grants are attributed to the valuable information these systems provide for making better roadway safety decisions.

- Advance research and deployment of ITS and other safety infrastructure technologies.
  - A major portion of the ITS program funds as noted in RITA's budget have been committed toward improving road safety through implementation of V2I technologies. These advances in vehicle and roadway communication are also being supported by a broad based effort to enhance our Nationwide Differential Global Positioning System.
  - Similarly, RITA envisions that a major focus of the University Transportation Centers (UTC) Program will be on the improvement of roadway safety, including improvements to the infrastructure and roadway technology.
  - DOT will examine the opportunities for, appropriate design of, and safety impacts of, new alternative roadway configurations that accommodate the needs of motorized vehicles, bicycle, and pedestrian users.

Principle 5: **Empower Communities**

- Develop Decision Tools.

  - The budget proposes to use research, technology, and education funds to develop and implement a data-based tool to help States and local agencies better assess their roadway safety problems and determine cost effective solutions.
- Increase Community Support and Funding Flexibility.
  - To support safety needs on rural roads, 10% of the core HSIP program would be directed specifically at those needs. This could be used by both States and local governments to reduce fatalities through projects, including those on locally-owned roads. In creating this set-aside, the extra eligibility criteria that have made the High Risk Rural Roads program difficult to implement, would be eliminated.
  - As previously noted, the eligibility criteria for these funds have also been expanded to increase communities' flexibility to use Federal funds to address their highest safety priorities.
- Improve Mobility Choices and Livability.
  - These revisions to the statutory requirements would allow local communities greater participation and collaboration in the safety planning process, and assure consideration of the safety needs of all roadway users.
  - Other parts of the budget will provide resources to assist communities in providing safe mobility for all transportation users and support livability (e.g., transit riders, buses, bicyclists, pedestrians). Regulations implementing the Livability Program will provide the opportunities to make further changes.
  - Local governments, local traffic enforcement officials, regional transportation planning organizations, metropolitan planning organizations, and other necessary entities are included as stakeholders that need to be represented in the development of the Strategic Highway Safety Plan.

Principle 6: **Accountability and Managing for Results**

- Improve Safety Data.
  - The proposed Highway Safety Data Improvement Program would provide States with the funds to develop and populate an electronic base map of all public roads that can be used as the reference system for all safety data. These funds will also be used to collect and analyze roadway characteristics data that can be used to identify and address areas that pose a high risk of crashes.
    - In conjunction with this funding, States will be required to commit to improvements in the quality, timeliness, and consistency of crash data and collection of roadway inventory data, as well as meeting the criteria for their base maps.
    - This aligns with the "Transportation for the Nation" strategic initiative being led by RITA for the integration of GIS-based data for safety, travel, and freight; funding to support the analysis of these data is included in RITA's budget proposal.
  - In support of this principle, NHTSA's proposed budget includes funding to support, modernize, and redesign the major safety data systems they maintain to assure reliability and timeliness of safety-data collection and analysis.
  - Funds are also set aside to assure that technical assistance, training, and guidance are provided to the States for better data collection, management, and analysis.
  - FMCSA's Data and Information Technology Grant Program - An increase to enable States to comply with mandatory carrier determination requirements. This also allows for increased coordination with States on data quality.

- Integrate Safety Planning and Performance Management.
  - The programs that are proposed in the FY 2013 budget and the reauthorization envision a much closer tie between safety planning and achievement of performance targets. Specifically, the Strategic Highway Safety Plan and the annually-submitted safety plans will be more focused on how States will meet their targets.
  - The FHWA has proposed limitations on the use of HSIP funds triggered if a State fails to meet its performance targets, including the flexibility to transfer HSIP funds to non-safety programs as well as limitations in how they can use their obligation authority if they fail to meet their performance targets.
  - Although this planning is eligible under a number of safety programs, this budget does not propose a separate grant program to support safety planning and performance management in the States. It is envisioned that the primary cost associated with developing a more integrated planning process and implementing a performance-based management system will primarily be internal requirements, particularly staff support (both Federal and contract).
  - NHTSA's Highway Traffic Safety Grants Program also maintains criteria for receipt of certain grant funds (e.g., enactment and enforcement of a primary seat belt law for Occupant Protection Incentive Grants) and also includes conditions for the administration and expenditure of grants based on an individual State's safety performance (e.g., Impaired Driving Grants. See Principle 2: Safer Behaviors).

