

8/19/2013

Fiscal Year
2014-2018



Transportation for a New Generation

DRAFT COPY FOR PUBLIC COMMENT – AUGUST 2013

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EXECUTIVE SUMMARY

THE EXECUTIVE SUMMARY WILL BE INCLUDED IN A LATER VERSION OF THE STRATEGIC PLAN.

TABLE OF CONTENTS

I. THE U.S. DEPARTMENT OF TRANSPORTATION	1
MISSION	1
VALUES	1
DOT ORGANIZATION	1
KEY LEGISLATION	2
II. INTRODUCTION	3
OVERVIEW	3
STRATEGIC GOALS	3
FY 2014-2018 STRATEGIC GOAL FRAMEWORK	5
HOW THIS PLAN IS ORGANIZED	5
WHY IS THIS REVISION NECESSARY	5
III. SAFETY	10
CHALLENGES AND STRATEGIES	10
STRATEGIES FOR REDUCING MOTOR VEHICLE FATALITIES AND INJURIES	11
EXTERNAL RISK FACTORS	23
IV. STATE OF GOOD REPAIR	26
CHALLENGES AND STRATEGIES	26
STRATEGIC OBJECTIVES, PERFORMANCE GOALS, AND INDICATORS	32
EXTERNAL RISK FACTORS	33
V. ECONOMIC COMPETITIVENESS	35
CHALLENGES AND STRATEGIES	35
STRATEGIC OBJECTIVES, PERFORMANCE GOALS, AND INDICATORS	50
EXTERNAL RISK FACTORS	52
VI. LIVABLE COMMUNITIES	54
CHALLENGES AND STRATEGIES	54
STRATEGIC OBJECTIVES, PERFORMANCE GOALS, AND INDICATORS	59
EXTERNAL RISK FACTORS	60
VII. ENVIRONMENTAL SUSTAINABILITY	62
CHALLENGES AND STRATEGIES	62
STRATEGIC OBJECTIVES, PERFORMANCE GOALS, AND INDICATORS	70
EXTERNAL RISK FACTORS	71
VIII. ORGANIZATIONAL EXCELLENCE	73
CHALLENGES AND STRATEGIES	73

STRATEGIC OBJECTIVES, PERFORMANCE GOALS, AND INDICATORS	76
IX. SECURITY, PREPAREDNESS, AND OTHER SUPPORTING OBJECTIVES	78
CHALLENGES AND STRATEGIES	78
STRATEGIC OBJECTIVES, PERFORMANCE GOALS, AND INDICATORS	82
X. ACRONYMS	83
END NOTES	85

LIST OF FIGURES

Figure 1. Strategic Goal Framework for FY 2014-2018.	6
Figure 2. Transportation-related Fatalities and Injuries, 1990 to 2011.	10
Figure 3. Exports and Imports of Goods and Services as a Percent of GDP, 1990 to 2012. ..	36
Figure 4. U.S. Petroleum Consumption by Sector, in Million Barrels Per Day, 2011.	62

LIST OF TABLES

Table A. Relationships between Strategies and Strategic Objectives by Goal.....	7
Table B. Transportation Fatalities by Mode, 2011.....	12
Table C. Performance Goals, Indicators, and Lead by Safety Strategic Objective.	22
Table D. Performance Goals, Indicators, and Lead by State of Good Repair Strategic Objective.....	32
Table E. Travel in Passenger Miles by Mode, 2010.....	35
Table F. Performance Goals, Indicators, and Lead by Economic Competitiveness Strategic Objective.....	50
Table G. Performance Goals, Indicators, and Lead by Livable Communities Strategic Objective.....	59
Table H. Transportation-related Greenhouse Gas Emissions by Mode, 2011.....	63
Table I. Performance Goals, Indicators, and Lead by Environmental Sustainability Strategic Objective.....	70
Table J. Performance Goals, Indicators, and Lead by Organizational Excellence Strategic Objective.....	76
Table K. Performance Goals, Indicators, and Lead by Supporting Strategic Objective.....	82

