

**DRAFT**

**U.S. DOT STRATEGIC PLAN  
FY 2010 – FY2015**

*“Transportation for a New Generation”*

**April 15, 2010**

**For Public Comment**

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## EXECUTIVE SUMMARY

### *“Transportation for a New Generation”*

President Barack Obama supports a transformative U.S. transportation policy that improves public health and safety, fosters livable communities, ensures that transportation assets are maintained in a state of good repair, supports the Nation's long-term economic competitiveness, and works to achieve environmental sustainability. The President also proposes that U.S. transportation policy be transparent and accountable to the American public, performance-based, focused on achieving strategic outcomes, and maximizing the value of public investments.

During the 20<sup>th</sup> century, the U.S. built highway and aviation networks that fueled unprecedented economic prosperity and individual mobility and connected our Nation's cities, towns, and regions to the rest of the world. The U.S. has been well served by these highway and aviation networks, as well as by our railroads, pipelines, ports, waterways, and transit systems.

However, in the 21<sup>st</sup> century, the U.S. transportation system must begin to adapt to the changing social, environmental, and economic challenges our Nation faces. Our policies and individual investment decisions for highways, public transit, railroads, seaports, inland waterways, and airports often lack an outcome-driven approach and at times conflict with each other and with key national priorities. Federal transportation programs also face unprecedented fiscal challenges with current dedicated revenue sources no longer adequate to sustain current Federal spending levels.

This Administration believes that we must create a transportation system that addresses the new challenges before us and puts the needs of the American people and their communities first. The Department of Transportation's (DOT) Strategic Plan sets out key priorities that will transform our transportation infrastructure into a truly multimodal system that offers the traveling public and businesses safe, convenient, affordable, and environmentally sustainable transportation choices.

On February 17, 2009, President Obama signed into law the American Recovery and Reinvestment Act of 2009 (Recovery Act) providing more than \$48 billion in vital transportation funding to spur economic recovery while rebuilding our Nation's network of roads, tunnels, bridges, transit, airports, and waterways. Included in the Recovery Act funding was an unprecedented \$8 billion investment in an intercity high-speed passenger rail system.

President Obama is also committed to driving towards sustainable growth and quality jobs through his *“Strategy for American Innovation.”* DOT is conducting critical research across all modes of transportation, supporting data-driven decisionmaking on National priorities, including: building a leading physical infrastructure; supporting advanced

vehicle technologies; and educating the next generation with 21<sup>st</sup> century knowledge and skills to foster a world-class workforce for the transportation sector.

#### SAFETY

Improving safety is DOT's top priority. Secretary Ray LaHood has urged all DOT employees to reinforce our safety culture in our daily work and to encourage our domestic and international partners, our stakeholders and the public to redouble their efforts to reduce transportation-related fatalities and injuries. The Safety chapter of this Strategic Plan outlines the steps DOT will take to improve safety levels throughout the transportation system.

#### STATE OF GOOD REPAIR

Over the years, the U.S. has built one of the world's most extensive and productive transportation systems, representing trillions of dollars of public and private investment. It is essential that we be good stewards and apply asset management principles proactively to maintain and modernize our critical infrastructure to maximize its productivity and performance and minimize full life cycle costs. Our State of Good Repair chapter describes the steps DOT will take to identify critical highway, bridge, transit, airport and railroad assets and improve their state of repair.

#### ECONOMIC COMPETITIVENESS

Achieving the maximum net economic benefit from our transportation investments is essential in this period of economic hardship and difficult budget choices at the Federal, State, and local levels. DOT is committed to fostering policies and investments, including investment in the transportation workforce of the future that will produce the greatest economic benefit for the broadest number of citizens and businesses and will lay the groundwork for long-term economic growth and prosperity. The Economic Competitiveness chapter outlines the steps DOT will take to achieve the greatest contribution of the transportation system to the United States' economy.

#### LIVABLE COMMUNITIES

Fostering livable communities – places where transportation, housing and commercial development investments have been coordinated so that people have access to adequate, affordable and environmentally sustainable travel options – is a transformational policy shift for DOT. The President has made place-based policies like livable communities a key component of his domestic agenda and has challenged all Federal agencies to coordinate and innovate around this goal in an unprecedented way. To promote well-coordinated and sustainable development, DOT has formed an interagency partnership with the Department of Housing and Urban Development (HUD) and the Environmental Protection Agency (EPA). The Livable Communities chapter describes our strategies for increasing access to adequate, affordable, and environmentally sustainable travel choices.

#### ENVIRONMENTAL SUSTAINABILITY

The Administration is committed to a comprehensive National energy and environmental policy that emphasizes reducing carbon, other harmful emissions, and the consumption of fossil fuels. This policy also emphasizes protecting and enhancing natural resources. To implement this policy, DOT will advance transportation investments that reduce energy

use and associated greenhouse gas emissions for passenger travel and freight movement, and foster the protection of critical watersheds and ecosystems. In addition to the sustainable development patterns associated with livable communities, DOT will also promote the substitution of carbon intensive travel on congested highways and airways for use of more energy efficient transportation systems, including rail, water, and pipelines where feasible. The Environmental Sustainability chapter outlines the steps DOT will take to move toward a more environmentally sustainable U.S. transportation system.

#### ORGANIZATIONAL EXCELLENCE

Secretary LaHood has declared that openness and fairness will be the top values that would mark his tenure at DOT. Openness means promoting transportation policies in an accountable and transparent way on behalf of all Americans who depend on our transportation system. Openness also means a collaborative and open door working environment with the dedicated staff at DOT. Fairness means promoting transportation policies that benefit all Americans, particularly those from traditionally underserved communities. Fairness also applies to the DOT workplace where we will demonstrate our commitment to civil rights, equal employment opportunity, and affirmative employment through practices that ensure all voices are heard and all viewpoints respected. We believe that a dedicated and talented workforce is the most significant factor in our being able to transform America's transportation infrastructure into a truly multimodal system that provides travelers and businesses with safe, secure, convenient, affordable, and environmentally sustainable transportation choices. Our Organizational Excellence chapter outlines the most significant steps we will take to make DOT the best place to work in the Federal government.

#### SUMMARY

DOT will use this Strategic Plan to develop and implement policies and programs that will transform our transportation infrastructure into a truly multimodal system that provides travelers and businesses with safe, convenient, affordable, and environmentally sustainable transportation choices. We look forward to working with the Congress and with our public and private sector stakeholders to create a transportation system that is unparalleled in its performance and in its contributions to the quality of life and economic well being of the United States.

## THE UNITED STATES DEPARTMENT OF TRANSPORTATION

DOT occupies a leadership role in global transportation with 56,757 dedicated professionals stationed in the U.S. and around the world. Since its first official day of operation in 1967, DOT's programs have evolved to meet the economic demands of the Nation. Today, DOT is composed of the Office of the Secretary, the Surface Transportation Board,<sup>1</sup> the Office of the Inspector General, and the 10 operating administrations listed below.

Federal Aviation Administration  
Federal Highway Administration  
Federal Motor Carrier Safety Administration  
Federal Railroad Administration  
Federal Transit Administration  
Maritime Administration  
National Highway Traffic Safety Administration  
Pipeline and Hazardous Materials Safety Administration  
Research and Innovative Technology Administration  
Saint Lawrence Seaway Development Corporation

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<sup>1</sup> With passage of the Interstate Commerce Commission Termination Act of 1995 (P.L.No.104-88), Congress established the Surface Transportation Board within DOT, effective January 1, 1996. While formally part of DOT, the Board is decisionally independent of DOT and by law, "...shall not be responsible to or subject to the supervision or direction...of any other part of the Department of Transportation." (49 U.S.C. 703(c).

## OVERVIEW OF THE DOT STRATEGIC PLAN

### MISSION

“The national objectives of general welfare, economic growth and stability, and the security of the United States require the development of transportation policies and programs that contribute to providing fast, safe, efficient, and convenient transportation at the lowest cost consistent with those and other national objectives, including the efficient use and conservation of the resources of the United States.”<sup>2</sup>

### STRATEGIC GOALS

**SAFETY:** *Improve public health and safety by reducing transportation-related fatalities and injuries.*

**STATE OF GOOD REPAIR:** *Ensure the U.S. proactively maintains its critical transportation infrastructure in a state of good repair.*

**ECONOMIC COMPETITIVENESS:** *Promote transportation policies and investments that bring lasting and equitable economic benefits to the Nation and its citizens.*

**LIVABLE COMMUNITIES:** *Foster livable communities through place-based policies and investments that increase transportation choices and access to transportation services.*

**ENVIRONMENTAL SUSTAINABILITY:** *Advance environmentally sustainable policies and investments that reduce carbon and other harmful emissions from transportation sources.*

### ORGANIZATION GOAL

**ORGANIZATIONAL EXCELLENCE:** *Develop a diverse and collaborative workforce that will enable the Department to advance a transportation system that serves the Nation’s long-term social, economic, security, and environmental needs.*

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<sup>2</sup> Section 101 of Title 49, U.S.C.

## **SAFETY STRATEGIC GOAL**

***“Improve public health and safety by reducing transportation-related fatalities and injuries”***

### **OUTCOMES**

1. Reduction in transportation-related fatalities
2. Reduction in transportation-related injuries
3. Improved safety experience for all road users, including motorists, pedestrians and bicyclists,<sup>3</sup> with a focus on children, older adults, and individuals with disabilities

### **CHALLENGES AND STRATEGIES**

Improving safety throughout the transportation sector is DOT’s highest priority. Secretary Ray LaHood has urged all DOT employees to join him in reinforcing our safety culture in our daily work and in encouraging our partners, stakeholders, and the public to redouble their efforts to reduce transportation-related fatalities and injuries and make the U.S. transportation system safe for all users. Although DOT has made progress in reducing transportation-related fatalities and injuries across all modes, significant challenges remain.

### **DOT SAFETY COUNCIL**

To raise the safety profile across the transportation sector, Secretary LaHood has created a Safety Council which will work collaboratively as a ONE DOT team to solve safety challenges by sharing experience, expertise, and best practices. Safety issues in one mode may parallel issues in other modes and implemented solutions in one mode may also be useful in addressing challenges in other modes. To achieve its goals, the Safety Council will employ the following strategies:

- Intensify the national dialogue about transportation safety. This change will require DOT, our government partners, safety advocates, and industry leaders to adopt a strong and consistent safety culture that does not accept the inevitability of fatalities on the Nation’s transportation systems;
- Provide leadership in research, technology, system design, education, and public campaigns to change behaviors that will result in an overall reduction in fatalities and injuries, and will raise awareness of safety issues among our stakeholders;
- Analyze, evaluate and where possible, predict safety risk across the transportation system where systemic improvements can be made. Then work with State and local governments, transportation agencies, safety advocates, community and citizen

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<sup>3</sup> Throughout the Strategic Plan “bicyclist” refers to all cyclists including riders of two-wheel, non-motorized vehicles.



stakeholder groups, and the transportation industry to improve safety performance throughout the system;

- Adhere to a data-driven approach to identify and prioritize multimodal safety problems, including the use of comparative analysis for States and localities;
- Provide advice based on lessons learned in other modes and sectors to assist FTA as transit regulatory reform measures are developed;
- Adopt strategies, to address the roughly 80 percent of transportation accidents associated with human error by incorporating human factors principles and methods, such as Human Systems Integration, and tapping expertise within DOT's Human Factors Coordinating Committee;
- Move toward standardization of terminology and reporting formats to facilitate cross-modal data collection, comparison and analysis with priority given to transportation-related fatality data; and
- Provide a forum for modal organizations to coordinate activities and responses to cross-modal safety issues brought forward by the National Transportation Safety Board (NTSB), industry, public advocacy groups, or other organizations to ensure prompt, consistent, and thorough responses.

#### ILLEGAL DRUG USE AND ALCOHOL MISUSE

For nearly two decades, DOT has maintained an internal venue for sharing experience, expertise and best practices directed toward reducing illegal drug use and alcohol misuse in the transportation industries covering more than 8 million transportation safety-sensitive employees in the U.S. To continue this work, DOT will:

- Collaborate internally and with the U.S. Coast Guard to conduct inspections, carry out enforcement, improve regulations, policies, and education to detect and deter illicit drug use and alcohol misuse; and to ensure that our regulations are applied uniformly across the modes to reduce the risks of fatalities and injuries; and
- Collaborate with the Office of National Drug Control Policy at the White House and other Federal Agencies involved in substance abuse issues to ensure that DOT's policies and regulations remain the "gold standard" and that DOT has a voice in the President's National Drug Control Policy.

#### DEFENSE MOBILITY AND EMERGENCY PREPAREDNESS

In addition to DOT's traditional safety role in reducing transportation-related deaths and injuries, DOT also contributes to the safety of the public by supporting the missions of the Departments of Homeland Security (DHS) and Defense (DOD) to prepare for and respond quickly to emergencies by ensuring the availability of transportation services after natural disasters and in times of national emergency. In either of these scenarios, it is critical to provide effective transportation services. If transportation service disruptions occur during a disaster, it is imperative that they be overcome quickly. If military supplies are needed to support our troops, they must be delivered without undue delay.

The Secretary of Transportation has responsibility for a number of modal emergency preparedness programs and activities, authorized by the Defense Production Act of 1950

and other legislation, that provide the DOD and civilian agencies with assured access to commercial transportation in times of national emergency. These programs include: the Maritime Administration's (MARAD) Maritime Security Program (MSP), Voluntary Intermodal Sealift Agreement program (VISA), and the Strategic Port Program; the Federal Railroad Administration's (FRA) strategic rail corridor network (STRACNET); the Federal Aviation Administration's (FAA) Civil Reserve Air Fleet program; and the Federal Highway Administration's (FHWA) Strategic Highway Network (STRAHNET).

DOT also manages government-owned sealift platforms (MARAD's Ready Reserve Force) that provide a valuable service to the Nation by maintaining strategic sealift readiness and execution of their responsibilities when needed. These assets are maintained to meet strict DOD readiness timelines by leveraging the expertise of commercial ship management companies and civilian operating crews.

DOT proactively supports the transportation mission of the DHS which is to improve the resilience and security of the domestic and intermodal transportation sectors including air cargo, passenger aviation, rail, transit, highways, maritime, and pipeline modes.<sup>4</sup> DOT also supports the DHS mission to strengthen the transportation network and effectively mitigate risk through an integrated systems approach. DOT's defense mobility and emergency preparedness strategies are described in the Organizational Excellence chapter of this Strategic Plan.

#### TARGETED STRATEGIES FOR REDUCING FATALITIES AND INJURIES

Motor vehicle fatalities are one of the most significant public health problems facing the Nation today, accounting for nearly 95 percent of transportation-related fatalities and draining more than \$230 billion from the economy each year.<sup>5</sup> Motor vehicle travel is the primary means of transportation in the U.S. and has the highest fatality and injury rates per capita of all modes. However, currently the U.S. is experiencing declines in both vehicle miles traveled (VMT) and in roadway traffic fatalities. In 2008, 37,261 people lost their lives in motor vehicle crashes, a decrease of 10 percent from 2007 (41,259). The fatality rate per 100 million VMT in 2008 was an historic low of 1.25 and the injury rate was 80.

On March 11, 2010, DOT announced that the early fatality estimate for 2009 reached the lowest level since 1954, declining for the 15<sup>th</sup> consecutive quarter. According to early projections, the fatality rate, which takes into account the number of miles traveled, reached the lowest level ever recorded. The projected fatality data for 2009 places the highway death count at 33,963, a drop of 8.9 percent as compared to the 37,261 deaths reported in 2008. The fatality rate for 2009 declined to the lowest on record, to 1.16 fatalities per 100 million VMT down from the 1.25 fatality rate in 2008. DOT attributes the declines to a combination of factors including, high visibility enforcement campaigns like *Click It or Ticket* to increase seat belt use and *Drunk Driving. Over the Limit. Under Arrest*, to prevent drunk driving. The decline is also a result of safer roads, safer vehicles (e.g. electronic stability control), and motorists driving less.

These safety gains notwithstanding, the U.S.'s fatality rates based on distance travelled are greater than those reported by Sweden, the United Kingdom, Germany, and Australia. The

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<sup>4</sup> Quadrennial Homeland Security Review Report: A Strategic Framework for a Secure Homeland. U.S. Department of Homeland Security. February 2010.

<sup>5</sup> National Highway Traffic Safety Administration's Fatality Analysis Reporting System.

lower rates are attributed to safety strategies such as stricter laws on safety belt use, extensive enforcement on alcohol and drug-impaired driving, increased restrictions on teenage driving, automated enforcement of traffic signal violations, and strictly enforced speed limits.

#### **DISTRACTED DRIVERS**

Distracted driving is developing as a serious safety issue. The AAA Foundation for Traffic Safety reported that 67 percent of drivers admitted to talking on their cell phones while behind the wheel, and 21 percent of drivers indicated they had read or sent a text or an e-mail message while driving, a figure that rose to 40 percent for drivers under the age of 35. In 2008, 5,870 people lost their lives and an estimated 515,000 people were injured in police-reported crashes in which at least one form of driver distraction was reported on the crash report. However, these numbers may not represent the true size of the problem, since the identification of distraction and its role in the crash by law enforcement can be very difficult.

To combat this trend, President Obama issued an Executive Order on October 1, 2009, directed toward reducing text messaging while driving that is applicable to three million civilian Federal employees. In addition, Secretary LaHood urged all Americans to re-examine their driving habits and focus their attention on the safe operation of their vehicles. The Secretary launched a major initiative to address operator distraction in all modes of transportation, to change operator behavior and to develop technologies that counteract poor decision-making and prevent transportation-related fatalities and injuries.

#### **OLDER AND YOUNGER DRIVERS**

Older and younger drivers are more likely to die in crashes or suffer injuries than the general population.<sup>6</sup> The population 65 years and older will more than double by 2050, rising from 39 million today to 89 million according to Census Bureau projections. The Government Accountability Office (GAO) has noted that as people age, their physical, visual and cognitive ability may decline, making it more difficult for them to drive safely or to walk as quickly as younger people.

Motor vehicle crashes are the leading cause of death for ages 3 to 14. Younger drivers, 15-20 years old, make up 6.4 percent of the driving population but are over-represented in crashes. In 2008, 11.7 percent of all drivers involved in fatal crashes and 14 percent of all drivers in all police reported crashes were young drivers. DOT's key strategies for addressing the most significant causes of roadway fatalities and injuries are to:

- Address the dangers of text-messaging and other distractions while behind the wheel including initiating three separate rulemakings:
  1. Codify restrictions on the use of cell phones and other electronic devices in rail operations;
  2. Ban text messaging and consider restricting the use of cell phones by truck and interstate bus operators while operating vehicles; and
  3. Disqualify school bus drivers convicted of texting while driving from maintaining their commercial driver's licenses.

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<sup>6</sup> GAO Report to the Special Committee on Aging, U.S. Senate, Older Driver Safety, April 2007.

- Expand efforts to increase seat belt use through increased enforcement and communications, and require lap/shoulder seat belts for motorcoaches. It is estimated that if all people over the age of 4 had worn belts in 2008, 17,402 lives could have been saved;
- Expand partnerships with States and localities to address the problems associated with alcohol-impaired driving crashes, which claimed an estimated 11,773 lives in 2008, and explore the public policy challenges and the potential benefits associated with more widespread use of an in-vehicle technology to prevent alcohol-impaired driving;<sup>7</sup>
- Encourage the deployment of advanced crash avoidance technologies (such as Electronic Stability Control and Forward Collision and Lane Departure Warning Systems) by establishing minimum performance standards and uniform, system-wide implementation of countermeasures to address roadway departure, intersections, pedestrians, and speed management;
- Evaluate the safety risks and benefits of all new vehicles, technologies, and products as they enter the marketplace to ensure they pose no new implications for the safety of occupants or other transportation safety challenges;
- Improve the safety of roadway infrastructure through system-wide implementation of proven countermeasures, advanced improvements in State Strategic Highway Safety Plans (SHSP), and upgrades in State and local data systems that contribute to making better, more performance-based investment decisions and grant allocations; and
- Conduct vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) research projects through the Research and Innovative Technology Administration's (RITA) Intelligent Transportation Systems (ITS) Joint Program Office partnership with the FHWA, the Federal Motor Carrier Safety Administration (FMCSA) and the National Highway Traffic Safety Administration (NHTSA). V2V and V2I technologies have the potential to address 82 percent of non-impaired crash scenarios.