Appendix C – Budget Matrix **- Estimated Overall FY 2013 Proposed Budget Items that Support the *Roadway Safety Plan***

RSP Principle	FHWA	NHTSA	FMCSA	RITA	Total $ by RSP Principle
Collaboration for Roadway Safety	Highway Research & Development/Technology & Innovation Deployment Program ($5M)	Principle indirectly supported by other NHTSA programs	supported indirectly by all programs and directly by Mission Support ($.5M)	National Transportation Library ($.029M)	
	$5,000,000	$0	$0	$28,621	$5,028,621
Safer Behaviors	Highway Safety Improvement Program ($135M)/Highway Research and Development/Technology & Innovation Deployment Program ($3M)	Highway Safety Programs ($76.925M)/Natl Center for Statistics & Analysis ($11.914M)/Admin ($36.618M)/Highway Safety Grants ($615.801M)	Compliance Safety Accountability Grant ($170M)/ Mission Support ($34.5M)/ Research & Technology ($5M)/Info Management ($10M)/Reg Devp-Outreach-CMV ($8M)/Enforcement & Intervention program ($100M)/ Driver Safety Grant ($36M)/IT Ops ($1.7M)/IT Development ($9M)/Research OPS ($.9M)		
	$138,000,000	$741,258,000	$375,100,000	$0	$1,254,358,000
Safer Vehicles		Rulemaking ($32.767M)/ Enforcement ($21.427M)/ Research & Analysis ($57.543M)/Admin ($76.263M)/Highway Safety Programs ($.715M)/Natl Center for Statistics & Analysis ($11.914M)/Highway Safety Grants ($13.599M)	Enforcement & Intervention ($36M)/Mission Support ($13.3M)/Research & Technology ($4M)/Info Management ($7M)/ Data & Technology Grant ($4M)/ Compliance Safety Accountability Grants ($90M)/IT OPS ($1.6M)/IT Development ($4.9M)	Research, Development & Technology Coordination ($.002M)/Nationwide Differential Global Positioning System ($1.120M)/Position, Navigation, and Timing/ ($.024M)/Intelligent Transportation Systems ($17.147M)	
	$0	$214,229,000	$160,809,000	$18,293,000	$393,331,000
Safer Roadways	Highway Safety Improvement Program ($1886M)/Highway Research and Development/Technology & Innovation Deployment Program ($44M)/Tribal Lands ($12M)	Natl Center for Statistics & Analysis ($11.914M)/Highway Safety Grants ($13.598M)	Data and Information Technology Grant ($22M)/Mission Support ($2M)	Intelligent Transportation Systems ($17.147M)/Research, Development & Technical Coordination ($.002M)/Nationwide Differential Global Positioning System ($1.120M)/Position, Navigation and Timing Program ($.024M)	
	$1,942,000,000	$25,512,000	$24,000,000	$18,293,000	$2,009,805,000
Empower Communities	Highway Safety Improvement Program ($225M)/Highway Research and Development/Technology & Innovation Deployment Program ($5.75M)	principle indirectly supported by other NHTSA programs	Compliance Safety Accountability Grant ($4M)	Safety Data & Analysis ($.25M)	
	$230,750,000	$0	$4,000,000	$250,000	$235,000,000
Accountability and Managing for Results	Highway Safety Data Improvement Program ($293M)	principle indirectly supported by other NHTSA programs	IT ($4.591M)/Enforcement & Intervention ($2M)/Mission Support ($5M)/Data and Information Technology Grant ($4M)	Safety Data & Analysis ($.750M)/Travel Statistics ($.026M)/Freight Statistics ($.622M)/Geospatial Information Systems ($.030M)/Transportation Analysis, Data Quality and Performance Metrics ($.037M)	
	$293,000,000	$0	$15,591,000	$1,465,000	$310,056,000
Total RSP $ (by mode	$2,608,750,000	$980,999,000	$579,5000,000	$38,329,621	$4,207,578,621