I. THE U.S. DEPARTMENT OF TRANSPORTATION

As a global leader in transportation, the U.S. Department of Transportation (DOT) plays an important role in providing safe, secure, and reliable transportation to all Americans. We are a Cabinet-level agency headquartered in Washington, D.C., with offices in every State and most major metropolitan areas, employing nearly 57,000 dedicated public servants with a variety of backgrounds and professional expertise. We work closely with our international partners, other Federal agencies, State and local transportation agencies, Tribal governments, infrastructure owners and airport authorities, railroad companies and other private industries, trade and industry associations, safety advocacy groups, academia, and private citizens to address increasingly complex transportation issues. Many of our employees live and work in offices outside the Washington, D.C. region, where we closely coordinate our efforts with others who have a stake in the decisions the Secretary of Transportation makes every day.

Mission

Our mission is to,

Serve the United States by ensuring a safe, efficient, accessible, and convenient transportation system that meets our vital national interests and enhances the quality of life of the American people, today and into the future.¹

Values

The values that guide us in our work every day are professionalism, teamwork, and customer focus.

- ❖ As accountable public servants, professionalism means that we exemplify the highest standards of excellence, integrity, and respect in the work environment.
- ❖ Teamwork means that we support each other, respect differences in people and ideas, and work together in One DOT fashion.
- ❖ Customer focus means that we strive to understand and meet the needs of the Department's customers through service, innovation and creativity; because we are dedicated to delivering results that matter to the American people.

DOT Organization

When the DOT was established in 1967, the Congress consolidated more than 30 transportation agencies and functions, including the U.S. Coast Guard, Bureau of Public Roads, and Federal Aviation Agency, under the first Secretary of Transportation Alan S. Boyd.² Today, DOT is composed of the Offices of the Secretary of Transportation, the Office of the Inspector General, 10 Operating Administrations, and the Surface Transportation Board.³

The Operating Administrations are listed below. More information about DOT is available at <http://www.dot.gov/about> and at the Web sites of each Operating Administration.

Federal Aviation Administration (FAA)

Federal Highway Administration (FHWA)

Federal Motor Carrier Safety Administration (FMCSA)
Federal Railroad Administration (FRA)
Federal Transit Administration (FTA)
Maritime Administration (MARAD)
National Highway Traffic Safety Administration (NHTSA)
Pipeline and Hazardous Materials Safety Administration (PHMSA)
Research and Innovative Technology Administration (RITA)
Saint Lawrence Seaway Development Corporation (SLSDC)

Key Legislation

The Congress passed several important pieces of transportation legislation in the 112th session that provided new authorities and funding for DOT programs. The key pieces of legislation referenced in this strategic plan include:

- ❖ *Moving Ahead for Progress in the 21st Century Act of 2012, P.L. 112-141 (MAP-21)*, which continues funding for Federal-aid highways, highway safety programs, and transit programs, and places a new emphasis on setting national surface transportation performance goals and improving transportation decision-making through a performance-based approach; and
- ❖ *FAA Modernization and Reform Act of 2012, P.L. 112-95*, which continues funding for critical FAA programs and provides the continuity needed to maintain National Airspace System (NAS) operations and to implement the Next Generation Air Transportation System (NextGen). This legislation was preceded by the *NextGen Air Transportation System and Air Traffic Control Modernization Act* and the *Airport and Airway Extension Act*.

II. INTRODUCTION

Overview

In 2017, we will reach an important milestone with the 50th anniversary of the U.S. DOT. While much has changed in our society during the past half-century, the mission of the DOT remains as relevant today as it was when the Department was created.

The U.S. population is projected to increase to 332 million by 2017, a 70 percent increase since 1967.⁴ The national economy is on the rebound and personal travel continues to increase, albeit at a somewhat slower pace than prior to the 2008 recession. Industries and consumers depend increasingly on the reliable and timely flow of goods and services within and across our Nation's borders.

Population growth in cities and mega-regions is placing a strain on existing transportation systems and creating demand for more transportation choices. The increasing amount and availability of information, as well as more rapid emergence and adoption of new technologies, is transforming all aspects of our daily life including how we travel to work and spend our leisure time.

In response to these trends, this second edition of the DOT strategic plan, *Transportation for a New Generation*, outlines the approach that we are undertaking to achieve our strategic goals and implement the President's priorities for Fiscal Year (FY) 2014-2018. We are acting under the authorities that the Congress and the President have provided the Secretary of Transportation.