#### MOTORCYCLES

Increases in the number of registered motorcycles and in the number of motorcycle miles traveled have been accompanied by increases in motorcyclist fatalities and injuries. Motorcyclist fatalities increased 2.2 percent from 5,174 in 2007 to 5,290 in 2008 and accounted for 14 percent of total fatalities in motor vehicle crashes in 2008. Since the late 1990s, State repeals of universal helmet laws have curbed efforts to reduce the motorcyclist fatality rate offsetting gains in the reduction of overall highway fatalities by other groups. To improve motorcycle safety, DOT will:

- Develop national standards for entry-level motorcycle riders, and promote the implementation of these standards through training programs;
- Complete a rulemaking to clarify the motorcycle helmet labeling requirements and address the problem of certification of non-compliant helmets; and

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<sup>7</sup> In 2008, a 5 year cooperative research agreement, titled "DADSS" (Driver Alcohol Detection System for Safety) was entered into with the Automotive Coalition for Traffic Safety (ACTS) to investigate and develop alcohol detection technologies that are non-invasive, reliable, accurate and precise that would prevent impaired drivers above the legal limit (.08+) from operating their vehicle.

- Work with States to implement new programs to reduce alcohol impairment levels among motorcyclists and explore new technologies that could make motorcycles safer to operate.

#### COMMERCIAL MOTOR VEHICLES

In 2007, commercial motor vehicles (CMV), large trucks and buses, represented 3.9 percent of registered vehicles but accounted for 7.7 percent of total vehicle miles traveled on the Nation's highways. In 2007, about 12 percent (4,808) of all motor vehicle fatalities in the U.S. involved crashes with CMVs or one out of nine traffic fatalities.

However, since 2000, the fatality rate for CMVs has fallen from 0.205 fatalities per 100 million vehicle miles traveled to 0.168 in 2007, the lowest since statistics have been kept. Targeted enforcement interventions, safety audits, and inspections of motor carriers and operators have reduced the fatality rate, as has increased oversight of Commercial Driver's License programs.

The primary challenge in continuing to improve truck and bus safety is to make certain that a safety culture exists across the industry and that only medically fit and qualified drivers as well as safe motor carrier companies are given authority and licenses to operate. To address these challenges, DOT will:

- Increase compliance with Federal safety regulations, promote safe operations and best practices through partnerships and education, improve operator medical qualifications, credentialing, and licensing systems, improve safety information, research, and analysis to advance innovation and technical solutions, and optimize operational effectiveness; and
- Develop and test procedures for a potential standard on stability control for truck tractors. Two stability systems, Roll Stability Control and Electronic Stability Control, aimed at addressing rollover and loss-of-control crashes, are being tested.

While only 40 percent of U.S. travel occurs on rural roads, the fatality rate for rural crashes is more than twice the fatality rate for urban crashes with rural fatal crashes accounting for 57 percent of all traffic fatalities. To improve rural road safety, DOT will:

- Work with local agencies to implement the High Risk Rural Roads Program. This program targets roads that exceed the statewide average crash rate for fatalities and incapacitating injuries or that will have increases in traffic volume that are likely to create a crash rate for fatalities and incapacitating injuries that exceeds the statewide average;
- Work with States to encourage them to adopt data-driven, comprehensive safety strategies, and collaborate with stakeholders such as the Federal land management agencies, local and tribal governments to improve safety levels; and
- Provide national leadership in delivering safety programs and products to tribal communities, gateway communities, and local governments to improve highway safety on rural roads.

#### RAILROADS

The railroad industry has experienced considerable safety improvement over the past decade. Although the 2009 data are preliminary, the total number of rail-related accidents

and incidents declined 37 percent from 16,776 in 1999 to 10,529 in 2009. During this period, train accidents also dropped by 345 percent (2,768 vs. 1,841), casualties (fatalities and injuries) dropped 36 percent (12,632 vs. 8,036) and highway-rail grade crossing incidents decreased by 46 percent (3,489 vs. 1,880).

Safety levels have improved because of a strengthened inspector force, broadened regulatory and enforcement efforts, and initiatives implemented under both the "Secretary's Action Plan for Highway-Rail Grade Crossing Safety and Trespasser Prevention" and the "National Rail Safety Action Plan." In addition, DOT concentrated on reducing the two most important causes of train accidents – human error and track flaws. Of major concern are the 220,000 public and private at-grade highway-rail crossings where approximately 300 fatalities occur each year. A key strategy to address highway-rail grade crossing safety is to prepare grade crossings in federally designated corridors for future high-speed and intercity rail operations.

- DOT will assist grade-crossing safety improvements, work with others to advocate rail safety, encourage enforcement of traffic laws, and promote technologies designed to improve safety.

On February 17, 2009, President Obama signed the Recovery Act which includes significant funding for rebuilding America through high-speed and intercity passenger rail<sup>8</sup> corridors that would connect cities with faster rail service to serve as an alternative to air and highway transportation. DOT will proactively address any emerging safety issues associated with the design and implementation of high-speed and intercity passenger rail programs.

- An equally important safety strategy in implementing high-speed rail and promoting rail safety generally, concerns carrying out a final rule for implementing positive train control (PTC), a system of monitoring and controlling train movements to provide increased safety. PTC is an eligible expense under the Recovery Act, and is central to high-speed rail implementation as States and regions develop passenger lines that share track with freight railroads. When installed, PTC will have safety benefits for all rail operations.

Although the railroad industry overall has experienced improvement in safety over the past decade, 25 railroad employees died while on duty in 2008 with another 16 employee fatalities in 2009. To reduce the number of employee fatalities, DOT will:

- Reconstitute the Switching Operations Fatality Analysis Committee, which focuses on railroad switching operations, and establish a new committee entitled the Fatality Analysis of Maintenance of Way Employees and Signalman, which will focus on roadway workers. Both committees will review accident data and develop best practice methods to reduce fatalities;
- Establish Risk Reduction Programs on Class I, Amtrak, and commuter railroads; and

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<sup>8</sup> High-speed rail is defined as "intercity passenger rail service that is reasonably expected to reach speeds of at least 110 mph." Passenger Rail Investment and Improvement Act (PRIIA) § 26106, 2008.

- Ensure that each Class I railroad and Amtrak is inspected under 49 CFR Part 225 at a minimum of once every two years and require safety inspectors to conduct inspection activities outside normal working hours to include nights and weekends.

#### AVIATION

While past DOT efforts have brought aviation to an unprecedented level of safety, identified sources of risk within aviation provide the basis for moving forward for additional improvements. In 2008, there were no fatalities on scheduled Part 121 carriers,<sup>9</sup> three fatalities on non-scheduled large carriers, and 66 on on-demand air taxis. General aviation showed continued improvement as the number of accidents and fatalities dropped almost 26 percent over the past 10 years.

DOT's aviation safety strategy is based on working with domestic and international stakeholders, including carriers, to stimulate cooperation for the open reporting of safety concerns. In its safety oversight capacity, DOT is establishing a Safety Management System and is working with stakeholders to establish their own safety systems to identify potential risk areas.

Improving human performance is also a central element in strengthening aviation safety. DOT created the "Call to Action" program to identify immediate steps to strengthen and improve pilot hiring, training, and testing practices at regional airlines and major air carriers. Participants agreed on best practices for pilot record checks, the development of pilot mentoring programs, and the reassessment of rules for pilot flight and duty time to incorporate research on fatigue. While aviation has incorporated many technologies over the years to prevent accidents, DOT will focus on best practices and tools to help pilots, flight attendants, and dispatchers avoid mistakes and respond better if a mistake is made.

Finally, DOT will continue to develop and employ technologies to utilize U.S. airspace in safer, more efficient, and more environmentally sound ways via NextGen.<sup>10</sup> NextGen is on the ground at airports, in cockpits, and on the minds of aviation professionals everywhere. From flight decks and control towers to runways and radar stations, our national air transportation system is moving toward an unprecedented, paradigm-shifting change. The next 10 years promise to be a pivotal time in the history of air transportation, as we begin a transformation that will change the face of aviation. DOT is deeply committed to making sure America has the safest, most advanced, and most efficient aviation system in the world. To continue to improve aviation safety, DOT will:

- Strengthen and improve pilot hiring, training, and testing practices for all airlines, including those providing regional service;
- Leverage existing aircraft capabilities through terminal and en route operations, data communications, and flight information services while developing new aircraft capabilities such as cockpit displays, landing systems, and approach revisions;
- Implement NTSB recommendations that increase runway safety and reduce runway incursions as appropriate; and

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<sup>9</sup> Part 121 refers to Regulations concerning Operating Requirements: Domestic, Flag, and Supplemental Operations.

<sup>10</sup> NextGen is a transformation of the National Airspace System (NAS), including our national system of airports, using 21<sup>st</sup> Century technologies to ensure future safety, capacity and environmental needs are met.

- Foster the continued development of competent civil aviation authorities worldwide to meet international safety oversight standards.

#### TRANSIT

Transit is one of the safest modes of travel per passenger-miles traveled. Each day our Nation's bus, rail, ferryboat and paratransit systems provide over 33 million passenger trips. Over the last decade, transit ridership has grown over 20 percent, far outpacing growth in automobile travel, while enjoying a strong safety record when compared with other modes of transportation. In 2008, a total of 251 fatalities occurred in all modes of transit.<sup>11</sup> The challenge is to continue to improve on the current safety record as the number of people using transit increases.

America's rail transit systems operate under two different Federal safety regimes. Some commuter rail systems funded by the Federal Transit Administration (FTA) are governed by the Federal Railroad Administration (FRA) safety regulations while light, heavy, and other urban rail systems are governed by the States. Commuter rail operations on the general systems of railroads<sup>12</sup> fall under FRA's safety regulatory system that includes national mandatory safety standards and on-site spot inspections and audits by Federal technical specialists and inspectors with backgrounds in train control, track operations and other disciplines. FRA is also empowered to dictate operating practices and assess fines on these transit operators for any deficiencies found.

On the other hand, for rail systems not subject to FRA oversight,<sup>13</sup> the State is expected to take the lead for oversight and require those systems to establish safety programs. The State, through a designated State Safety Oversight (SSO) Agency, is then expected to monitor the transit system's implementation of its Safety Program. FTA's role is to provide training and technical assistance to the SSO Agency, establish some requirements for State oversight responsibility and monitor the State's oversight activities. This has given rise to 27 separate State programs with inconsistent practices and varied effectiveness where each State determines safe practices with no minimum thresholds. Moreover, the State agencies do not always have the necessary independence from the transit agencies they oversee. These two distinct systems of rail safety oversight are in need of reform.

Rail transit systems carry more passengers daily than either U.S. domestic airlines regulated by the FAA or by passenger railroads regulated by the FRA. Yet, FTA does not have Federal safety regulation, oversight or enforcement authority. FTA is prohibited by law from establishing national safety standards, requiring Federal inspections, or dictating operating practices. Therefore, DOT will seek to improve public transportation safety through:

- Establishment of authority allowing FTA to set and enforce minimum safety standards. Such standards could be enforced either through truly independent and adequately empowered State agencies or through FTA personnel;

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<sup>11</sup> Transit modes include buses, ferry boats, commuter rail as described in footnote 13 below and closed, fixed guideway systems as described in footnote 14 below.

<sup>12</sup> Such as The Virginia Railway Express, the Long Island Railroad, Chicago's METRA, Southern California's Metrolink and the Maryland Area Regional Commuter MARC.

<sup>13</sup> Such as the Los Angeles Metro, the Chicago Transit Authority, the Washington Metropolitan Transit Authority (WMATA), and the New York City subway system.



- Policies and programs that assist and encourage the transit industry to improve the condition of the Nation's safety-critical transit assets and improve transit industry focus on safety vulnerabilities through the development and strengthening of safety management systems;
- Partnerships with industry associations to develop recommended practices and voluntary industry safety standards;
- Technical assistance and training to help the transit industry understand and implement innovative safety and security strategies and coordinate with DHS<sup>14</sup> to provide security and emergency management training, technical assistance and information sharing to transit agencies; and
- Development of materials and technology to reduce transit fatalities and the number and severity of transit-related injuries.

#### HAZARDOUS MATERIALS

Hazmat transportation fatalities across all modes of transportation are one for every 37 billion ton-miles moved, an average of 14 fatalities per year. Between 2002 and 2008 there were 75 hazmat incidents with one or more fatalities. At least three-fourths of these involved a truck rollover or crash. A particular concern with hazardous materials is the risk of low-probability, high-consequence accidents. Key targeted areas of risk include fire aboard aircraft, release of bulk quantities of materials that are toxic-by-inhalation, and tank truck rollovers.

- DOT's hazmat safety strategy is centered on collaboration with Federal and State government agencies to ensure that the rules for the commercial transport of hazardous materials are uniform across modes and consistent with risk.
- DOT will conduct and support research to develop technologies and procedures to secure hazardous materials shipments and to assess the risks of hazmat events and build the capabilities of local emergency responders through Hazardous Materials Emergency Response grants;

#### PIPELINES

Pipelines carry two-thirds of the Nation's energy supplies and over the past 20 years, pipeline incidents involving fatalities or major injuries have declined by 50 percent due to improvements in risk management and technology such as integrity management, excavation damage prevention, and advances in pipeline materials. Nevertheless, pipelines continue to present low-probability, high-consequence risks to people and the environment. To address these safety issues, DOT will:

- Extend its pipeline integrity management program to gas distribution pipeline systems where 80 percent of the most serious safety incidents occur. DOT's objective will be to increase all gas and liquid pipeline companies' focus on safety beyond compliance with minimum standards. This will include increasing attention to their safety culture; fully implementing programs for pipeline damage prevention at the State and local levels; integrating various safety inspections and targeting these inspections based on

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<sup>14</sup> Specifically, the Transportation Security Administration and the Federal Emergency Management Agency.

relative risk; and investigating new technologies for improving the assessment, detection and control of pipeline risks.

STRATEGIES FOR IMPROVED SAFETY EXPERIENCE FOR ALL ROAD USERS, INCLUDING MOTORISTS, PEDESTRIANS AND BICYCLISTS, WITH A FOCUS ON CHILDREN, OLDER ADULTS, AND INDIVIDUALS WITH DISABILITIES

In 2008, 4,378 pedestrians were killed in traffic crashes in the U.S., a decrease of 16 percent from the 5,228 pedestrians killed in 1998. On average, a pedestrian is killed in a traffic crash every 120 minutes and injured in a traffic crash every 8 minutes. There were 69,000 pedestrians injured in traffic crashes in 2008. Most pedestrian fatalities in 2008 occurred in urban areas (72 percent), at non-intersection locations (76 percent), in normal weather conditions (89 percent), and at night (70 percent).

In 2008, 716 bicyclists were killed and an additional 52,000 were injured in traffic crashes. Bicyclist deaths accounted for 2 percent of all traffic fatalities, and bicyclists made up 2 percent of all the people injured in traffic crashes during 2008.

Pedestrian and bicyclist fatalities and injuries can be reduced through “complete streets” policies. Complete streets are designed and operated to enable safe, attractive, and comfortable access and travel for all users. Pedestrians, bicyclists, motorists and public transport users of all ages and abilities are able to move safely and comfortably along and across a complete street. Instituting a complete streets policy ensures that transportation planners and engineers consistently design and operate the entire roadway with all users in mind. A FHWA safety review found that designing the street with these users in mind—sidewalks, raised medians, turning access controls, better bus stop placement, better lighting, traffic calming measures, and treatments for disabled travelers—improves pedestrian, bicyclist, and motorist safety.<sup>15</sup> To reduce pedestrian and bicyclist fatalities and injuries, DOT will:

- Encourage the adoption of “complete streets” policies and programs that improve pedestrian and bicyclist safety, including a focus on the safety of children, such as “safe routes to schools” and “walking school buses;”
- Work with State and local governments to provide more technical assistance such as the application of pedestrian and bicycle safety audits to ensure that transportation systems are designed for optimum safety for all users;
- Develop training programs for young pedestrians and bicyclists and promote the use of these programs in schools and other venues;
- Distribute community-oriented material, including material in languages other than English, that offers technical guidance on improving pedestrian and bicycle safety and engineering, outreach and enforcement activities;
- Propose adoption of global technical regulation on pedestrian safety to reduce injuries to pedestrians in light vehicle crashes by promoting improvements in vehicle design;

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<sup>15</sup> B.J. Campbell, Charles V. Zegeer, Herman H. Huang, and Michael J. Cynecki. A Review of Pedestrian Safety Research in the United States and Abroad Jan. 2004, Federal Highway Administration, Publication number FHWA-RD-03-042

- Collaborate with the Departments of Justice and State and local law enforcement agencies to promote the adoption of integrated law enforcement and traffic safety strategies based on geographic analysis of crime and traffic safety data; and promote legislation to improve motor vehicle and highway safety; and
- Provide national leadership and coordination of comprehensive, data-driven and evidence-based emergency medical services and Next Generation (NG) 9-1-1 systems to improve health outcomes from motor vehicle crashes and other health emergencies including natural and manmade disasters.

#### RESOURCES

The human resources, programs, capital assets, information technology and other resources described in DOT's Annual Performance Budgets are designed to achieve our outcomes for improving safety throughout the transportation system. The schedule for executing our safety strategies extends from fiscal year 2010 through fiscal year 2015.

**PERFORMANCE MEASURES**

Figure 3 shows the relationship between DOT’s safety outcomes and the performance measures we propose to use for evaluating results.

**FIGURE 3. SAFETY OUTCOMES AND PROPOSED PERFORMANCE MEASURES**

OUTCOMES	PROPOSED PERFORMANCE MEASURES
<p>1. Reduction in transportation-related fatalities</p> <p>2. Reduction in transportation-related injuries</p>	<p><u>DOT-wide Measure</u></p> <ul style="list-style-type: none"> <li>- Reduce the number of transportation-related fatalities and injuries.</li> </ul> <p><u>High Priority Performance Goals</u></p> <ul style="list-style-type: none"> <li>- Reduce the Highway Fatality Rate per 100 million VMT. The 2008 rate is 1.25. The 2011 target is 1.13-1.16 fatalities per 100 million VMT. NHTSA, FHWA, FMCSA.</li> <li>- Reduce the total number of runway incursions 10 percent from the FY2008 baseline of 1009 to 909 by the end of FY2013. FAA.</li> <li>- Reduce the rate of transit fatalities per 100 million passenger miles traveled. The target for 2010 is 0.458. FTA.</li> <li>- Reduce the rate of transit injuries per 100 million passenger miles traveled. The target for 2010 is 33.8 transit injuries per 100 million passenger miles traveled. FTA.</li> </ul> <p><u>Contributing Performance Measures</u></p> <ul style="list-style-type: none"> <li>- Reduce passenger vehicle occupant fatalities per 100 million VMT. NHTSA, FHWA, FMCSA.</li> <li>- Reduce motorcycle rider fatalities per 100,000 motorcycle registrations. NHTSA, FHWA, FMCSA.</li> <li>- Reduce non-occupant (pedestrian and bicycle) fatalities per 100 million VMT. NHTSA, FHWA, FMCSA.</li> <li>- Reduce highway fatalities involving large trucks and buses per 100 million VMT. NHTSA, FHWA, FMCSA.</li> <li>- Reduce the number of natural gas and hazardous liquid pipeline incidents involving death or major injury. PHMSA</li> <li>- Reduce the number of hazardous materials transportation incidents - involving death or major injury. PHMSA</li> <li>- Reduce commercial air carrier fatalities per 100 million persons on board in half by FY 2025. FAA</li> <li>- Reduce the general aviation fatal accident rate per 100,000 flight hours by 10 percent over a 10-year period (2009-2018). FY10 target - 1.1 per 100,000 flight hours; the FY14 target is 1.05 per 100,000 flight hours. FAA</li> <li>- Reduce the rate of rail-related accidents and incidents per million train miles. FRA</li> </ul>

**FIGURE 3. SAFETY OUTCOMES AND PROPOSED PERFORMANCE MEASURES**  
(Continued)

OUTCOMES	PROPOSED PERFORMANCE MEASURES
2. Improved safety experience for all road users, including motorists, pedestrians and cyclists, with a focus on children, older adults, and individuals with disabilities.	- Increase the number of States and localities that adopt “complete streets” policies and “safe routes to schools” policies. OST/P

### EXTERNAL RISK FACTORS

The external risk factors that could play a part in our ability to achieve our safety goal are discussed below.