Strategic Goals

Our strategic goals are presented below:

- ❖ Safety - Improve public health and safety by reducing transportation-related fatalities and injuries;
- ❖ State of Good Repair - Ensure the U.S. proactively maintains 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 by integrating transportation policies, plans, and investments with coordinated housing and economic development policies to increase transportation choices and access to transportation services for all; and
- ❖ Environmental Sustainability - Advance environmentally sustainable policies and investments that reduce carbon and other harmful emissions from transportation sources.

In reaffirming these five strategic goals, we continue to reimagine what the transportation system can be in this decade while continuing to fulfill the Department's long-standing mission, providing support for critical federal interagency goals including preparedness and defense readiness, and setting priorities for our most important management objectives. A brief description of each strategic goal is provided in the following paragraphs.

Safety

Improving transportation safety remains DOT's top priority. Our goal is to bring a department-wide focus to reducing transportation-related fatalities and injuries. In this plan, we highlight the need to promote roadway safety for all users; combat distracted driving and other dangerous behaviors; implement a new Federal role in transit safety; and carry out strategies for addressing the most serious safety risks in aviation and other surface transportation modes.

State of Good Repair

Recent reports on the condition of important facilities—highways, bridges, transit systems, passenger rail, and airports—reveal that many fall short of a state of good repair and thus compromise the safety, capacity, and efficiency of the U.S. transportation system.⁵ In this plan, we will bring a strong programmatic emphasis and new resources to improving and sustaining the condition of our infrastructure. We will encourage our State government and industry partners to make optimal use of existing capacity, minimize life-cycle costs, and apply sound asset management principles throughout the system.

Economic Competitiveness

Our goal is to support the U.S. economy by fostering strategic investments that will serve the traveling public and facilitate freight movement in the future. Our central strategies for achieving maximum economic returns on our policies and investments include leading the development of high-speed and intercity passenger rail and a competitive air transportation system; increasing travel time reliability in freight-significant highway corridors; improving the performance of freight rail and maritime networks; advancing transportation interests in targeted markets around the world; encouraging the adoption of new technologies; and creating a dynamic workforce.

Livable Communities

Over the past 50 years, transportation spending has often been poorly coordinated with other infrastructure investments, resulting in residential communities where access to job opportunities and amenities is inadequate and expensive. In this plan, we describe how we will pursue coordinated, locally focused policies and investments that increase transportation choices and access to transportation services for all Americans.

Environmental Sustainability

Transportation is crucial to our economy and our quality of life, but building, operating, and maintaining transportation systems clearly have significant environmental impacts on air, water, and natural ecosystems. The transportation sector is a significant source of greenhouse gases (GHG), accounting for about 27 percent of total U.S. GHG emissions in 2011. Our environmental sustainability chapter describes how we will address these challenges through strategies such as promulgating fuel economy standards for cars and trucks, promoting more environmentally sound construction and operational practices, and expanding opportunities for shifting freight from less fuel-efficient modes to more fuel-efficient modes.

FY 2014-2018 Strategic Goal Framework

While our goals have not changed, this second edition of *Transportation for a New Generation* includes strategic objectives, or sub-goals, that clarify how we will meet these broad strategic goals by linking the outcomes we seek to the programs and functions we perform every day. In addition, we have adopted strategic objectives for important interagency responsibilities that DOT contributes to in the areas of emergency preparedness and national defense, as well as small business assistance. Our goal for organizational excellence is redefined to address the highest-priority management objectives of the Department.

Together with the strategic goals, the strategic objectives make up the organizing framework for the FY 2014-2018 Strategic Plan as shown in Figure 1. The framework includes 5 mission-aligned strategic goals, an organizational excellence goal, and other supporting strategic objectives. Associated with these goals are 17 strategic objectives (e.g., Sustain Assets).

How This Plan Is Organized

The next seven chapters highlight the five mission-oriented strategic goals, the organizational excellence strategic goal and objectives, and the other supporting strategic objectives in the framework. Within each chapter, the challenges facing the Nation and DOT are briefly described. The goal and associated strategic objectives are also stated at the beginning of each chapter section. Next, the cross-modal and modal strategies we will adopt are presented after brief descriptions of a particular aspect of the challenge, e.g., transit fatalities. The relationships between the strategies and the strategic objectives are depicted in Table A. The performance goal(s) and indicator(s) that are associated with each strategic objective are listed in tables following the discussion of the Departmental strategies. The External Risk Factors that we believe influence our ability to meet the strategic objectives, performance goals and indicators during the next four years are also discussed.

Why Is This Revision Necessary

The *GPRA Modernization Act* requires federal agencies to update their strategic plans at the start of a Presidential term. The law places an increased emphasis on the use of strategic plans as a driver of the annual performance plans and budgets, and performance and financial accountability reports that we prepare and submit to Congress each year.

Beginning with the FY 2015 budget cycle, annual performance plans, budgets, and reports will demonstrate how DOT and its partners will achieve these strategic goals and objectives at the level of funding authorized and appropriated by the Congress. In addition, the Offices of the Secretary and the Operating Administrations will base their internal operating decisions, in part, on the more immediate results they will realize for the strategic objectives and their associated performance goals and indicators.

Figure 1. Strategic Goal Framework for FY 2014-2018.

Strategic Goals	Strategic Objectives
SAFETY	Improve safety of system
STATE OF GOOD REPAIR	Maintain or improve operating conditions
	Sustain assets
ECONOMIC COMPETITIVENESS	Enhance productivity and growth
	Increase foreign markets
	Improve system efficiency
	Create dynamic workforce
LIVABLE COMMUNITIES	Enhance quality of life
	Expand access and choice
ENVIRONMENTAL SUSTAINABILITY	Promote energy efficiency
	Mitigate environmental impacts
	Adapt to climate change
ORGANIZATIONAL EXCELLENCE	Develop human capital
	Improve information systems and financial management
SECURITY, PREPAREDNESS, AND OTHER SUPPORTING OBJECTIVES	Ensure effective response
	Meet national security needs
	Expand small business opportunities

Table A. Relationships between Strategies and Strategic Objectives by Goal.

Strategic Objective	Strategies
<p>IMPROVE SAFETY OF SYSTEM - Improve the safety of the transportation system by addressing behavioral, vehicle, and infrastructure safety issues through prevention, mitigation, and response using innovative and effective partnerships, programs, and resources.</p>	<p>Reduce motor vehicle fatalities and injuries.</p> <p>Reduce fatalities and injuries in aviation..</p> <p>Reduce railroad fatalities and injuries.</p> <p>Reduce transit fatalities and injuries.</p> <p>Reduce fatalities and injuries in hazardous materials transportation.</p> <p>Reduce pipeline fatalities and injuries.</p> <p>Reduce fatalities and injuries from illegal drug use and alcohol misuse.</p>
<p>MAINTAIN OR IMPROVE OPERATING CONDITIONS Maintain or improve the availability, reliability, and performance of the Nation's transportation infrastructure, equipment, and facilities by ensuring that they are functioning as designed within their useful lives.</p>	<p>Improve the condition of highway infrastructure through strategic investment.</p> <p>Improve the condition of airport runways.</p> <p>Improve the condition of transit systems.</p> <p>Reduce AMTRAK's State of Good Repair backlog.</p>
<p>SUSTAIN ASSETS - Reduce the costs of sustaining the Nation's transportation infrastructure, equipment, facilities, and technology by instilling proven asset management practices through partnerships with other governmental agencies and infrastructure owners.</p>	<p>Foster and maintain partnerships.</p>
<p>ENHANCE PRODUCTIVITY AND GROWTH - Improve the contribution of the transportation system to the Nation's productivity and economic growth by supporting strategic, multi-modal investment decisions and policies that reduce</p>	<p>Improve the contribution of the transportation system to the Nation's economic growth.</p> <p>Foster a competitive air transportation system that is</p>