#### SUSTAINABLE FUNDING

The GAO reported<sup>16</sup> that revenues to support the Highway Trust Fund are not keeping pace with spending levels and that the Highway Account was nearly depleted in 2008. In addition, the excise taxes that fund the Airport and Airway Trust Fund revenues have been lower than previously forecasted in 2009 due to the economy. Declining revenues in both trust funds may adversely affect DOT's ability to continue to fund highway, transit and aviation programs at levels previously assumed.

Although the fuel tax will remain the principal source of revenue for Federal highway and transit programs for many years, the revenue currently collected is not sufficient to sustain current Federal spending levels on capital infrastructure and incentive programs. Increased vehicle fuel economy standards, the expected deployment of electric and alternative fueled vehicles, and a possible slowing of future travel demand are factors likely to lead to steadily declining receipts from fuel taxes in future years.

The Administration believes that FAA should move toward a model whereby the Agency's funding is related to its costs, the financing burden is distributed more equitably, and funds are used to pay directly for services the users need. GAO has identified revenue as a risk and Federal receipts plus economic pressures on key stakeholders may impact safety investments. The Administration recognizes that there are alternative ways to achieve its objectives, and wants to work with Congress and stakeholders to enact legislation that moves toward such a system.

#### SAFETY RISK ARISING FROM ECONOMIC EXPANSION

While recent highway fatality and injury trends are encouraging, DOT does not expect them to continue once the economy enters a period of expansion. With an economic rebound, the expectation is that discretionary driving will increase, which in turn may reverse fatality reductions. Discretionary/recreational travel considered much riskier than

<sup>16</sup> Transportation Programs: Challenges Facing the Department of Transportation and Congress, GAO-09-435T March 10, 2009.

necessary travel for work and family obligations. It places motorists behind the wheel for longer lengths of time and during all hours of the day and night. There is significant work to be done to preserve recent highway DOT will continue its ongoing efforts to develop new and innovative strategies in the pursuit of safe and livable communities, both urban and rural.

#### LACK OF STATUTORY AUTHORITY FOR TRANSIT SAFETY

FTA lacks statutory authority to address specific transit safety issues such as hours of service, vehicle and track safety standards, or providing additional enforcement authority and resources for safety oversight programs. FTA has no authority to require conformance to national standards and Federal level regulations. Over the last decade, FTA has worked with the transit industry to develop voluntary standards, but there is no requirement for compliance or enforcement. This lack of statutory authority may impede our ability to achieve our transit safety goals.

#### TECHNOLOGY

Advances in technology have the potential to positively impact transportation safety efforts over the next decade. Advanced interoperable secure wireless data, voice and video systems are essential for deploying advanced transportation safety, security, emergency response and efficiency systems across all modes of transportation. Standards development and certification must be a part of this effort; tie-ins to radionavigation and geolocation requirements, advanced computing, and spectrum management are required. A systemic approach to technology development and deployment could pay large dividends to transportation.

## STATE OF GOOD REPAIR STRATEGIC GOAL

*“Ensure the U.S. proactively maintains  
its critical transportation infrastructure in a state of good repair”*

### OUTCOMES

Increased proportion of U.S. transportation infrastructure in good condition:

- Highways and Bridges
- Transit Systems
- Airports
- Railroads

### CHALLENGES AND STRATEGIES

The condition of our Nation’s transportation infrastructure falls short of a ‘*State of Good Repair.*’ In an era where there is legitimate competition for scarce resources, DOT takes the position that stewardship of transportation infrastructure rises to the level of a strategic goal to draw attention to the need to preserve transportation reliability, capacity, and efficiency. DOT will work through its government and industry partners to apply asset management principles and maintenance regimes proactively to all critical transportation infrastructure assets to make optimal use of existing capacity, applying minor augmentations where appropriate and conserving resources for infrastructure of critical importance.

Because there is no nationally accepted definition of ‘State of Good Repair,’ infrastructure conditions are assessed mode-by-mode and State-by-State. For example, the FHWA identifies roads and bridges as being ‘good, fair, or poor’ based on the International Roughness Index (IRI) and deficient deck area. FHWA’s focus is to increase the percentage of road and bridges in the good and fair categories, and to reduce the percentage of poor roads and bridges. This illustrates that while a good repair goal is conducive to measurement, in order to make progress, stakeholders will have to commit to analytically sound mechanisms for setting targets and identifying which investments provide the greatest utility in improving the state of repair (e.g., considering assets in good condition by number versus assets in good condition by utilization or considering when in an asset’s life cycle replacement is most cost effective). Further, making improvements in the state of repair of our Nation's transportation infrastructure will require commitments from all levels of government and the private sector as well as a dialog about the tradeoffs between building new infrastructure versus maintaining existing critical assets. Below, we describe the condition of transportation infrastructure by mode and our strategies for bringing it to a state of good repair.

## STRATEGIES TO IMPROVE THE CONDITION OF HIGHWAYS AND BRIDGES

Preserving the health of pavement and bridges, particularly on the National Highway System (NHS) that includes the Interstate system, is critical to the structural integrity, functionality, and cost effectiveness of the Nation's transportation system.<sup>17</sup>

The ride quality condition of NHS pavements affects the wear-and-tear on vehicles, the comfort of travelers, fuel consumption, and traffic congestion. The percentage of Vehicle Miles of Travel (VMT) on NHS roads classified as having good ride quality increased from 46 percent in 2000 to 57 percent in 2009.<sup>18</sup> Nevertheless, increased volumes of freight traffic are a concern because of the growing dependency of commerce upon the efficiency of the roadways and the added wear and tear caused by trucks. Without adequate investment in the road network or diversion of freight to rail or water transport alternatives, there may be adverse consequences in safety and efficiency should road conditions worsen in the future. Achieving future improvements in the condition of road pavement will provide a smoother riding surface on the NHS and minimize undue wear and tear on vehicles used for personal, commuter and freight movements. In turn, the need for States to invest in major repairs to NHS pavement infrastructure will also be reduced.

The GAO recently reported on the conditions of the Nation's bridges.<sup>19</sup> GAO noted that the FHWA Highway Bridge Program (HBP) classifies bridge conditions as deficient or not; assigns each bridge a sufficiency rating reflecting its structural adequacy, safety, serviceability, and relative importance for public use; and uses that information to distribute funding to States.<sup>20</sup> The HBP affords States discretion to use funds and select bridge projects; some States focus on reducing the number of deficient bridges, while other States pursue different bridge priorities such as seismic retrofitting in California. GAO concluded that the HBP statutory goals are not focused on a clearly identified Federal interest, and that the program lacked measures linking funding to performance and is unsustainable given the anticipated deterioration of the Nation's bridges and the declining purchasing power of funding currently available for bridge maintenance, rehabilitation, and replacement.

Nevertheless between 2002 and 2009, bridge conditions improved overall as the percentage of deck area<sup>21</sup> on all bridges, both NHS and non-NHS, that were classified as

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<sup>17</sup> The National Highway System Designation Act of 1995 designated the NHS, which includes the Interstate system, other principal arterials, the Strategic Highway Network, and major intermodal connectors. For more information, see <http://www.fhwa.dot.gov/planning/nhs/index.html>

<sup>18</sup> The most recent results reported for the pavement condition measure are at <http://www.fhwa.dot.gov/policy/fhplan.html#measurement> An International Roughness Index (IRI) of 95 inches per mile or less is necessary for a good rated ride. The IRI is a quantitative measure of the accumulated response of a quarter-car vehicle suspension experienced while traveling over pavement. For more details, see the Highway Performance Monitoring System at <http://www.fhwa.dot.gov/ohim/hpmsman/appe.cfm#hpm>

<sup>19</sup> *Highway Bridge Program: Clearer Goals and Performance Measures Needed for a More Focused and Sustainable Program* GAO-08-1127T September 10, 2008

<sup>20</sup> Deficient bridges include those that are structurally deficient, with one or more components in poor condition, and those that are functionally obsolete, with a poor configuration or design that may no longer be adequate for the traffic they serve.

<sup>21</sup> Bridge deck area is the area of the riding surface of a bridge, including all travel lanes and shoulders. It is computed as the bridge length multiplied by the bridge width and is used to monitor trends in bridge conditions.



either ‘Structurally Deficient’ or ‘Functionally Obsolete’ fell from 30.9 percent (2002) to 29.4 percent (2009).<sup>22</sup> Most of this progress was made in addressing the number of Structurally deficient bridges, which are bridges in need of significant maintenance, rehabilitation, or replacement. Functionally obsolete bridges do not have adequate lane widths, shoulder widths, or vertical clearances to meet current traffic demand. DOT is committed to ensuring the safe and efficient movement of people and goods under all highway bridges. The deck area measure is an indicator of the impact that federal program investments have on the condition of our Nation’s bridges.

Despite these improvements, significant challenges remain in addressing bridge deficiencies. Current combined levels of Federal, State, and local bridge rehabilitation and replacement spending are insufficient to sustain the overall condition of bridges at current levels over the long term. If combined investment in the coming years is sustained at 2006 levels, in constant dollar terms, the backlog of potential cost-beneficial bridge improvements is projected to increase 13.9 percent by 2026.<sup>23</sup>

In this era of limited resources, achieving a State of Good Repair will require DOT and our State partner agencies to take a strategic approach by considering and evaluating where transportation and community needs have changed over time. As parts of our major roadway systems reach the end of their useful lives and must be replaced at significant cost, those portions in center cities should be identified that, because of employment and residential decentralization, no longer serve central transportation goals and are capable of being decommissioned or downsized. In such instances, a wiser public investment might be to reclaim the land for commercial and community use, particularly in economically distressed communities. For example, after the Loma Prieta earthquake, San Francisco tore down the damaged Embarcadero Freeway in 1991 rather than rebuild it, reuniting the waterfront and downtown and spurring new commercial development. Similarly, Fort Worth relocated a portion of its interstate away from its downtown, and cities like Seattle, Phoenix, San Diego, and Hartford have capped their downtown interstates with decks in order to reclaim land for parks, museums, schools, and housing.

To bring our highways and bridges into a state of good repair, DOT will:

- Work through its University Transportation Centers (UTC) and FHWA on the Long Term Performance Bridge program which is a 20-year comprehensive examination of the Nation’s highway bridges. It is the first time that quantitative bridge-performance data will be collected uniformly on a national basis. Program objectives include providing highway authorities with tools to detect problems early and with procedures to address safety issues, extend the lives of current bridges, and build new structures that will maintain them well into the future;
- Develop and use a nationally recognized, credible, and balanced, set of national system performance indicators, that focus on the National Highway System (NHS), the Strategic Highway Network, and other major arterials and intermodal connectors, and

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<sup>22</sup> The most recent results for the bridge condition measure are at <http://www.fhwa.dot.gov/policy/fhplan.html#measurement> From the National Bridge Inventory data provided by each state, the FHWA monitors the condition of the Nation’s bridges including those bridges that are either Functionally Obsolete or Structurally Deficient. For more information, see <http://www.fhwa.dot.gov/legsregs/directives/fapg/0650dsup.htm>

<sup>23</sup> 2008 Conditions and Performance Report, is available soon at [www.fhwa.dot.gov/policy/cpr2008](http://www.fhwa.dot.gov/policy/cpr2008)

use the system performance information to drive programmatic and legislative linkages between system performance and Federal funding;

- Examine the trends in permits for weights in excess of legal limits and the pavement and bridge damage costs associated with those loads and take appropriate action;
- Make significant improvements to critical aspects of highway system performance (safety, congestion, reliability, infrastructure condition, air quality, user satisfaction, and emergency response) by developing a comprehensive process to regularly document the condition of pavement and bridge infrastructure on the NHS and identify critical gaps that are jeopardizing the system;
- Support and advance sound asset management principles to maximize performance benefits resulting from investments in highways and bridges through the deployment of new tools and techniques, the transfer of knowledge, the delivery of peer exchanges, and by providing technical assistance to more effectively manage the system
- Encourage State DOTs to use improved highway design and construction procedures, innovative quality assurance practices, innovative materials, and asset management practices to reduce onsite repairs, rehabilitation, and reconstruction; and
- Develop a national agenda to identify opportunities for research to manage and preserve surface transportation infrastructure based on conclusions reached through consultation with private and public infrastructure experts.

#### STRATEGIES TO IMPROVE THE CONDITION OF TRANSIT SYSTEMS

Our Nation's public transportation systems, which are vital to tens of millions of Americans who travel daily to jobs, school, and other places in an energy efficient manner, suffer from continued under-investment and less than optimal asset management practices. Americans traveled 49.5 billion miles on public transportation in 2006, up 23.2 percent from 1997, surpassing increases in any other mode of travel.<sup>24</sup> However, as the demand for transit service continues to rise, the transit infrastructure is aging. The challenge is to meet the increasing demand for public transportation, and at the same time bring transit infrastructure into a state of good repair.

FTA uses a 1 (poor) to 5 (excellent) scale to characterize transit asset conditions. A rating of 2.5 or below is used as the threshold for replacement. A 40-foot bus typically takes 14 years to reach this condition, whereas FTA uses 12 years as the life expectancy of these vehicles. The "2008 Status of the Nation's Highways, Bridges and Transit Conditions and Performance Report" found that 17.6 percent of transit buses and 13.2 percent of transit rail cars were below this threshold, while 36.4 percent of transit bus maintenance facilities and 26.2 percent of transit rail maintenance facilities were in marginal or poor condition (rated between 1.0 and 3.0). Also 34.3 percent of urban rail passenger stations and 20.0 percent of rail transit tracks were also in marginal or poor condition. An entire transit system is defined to be in a state of good repair if all of its assets have an estimated condition value of 2.5 or higher. The level of investment required to attain and maintain a state of good repair is therefore that amount required to rehabilitate and replace all assets with estimated condition ratings that are less than this minimum condition value.

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<sup>24</sup> Status of the Nation's Highways, Bridges and Transit Conditions and Performance Report.2008.

Analysis of national transit data indicates that roughly one-quarter of the Nation's bus and rail assets are in marginal or poor condition. The proportion of assets in marginal or poor condition jumps to one-third in the largest and oldest rail transit agencies.<sup>25</sup> An estimated annual average investment of \$5.9 billion in capital expenditures would be required from Federal, State, and local sources to achieve a state of good repair for the oldest and largest rail transit systems. FTA provides about 40 percent (43.5 percent in 2006) of all funding for transit capital investments. Thus, FTA has an interest in protecting this public investment through timely maintenance and replacement of these assets. To bring our transit systems into a state of good repair, DOT will:

- Assess alternative measures state of good repair and develop a common industry definition;
- Define "safety-critical assets" as a means of establishing priority re-investment decisions;
- Collect data and analyze the condition of a cross-section of the Nation's transit systems to determine the most effective investment strategy to bring transit infrastructure to a state of good repair;
- Continue outreach to the transit industry through Roundtable meetings and training sessions to discuss management, maintenance and financial practices to address the state of repair of transit capital assets; and
- Deliver research and technical assistance on capital asset management and develop methods, tools, and guidance to improve asset management systems.

#### STRATEGIES TO IMPROVE THE CONDITION OF AIRPORTS

In numerous reports, GAO has identified multiple issues for DOT that address the conditions of airports in the U.S. For instance, GAO<sup>26</sup> reported that flight delays and cancellations at congested airports continue to plague the U.S. aviation system—almost one in four flights either arrived late or was canceled in 2008. GAO reported that FAA faces a number of management challenges associated with the early implementation of NextGen because it is "an enormously complicated undertaking due to the technological complexities, numerous stakeholders, and broad scope of the effort." Among these challenges is developing a new plan for configuring facilities including new and extended runways and airspace that will support NextGen.<sup>27</sup> While progress has been made in developing NextGen, GAO has stated that, "FAA faces challenges in addressing ongoing research needs, reconfiguring and maintaining existing facilities, and enhancing the physical capacity of airports."<sup>28</sup> In addition, GAO has also identified that regional planning efforts, because they are advisory only and cannot mandate any airport to work with FAA

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<sup>25</sup> FTA Rail Modernization Study, April 2009.

<sup>26</sup> *Transportation Programs: Challenges Facing the Department of Transportation and Congress* GAO-09-435T, March 10, 2009

<sup>27</sup> *Federal Aviation Administration: Challenges Facing the Agency in Fiscal Year 2009 and Beyond* GAO-08-460T, February 7, 2008

<sup>28</sup> GAO-09-479T, Status of Transformation and Issues Associated with Midterm Implementation of Capabilities, 2009.

and regional boards, can conflict with FAA's focus, which makes funding decisions based on national interests<sup>29</sup>

The metric used to monitor infrastructure condition includes a rational method to gauge whether FAA's project priority strategy can maintain at least 93 percent of the Nation's runways in excellent, good, or fair condition. As with all infrastructure, runways begin to deteriorate as soon as construction is complete. The FAA funds initial infrastructure development at all airports. Funding for maintenance is limited to those airports that don't have sufficient revenue generators for periodic repairs. This is usually the smaller airports (nonhub primary and nonprimary). Proper maintenance of runways has proven to delay the need for major runway rehabilitation. If the current level of pavement maintenance support by the FAA diminishes, maintenance at some runways will suffer and maintaining the goal of 93 percent of the runways in excellent, good, or fair condition will become more difficult.<sup>30</sup> Under-funded maintenance creates an increasing risk of damage to aircraft caused by failing runways. This poses a safety concern for the aircraft which translates directly to the travelling public. Since instituted, the 93 percent goal has been achieved and the improved methods for measuring the goal makes the metric more robust and reliable. To bring our aviation systems into a state of good repair, DOT will:

- Work with aviation stakeholders, through the Future Airport Capacity Team, to develop a strategy for implementing solutions from the toolbox developed for each airport projected to have an anticipated capacity shortfall in 2025;
- Establish priorities for infrastructure investments, including runway capabilities, to maintain and enhance existing airport capacity; and
- Through the cross-organizational Airport Obstructions Standards Committee, develop standards and action plans for runway infrastructure and procedures (such as end-around taxiways), and establish databases and data collection tools to improve airport flight operations, while maintaining an optimal balance among safety, capacity, and efficiency considerations.

#### STRATEGIES TO IMPROVE THE CONDITION OF RAILROADS

Since 2005, the major railroads have invested over \$34 billion in the system for maintenance and capacity upgrades to meet long-term increases in freight traffic. Even though investment will not be as high in 2009 as the record \$10.2 billion in 2008, the railroads should nevertheless be well-positioned to handle improvements in the economy by investing about \$5 billion per year in the near future. Within its authorities, DOT will seek to strike an optimal balance between maximizing the diversion of freight traffic from less environmentally beneficial and energy-saving modes to rail, protecting the statutorily-established rights of and safeguards for shippers, and assuring that the regulatory framework for railroads enables the industry to maintain their systems at the highest level of safety and continue to earn sufficient revenue to keep investing for safety and adding capacity. Demand for freight transportation is projected to nearly double by 2035, from 19.3 billion tons in 2007 to 37.2 billion tons in 2035. If current market shares are

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<sup>29</sup> GAO 10-120, Regional Airport Planning Could Help Address Congestion If Plans Were Integrated with FAA Airport Decision Making, 2010.

<sup>30</sup> Ratings range from 5 (Excellent) to 1 (Failed).

maintained, railroads will be expected to handle an 88 percent increase in tonnage by 2035.<sup>31</sup>

Railroads expect the investment required to meet that demand to be between \$121 billion and \$148 billion over the period 2007 through 2035.<sup>32</sup> Freight railroads pay nearly all of the costs of their tracks, bridges, and tunnels themselves. The \$148 billion is for new rail tracks, bridges, tunnels, and other infrastructure. It does not include the hundreds of billions of dollars railroads will spend to maintain and replace their existing infrastructure over the same period, or the hundreds of billions of dollars they will spend to maintain and replace locomotives, rail cars, and other equipment. Nor does it include investments needed to allow additional passenger trains or higher speed passenger trains on freight-owned tracks or rights-of-way. Indeed, over many of the Nation's most important rail lines, freight and passenger rail share the same network and where passenger train frequencies are planned to substantially increase, additional capacity challenges may arise on the freight railroads on a site-specific basis.

A review of the 29 years since the railroads were partially deregulated by the Staggers Act of 1980 reveals improvements in the railroads' physical plant (infrastructure) as well as their performance metrics. Safety and fuel efficiency have remarkably improved. Rail rates are lower today than in 1980, when compared in constant dollars. The efficiency of rail transportation enables freight railroads to maintain their infrastructure, add capacity, host passenger operations, and pay property taxes on their real estate. To ensure that railroad systems are maintained in a state of good repair,<sup>33</sup> DOT will:

- Develop a National Rail Plan in 2010 in cooperation with industry stakeholders that will include information on the condition of rail infrastructure, the investments needed to maintain that infrastructure, and the policies needed to enable rail companies to continue to maintain their infrastructure in a state of good repair;
- Manage its High-Speed Intercity Passenger Rail and all other passenger grant programs in such a way as to bring the related infrastructure and equipment to a state of good repair and keep it that way;
- Provide the Surface Transportation Board information that will enable railroads to continue to make investments in rail infrastructure, equipment, and human capacity needed to maintain a state of good repair; and
- Publish standards for AMTRAK passenger rail service quality, including on-time performance.

## RESOURCES

The human resources, programs, capital assets, information technology and other resources described in DOT's Annual Performance Budgets are needed to achieve our outcomes for

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<sup>31</sup> Market share is determined by regulatory requirements, fuel costs, accident avoidance, relative shipper costs, and service levels.

<sup>32</sup> Statement Of Charles W. Moorman, Chairman, President, and Chief Executive Officer, Norfolk Southern Corporation, On Behalf Of The Association Of American Railroads, Before The U.S. House Of Representatives, Committee On Ways And Means, Subcommittee On Select Revenue Measures, Hearing On Infrastructure Investment, July 23, 2009.

<sup>33</sup> Definition of State of Good Repair on the Northeast Corridor. U.S. Department of Transportation, 2008.

achieving a state of good repair. The schedule for executing our State of Good Repair strategies extends from fiscal year 2010 through fiscal year 2015.

**PERFORMANCE MEASURES**

Figure 4 presents the relationship between the outcomes we will achieve under our State of Good Repair goal as well as the performance measures we propose to use to track our progress and evaluate results.

**FIGURE 4. STATE OF GOOD REPAIR OUTCOMES AND PROPOSED PERFORMANCE MEASURES**

OUTCOMES	PROPOSED PERFORMANCE MEASURES
1.a. Increased proportion of highways and bridges in good condition	<ul style="list-style-type: none"> <li>- Increase the percent of travel on National Highway System (NHS) roads with pavement performance standards rated good. FHWA.</li> <li>- Decrease the percent of bridges with deck area (the roadway surface of a bridge) rated deficient. FHWA.</li> </ul>
1.b. Increased proportion of transit assets in good condition	<ul style="list-style-type: none"> <li>- Reduce the percent of transit assets with a marginal or poor rating by 2 percentage points in six years. FTA.</li> <li>- Reduce the average age of rail and bus vehicles. FTA.</li> </ul>
1.c. Increased proportion of airport assets in good condition	<ul style="list-style-type: none"> <li>- Maintain, in good or fair condition, the pavements of at least 93 percent of the runways in the National Plan of Integrated Airport Systems. FAA.</li> </ul>
1.d. Increased proportion of railroad assets in good condition	<ul style="list-style-type: none"> <li>- Measure to be determined. - Reduce number of natural gas and hazardous liquid pipeline incidents involving death or major injury. PHMSA</li> <li>- Reduce number of hazardous materials transportation incidents - involving death or major injury. PHMSA</li> <li>- Reduce commercial air carrier fatalities per 100 million persons on board in half by FY 2025. FAA</li> <li>- Reduce the general aviation fatal accident rate per 100,000 flight hours by 10 percent over a 10-year period (2009-2018). FY10 target - 1.1 per 100,000 flight hours; the FY14 target is 1.05 per 100,000 flight hours. FAA</li> <li>- Reduce the rate of rail-related accidents and incidents per million train miles. FRA FRA.</li> </ul>

## **EXTERNAL RISK FACTORS**

Lack of sustainable funding for surface transportation and aviation is an external risk factor that could significantly affect our ability to achieve results under our State of Good Repair goal. Please refer to the full discussion of sustainable funding in the External Risk Factors section of the Safety goal.

## **HIGHWAY AND BRIDGE RISK FACTORS**

The combination of having a very large array of eligible activities combined with the State's right to choose which project will be federally funded without any accountability to addressing national goals, results in a situation where Federal-aid funding is not necessarily being expended on activities that address national goals.<sup>34</sup> This situation impacts the DOT's ability to improve pavement quality and bridge condition since State and local highway agencies, not FHWA, select projects that may or may not address pavement quality and bridge condition. Other influencing factors are the costs of materials and construction services to deliver highway projects, which are highly dependent on world-wide demand, and the quality of the design and construction of highway projects. With the application of a sound asset management process/program, routine maintenance costs should be minimized. A proactive preservation approach to managing transportation assets such as that suggested under DOT's State of Good Repair Goal, costs significantly less than waiting for a worst-first scenario. If the Federal Government focuses its funding on Federal interest areas, the States would be in a better position to maintaining 'their' transportation assets using State dollars. DOT's long-term success depends on our ability to develop mutually beneficial partnerships with our State partners to consistently manage the program to achieve and maintain a state of good repair of our Nation's critical infrastructure.

## **DEMAND MANAGEMENT AND CONGESTION REDUCTION**

Maintaining systems in a state of good repair by itself will not alleviate congestion. Recent history indicates that expansions and improvements in system capacity are eventually consumed by increased demand for road travel. Managing that demand and stewardship of existing critical assets are complementary strategies—both are needed to avoid over expansion. Through these strategies expensive expansion programs can sometimes be avoided altogether. Managing the demand for road travel and the associated problem of traffic congestion consists of strategies such as congestion pricing or telecommuting to reduce the growth of and periodic shifts in demand during peak hours; providing reliable and timely information for users to make more rational trip planning decisions; and providing a full array of modal choices as affordable and practical alternatives to road travel. If traffic demand is not managed, the performance of the transportation system will be adversely affected and the cost to sustain even current performance levels will be much higher than current spending in real terms. By managing demand on the transportation

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<sup>34</sup> The Federal-aid highway program was established as a federally assisted, State administered program. The products and services provided to the public as a result of the Federal funding are delivered by the State Departments of Transportation and other local governments. In 1991, legislation expanded the State's role in assuming the Secretary's authority for certain project level activities. Subsequent legislation continued to modify the delegation of authority to the States. In addition, Federal-aid eligibility has broadened over the years to incorporate a wide range of surface transportation programs. The resulting array of eligible activities reflects a variety of priorities; not all of which may serve national interests. Also, Title 23 places full discretion to the States to choose which projects will be federally funded.

system, the cost to maintain and keep the system in a good state of repair and performance is minimized in terms of monies and time. Further, the increased use of non-road transportation options has added social benefits including reduced environmental impact from single-occupancy driving and congestion-related idling, increased exercise regularity for users that opt adopt walking and biking into their travel regimen, and increased economies of scale in mass transit that can make reliable service more affordable. The principles embodied by livable communities such as improved land use planning go hand-in-hand with demand management as they make alternatives to driving more practical. A comprehensive strategy that promotes livability and reduces the demand for auto travel will significantly lower the long-run cost of transportation (and other infrastructure) both for household budgets and taxpayers.

#### TRANSIT RISK FACTORS

For transit, external risk factors are aging infrastructure in the older transit systems; lack of a common industry-wide standard for measuring state of good repair; inducing enough users to increase transit use relative to driving to achieve economies of scale; and the competing needs of reinvesting in current infrastructure (which primarily consists of roads) and at the same time expanding transit to help mitigate congestion. Analysis of national transit data indicates that roughly one-quarter of the Nation's bus and rail assets are in marginal or poor condition. Once this backlog is addressed, an estimated annual average investment of \$5.9 billion from Federal, State, and local sources would be required to maintain a state of good repair for the oldest and largest rail transit systems. About 44 percent of transit agencies' expenditures for capital investments are funded by the Federal government. The remaining funds come from State and local sources, including operating revenues. FTA will explore alternative approaches to financing capital investment backlogs and leveraging public funding. FTA will also work to establish objectives and criteria for public investments that allow for the comparison of benefits been maintaining existing systems and expansion needs as well as among investments in different modes of transportation. This will provide a framework for collecting data and metrics that can support better use of resources through a comprehensive asset management program at both the local and Federal levels.

#### RISK FACTORS FOR AIRPORT RUNWAYS

The metric used to monitor runway condition includes a method to gauge whether FAA's project priority strategy can maintain at least 93 percent of the Nation's runways in excellent, good, or fair condition. The FAA funds initial infrastructure development at all airports but funding for maintenance is limited to those airports that don't have sufficient revenue generators for periodic repairs— usually smaller airports (nonhub primary and nonprimary). Proper maintenance of runways can delay the need for major runway rehabilitation. If the current level of pavement maintenance support by the FAA diminishes, maintenance at some runways will suffer and maintaining the goal of 93 percent of runways in excellent, good, or fair condition will become more difficult.



## **ECONOMIC COMPETITIVENESS STRATEGIC GOAL**

***“Promote transportation policies and investments that bring lasting and equitable economic benefits to the Nation and its citizens.”***

### **OUTCOMES**

1. Maximum economic returns on transportation policies and investments
2. A competitive air transportation system responsive to consumer needs
3. U.S. transportation interests advanced in targeted markets around the world
4. Expanded opportunities for businesses in the transportation sector, especially small, women-owned and disadvantaged businesses

### **CHALLENGES AND STRATEGIES**

Over the next 40 years the U.S. population is expected to rise by 43 percent (from 307 million to 439 million), and the GDP is expected to almost triple (from \$14 trillion to \$41 trillion). To support this growth, we expect the demand for both freight and passenger transportation to increase by about two-and-a-half times by 2050. Since 1970, exports as a percentage of GDP have almost doubled, and imports have tripled. The U.S. manufacturing base is increasingly shifting to high-value, high-tech products whose manufacture integrates transportation into a just-in-time supply chain requiring efficient performance and consistent reliability.

Economic competitiveness means maximizing the contribution of the transportation system to economic growth while reinforcing our companion strategic goals. This requires a calculus of economic returns that includes valuations and returns for safety, livable communities, environmental sustainability, and stewardship of transportation assets. Our goal is to foster policies and investments that will increase the overall economic returns from the transportation system, serve both the traveling public and freight shipments, and bring long-lasting economic and social benefits to the Nation.

An efficient freight transportation system is critical to maintaining the competitiveness of our economy. In the past, the highly developed U.S. transportation system played a key role in allowing GDP per capita to grow faster in the U.S. than comparable rates abroad. But other countries have been increasing their investments in transportation infrastructure and closing the infrastructure gap between themselves and the U.S. Additional U.S. transportation infrastructure investment is needed, but it needs to be carefully targeted at places where it will have the greatest economic payoffs and help to achieve our other goals. We need to identify transportation infrastructure investments that are cost-effective, safe, and environmentally sustainable. Our future transportation system will also require a skilled and nimble workforce that can anticipate and solve transportation challenges and

meet future employer needs. DOT's University Transportation Centers (UTC) program supports the workforce of the future through research, education, and technology transfer activities at 60 universities throughout the country, all of which focus on transportation issues facing the Nation.

Expanding capacity and reducing costs in our aviation system will play an important role in improving the economic returns from our transportation system. In the decade between 1998 and 2008, total airline passenger traffic rose 13 percent in U.S. domestic markets and 47 percent in the international arena, despite the impacts of the September 11, 2001, terrorist attacks and the more recent global recession. Air transportation plays a key role in the growing tourism and hospitality sector of the economy and also serves business travelers who make the key business connections that allow economic activity to grow and expand. As domestic and world economies recover, U.S. airline passenger demand will increase and likely approach a growth rate of 3–4 percent annually.

Meeting the aviation needs of the American economy requires a competitively structured airline industry that is constantly striving to meet consumer needs. Domestic airfares fluctuate in response to fuel prices and overall economic demand, but have generally fallen due to strong competition within the industry. Overall, since 1995, air fares have fallen 25 percent in inflation-adjusted terms.

While transportation congestion currently imposes a relatively small cost on the overall economy (about 0.6 percent), the cost of congestion is growing faster than GDP and is expected to impose a larger proportionate cost in the future. While the costs of congestion have been checked by the effects of the 2007-2009 recession, the long-term increase in congestion is likely to resume as the economy recovers. The costs of congestion have risen at a rate of almost 7 percent per year over the past 25 years, more than double the growth rate of GDP. Reducing congestion in a way that also advances our other goals can produce significant returns to the U.S. economy.

Transportation services and equipment are among the Nation's most important exports, representing over 36 percent of services exports and nearly 15 percent of our exports of goods. The Nation is a net exporter of travel services, aircraft, maritime vessels, and railroad equipment and technology. U.S. trade and investment negotiations seek to open foreign markets to U.S. exports of goods and services and U.S. investment. DOT participates in these negotiations in order to open foreign markets to U.S. exports of transportation services and equipment and the investments of U.S. transportation firms. DOT also participates in international standards setting and harmonization activities in transportation, and engages in implementing programs that provide technical assistance for transportation capacity building to developing countries. By either direct or indirect means, these activities open foreign markets to U.S. exports of transportation goods and services.

Competition benefits the economy—the more vendors that are competing to provide these requirements to the transportation sector, the better the sector's needs will be served. DOT's program to encourage the use of small, women-owned, and disadvantaged businesses expands the field of competitors vying to meet the Nation's needs.

## STRATEGIES TO MAXIMIZE THE ECONOMIC RETURNS OF TRANSPORTATION POLICIES AND INVESTMENTS

The economy of the U.S. depends on freight transportation to link businesses with suppliers, markets, and consumers throughout the Nation and the world. Freight transportation connects population centers, economic activity, production, and consumption. The national transportation system's capacity to make these connections efficiently is essential to American businesses, households, and communities. Moreover, it is a competitive advantage of the U.S. economy and represents a key national interest.

The efficiency of freight movement in America today is challenged by growth in global and domestic demands that are outpacing the capacity of our Nation's surface transportation system. The result is decreased performance and reliability, a steady erosion of our economic competitiveness, and unwanted contributions to safety and environmental problems. The Administration is committed to improving the Nation's economic competitiveness and will exercise national leadership to do so. The need for a more focused Federal role in freight movement was clearly expressed in the report of the National Surface Transportation Policy and Revenue Study Commission<sup>35</sup> and was foreshadowed and subsequently championed by a multitude of trade groups and associations. The Nation needs a comprehensive national freight transportation strategy that bolsters economic competitiveness and balances that need with safety, livability, and environmental sustainability.

DOT has conducted extensive data collection and analysis on freight movement in the U.S. and across global supply chains. This analysis clearly shows the predominant corridors through which freight is moving; less than 30,000 miles of multi-modal corridors serve as the major trunk lines of our transportation system, each carrying at least 50 million tons per year. These corridors connect centers of economic activity throughout urban and rural America. Acknowledging the economic importance of efficiently moving freight shipments, the European Union implemented a corridor strategy through their Trans-European Transportation network. Canada and Mexico are also integrating this strategy into their policy, programs, and investment strategies. All U.S. modal interests<sup>36</sup> support a freight corridor strategy, as do cargo owners<sup>37</sup> and representatives of system owners and operators.<sup>38</sup>

DOT's national freight strategy has three key objectives: 1) improving the system performance, reliability, safety, and the environmental sustainability of our national freight network and the multi-modal freight corridors that connect major population centers with freight generators and international gateways; 2) targeting public freight investment and policies on strengthening U.S. economic competitiveness with a focus on domestic industries and businesses creating high-value jobs; and 3) promoting economic

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<sup>35</sup> *Transportation for Tomorrow: Report of the National Surface Transportation Policy and Revenue Study Commission*, December 2007.

<sup>36</sup> American Trucking Associations (ATA), Association of American Railroads (AAR) and American Association of Port Authorities (AAPA)

<sup>37</sup> National Industrial Transportation League (NITL) and the U.S. Chamber of Commerce

<sup>38</sup> American Association of State Highway and Transportation Officials (AASHTO)

opportunities for and reducing negative effects of freight facilities and operations on surrounding communities. To achieve these objectives, DOT will:

- Use a data-driven approach to identify the national freight network that connects economic activity and communities throughout urban and rural America and to identify the multi-modal freight corridors that connect major population centers, global gateways, and other major freight generators;
- Support public infrastructure investments on the national freight network and on multi-modal freight corridors, and encourage private sector infrastructure investments necessary to deliver integrated system improvements;
- Develop and implement a framework that enables multi-jurisdictional and multimodal freight transportation planning and investment;
- Advance the research, data collection and analysis, training, and education needed to support informed decisionmaking regarding freight transportation;
- Develop a set of performance indicators focused on strategic national infrastructure needs to inform future investment decisions;
- Advance operational and technological solutions that maximize the efficiency of existing infrastructure, and adopt performance management concepts that maintain and enhance the condition and performance of the national freight network;
- Enforce regulations that minimize risks of freight transportation to safety, reduce carbon footprints and other detriments to environmental sustainability posed by freight, and reduce negative proximity effects of freight facilities and operations on surrounding communities;
- Compare fuel, safety, and environmental benefits between and among modes and support a level playing field to encourage a more efficient use of transportation assets;
- Identify actions that transportation agencies can take to assist in making broadband service more widely available and develop necessary policies, guidance, and regulations that may be required to implement needed actions;
- Partner with the many freight system stakeholders to conduct technology and policy research towards solutions to America's freight transportation needs, through the National Cooperative Freight Research Program; and
- Develop, implement, and track a national transportation workforce development strategy to meet the demands of the rapidly changing 21<sup>st</sup> century transportation system.

While the 2007–2009 economic downturn has reduced immediate pressures on the freight transportation system, future growth will create new pressures. The long-term shift in economic activity to services may reduce traditional growth rates in tonnage to be moved, but will place greater demands on the transportation system for resiliency and reliability. Whether meeting the logistics needs of manufacturing, services, or American households, freight movement is essential to growing the economy and the jobs provided by the economy.

Freight moves across jurisdictional boundaries, and virtually all carriers and many transportation facilities are privately owned, with \$985 billion in equipment plus \$558 billion in private structures, compared with \$486 billion in transportation equipment plus \$2.4 trillion in highways owned by public agencies.<sup>39</sup> Freight railroad facilities and services are almost entirely private, while privately-owned trucks operate over public highways. Privately-owned air cargo services operate in public airways and at mostly public airports, and ships in the private sector operate on public waterways and at both public and private port facilities.

As a consequence of this mixed ownership and management, most solutions to freight problems require joint action by the public and private sectors. Financial, planning, and other institutional mechanisms for joint efforts by public agencies and private firms traditionally have been very limited, inhibiting effective measures to improve the performance and minimize the public costs of the freight transportation system.