Strategic Objective	Strategies
costs, increase reliability and competition, satisfy consumer preferences more efficiently, and advance U.S. transportation interests worldwide.	responsive to consumer needs.
INCREASE FOREIGN MARKETS - Increase foreign market access and opportunities for American business overseas by eliminating barriers to trade in transportation-related goods and services; and spur the development of export-related jobs through federal transportation investments, global transportation initiatives, and cooperative research efforts.	Advance U.S. transportation-related economic interests in targeted markets around the world.
IMPROVE SYSTEM EFFICIENCY - Improve the efficiency of the Nation's transportation system through transportation-related research, knowledge sharing, and technology transfer.	Improve research, knowledge sharing, and technology transfer business processes.
FOSTER DYNAMIC WORKFORCE - Foster the development of a dynamic and diverse transportation workforce through partnerships with the public sector, private industry, and educational institutions.	Build a dynamic national transportation workforce.
ENHANCE QUALITY OF LIFE - Enhance quality of life in all communities by directing federal investments in infrastructure improvements towards integrated planning approaches that more efficiently meet transportation, land use, and economic development needs.	Increase access to convenient and affordable transportation choices.
EXPAND ACCESS AND CHOICE – Expand convenient, safe, and affordable transportation choices for all by emphasizing greater public engagement, fairness, equity, and accessibility in transportation investment plans, policy guidance, and programs.	Improve coordination of human services centered transportation. Increase access for persons with disabilities.
PROMOTE ENERGY EFFICIENCY - Reduce foreign oil-dependence and carbon emissions through research and deployment of new technologies including alternative fuels, and by promoting more energy-efficient modes of transportation.	Reduce carbon emissions, improve energy efficiency, and reduce dependence on oil.
MITIGATE ENVIRONMENTAL IMPACTS - Avoid	Reduce transportation-related air,

Strategic Objective	Strategies
and mitigate transportation-related impacts to climate, ecosystems, and communities by helping partners make informed project planning decisions through an analysis of acceptable alternatives, balancing the need to obtain sound environmental outcomes with demands to accelerate project delivery.	water, and noise pollution and impacts on ecosystems.
ADAPT TO CLIMATE CHANGE - Promote infrastructure resilience and adaptation to extreme weather events and climate change through research, guidance, technical assistance, and direct federal investment.	Increase the use of environmentally sustainable practices in the transportation sector. Ensure infrastructure resilience.
DEVELOP HUMAN CAPITAL - Build a capable, diverse, and collaborative workforce of highly-skilled, innovative, and motivated employees by making DOT a workplace of choice through employee empowerment and engagement, learning and development, succession planning, workplace flexibilities, and a healthy and safe workforce.	Enable human capital solutions.
IMPROVE INFORMATION TECHNOLOGY (IT) AND FINANCIAL MANAGEMENT - Advance secure and innovative information systems and technology platforms that protect against cyber threats and support the efficient use of information and data for financial management.	Enable innovative information technology and cyber security solutions. Improve financial performance.
ENSURE EFFECTIVE RESPONSE - Mitigate the impacts to transportation due to all hazards by developing effective response planning and training for leaders and responders.	Enable emergency preparedness.
MEET NATIONAL SECURITY NEEDS- Meet transportation needs for national security through interagency cooperation with the Departments of Defense, State, Homeland Security, and State and local agencies	Enable national security.
EXPAND SMALL BUSINESS OPPORTUNITIES - Expand opportunities for small and disadvantaged businesses in the transportation sector.	Expand opportunities for small and disadvantaged businesses in the transportation sector.