The flow of freight, particularly long-haul freight, can have a significant impact on many of our communities, especially those located near our ports or major rail and highway corridors. All too often, communities throughout the Nation have struggled with the noise, negative environmental and public health impacts, and congestion that have been the unfortunate side effects of freight transportation during the 20<sup>th</sup> century. To improve the efficiency of freight movement and reduce its detrimental effects, DOT will:

- Promote new technologies and/or operating procedures that reduce air emissions and noise from freight movements while increasing the efficiency and operational spread of the system to improve freight services to small- and medium-size cities and towns;
- Work across jurisdictional boundaries to establish new partnerships between the public and private sectors to improve the overall efficiency of the freight transportation system;
- Develop a long-term National Rail Plan in collaboration with other modes that addresses the rail transportation needs of passengers and freight;
- Make targeted investments in capacity expansion of our national freight highway corridors to address bottlenecks that cannot be adequately addressed by operational improvements;
- Promote reduced highway congestion along key freight corridors through strategies that shift travel demand to other modes;
- Develop a National Freight Network that focuses investments on critical multi-modal freight infrastructure needed to improve goods movement across America and considers the reduction of the impact of freight transportation on neighboring communities;
- Work with DHS to ensure that their regulations on the marine and surface transportation systems facilitate the flow of commerce in a safe and secure environment;

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<sup>39</sup> Federal Highway Administration, *Freight Facts and Figures 2008*.

- Work with the States and industry to implement technology nationwide that will enable State and Federal motor carrier regulatory agencies to perform their regulatory functions while commercial motor vehicles operate at highway speeds. CMVs that comply with size, weight, and safety requirements could then move unimpeded on the network;
- Identify solutions to the congested and inefficient movement of freight through major metropolitan regions using a variety of technologies and operational approaches. We will develop national freight transportation systems, designed as effective multi-modal networks. Real time travel information technology funded by ITS research program will play a significant role in providing information on the performance of the transportation network for both passengers and freight, providing tools to optimize transportation system operation and seamlessly link the freight supply chain;
- Work with Federal, State, and local stakeholders to ensure the adequacy, efficiency and reliability of our land, sea and air international gateways; and
- Prioritize timely operations and maintenance projects for the Great Lakes, and the St. Lawrence Seaway and modernize the St. Lawrence Seaway's U.S. infrastructure assets as part of a decade-long Seaway Asset Renewal Program (ARP).

Because national economic competitiveness is such a compelling objective for transportation, we must ensure that investments address national needs for an efficient 21<sup>st</sup> century economy. There is a need to invest in the full range of surface transportation infrastructure modes—highways, transit, rail, and water—and to draw upon a wider range of sources of infrastructure finance to address those infrastructure investment needs. The Nation needs a flexible transportation financing system that can meet the needs of each of these modes, and that can provide intermodal connections, including to ports and railroads.

- DOT will work with the Congress to design a financing system that will support a robust program of investment in transportation. President Obama has proposed a “National Infrastructure Innovation and Finance Fund” (I-Fund) to provide a wide range of forms of financial support – grants, loans, loan guarantees, and access to tax-exempt funding – to address national infrastructure needs. The proposed I-Fund would enable an intermodal approach to funding the most compelling national needs and would have flexibility to choose projects with demonstrable merit from around the country.

#### AVIATION

In November 2009, Secretary LaHood held a forum on the “*Future of the U.S. Aviation Industry.*” The forum brought leaders from airlines, government, labor, manufacturing, academia, and the consumer and analyst communities together to begin a national dialogue on the health and future competitiveness of U.S. aviation. That discussion only began to scratch the surface of the changes we need to address, ranging from regulatory issues to structural changes within the aviation industry itself.

- DOT intends to form a Federal advisory committee to examine the U.S. aviation industry, its competitiveness, and its ability to address the evolving transportation needs, challenges, and opportunities of the global economy. The committee will be composed of stakeholders from across the industry. This approach will address today's

challenges as well as opportunities for growth and sustainability in the future. The new advisory committee will build on our efforts to keep the aviation industry moving forward as effectively and safely as possible.

DOT provides essential services to the Nation's aviation industry, which independent studies have estimated accounts for more than 12 million jobs and \$1.3 trillion in annual economic activity, (5.6 percent of GDP). The aviation sector will be an important factor in the Nation's economic recovery and future growth.<sup>40</sup>

DOT is committed to meeting new and growing demands for air transportation services through 2025 and beyond by transforming the National Airspace System through the NextGen programs. NextGen will change the way the air transportation system operates—reducing congestion, noise, and emissions, expanding capacity, and improving the passenger experience. NextGen is a highly complex, multilayered, long-term evolutionary process of developing and implementing new technologies and procedures needed to bring reliability, flexibility, and predictability to air transportation. To advance NextGen, DOT will work with the aviation industry to:

- Implement procedures with supporting infrastructure to increase the efficiency of individual flights, deliver increased capacity for high density operations, and maintain higher levels of capacity in low-visibility conditions;
- Evaluate existing airport capacity levels and set investment and infrastructure priorities and policies that enhance capacity where economically justified; and
- Meet the new and growing demands for air transportation services through 2025 through NextGen implementation.

DOT recognizes the need to identify and address sources of air transport delays and employs an integrated approach to maximize economic returns to improvements in aviation capacity by improving technology and air traffic control procedures and by expanding airport and airfield infrastructure when overall benefits exceed costs, including:

- Improving airspace access and modifying separation standards to increase capacity and safely allow more efficient use of congested airspace;
- Evaluating existing airport capacity levels and setting investment and infrastructure priorities that provide cost-beneficial enhancements to capacity;
- Monitoring and maintaining scheduled progress for Environmental Impact Statements on proposed airport capacity projects in metropolitan areas that will enhance environmental sustainability while reducing total system delays;
- Directing Airport Improvement Program funding to provide cost-beneficial reductions in capacity constraints and provide greater access to regional airports in the metropolitan areas that will have a beneficial impact on system delays; and
- Working with the aviation community to complete planning studies for greater capacity and congestion relief in the metropolitan areas that will generate economic returns benefits while reducing system delays.

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<sup>40</sup> The Economic Impact of Civil Aviation on the U.S. Economy, FAA, 2009.

#### AUTOMOBILE AND TRUCK CONGESTION

Automobile and truck congestion adversely affects our economy, our communities, and our quality of life. According to the “2009 Urban Mobility Report” prepared by the Texas Transportation Institute, traffic congestion continues to worsen in American cities of all sizes, creating an \$87 billion annual drain on the U.S. economy in the form of 4.2 billion lost hours resulting from travel delay and 2.8 billion gallons of wasted fuel. The report notes that congestion caused the average peak-period traveler to spend an extra 36 hours of travel time and consume an additional 24 gallons of fuel annually, amounting to a cost of \$757 per traveler. To reduce metropolitan area congestion, DOT will:

- Provide support for better transit services, increased transit capacity, and maintenance of existing transit infrastructure in a state of good repair;<sup>41</sup>
- Encourage adoption of operational policies to improve the efficiency of existing capacity such as road pricing that can (where reasonable alternatives to driving are available) provide incentives for users to shift non-essential travel to off-peak hours or seek alternatives to peak driving;
- Advocate increased ridesharing, flextime, parking demand management, carsharing and other demand management strategies; encourage more efficient use of our road and transit systems through Intelligent Transportation Systems; and better integrate transportation and traffic flow improvements; and
- Promote effective systems operational strategies to reduce the impact of congestion-causing incidents on transportation systems, including effective traffic incident management, improved traveler and traffic information systems, arterial and corridor management, and technologies which manage the safety and mobility impacts of work zones.

#### INTERNATIONAL TRADE

Global trade is critical to the U.S. economy and is supported by our seaports through which approximately 78 percent of goods by volume and 48 percent of goods by value are traded with the rest of the world. The maritime system, made up of 25,000 miles of inland, intracoastal, and coastal waterways, moves commerce throughout the Nation, bringing goods, such as clothing, electronics, and food to U.S. consumers. As these goods arrive, they are then distributed by water, rail, and truck to warehouses, retailers, and consumers. The country’s marine transportation system is our entry point to the world’s supply chain and inventory delivery system. Conversely, U.S. farmers and manufacturers rely on the same network to export their goods to locations worldwide. The maritime system employs thousands of Americans on vessels, in ports, at shipyards, and in other supporting industries. The overall efficiency of the system is essential to the Nation’s economic growth potential. As a result, any disruption in our maritime transportation system could have a costly impact on the U.S. economy.

Ports are key components of the Nation’s intermodal transportation system, serving as the gateway for the import and export of goods in the global economy. Just as DOT is the steward for ensuring that the interstate highway system is in a state of good repair, DOT

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<sup>41</sup> Additional details are provided under the State of Good Repair Strategic Goal.



must also ensure that access into and out of our ports and marine facilities can meet our economic and security needs.

The maritime system is a shared responsibility. Federal, State, local, and private sector entities all provide input to the condition and operation of existing facilities. To remain competitive in a global economy, the Nation's maritime network will require both additional technical assistance and incentives to improve efficiency and maximize the use of existing facilities; and the associated costs are not insignificant. For example, public ports now spend more than \$2.1 billion annually on capital improvement projects just to keep pace with their present infrastructure needs. As the world-wide recession ends and trade becomes an increasing share of GDP, it is imperative that DOT work to position the U.S. maritime system to transport U.S. goods in an efficient, competitive, secure, and environmentally sustainable manner. The U.S. will need sufficient maritime capacity to meet current and projected import and export trade, as well as movement and storage of internally generated consumer goods and bulk materials. Transportation system planners must also be prepared to respond to changing trade patterns necessitated by the widening of the Panama Canal and the potential for the development of an Arctic transportation corridor. To address these challenges, DOT will:

- Focus Federal investments to improve the linkages between our ports and the rail and highways systems, particularly on-dock, rail, and intermodal connectors immediately outside our ports;
- Conduct outreach and forums with industry stakeholders to seek solutions to our maritime system challenges;
- Prepare an inventory of existing marine facilities to include acreage, storage capacity, berthing space, and cargo equipment; and
- Develop a set of performance indicators to focus on strategic national infrastructure needs on which to base funding decisions.

STRATEGIES TO FOSTER A COMPETITIVE AIR TRANSPORTATION SYSTEM THAT IS RESPONSIVE TO CONSUMER NEEDS

A key mission of the Department is to negotiate liberalized bilateral aviation agreements that result in increased air service opportunities and lower fares for consumers. These negotiations require DOT, in cooperation with the Department of State, to conduct formal international meetings with foreign government counterparts with the goal of achieving less restrictive agreements and ultimately, "open skies" agreements.

To promote an international and domestic air transportation system that offers consumers competitive air service responsive to their traveling and shipping needs, DOT swiftly provides authority to airlines to make use of available opportunities. In addition, we stay vigilant against unfair competitive practices that impair our airlines' ability to make full use of U.S. rights. To foster a competitive air transportation system, DOT will:

- Work with our trading partners to seek further liberalization of international transportation markets through negotiations and other means;

- Judiciously review and efficiently issue decisions on air carrier requests for economic authority; and
- Exercise its regulatory powers to redress unfair or discriminatory practices by foreign governments or carriers against U.S. airlines to ensure that the traveling and shipping public enjoys the benefits that derive from a free and fair marketplace.

Long-term increases in the number of people traveling by air each year and other changes in the airline industry underscore the need for DOT to remain vigilant in protecting the rights of air travel consumers. Accordingly, DOT will:

- Vigorously enforce Federal law protecting air travelers and, on a monthly basis, publish the “Air Travel Consumer Report,” which provides important information for consumers to use when making decisions about air travel;
- Investigate and resolve civil rights-related complaints made by air travelers in a timely manner;
- Expand consumer protections for air travelers when appropriate; and
- Protect the traveling public by ensuring that air carriers meet the requirements for obtaining and retaining authorization from DOT to engage in air transportation.

#### STRATEGIES TO ADVANCE U.S. TRANSPORTATION-RELATED ECONOMIC INTERESTS IN TARGETED MARKETS AROUND THE WORLD

U.S. transportation interests do not stop at our borders. U.S. international activities—including economic, strategic, and foreign assistance—have burgeoned over the past decade. In the economic arena, import and export activity is a vital part of U.S. economic health, and access to efficient transportation systems both inside and outside the U.S. strengthens international trade and helps make our products and services competitive. In the strategic arena, the Administration sets diplomatic or strategic priorities such as in Iraq or Afghanistan that may require assistance with their transportation systems. In the foreign assistance arena, U.S. developmental programs<sup>42</sup> increasingly seek transport technical assistance to achieve their objectives.

One of DOT’s strongest core competencies is to set standards for both the manufacture and operation of transportation products. American transport manufacturers and service providers rely on access to foreign markets through liberalized entry/operational rules and compatible technical standards. DOT has expertise to exert extensive positive influence over international transportation development as well as to heighten U.S. competitiveness. To advance U.S. transportation-related economic, strategic, and foreign assistance interests, DOT will:

- Provide technical assistance, implement technology exchange, encourage collaboration and capacity building, and identify opportunities to share resources among key international partners;

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<sup>42</sup> e.g., U.S. Agency for International Development and the U.S. Trade and Development Agency

- Advance U.S. foreign policy objectives by participating in the global trade agenda and by establishing transportation reconstruction and stabilization initiatives and cooperative relationships with emerging economies; and
- Advance U.S. transportation policy and advocate worldwide adoption of harmonized standards and global technical regulations (GTR) through participation in bilateral and regional forums or international organizations at the ministerial and working levels.

**STRATEGIES TO EXPAND OPPORTUNITIES FOR BUSINESSES IN THE TRANSPORTATION SECTOR, ESPECIALLY SMALL, WOMEN-OWNED, AND DISADVANTAGED BUSINESSES**

Expanded opportunities for all businesses, especially small, women-owned, and disadvantaged businesses, serve the economic interests of the U.S., both nationally and globally, by making more productive use of the resources represented by an underused group of small disadvantaged businesses. Small businesses routinely develop, manufacture, and distribute quality products and services, but continue to face significant hurdles participating in procurement opportunities with the Federal Government and others. To give these entrepreneurs a fair opportunity to compete, Congress and the Administration have established procurement goals for the Federal Government. In turn, each DOT Operating Administration (OA) develops targets consistent with legislative mandates and anticipated contracting and subcontracting opportunities. To expand these opportunities, DOT will:

- Establish annual procurement goals for using women-owned, and small and disadvantaged businesses, based on the OA's historical achievements, legal authority, potential contracting opportunities, and availability of potential suppliers;
- Increase participation in all stages of DOT's Small Business Innovation Research (SBIR) program.
- Ensure that each OA strives to meet the goals by developing acquisition strategies consistent with established Federal acquisition guidelines; and
- Conduct extensive outreach to the disadvantaged business community, work closely with each OA, and monitor performance through the Federal Procurement Data System.

**RESOURCES**

The human resources, programs, capital assets, information technology and other resources described in DOT's Annual Performance Budgets are needed to execute our Economic Competitiveness strategies and achieve results. The schedule for executing the strategies extends from fiscal year 2010 through fiscal year 2015.

**PERFORMANCE MEASURES**

Figure 5 presents the relationship between the Economic Competitiveness outcomes we will achieve in as well as the performance measures we propose to use to track our progress and evaluate results.

**FIGURE 5. ECONOMIC COMPETITIVENESS OUTCOMES AND PROPOSED PERFORMANCE MEASURES**

OUTCOMES	PROPOSED PERFORMANCE MEASURES
<p>1. Maximum economic returns on transportation policies and investments</p>	<ul style="list-style-type: none"> <li>- Maintain the U.S. St. Lawrence Seaway system and lock availability at 99 percent. SLSDC</li> <li>- Increase travel time reliability in freight significant corridors. FHWA</li> <li>- Increase percent of population with access to 511. FHWA</li> <li>- Increase travel time reliability in urban areas including:               <ul style="list-style-type: none"> <li>Hours of congested travel</li> <li>Planning time index</li> <li>Travel time index. FHWA</li> </ul> </li> <li><u>HSR - FRA High Priority Performance Goal</u> Establish High Speed Rail Capability. By 2011, obligate 100 percent of funds to grantees who have achieved final design.</li> <li>- Improved performance of the Rail Freight Line Haul Speed. FRA</li> <li>- Achieve an average daily airport capacity for the 35 OEP airports of 103,068 arrivals and departures per day by FY 2011 and maintain through FY 2014. FAA</li> <li>- Maintain operational availability of the NAS at 99.7 percent. FAA</li> <li>- Increase the percent of major roadways with near real-time transportation information available. RITA</li> <li>- Percent of leveraging (i.e., contributions from State, local, private and non-DOT Federal sources) of the total-as-built for Transportation Investment Generating Economic Recovery (TIGER) projects. OST/P with FHWA, FTA, FRA, MARAD.</li> <li>- Report in 2012 on the feasibility of developing TIGER project performance measures for usage as a proxy for economic return on TIGER project investments. OST/P with FHWA, FTA, FRA, MARAD.</li> </ul>

**FIGURE 5. ECONOMIC COMPETITIVENESS OUTCOMES AND PROPOSED PERFORMANCE MEASURES (CONTINUED)**

OUTCOMES	PROPOSED PERFORMANCE MEASURES
2. A competitive air transportation system responsive to consumer needs	<ul style="list-style-type: none"> <li>- Increase reliability and on-time performance of scheduled carriers. Achieve a NAS on-time arrival rate of 88.0 percent at the 35 OEP airports and maintain through FY 2013. FAA</li> <li>- Increase the annual service volume of the 35 busiest airports by at least 1 percent annually, measured as a 5 year moving average. FAA</li> <li>- Review applications, and efficiently issue decisions concerning, new entrant air carriers and currently operating air carriers to ensure that they meet the requisite standards for obtaining and retaining certificates of economic authority. OST/X</li> </ul>
3. U.S. transportation interests advanced in targeted markets around the world	<ul style="list-style-type: none"> <li>- Advance DOT goals with foreign governments. OST/X</li> <li>- Increase technology transfer and capacity building programs. OST/X</li> <li>- Conduct international negotiations to remove market distorting barriers to trade in transportation. OST/X</li> <li>- Reach new or expanded bilateral and multilateral agreements. OST/X</li> <li>- Expand use of NextGen concepts and systems to other countries. FAA</li> <li>- Through international agreements, work to coordinate vehicle communication standards to support V2V and V2I safety applications across all vehicle manufacturers. RITA</li> </ul>
4. Expanded opportunities for businesses in the transportation sector, especially small, women-owned and disadvantaged businesses	<ul style="list-style-type: none"> <li>- Increase percent of total dollar value of DOT direct contracts awarded to women owned businesses. OSDBU</li> <li>- Increase percent of total dollar value of DOT direct contracts awarded to small, disadvantaged businesses. OSDBU</li> </ul>

**EXTERNAL RISK FACTORS**

A significant factor that could affect achievement of DOT’s Economic Competitiveness strategic goal is the lack of diverse, sustainable funding for surface transportation and aviation programs. Please refer to the full discussion of sustainable funding in the External Risk Factors section of the Safety goal.

#### THE U.S. ECONOMY

In addition to the need for sustainable funding, the U.S. economy will have an effect upon our ability to achieve our Economic Competitiveness goal. Cyclical and long-term changes in economic activity have a strong impact on discretionary personal travel and shipment of goods, driving demand for transportation infrastructure and services. For-hire transportation activity, including both freight ton miles and passenger miles, are highly correlated with stages of the business cycle, as documented in “*BTS Technical Report: Transportation Services Index and the Economy.*”<sup>43</sup>

#### LACK OF FREIGHT TRANSPORTATION DATA

Better information on freight flows is a factor that will improve our ability to achieve our economic competitiveness goal. The outcome-oriented, performance-based approach to transportation investment that we have emphasized relies on good freight transportation data to make possible the economic analysis of the benefits of freight transportation projects. At present there are major gaps in freight data availability. For example, imports and exports are recorded in the Journal of Commerce’s PIERS (Port Import/Export Recording Service) database, but inland movements of imports are not tracked separately. Data are lacking on many truck movements within metropolitan areas. Records of freight moved by rail in intermodal service often identify commodities as “FAK” (freight, all kinds) without further detail. The Commodity Flow Survey, on which we rely for data on freight flows, doesn’t cover some categories of freight, and has too small a sample size to provide detailed commodity-specific data for many metropolitan areas. Without good data on freight movements, it is difficult to distinguish good freight projects from bad ones.

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<sup>43</sup> BTS TR-002, December 2007.

## LIVABLE COMMUNITIES STRATEGIC GOAL

***“Foster livable communities through place-based policies and investments that increase transportation choices and access to transportation services.”***

### OUTCOMES

1. Increased access to convenient and affordable transportation choices
2. Improved public transit experience
3. Improved networks that accommodate pedestrians and bicycles
4. Improved access to transportation for special needs populations and individuals with disabilities

### CHALLENGES AND STRATEGIES

President Obama has made place-based policy a key component of his domestic agenda and has challenged all Federal agencies to coordinate and innovate around this goal in an unprecedented way. Fostering livable communities – places where transportation, housing and commercial development investments have been coordinated so that people have access to adequate, affordable, and environmentally sustainable travel options – is a transformational policy shift for DOT. The outcomes or results we will strive to achieve include increased access to convenient, affordable transportation choices, improvements in the public transit experience, provision of additional pedestrian and bicycle networks, and improved access to transportation for special needs populations and individuals with disabilities. Achieving these outcomes will lead to lower household expenditures for transportation, currently 17 percent,<sup>44</sup> and affordable connections to jobs and other amenities.

U.S. transportation spending over the last 50 years often has been poorly coordinated with other infrastructure investments such as housing and commercial development. This has contributed to the prevalence of low-density, scattered, auto-dependent communities and disinvestment in many of our Nation’s core urban centers. This trend was amplified by single-use zoning that separated housing from shopping, work, and schools. Such zoning emphasized wide streets, ample off-street parking, and large front and side yard setbacks. Federal programs for road construction also promoted broad, high-speed roadways even in quiet residential communities.

Such development patterns have provided many American families of all income levels with unprecedented choices in where they can live and the ability to own a car and a single-family home. In the 1950s and 1960s, these communities still tended to be walkable

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<sup>44</sup> U.S. Department of Labor, Bureau of Labor Statistics, Consumer Expenditure Survey, 2007 and personal communication with U.S. Department of Transportation, Bureau of Transportation Statistics, November 2008.

and located near the urban core. But over time, more far-flung neighborhoods were built – often without sidewalks – and transit service was cut back or dismantled completely. The United States’ heavy reliance on car-dependent, dispersed development is not without costs.<sup>45</sup> This kind of development is energy-intensive and contributes to a dependence on fossil fuels and a tendency toward high carbon-emissions; it has been correlated with increasing rates of obesity in the U.S. and higher transportation costs for American families.<sup>46</sup>

The average American adult between the ages of 25 and 54 drives over 12,700 miles per year, spending the equivalent of approximately one month each year in the car.<sup>47</sup> The average American household spends \$8,220 per year to buy, maintain, and operate personal automobiles.<sup>48</sup>

Alternatives to auto travel are scarce in many communities. Fewer than one in 20 households are located within a half-mile of rail transit<sup>49</sup> and only 53 percent of Americans have access to any form of public transportation service.<sup>50</sup> Health experts believe that our auto-dependent development patterns may also contribute to a host of health problems by making walking and biking dangerous in some residential neighborhoods.<sup>51</sup> For example, nearly one-third of Americans live in neighborhoods without sidewalks.<sup>52</sup> An increase in the number of communities built without sidewalks has been correlated with a decline in the percentage of American children who walk or bike to school. In 1969, 42 percent of children 5 to 18 years of age walked or bicycled to school. In contrast in 2001, only 16

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<sup>45</sup> Robert W. Burchell, et al. “The Costs of Sprawl—Revisited.” Transportation Research Board. (1998-2000)  
Robert W. Burchell, et al. “The Costs of Sprawl—2000.” Transportation Research Board. 2002.  
Ken Snyder and Lori Bird. “Paying the Costs of Sprawl: Using Fair-Share Costing to Control Sprawl.” U.S. Department of Energy’s Center of Excellence for Sustainable Development. 1998.

<sup>46</sup> Lopez-Zetina, Javier, Howard Lee, and Robert Friis. “The link between obesity and the built environment. Evidence from an ecological analysis of obesity and vehicle miles of travel in California.” *Health & Place* 12.4 (2006): 656-664. Web. 22 Jan 2010. <doi:10.1016/j.healthplace.2005.09.001 >.

Goldberg, David, Lawrence Frank, Barbara McCann, Jim Chapman, and Sarah Kavage. NEW DATA FOR A NEW ERA: A Summary of the SMARTRAQ Findings Linking Land Use, Transportation, Air Quality and Health in the Atlanta Region, January 2007.

Besser, Lilah, and Andrew Dannenberg. “Walking to Public Transit: Steps to Help Meet Physical Activity Recommendations.” *American Journal of Preventive Medicine*, 29.4 (2005): 273-280.

Ewing, R., Schmid, T. L. et al. (2003). Relationship between urban sprawl and physical activity, obesity and morbidity. *American Journal of Health Promotion* 18(1): 47-57.

<sup>47</sup> Bureau of Transportation Statistics. *Highlights of the 2001 National Household Travel Survey*. 2001.

<sup>48</sup> Consumer Expenditures in 2007, Bureau of Labor Statistics

<sup>49</sup> Center for Transit Oriented Development and Federal Transit Administration. “National Transit Oriented Development GIS Database.” 2010.

<sup>50</sup> Center for Urban Transportation Research. *Public Transit in America: Analysis of Access Using the 2001 National Household Travel Survey*. 2007.

<sup>51</sup> Pucher, John, and Lewis Dijkstra. “Promoting Safe Walking and Cycling to Improve Public Health: Lessons from The Netherlands and Germany.” *American Journal of Public Health*. 93.9.2003.

Goldberg, David, Lawrence Frank, Barbara McCann, Jim Chapman, and Sarah Kavage. NEW DATA FOR A NEW ERA: A Summary of the SMARTRAQ Findings Linking Land Use, Transportation, Air Quality and Health in the Atlanta Region, January 2007.

Ewing, R., Schmid, T. L. et al. (2003). Relationship between urban sprawl and physical activity, obesity and morbidity. *American Journal of Health Promotion* 18(1): 47-57.

<sup>52</sup> Sidewalks Promote Walking.” Bureau of Transportation Statistics, Issue Brief 12, December 2004.  
“National Complete Streets Coalition.” *Fact Sheets: Changing Travel Patterns*. 2009. National Complete Streets Coalition, Web. <<http://www.completestreets.org/complete-streets-fundamentals/factsheets/change-travel-patterns/>>.



percent walked or bicycled to school<sup>53</sup> which has serious implications for the rising trend in childhood obesity.<sup>54</sup>

A 2003 study on the health effects of sprawl found that people living in more compact, walkable counties are likely to walk more, weigh less, and are less likely to suffer from hypertension than people living in more sprawling counties.<sup>55</sup> A 2004 study published in the journal *Public Health* was the first to examine the relationship between sprawl and a wider spectrum of chronic illnesses.<sup>56</sup> This study corroborated the finding that suggests that the physical attributes of where a person lives can encourage or discourage active living and, therefore, have an impact on health.

Roughly 40 percent of all trips in metropolitan areas are two-miles or less in length. These are trips that could be taken on foot or bicycle but are still taken primarily by car due at least in part to disjointed land use patterns, poor infrastructure design, and limited connectivity.

A consumer research study found that over half of the Millennial generation – people born from the mid-1970s to the 1990s – felt that an easy walk to stores was an extremely important determinant in housing and neighborhood choice and over two-thirds of them felt that living in a walkable community was important.<sup>57</sup> The American Association of Retired People (AARP) reported that 71 percent of older households want to live within walking distance of transit. In more livable, walkable communities, older Americans will be more able to age in place because, even if they have to curtail their driving, they will still have access to medical services, shopping family, friends and social amenities.

The traditional nuclear family that made up 40 percent of households in 1970 now comprises less than 24 percent of households.<sup>58</sup> This is an important demographic trend that could have a profound effect on the demand for transit because the demographic groups growing most quickly – older, non-family, non-white households – have

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53 U.S. Centers for Disease Control and Prevention. Kids Walk-to-School: Then and Now—Barrier and Solutions. Available: [www.cdc.gov/nccdphp/dnpa/kidswalk/then\\_and\\_now.htm](http://www.cdc.gov/nccdphp/dnpa/kidswalk/then_and_now.htm) Accessed: January 17, 2006.

54 Cooper, Ashley, Angie Page, Lucy Foster, and Dina Qahwaji. "Commuting to school: Are children who walk more physically active? ." *American Journal of Preventive Medicine* 25.4 (2003): 273-276.

Childhood Obesity: Trends and Potential Causes, by Patricia M. Anderson and Kristin F. Butcher © 2006 [Princeton University](http://www.princeton.edu).

The Role of Built Environments in Physical Activity, Eating, and Obesity in Childhood, by James F. Sallis and Karen Glanz © 2006 [Princeton University](http://www.princeton.edu).

Ewing, R., Schmid, T. L. et al. (2003). Relationship between urban sprawl and physical activity, obesity and morbidity. *American Journal of Health Promotion* 18(1): 47-57.

Watson M, Dannenberg AL. Investment in Safe Routes to School projects: public health benefits for the larger community. *Prev Chronic Dis* 2008;5(3).

55 Measuring the Health Effects of Sprawl A National Analysis of Physical Activity, Obesity and Chronic Disease, Smart Growth America, Surface Transportation Policy Project, September 2003

56 Ewing, Reid, Tom Schmid, Richard Killingsworth, Amy Zlot, and Stephen Raudenbush. "Relationship Between Urban Sprawl and Physical Activity, Obesity, and Morbidity ." *Urban Ecology*. (2008):

57 Ducker, Adam. "Generation Y and the MPC: Oil and Water or the Next Big Wave?." *ULI MPC Conference*. RCLCO consumer research: 2008. Web. 25 Jan 2010.

Reconnecting America's Center for Transit Oriented Development. *HIDDEN IN PLAIN SIGHT: Capturing The Demand For Housing Near Transit*. Washington, D.C. 2004.

58 United States Census Bureau. *America's Families and Living Arrangements: 2003*. Washington, DC: , 2004. <http://www.census.gov/prod/2004pubs/p20-553.pdf>

historically used transit in higher numbers.<sup>59</sup> However, due to zoning codes and disjointed transportation, housing, and economic development policies, meeting market demand for vibrant, walkable neighborhoods is often difficult or impossible.

Creating livable communities is just as important to residents of rural areas as it is to residents of urban and suburban areas. Rural town centers have experienced disinvestment in much the same way as urban core areas and many rural towns are fighting to attract local commercial development through the revitalization of town centers. Rural residents generally must travel greater distances to jobs and services than their urban counterparts and can suffer from greater isolation, especially if they cannot drive.

#### LIVABLE COMMUNITIES – A COORDINATED APPROACH

Building livable communities involves far more than transportation and DOT has therefore begun to collaborate across lines of authority to leverage related Federal investments. For instance, integrating transportation planning with housing and community development planning will not only improve connectivity and influence how people choose to travel, but will also enable communities to consider the design of transportation and land use simultaneously.

DOT, the Department of Housing and Urban Development (HUD) and the Environmental Protection Agency (EPA) have formed the Partnership for Sustainable Communities to promote sustainable development and more livable communities. The Partnership is identifying barriers to coordinating transportation, housing and environmental programs and investments. If these barriers are based on Federal administrative rules or regulation, we expect to propose modifications to lift them. Where they are legislative, we will work with Congress to address them.

Through the Partnership, the three Federal agencies coordinate existing and new programs. DOT and HUD provide staff and resources to support EPA's Smart Growth Technical Assistance Program. DOT also collaborates with EPA in the administration of HUD's Sustainable Communities Planning Grants, designed to fund regional, coordinated planning. In addition, HUD and EPA provide technical assistance in the evaluation of DOT's TIGER Discretionary Grant applications, for which livability and sustainability are two key criteria.<sup>60</sup>

This coordinated approach can save taxpayer dollars. Using U.S. Census Bureau data, many studies estimate that compact, mixed-use development can reduce infrastructure costs by 11 percent or more.<sup>61</sup> Salt Lake City's Quality Growth Strategy – in which

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<sup>59</sup> Reconnecting America and Center for Transit Oriented Development. "TOD 101." *Why Transit Oriented Development and Why Now?*. 2008.

<sup>60</sup> The American Recovery and Reinvestment Act of 2009 appropriated \$1.5 billion of discretionary grant funds (TIGER Discretionary Grants) for capital investments in surface transportation infrastructure to be awarded by the U.S. Department of Transportation. These TIGER Discretionary Grants were awarded on a competitive basis to projects that have a significant impact on the Nation, a metropolitan area, or a region."

<sup>61</sup> Winkelman, Stave, Allison Bishins, and Chuck Kooshian. Center for Clean Air Policy. *Cost-Effective GHG Reductions through Smart Growth & Improved Transportation Choices*. Washington, DC: CCAP, 2009.

Burchell, Robert, and others. 2002. *Costs of Sprawl—2000*. Washington: National Academy Press.

Muro, Mark, and Robert Puentes. Brookings Institution Center on Urban and Metropolitan Policy. *Investing In A Better Future: A Review Of The Fiscal And Competitive Advantages Of Smarter Growth Development Patterns* Mark Muro Robert Puentes A Discussion Paper Prepared by The Brookings Institution Center on Urban and Metropolitan Policy March 2004. Washington, DC. 2004.

infrastructure and development investments were focused on existing communities – is predicted to save the region \$4.5 billion in infrastructure costs by 2020, compared to traditional development patterns.<sup>62</sup>

In addition, communities with coordinated infrastructure investments are economically resilient. Because their residents can utilize alternative transportation alternatives to driving, they are better able to adjust to higher gas prices than those living in car-dependent areas. To achieve our Livable Communities agenda, DOT will:

- Establish an office within the Office of the Secretary to promote coordination of livability and sustainability in Federal infrastructure policy;
- Give communities the tools and technical assistance they need so that they can develop the capacity to assess their transportation systems, plan for needed improvements, and integrate transportation and other community needs;
- Work through the Partnership for Sustainable Communities to develop broad, universal performance measures that can be used to track livability across the Nation as well as performance measures that capture local circumstances; and
- Advocate for more robust State and local planning efforts, create incentives for investments that demonstrate the greatest enhancement of community livability based on performance measures, and focus transportation spending in a way that supports and capitalizes on other infrastructure investment, both public and private.

#### STRATEGIES TO INCREASE ACCESS TO CONVENIENT, AFFORDABLE TRANSPORTATION CHOICES

Federal transportation programs have not been designed to consider the impact of transportation investments on land use, housing affordability, and additional infrastructure needs. To lower household spending for transportation, improve access to transportation options, and reduce the demand for limited government infrastructure dollars, DOT will:

- Modify its transportation planning framework to promote projects where transportation investments are integrated with local land use, housing, and other development decisionmaking;
- Utilize the interagency Partnership for Sustainable Communities to improve coordination between DOT programs and those at HUD and EPA, including publishing a *Best Practices Manual* for promoting the development of mixed-income housing near transit;
- Create a database which catalogues land near transit stations that is eligible for development to encourage local governments and Metropolitan Planning Organizations (MPO) to locate new developments in areas near transit;
- Work with State, local, and regional governments and agencies to expand the role of transportation alternatives in community development;
- Promote transportation investments that strategically improve community design and function by providing an array of transportation options;

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<sup>62</sup> Envision Utah, *Urban Planning Tools for Quality Growth*. Salt Lake City, Utah: Envision Utah, October 2000.

- Promote the development of a seamless road network in terms of both design and operation for improved traffic flow and better walkability;
- Increase the ridership, capacity, and reach of public transportation to better meet growing travel demand and improve transit connectivity to intercity (and high-speed) rail, airports, roadways, and walkways;
- Ensure that, where practical, more rural areas are provided reliable means of quality public transportation services to connect them to activity, service, employment, and transportation centers now accessible only by automobile; and
- Promote market-based strategies and information technologies to manage demand on congested roadways.

#### STRATEGIES FOR IMPROVED PUBLIC TRANSIT EXPERIENCE

As part of the larger transportation system, a network of highly interconnected regional, urban, local, and rural public transportation services will have a vital role in providing mobility and access, ensuring that people can move conveniently and efficiently.

Accordingly, DOT will pursue policies to:

- Increase the capacity and reach of public transportation, improve the quality of service, and improve travel time reliability including greater deployment of advanced technologies and significant gains in the state of good repair of transit infrastructure;
- Improve efficiency of public transportation access and connectivity to intercity (and high-speed) rail, airports, roadways, and walkways to reduce and make reliable passenger travel times and increase the benefits of transportation investments; and
- Continue ITS program research in the provision of real-time multi-modal travel information for travelers and program managers.

#### STRATEGIES FOR IMPROVING NETWORKS THAT ACCOMMODATE PEDESTRIANS AND BICYCLES SAFELY

According to the most recent National Household Travel Survey, about 11.6 percent of all trips are made by walking or bicycling an increase of 4.4 percent from 2001 and 6.4 percent from 1995. But approximately one-third of Americans live in communities without sidewalks or bike lanes<sup>63</sup> and poor provision for pedestrian and bicycle traffic can impact safety. Indeed, fatality rates of pedestrians and bicyclists have reached about 13 percent of roadway fatalities.<sup>64</sup>

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<sup>63</sup> Sidewalks Promote Walking." Bureau of Transportation Statistics, Issue Brief 12, December 2004

"National Complete Streets Coalition." *Fact Sheets: Changing Travel Patterns*. 2009. National Complete Streets Coalition, Web. <<http://www.completestreets.org/complete-streets-fundamentals/factsheets/change-travel-patterns/>>.

<sup>64</sup> B.J. Campbell, et al. (2004). *A Review of Pedestrian Safety Research in the United States and Abroad*, Federal Highway Administration Publication # FHWA-RD-03-042.

"Walking Info: Pedestrian and Bicycle Information Center." *Sidewalks and Walkways*. 2009. Federal Highways Administration, Web. <<http://www.walkinginfo.org/engineering/roadway-sidewalks.cfm>>.

*National Survey of Pedestrian and Bicyclist Attitudes & Behaviors*, Bureau of Transportation Statistics and National Highway

Traffic Safety Administration, U.S. Department of Transportation, Washington, D.C., 2002.

Heinonen, Justin, and John Eck. *Pedestrian Injuries and Fatalities*. Washington, DC. 2007.

DOT estimates that Federal funds spent for walking and bicycling facilities were roughly \$550 million each in fiscal years 2007 and 2008 but these efforts are often retrofits to roadway designs that fail to consider the needs of non-motorized travelers. Although walking and bicycling account for almost 12 percent of trips and about 13 percent of roadway fatalities, these modes receive less than 2 percent of annual Federal Aid Highway funds. To increase safe, convenient, and attractive facilities for non-motorists DOT will:

- Support the implementation of Pedestrian and Bicycle Safety Assessments which analyze current engineering treatments and facilities, enforcement strategies, and education programs. The assessment can be used to assist with long-range planning and resource allocation; generate political support for program improvement; and serve as a benchmark against which to measure future improvements;
- Modify DOT programs to better support the planning and building of interconnected walking and bicycling networks as well as the connections of those networks to local transit systems;
- Develop Geographic Information System (GIS) based methods to estimate non-motorized travel; evaluate change in VMT per capita, reduced planned transportation greenhouse gas (GHG) emissions nationally, and begin to actively trace and report travel time reliability in the 40 largest metropolitan areas;
- Encourage States and tribal governments to inventory their walking and bicycling facilities; and
- Maintain a web-based clearinghouse on walking and bicycling to provide best practices on walking and bicycling design, planning, safety, ways to encourage using these modes for short trips and methods for evaluating the walkability of a community.