III. SAFETY

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

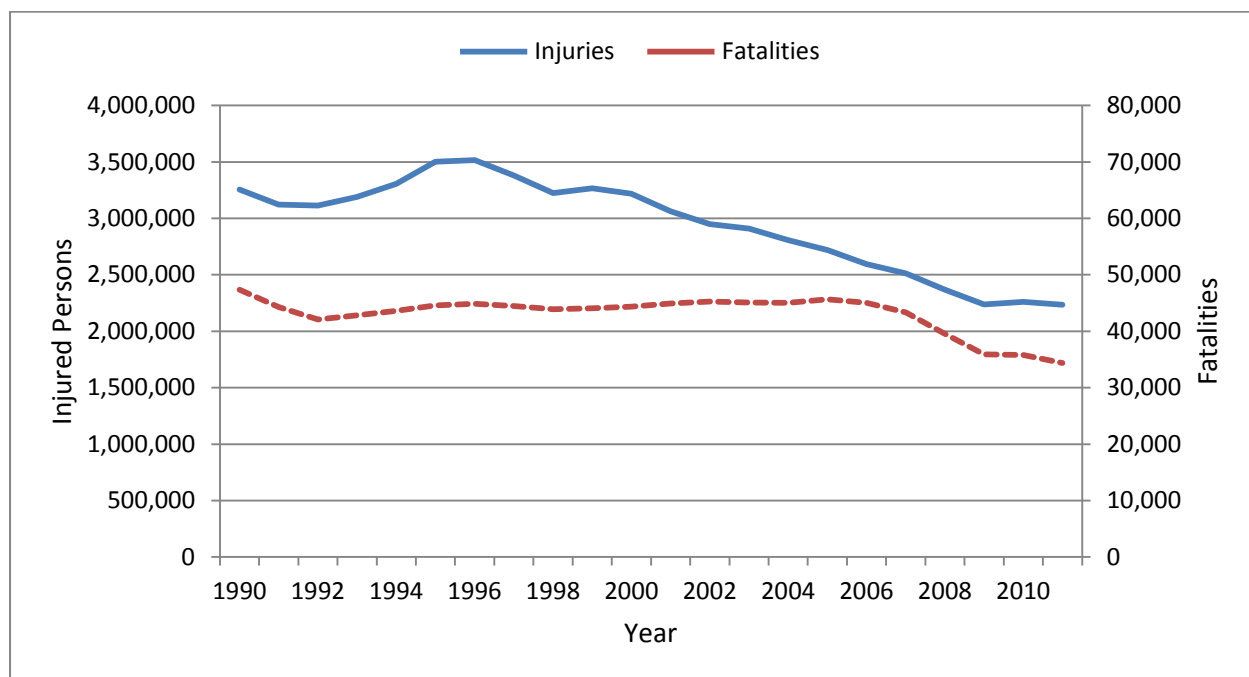
CHALLENGES AND STRATEGIES

Our top priority is to make the U.S. transportation system the safest in the world. As illustrated in Figure 2, we have made good progress in reducing overall transportation-related fatalities and injuries during the past two decades. This downward trend occurred while the U.S. population and travel increased significantly. However, we must continue to promote safer behaviors, vehicle designs, and infrastructure that will further reduce risks and minimize injury for all travelers.

We will work with our stakeholders - transportation agencies, elected officials, law enforcement, industry, safety advocates, drivers, the disability and older adult communities, and the public - to keep the transportation system safe. We will use our safety regulatory authority over automobiles, aviation, rail, trucks, motorcoaches, pipelines, and hazardous materials as cost-effectively as possible to reduce crashes and injuries, and implement our expanded regulatory authority for public transit. We will continue to direct federal resources to the highest safety risks and bring program reforms that will advance our safety mission. We will address these challenges through cross-modal as well as modal specific strategies targeted toward specific safety risks.

Figure 2. Transportation-related Fatalities and Injuries, 1990 to 2011.

(Source: U.S. Department of Transportation, National Transportation Statistics).



Our strategic objective is presented below:

FY 2014-2018 STRATEGIC OBJECTIVE

- ❖ Improve the safety of the transportation system by addressing behavioral, vehicle, and infrastructure safety issues through prevention, mitigation, and response using innovative and effective partnerships, programs, and resources (SA1).

In the following paragraphs, we describe our approach to addressing these challenges, beginning with motor vehicles - passenger cars, motorcycles, and light, medium, and heavy duty trucks – and continuing with pedestrians and cyclists. Because motor vehicles are the largest contributor to transportation-related fatalities and injuries as well as the predominant mode of travel in the U.S., we discuss this challenge in some detail. Our programs use a data driven approach to address a combination of driver, vehicle, and roadway factors in order to prevent or minimize the impact of a traffic crash, or hinder post-crash responses. Next, we discuss aviation, rail, transit, pipeline and hazardous liquids safety. The emphasis in these modes of travel is also on data-driven prevention methods such as voluntary reporting and risk management, e.g., minimizing pilot or operator error. Finally, we describe efforts to minimize drug use and alcohol misuse among safety-sensitive transportation workers.