#### STRATEGIES FOR IMPROVED ACCESS TO TRANSPORTATION FOR SPECIAL NEEDS POPULATIONS AND INDIVIDUALS WITH DISABILITIES

Under the Chairmanship of the Secretary of Transportation, DOT leads the Federal Coordinating Council on Access and Mobility (CCAM), in support of the *United We Ride* (UWR) initiative. UWR is a Federal interagency initiative to coordinate over 60 federally-assisted transportation programs aimed at improving the availability, quality, and efficient delivery of transportation services for older adults, people with disabilities, and individuals with lower incomes. UWR works through FTA staff, other Federal agencies, State and local organizations, and non-profits to provide assistance in obtaining Federal grants in support of the transportation-disadvantaged. To increase access to transportation for special needs populations and individuals with disabilities, DOT will continue to support the CCAM mandates and:

- Support locally-coordinated human service transportation planning processes and advocate for a single point of access that links human services with transportation providers to address the special mobility needs of persons with disabilities, older adults, low-income persons and others without ready access to automobiles;
- Conduct research through DOT's ITS program to develop transportation management center capabilities for automated scheduling, mapping, routing, and dispatching to link

human services transportation providers for easier access, more efficient, and cost beneficial services; and

- Enhance technical assistance and training activities to improve the operations of local public and non-profit community transportation providers.

#### RESOURCES

The human resources, programs, capital assets, information technology and other resources described in DOT's Annual Performance Budgets are designed to achieve our outcomes for fostering livable communities. The schedule for executing our Livable Communities strategies extends from fiscal year 2010 through fiscal year 2015.

**PERFORMANCE MEASURES**

Figure 6 presents the relationship between our Livable Communities outcomes and the performance measures we propose to track our progress and evaluate results.

**FIGURE 6. LIVABLE COMMUNITIES OUTCOMES AND PROPOSED PERFORMANCE MEASURES**

OUTCOMES	PROPOSED PERFORMANCE MEASURES
1. Increased access to convenient and affordable transportation choices	<ul style="list-style-type: none"> <li>- Transit Ridership - Average percent change in transit boardings per transit market (150 largest transit agencies). FTA</li> <li>- Increase in transit trips in non-urbanized areas. FTA</li> <li>- Increase in transit seat-miles by urbanized area transit systems. FTA</li> <li>- Increased intermodal transportation options for travelers<sup>65</sup> RITA</li> <li>- Maintain continuous air service at 98 percent of Essential Air Service eligible communities. OST/X</li> <li>-</li> </ul>
2. Improved public transit experience	<ul style="list-style-type: none"> <li>- Increase transit vehicle reliability.<sup>66</sup> FTA</li> </ul>
3. Improved networks that accommodate pedestrians and bicycles	<ul style="list-style-type: none"> <li>- Increase in the number of States and MPOs that address all of the SAFETEA-LU elements for walking and bicycle planning activities.<sup>67</sup> FHWA</li> </ul>
4. Improved access to transportation for special needs populations and individuals with disabilities.	<ul style="list-style-type: none"> <li>- Percent of bus fleets compliant with The Americans with Disabilities Act (ADA). FTA</li> <li>- Percent of key rail stations compliant with the ADA. FTA/FRA</li> </ul>

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<sup>65</sup> The BTS Intermodal Passenger Connectivity Database (IPCD) can provide the basis for performance measures directly related to intermodalism. We can quantify percentage of airports, rail, bus and ferry terminals with intermodal connections on a metro area and rural area basis.

<sup>66</sup> FTA collects data on the number of mechanical failures of transit vehicles – failures that prevent these vehicles from starting their next trip or completing the current trip. The total number of revenue miles is divided by the number of such failures to give the mean distance between failures, a generally recognized indication of vehicle reliability.

<sup>67</sup> The measure includes four elements:

- 1) States having a bike/pedestrian coordinator;
- 2) States and MPOs having a plan for including pedestrians and bicyclists as interested parties in the planning process;
- 3) States and MPOs that properly list funding for bike/pedestrian projects that were obligated each fiscal year; and
- 4) States and MPOs having a SAFETEA-LU compliant bike/ped element in their long range transportation plan.

## **EXTERNAL RISK FACTORS**

The external risk factors that could play a part in our ability to achieve our Livable Communities goal are discussed below.

### **SUSTAINABLE FUNDING**

Please refer to the full discussion of sustainable funding in the External Risk Factors section of the Safety goal.

### **LEGISLATIVE OBSTACLES**

Current law and associated DOT guidance are permissive with respect to fostering livable communities but do not give priority to or require grant recipients to expend funds on projects which are intended explicitly to improve the livability of our Nation's communities. DOT will seek authority for new approaches to improve the livability of our Nation's communities as part of the reauthorization for Federal surface transportation programs for issues such as: providing funding to regions and communities to carry out livability goals in partnership with States and other public agencies; strengthening the consideration of land use, energy, the environment, and other livability elements in transportation planning; and establishing criteria for performance-based planning and incentives to focus on outcomes.

### **RESISTANCE TO CHANGE**

Community and institutional resistance to change—such as the change in transportation norms that will be needed to build Livable Communities—can be strong and pervasive. Obstacles to change include skepticism about the benefits of change, lack of knowledge about how the change would affect individuals or the community, lack of community pressure to change, and lack of sustained leadership in the direction of change. Often the costs of change are immediate while the benefits are long range and this cost-benefit disparity reduces the political appeal of change.

### **DURABILITY OF THE BUILT ENVIRONMENT**

Transportation infrastructure and housing have long useable lives which can provide or foreclose options for generations. For example, if a bridge is built without accommodations for bicycles and pedestrians or without the structure to support passenger or freight rail, then these modes are not likely to receive consideration until that bridge is replaced. Further, the design and location of neighborhoods can be even more lasting. As a consequence, changes to the organization and density of the National housing stock and the transportation that supports the stock will take decades to unfold and will largely be constrained by the extent of new community or infill growth. Therefore, shifts in modal market share toward less carbon intensive forms of travel are also partially constrained by what can reasonably be expected to occur given the characteristics of the built environment. Further, changes to the landscape of a community often require buy-in from multiple land owners and multiple layers of government. In industrial areas, change can also raise contamination concerns. Retrofits of existing communities, therefore, require strong direction and leadership as well as the involvement of all stakeholders from the very beginning and throughout the planning process. Thus, the durability of the built



environment is one of the factors that may significantly affect our ability to achieve our Livable Communities strategic goal.

#### ROADWAY DESIGN STANDARDS

DOT's Federal-aid roadway design standards are not enforceable on local streets. DOT can give guidance and publish best practices but cannot require that transportation infrastructure be accessible for safe biking or walking under its current statutory authority. Often, communities and the transportation system have been built to move automobiles, not people. Sidewalks and bike paths are often optional in road construction. Where they do exist, they are often not well-connected or safely designed. Other barriers to livable communities include the lack of crosswalks or traffic signals with insufficient time for crossing; wide roads without medians; fast-moving traffic; long blocks; the lack of gridded streets; and narrow sidewalks. Jobs and services are located separately from housing and businesses are set back from the roadway with large parking lots placed in front. Poor zoning, roadway, bike, and pedestrian design standards could impede achievement of our Livable Communities strategic goal.

## **ENVIRONMENTAL SUSTAINABILITY STRATEGIC GOAL**

***“Advance environmentally sustainable policies and investments that reduce carbon and other harmful emissions from transportation sources.”***

### **OUTCOMES**

1. Reduced carbon and other harmful emissions, improved energy efficiency, and reduced dependence on fossil fuels
2. Reduced transportation-related air, water and noise pollution and impacts on ecosystems
3. Increased use of environmentally sustainable practices and materials in the transportation sector
4. Increased use of environmentally sustainable practices and a reduction in pollution and other adverse environmental effects from DOT owned or controlled transportation services and facilities

### **CHALLENGES AND STRATEGIES**

Transportation is crucial to our economy and our quality of life, but building, operating and maintaining transportation systems clearly have extensive environmental consequences. Our goal is to foster more sustainable approaches to transportation so that future generations will be able to enjoy the same standards of living and mobility that we enjoy today.

In the 20<sup>th</sup> century, the U.S. built highway and aviation networks that transformed the country—fueling unprecedented economic expansion, fostering new communities, and connecting cities, towns, and regions. We now face a new set of transportation challenges—reducing carbon and other harmful emissions, promoting energy independence and addressing global climate change. Meeting our 21<sup>st</sup> century energy and environmental challenges will require new transportation solutions as well.

Transportation services consume 29 percent of total energy use in the U.S. and almost all of the energy consumed for transportation in the U.S. is in the form of petroleum.

The transportation sector is a significant source of greenhouse gas (GHG) emissions, accounting for 29 percent of total U.S. GHG emissions in 2007. About 60 percent of transportation emissions were from passenger cars and light-duty trucks, about 20 percent from medium- and heavy-duty trucks, and about 12 percent from aviation.

Over the past four decades, enormous progress has been made in reducing emissions of urban air pollutants both nationally and from the transportation sector in particular. Since 1970, transportation sector emissions of carbon monoxide have been reduced 67 percent, emissions of volatile organic compounds have been reduced by 68 percent and emissions

of nitrogen dioxide have been reduced 38 percent.<sup>68</sup> These reductions have been achieved notwithstanding a 50 percent increase in the U.S. population, a tripling of GDP, and a 150 percent increase in passenger-miles traveled.<sup>69</sup> Transportation sector emission reductions have been achieved largely by progressively strengthening regulation of vehicle and aircraft emissions under the Clean Air Act.

Nonetheless, as of 2007, some 158.5 million Americans lived in counties or regions that exceeded health-based national ambient air quality standards for at least one regulated air pollutant. Significant challenges remain, particularly as new national ambient air quality standards are revised to be more protective of public health. These challenges apply to individual neighborhoods, travel corridors, and local facilities as well.

DOT's recent emphasis on ecosystem approaches has promoted broader mitigation and ecosystem conservation strategies, and wetland acreage has been replaced at a rate exceeding impacts. However, DOT's investments in transportation systems and infrastructure will be more sustainable by more broadly considering the secondary effects of transportation infrastructure construction and the interaction between transportation decisions and land use consequences. Although transportation projects comply with requirements for management of storm water runoff, and Federal funds are available for restoration activities, more must be done to meet the challenge of reducing transportation's contribution to water quality problems.

Noise impacts from aircraft have been reduced through technology and mitigation. The number of people exposed to significant levels of aircraft noise has decreased 95 percent since the 1970s, even as air travel grew from 200 million to over 750 million annual passengers.

The aviation industry has also made significant gains in fuel efficiency, with commercial jet aircraft fuel efficiency improvements of 70 percent over the last 40 years. Since 2000, despite air traffic and passengers growing, the commercial aviation sector is consuming less fuel than it did at the beginning of the decade.

FAA administers a program supporting the conversion of airport ground vehicles to alternative fuels and sponsors the Commercial Aviation Alternative Fuels Initiative focused on achieving sustainable fuels for commercial aircraft in the next few years. Flight tests have been conducted with aircraft using blends of renewable alternative fuels, and the American Society for Testing and Materials, ASTM International, approved a new jet fuel specification in 2009 which allows synthetic fuels with suitable characteristics to be certified as jet fuel. FAA has also launched the Continuous Lower Energy, Emissions and Noise (CLEEN) program that will fund accelerating development of new engine and airframe technologies to reduce noise, emissions, and energy consumption, as well as advance alternative fuels.

Today, DOT faces a new set of transportation challenges. Indeed, President Obama has recognized the vital role that DOT can play in reducing carbon emissions, improving energy efficiency, and combating climate change. The President has challenged us to transform the way transportation serves the American people by encouraging

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<sup>68</sup> EPA, national air pollutant trends report, 2008.

<http://www.epa.gov/ttn/chief/trends/trends06/nationaltier1upto2008basedon2005v2.xls>

<sup>69</sup> BTS, National Transportation Statistics.

transportation that is less carbon-intensive such as rail, and public transportation or transportation that produces zero emissions such as biking and walking. Our strategies to address these challenges are presented below.

STRATEGIES TO REDUCE CARBON EMISSIONS, IMPROVE ENERGY EFFICIENCY AND REDUCE DEPENDENCE ON OIL

On March 27, 2009, Secretary LaHood announced new fuel economy standards for cars and light trucks for the 2011 model year. The new standards will raise the industry-wide combined average to 27.3 miles per gallon (a 2.0 mpg increase over the 2010 model year average) and will save about 887 million gallons of fuel and reduce carbon dioxide emissions by 8.3 million metric tons.

On May 19, 2009, President Obama announced an agreement between the auto industry, the State of California, the United Auto Workers, the EPA and DOT to issue a joint rule to address fuel economy and greenhouse gas reductions. The agreement will result in a rule that will result in a 35.5 miles per gallon standard by 2016 (39 mpg for passenger cars and 30 mpg for light trucks), exceeding the Energy Independence and Security Act requirements of 35 mpg by 2020. DOT will take the following additional actions to address the challenges of reducing carbon emissions, improving energy efficiency, and reducing dependence on oil:

- Work with HUD and EPA within the Interagency Working Group on Transportation, Land Use, and Climate Change to identify opportunities to align Federal programs to achieve GHG reductions through land use solutions. The 13-Agency working group has identified several areas where the Federal Government can begin to align efforts to address GHG, and is currently developing performance metrics, research, and data needs for those areas;
- Implement a program to regulate the fuel economy of heavy duty vehicles as required by the Energy Independence and Security Act;
- Begin development of a national network of high-speed rail corridors by investing in an efficient, high-speed passenger rail network of 100–600 mile intercity corridors that connect communities across America, beginning with the \$8 billion down payment provided in the Recovery Act and a proposed high-speed rail grant program of \$1 billion per year;
- Reduce the carbon footprint and pollutants emitted by the freight transportation system, by improving the fuel efficiency and environmental performance of freight vehicles and also by expanding opportunities for shifting freight from less fuel-efficient modes to more fuel-efficient modes—air to trucks, trucks to rail, and rail to water;
- Work with the Department of Energy to develop infrastructure and distribution systems for advanced transportation energy sources including electricity and alternative fuels;
- Implement new regulations applying integrity management principles to natural gas distribution pipelines, which will help identify and manage risks including methane leaks and explore possible methods for measuring and controlling releases;

- Work through the DOT Center for Climate Change<sup>70</sup> to encourage comprehensive and multi-modal approaches to reduce transportation-related greenhouse gases and to mitigate the effects of global climate change on the transportation network through strategic research, policy analysis, partnerships, and outreach;
- Continue work on the multi-year fuel economy plan for cars and light trucks for model years 2012–2016 including an evaluation of fuel saving technologies, market conditions, and future product plans from manufacturers. Coordinate the effort with interested stakeholders and other Federal agencies, including the EPA, and publish a final rule in 2010;
- Work with the International Civil Aviation Organization (ICAO) to advance international aircraft and engine emissions standards; and to recommend practices and guidance materials for solutions that are technologically feasible, economically reasonable, provide measurable benefits, and take interdependencies between emissions and noise into account;<sup>71</sup>
- Promote maturation of technologies to lower aircraft energy consumption, emissions and noise through the CLEEN (Continuous Lower Energy, Emissions and Noise) program. Advance and demonstrate use of aviation alternative fuels through CLEEN and by continuing to support the Commercial Aviation Alternative Fuels Initiative (CAAFI);<sup>72</sup>
- Improve operational solutions in aviation that include Optimum Profile Descents/Continuous Descent Arrivals, airport surface movement optimization, and enroute and terminal area traffic optimization for energy efficiency and reduction in aircraft noise and emissions;
- Advance aviation alternative fuels and examine policy and market-based measures (i.e., cap-and-trade) intended to reduce aviation emissions and improve energy efficiency;
- Conduct research into V2V and V2I technologies and the potential to gather and use data from vehicles on emissions and fuel consumption to better manage the transportation network for reduction in greenhouse gases;
- Promote the development and deployment of technologies to reduce the energy consumption and greenhouse gas emissions of transit systems including bus and rail electric drive; facility improvements; alternative fuel technologies for buses; deployment of alternative fuel buses, including hydrogen fuel cell buses and diesel-electric hybrid buses; and support alternative fuels infrastructure investment for transit and bus rapid transit systems across the U.S.; and

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<sup>70</sup> The Energy Independence and Security Act of 2007 authorized the Center as the Office of Climate Change and Environment.

<sup>71</sup> For example, FAA is conducting a study to identify and assess metrics for CO<sub>2</sub> emissions from aircraft which may potentially be used to set standards for the certification of new aircraft (including the benchmarking of existing aircraft) and to monitor the operational performance of the commercial aircraft fleet. The results of the study will be provided within the work program of ICAO's Committee on Aviation Environmental Protection for considering development of the aircraft CO<sub>2</sub> standard by the end of 2012.

<sup>72</sup> CAAFI is a forum for the U.S. commercial aviation community to engage the emerging alternative fuels industry and to work together, share and collect needed data, and direct research on aviation alternative fuels.

- Provide information and incentives to States and MPOs on policies, strategies, and actions in transportation that help reduce greenhouse gas emissions including the risk assessment framework tool to identify, quantify, and mitigate or adapt to risks, and shows how to incorporate policies, strategies, and actions into their Long Range Transportation Plans.

#### STRATEGIES TO REDUCE TRANSPORTATION-RELATED AIR, WATER AND NOISE POLLUTION AND IMPACTS ON ECOSYSTEMS

Making transportation more sustainable requires reducing impacts on human health and ecosystems, particularly by reducing emissions of urban air pollutants, water and noise pollution, waste production, and other secondary effects on ecosystems. To accomplish these objectives, DOT will:

- Increase our investments in environmentally sustainable transportation. The Transit Investments for Greenhouse Gas and Energy Reduction (TIGGER) Discretionary Grant (TDG) program authorized by the Recovery Act is an example of the future of transportation funding. DOT received over \$2 billion in requests from public transportation agencies for capital grants to reduce their greenhouse gas emissions and energy consumption. Rural, small, and large urban areas throughout the country applied for grants to replace existing transit vehicles or propulsion systems, to update energy storage technologies, to improve facilities, and to install solar and wind units amongst other innovative technologies;
- Advance multi-jurisdictional and regional decisionmaking that enables States and local communities to take a broader view of how their transportation systems integrate into longer haul freight movements so that, potentially, they could collaboratively and more effectively use rail or maritime options;
- Continue inspections of hazardous liquid pipeline systems and operators to ensure they are following good integrity management practices, and advance the safety of control room operations and lead the national program for pipeline damage prevention;
- Continue funding the aviation research consortium focused on advancing cleaner alternative fuels, and accelerating the maturation of lower energy, emissions, and noise technologies for aircraft and engines;
- Continue the Aviation Climate Change Research Initiative to understand the impacts of high altitude aircraft emission impacts and expand international engagement on reducing aviation emissions by working with ICAO in coordination with the Department of State and the EPA;
- Modernize the U.S. air transportation system through NextGen programs by setting investment and infrastructure priorities and developing new airport design standards to support NextGen energy and environmental goals that will result in cleaner and quieter movement of aircraft in the air and on the ground; and
- Support the FAA's low-emission airport technology, ranging from alternative fuel vehicles and aircraft ground support equipment to various infrastructure improvements like gate electrification to reduce aircraft emissions at the gate through the innovative Voluntary Airport Low Emission (VALE) program.

## MARINE HIGHWAYS

DOT will also strategically expand the marine highway system to meet current and projected movements of domestic and international trade. Shipments via the marine highway system permit the movement of more cargo in fewer containers because barge and ship freight containers are not constrained by over-the-road weight limits. This also reduces fuel use and lowers the amount of emissions generated to move the cargo. Marine highways are an excellent conduit for shipping hazardous materials and other cargo which may not easily travel by road or rail. In many instances hazardous materials can be routed to avoid city centers, thus lessening general population exposure to potential hazardous spills. To expand the marine highway system, DOT will:

- Assist industry to reduce handling costs for containers moving on marine highways;
- Work with industry stakeholders and the U.S. Army Corps of Engineers to maintain the capability of the inland lock and waterway system; and
- Promote greater usage of America's marine highways through the MARAD Marine Highway program, where appropriate.

## STRATEGIES TO INCREASE THE USE OF ENVIRONMENTALLY SUSTAINABLE PRACTICES IN THE TRANSPORTATION SECTOR

Sustainability means ensuring that our children and grandchildren can sustain the same standard of living that we enjoy. Our goal is to make both the U.S. transportation system and DOT's operations more sustainable by reducing the environmental effects of transportation systems, by reducing the use of scarce resources, and by increasing the efficiency and effectiveness of transportation systems. This goal is most effectively achieved by changing the way that U.S. transportation systems are planned, designed, and operated. Specifically, DOT will:

- Encourage research toward more sustainable transportation materials, construction, and infrastructure;
- Promote best practices in transportation planning, construction, operation, and maintenance that increase sustainability of transportation;
- Promote use of environmental management systems as a tool to increase sustainability of airports, navigation aids, ports, transit systems, and other transportation facilities;
- Encourage industry to develop and implement innovative technologies that are more sustainable and apply lifecycle analysis to products and processes;
- Assess the impacts of climate change on transportation infrastructure, and work to incorporate these assessments in transportation planning efforts; and
- Conduct exploratory advanced research that promotes a more environmentally friendly highway template that not only mitigates environmental impacts, but actually works to reduce environmental pollution. For example, DOT will work to make the highway infrastructure more environmentally friendly by expanding the research and use of recyclable techniques, renewable materials, permeable surfaces, innovative techniques to mitigate storm water runoff, and the use of transportation rights-of-way to contribute to improvements in air quality and electricity generation.

STRATEGIES TO REDUCE POLLUTION FROM DOT OWNED OR CONTROLLED  
TRANSPORTATION SERVICES AND FACILITIES

In accordance with President Obama's October 5, 2009, Executive Order 13514, "Federal Leadership in Environmental, Energy, and Economic Performance," DOT will work to: increase energy efficiency; measure, report, and reduce greenhouse gas emissions; conserve and protect water resources through efficiency, reuse, and stormwater management; eliminate waste, recycle, and prevent pollution; leverage acquisitions to foster markets for sustainable technologies and environmentally preferable materials, products, and services; design, construct, maintain, and operate high performance sustainable buildings in sustainable locations; strengthen the vitality and livability of the communities in which DOT facilities are located; and involve our employees in the achievement of these goals. Accordingly DOT will achieve a:

- 30 percent reduction in vehicle fleet petroleum use by 2020;
- 26 percent improvement in water efficiency by 2020;
- 20 percent greenhouse gas reduction by 2020;
- 50 percent recycling and waste diversion by 2015; and ensure that
- 95 percent of all new contracts will meet sustainability requirements.

DOT will also:

- Implement Environmental Management Systems to address environmental management issues strategically;
- Promote electronics stewardship by: (1) ensuring procurement preference for EPEAT-registered, Energy Star, and FEMP-designated electronic products; (2) establishing and implementing policies to enable power management, duplex printing, and other energy-efficient or environmentally preferable features on all eligible electronic products; (3) employing environmentally sound practices with respect to the disposition of all excess or surplus electronic products; and (4) establishing policies to extend the useful life of electronic equipment;
- Ensure that all new construction, renovation, or repair and alteration of buildings complies with the *Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings* and that DOT makes annual progress toward 100-percent conformance with the Guiding Principles for its occupied buildings;
- Implement the 2030 net-zero-energy building requirement for all new buildings that begin the design process in 2020 and thereafter;
- Implement the stormwater provisions of Section 438 of the Energy Independence and Security Act of 2007;
- Work with HUD and EPA to develop guidance for sustainable Federal building locations in alignment with Livability Principles;
- Encourage Web/video conferencing, collaboration and dissemination to reduce staff travel requirements;
- Maximize recycling and use of recycled materials;



- Eliminate use of paper whenever possible by shifting to electronic publications where possible and, when printing is required, using sustainable products and approaches;
- Conduct its ship recycling program for obsolete, Federally-owned, merchant-type vessels in an environmentally responsible manner that further reduces the risk of environmental contamination; and
- Conduct maritime environment and compliance activities that address improving marine air emissions, energy efficiency and alternative energy usage as well as conducting cooperative efforts to advance research and development of effective ballast water treatment systems and compliance monitoring methods.

#### **RESOURCES**

The human resources, programs, capital assets, information technology, and other resources described in DOT's Annual Performance Budgets are needed to achieve our outcomes for environmentally sustainable transportation and to execute the strategies presented above. The schedule for executing these strategies extends from fiscal year 2010 through fiscal year 2015.

#### **PERFORMANCE MEASURES**

Figure 7 presents the relationship between our environmental sustainability outcomes and the performance measures that we propose to use to track our progress toward that goal.

**FIGURE 7. ENVIRONMENTAL SUSTAINABILITY OUTCOMES AND PROPOSED PERFORMANCE MEASURES**

OUTCOMES	PROPOSED PERFORMANCE MEASURES
1. Reduced carbon emissions, improved energy efficiency, and reduced dependence on oil	<ul style="list-style-type: none"> <li>- Increased aviation fuel efficiency (defined in terms of fuel burned per unit distance travelled). FAA</li> <li>- Decreased fuel consumption per vehicle-miles traveled, per passenger miles traveled, and per (net) freight ton-mile. OST/P with FHWA, FTA, FRA.</li> <li>- Increased percent of transit vehicles using alternative fuels. FTA</li> </ul>
2. Reduced transportation-related air, water and noise pollution and impacts on ecosystems	<ul style="list-style-type: none"> <li>- Reduced number of hazardous liquid pipeline spills. PHMSA</li> <li>- Reduced number of people exposed to significant aircraft noise by 4 percent per year through FY 2014. FAA</li> <li>- Increased transit market share for the top 50 urbanized areas. FTA</li> <li>-</li> </ul>
3. Increased use of environmentally sustainable practices in the transportation sector	<ul style="list-style-type: none"> <li>- Report in 2012 the feasibility of measuring the percentage of capital improvement projects that include Environmental Management Systems<sup>73</sup>, Context Sensitive Solutions<sup>74</sup> or use a sustainable transportation project evaluation tool to manage the environmental impacts of construction and operations. OST/P with FHWA, FTA, FAA.</li> </ul>
4. Increased use of environmentally sustainable practices and a reduction in pollution and other adverse environmental effects from DOT owned or controlled transportation services and facilities	<ul style="list-style-type: none"> <li>- 30 percent reduction in vehicle fleet petroleum use by 2020. OST/M</li> <li>- 26 percent improvement in water efficiency by 2020. OST/M</li> <li>- 50 percent recycling and waste diversion by 2015. OST/M</li> <li>- 95 percent of all applicable contracts will meet sustainability requirements. OST/M</li> </ul>

<sup>73</sup> An Environmental Management System is a set of processes and practices that enable an organization to reduce its environmental impacts and increase its operating efficiency

<sup>74</sup> Context sensitive solutions (CSS) is a collaborative, interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions.

## **EXTERNAL RISK FACTORS**

The most significant risk factor that could play a part in our ability to achieve our Environmental Sustainability goal is the lack of sustainable funding for surface transportation and aviation programs. Specifically, our reliance on the fuel tax as the major source of funding for surface transportation infrastructure makes us dependent upon a funding source that can easily shrink as fuel prices rise and as highway users adopt more fuel-efficient vehicle technologies.

Another risk factor involves migrating transportation and the fuels that support it from fossil-based to other alternatives. Working on a 20 to 40 year horizon, it is possible to predict an orderly transition to a variety of fuels that include fuel cells and hybrid fuel cells, battery, electric, hydrogen, green diesels and gasolines. Using shorter timelines, the risks become more severe. The shorter the time for the transition, the higher the risks and the likelihood of failure. These risks fall into the following major categories—technology, cost, and delivery infrastructure.

### **TECHNOLOGY**

We do not have the fuel cells, batteries or hydrogen engines that can provide travel distances equal to a tank of fossil fuel. With the exception of 10 percent ethanol (E10) and 5 percent biodiesel (B5), the requisite codes and standards are not in place that would allow the traveling public or commercial carriers to use alternative fuels. These codes and standards govern a wide variety of topics including safety and emergency response as well as engine warranties.

### **COST**

At present, a gallon of gasoline costs between \$2.50–\$3.00. In order to make alternative fuels competitive, experts estimate that gas prices would have to exceed \$5.00 per gallon for a sustained period. Because alternative fuels are not yet mass-produced, their per-unit cost is extremely high. For example, at a recent test of 100 percent green military jet fuel (JP8), costs exceeded \$16.00 per gallon. However, as these fuels are certified and mainstreamed, per-unit costs are expected to drop.

### **DELIVERY INFRASTRUCTURE**

Researchers are currently grappling with the technical challenges of adding alcohols and bio-oils to the petroleum infrastructure. High concentrations of these additives create corrosion and contamination issues that are solvable in the mid-term. There is extremely limited infrastructure for hydrogen fuels, and it will take decades to create it. For example, there are fewer than 60 hydrogen-fueling stations in the Nation, and of these, 40 are in California. Since hydrogen requires a dispensing system that is separate from petroleum, existing stations would have to significantly increase their footprint, or a new network would have to put in place. In addition, at present, only a limited number of natural gas pipelines can move hydrogen over distances.

## ORGANIZATIONAL EXCELLENCE GOAL

***Develop a diverse and collaborative workforce that will enable the Department to advance a transportation system that serves the Nation's long-term social, economic, security, and environmental needs.***

We believe that a dedicated and talented workforce is the most significant factor in our ability to transform America's transportation infrastructure into a truly multimodal system that provides travelers and businesses with safe, secure, efficient, and environmentally sustainable transportation choices. Our goal is that our current and potential employees consider DOT the *Best Place to Work* in the Federal government. Therefore, to improve employee satisfaction, reduce turnover, and attract a high performance workforce we will:

- Provide a positive work environment with a vibrant public service culture;
- Promote diversity, equal employment opportunity and affirmative employment;
- In collaboration with stakeholders, launch a multimodal workforce development initiative that anticipates demographic shifts;
- Increase the education and training level of our workforce;
- Link employee performance to strategic goals;
- Facilitate clear, timely, consistent, and inclusive internal cross-modal communications with opportunities for feedback through town meetings and social networking platforms;
- Include employee satisfaction performance standards in the performance plans of Operating Administration Administrators, career and non-career senior executives, and first-line supervisors;
- Hold mandatory training for all first-line supervisors which will focus on the fundamental competencies of effective leadership, empowerment, and employee engagement;
- Ensure personnel and facility security by using best practices, standards, and assessments;
- Work with local government entities to improve transit service and neighborhood amenities around DOT field offices and headquarters; and
- Strengthen the acquisition workforce: better, easier, cheaper, faster, greener (Top Management Challenge<sup>75</sup>).

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<sup>75</sup> The source of all Management Challenges is "DOT's Fiscal Year 2010 Top Management Challenges," Report Number PT-2010-008, Office of Inspector General

DEFENSE MOBILITY AND EMERGENCY PREPAREDNESS

Defense mobility and emergency preparedness are critical in ensuring the availability of transportation services after natural disasters and in times of national emergency. To maintain transportation services under these conditions, DOT will:

- Develop a security policy framework that will ensure preparedness, mitigate the consequences of transportation sector emergencies, and support DOT's mission;
- Assure continuity of operations, support continuity of government, and maintain emergency operations surge staffing and response capabilities to respond effectively to incidents and fulfill our commitments under Presidential Directives and the National Response Framework;
- Develop and maintain plans, procedures, training, and exercises that prepare the Department to meet Federal emergency preparedness, response and recovery policies, strategies, and other requirements;
- Maintain government-owned transportation assets and provide access to commercial transportation assets for critical support for defense mobility and emergency response;
- Coordinate with DHS<sup>76</sup> to provide security and emergency management training, technical assistance and information sharing to transit agencies;
- Through grants and technical assistance, help State and local response agencies plan and train for effective emergency response to transportation incidents involving hazardous materials;
- Coordinate with DHS to address security threats to oil and natural gas pipelines and to the movement of hazardous materials;
- Collaborate with DHS to ensure that the design and refurbishment of transportation infrastructure includes consideration of built-in protection and security measures;
- Provide guidance and technical assistance to localities, State DOTs and their first response partners to improve their ability to conduct emergency response;
- Improve aviation command, control and communications for service 24 hours a day/seven days a week, and during emergency operations by strengthening operational coordination, communication, and command and control capabilities needed to prepare for, respond to, and recover from crises and by improving the security of data and information using advanced cyber defense strategies;
- Communicate timely, relevant, expert intelligence analysis that focuses on preparedness efforts, supports operational response, and international programs, and fulfills technical requests from the Intelligence and Law Enforcement Communities;
- Document and report on behavior that may be indicative of intelligence gathering or pre-operational planning related to terrorism, criminal, or other illicit intention;
- Issue advisory messages as necessary to Federal, State, local, tribal, and foreign governments as well as the private sector that provide immediate or urgent information

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<sup>76</sup> Specifically, the Transportation Security Administration and the Federal Emergency Management Agency.

on time sensitive threats or situations that may impact local security environments and may require responsive activity;

- Implement the Controlled Unclassified Information (CUI) Framework and monitor compliance with policy, standards, and markings; and
- Fulfill DOT commitments to international partners and agreements, such as the Security and Prosperity Partnership for North America, and the North Atlantic Treaty Organization (NATO).

#### OPEN GOVERNMENT

DOT will incorporate the three principles of open government—transparency, participation, and collaboration—in our daily work. To achieve a vibrant, Open Government culture, DOT will:

- Encourage ONE DOT decision-making via cross-modal work groups to achieve our strategic goals;
- Adopt a work culture that advances Open Government principles by increasing transparency and encouraging collaboration in DOT programs, policies, funding, management and other matters of importance to the public and DOT stakeholders;
- Achieve greater public participation in rulemaking to better inform DOT action by exploring the effectiveness of various Web 2.0 technologies to increase public awareness and understanding of the rulemaking process, increase collaboration among commenters, and ultimately increase the quality and usefulness of comments received on DOT rulemakings;
- Leverage the Performance Management Council to lead DOT in transparent, accountable, customer-oriented, performance reporting, and management;
- Accelerate transportation-related innovation through coordinated multimodal research enriched by stakeholder and public participation;
- Make the case for strategic investment by using valid, reliable, and timely data supported by robust analysis to tell the DOT story;
- Enhance cyber security and privacy and improve governance of IT resources (Top Management Challenge);
- Apply knowledge management and collaboration principles across DOT by providing platforms for employees to be more open in their work;
- Enable proactive, responsive, agile, transparent, secure and integrated technology adoption and infrastructure life cycle for communications, collaboration, community building, business intelligence, geo-spatial mapping and transparency;
- Ensure strategic, continuously-improving, secure and efficient storage and exchange of critical information; and
- Manage IT assets and data for increased productivity, reduced costs for investment management, records management, data sharing, collaboration, reuse, and informed decisionmaking.

FINANCIAL PERFORMANCE

To improve financial management and provide quality customer service, DOT will:

- Ensure strategic, continuously-improving, secure and efficient storage and exchange of critical information;
- Improve efficiency and transparency of procurement/contracting processes using online-workflow, contract review boards, peer reviews, and shared best/standard practices;
- Maximize infrastructure investments via improved oversight and allocation of resources to States (Top Management Challenge);
- Improve the administration, oversight, transparency and management of DOT's traditional grants and expanding portfolio of discretionary grants (Top Management Challenge);
- Maximize efficiencies through proactive assessments of investment vs. output/outcomes; and
- Ensure performance driven programs, consistent with OMB Memorandum 10-01, "Increased Emphasis on Program Evaluations."

## PROGRAM EVALUATION

Program evaluation is one of the mandatory elements of the Government Performance and Results Act (GPRA). The statute calls for agencies to: use program evaluations to assess the manner and extent to which their programs achieve intended objectives; include a summary of the findings of program evaluations completed in their Performance and Accountability Reports with a notation if no evaluations were completed; and present a schedule for future program evaluations in Strategic Plans.

On October 7, 2009, OMB issued a memorandum entitled “*Increased Emphasis on Program Evaluations*” and launched government-wide efforts to strengthen program evaluation as part of the FY 2011 Budget process. The OMB initiative coincides with DOT’s review of its program evaluation strategy in anticipation of reauthorization of its surface and aviation programs. DOT will work with OMB’s reconstituted Inter-Agency Evaluation Working Group to determine the best way to make program evaluation an integral part of the design of surface and aviation programs. Below we present our planned and budgeted program evaluations.



<b>Sponsor</b>	<b>Title</b>	<b>Intended Result</b>
<b>Office of the Under Secretary for Policy</b>	TIGER Discretionary Grant Program	Longitudinal analyses that describe the extent to which projects actually achieve the planned outcomes and benefits.
<b>NHTSA</b>	Tire Pressure Monitoring Systems (TPMS).	Effectiveness of tire pressure monitoring systems (TPMS)
<b>NHTSA</b>	New Mexico Comprehensive Impaired Driving Program	Evaluation of the effects of a Governor's Task Force on generating a comprehensive impaired-driving program.
<b>PHMSA</b>	Human resources program review	Identify opportunities for improving customer service, efficiency, or effectiveness.
<b>PHMSA</b>	Budget/finance program review	Identify opportunities for improving customer service, efficiency, or effectiveness.
<b>PHMSA</b>	Pipeline Safety States Grant Program	Recommendations to improve program management.
<b>PHMSA</b>	Evaluation of risk models for resource allocation	Improved risk models.
<b>PHMSA</b>	Evaluation of the effects of the enforcement program	Recommendations for possible changes in program design or focus.
<b>FAA</b>	Streamlined Environmental Impact Statement Process	Provide lessons learned and initiatives where streamlining might be improved.
<b>FAA</b>	Runway Safety Program	Management study to evaluate management systems, processes and practices, communications and industry involvement with the goal of improving aviation safety.
<b>FHWA</b>	American Recovery and Reinvestment Act Project Review	Reviews for ARRA funds directed to the Indian Reservation Roads Program, Park Roads and Parkways Program, Forest Highway Program and Refuge Roads Program including Plans, Specifications and Estimates, contract administration, and quality assurance/control of construction materials and processes at the physical construction site(s).
<b>FHWA</b>	Bureau of Indian Affairs Review	Evaluate all phases of the transportation development process including compliance with transportation planning requirements, NEPA, design, contract administration, financial management and construction.

## ACRONYMS

ADA	Americans with Disabilities Act of 1990\
ASCE	American Society of Civil Engineers
BTS	Bureau of Transportation Statistics
CAAFI	Commercial Aviation Alternative Fuels Initiative
CMV	Commercial Motor Vehicles
CCAM	Coordinating Council on Access and Mobility
DHS	Department of Homeland Security
DOT	Department of Transportation
EO	Executive Order
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GAO	Government Accountability Office
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GPS	Global Positioning System
HAZMAT	Hazardous Materials
HBP	Highway Bridge Program
HUD	Department of Housing and Urban Development
ICAO	International Civil Aviation Organization
ITS	Intelligent Transportation Systems
MARAD	Maritime Administration
MPO	Metropolitan Planning Organization
NHS	National Highway System
NTSB	National Transportation Safety Board
NextGen	Next Generation Air Transportation System
NHTSA	National Highway Traffic Safety Administration
OA	Operating Administration
OEP	Operational Evolution Partnership Airports
PHMSA	Pipeline and Hazardous Materials Safety Administration
PTC	Positive Train Control
Recovery Act	American Recovery and Reinvestment Act of 2009
RITA	Research and Innovative Technology Administration
SHSP	Strategic Highway Safety Plans
SLSDC	Saint Lawrence Seaway Development Corporation
SSO	State Safety Oversight Agency
TDG	Tiger Discretionary Grants
UTC	University Transportation Centers
UWR	United We Ride
V2V	Vehicle to Vehicle
V2I	Vehicle to Infrastructure
VMT	Vehicle miles traveled