STRATEGIES FOR REDUCING MOTOR VEHICLE FATALITIES AND INJURIES

Fatalities in motor vehicle traffic crashes accounted for 94 percent of a total of 34,362 transportation-related fatalities in 2011, as shown in Table B. The resulting costs of motor vehicle crashes drain more than \$230 billion, in 2000 dollars, from the economy annually.⁶

DOT SAFETY COUNCIL

The U.S. DOT Safety Council provides a forum for information exchange, discussion and collaboration to enable coordinated, cross-modal approaches to advancing the safety goal. The Safety Council leverages the Departmental expertise and leadership of the Chief Safety Officers, Associate Administrators of Safety and other senior safety leaders to identify, prioritize, and coordinate cross-modal safety challenges and emerging issues with the operating administrations. The Safety Council provides both advice and technical support to the Secretary and Operating Administrations on the most important Departmental safety issues.

Table B. Transportation Fatalities by Mode, 2011.

.(Source: National Transportation Statistics, Table 2-1, U.S. DOT, 2013)

Transportation Mode	Number of Fatalities	Percent of Total
Highway	32,367	94.2
Waterborne*	820	2.4
Railroad	570	1.7
Air	485	1.4
Transit	106	0.3
Pipeline	14	<0.1
* Waterborne travel safety is the responsibility of the U.S. Coast Guard.		

In 2011, 32,367 people lost their lives and an estimated 2.22 million people were injured in motor vehicle crashes, even as roadway fatalities and injuries fell to their lowest rates ever. In 2011, the rate of fatalities was 1.10 per hundred million vehicle miles of travel (VMT). The declines in motor vehicle fatalities and injuries that we've seen during the past two decades are the result of successful efforts in these major areas:

- ❖ Drivers are exhibiting safer behaviors, buckling their seatbelts at record rates, and choosing not to get behind the wheel after drinking;⁷
- ❖ Vehicle designs are much safer, as crash avoidance technologies such as electronic stability control and crashworthiness technologies such as advanced air bags continue to improve and are more widely deployed in the fleet;
- ❖ Highway infrastructure designs are safer due to safer intersections, better signs and lighting, improved pavement technologies, and more effective crash barriers;
- ❖ States and municipalities significantly improved their ability to analyze data and more effectively target resources on their largest safety challenges and
- ❖ Traffic operations strategies and Intelligent Transportation Systems (ITS) are preventing crashes by informing travelers and enabling proactive management of the surface transportation system.

To continue this downward trend in motor vehicle fatalities and injuries, DOT will:

- Expand efforts to increase seat belt use through increased enforcement and communications, and complete a regulation requiring lap shoulder seat belts for motor coaches;

- Reinforce partnerships with Federal agencies, States, localities, and Tribal governments to address problems associated with alcohol-impaired driving, and continue to explore the potential for widespread use of in-vehicle technologies to prevent alcohol-impaired driving;⁸
- Improve the roadway infrastructure through system-wide implementation of proven safety countermeasures, traffic calming measures such as roundabouts and innovative intersection design;
- Promote upgrades in State and local data systems and analytical capacity to further advance performance-based investment decisions and grant allocations;
- Complete and implement NHTSA's Data Modernization, which will enhance the quality of crash data collection and improve the IT systems supporting NHTSA's crash data bases, thereby ensuring that regulatory and safety program decisions continue to be based on sound data;
- Implement the performance-based safety programs in the MAP-21 legislation;
- Promote the integration of all federal safety programs working toward a common goal of reducing fatalities and serious injuries;
- Implement the DOT Blueprint for Ending Distracted Driving by encouraging all States to enact and enforce distracted driving laws, encouraging the auto industry and manufacturers of handheld electronic devices to adhere to guidelines for in-vehicle and nomadic technologies that reduce the potential for distraction, and educating novice drivers to the risks of driver distraction and its consequences.⁹
- Encourage the deployment of effective advanced vehicle automation technologies to enhance safety, including crash avoidance technologies such as advanced braking systems, warning systems relating to lane departure and blind spots, and pedestrian collision avoidance systems;
- Continue research and implementation of vehicle-to-vehicle and vehicle-to-infrastructure technologies that enable vehicles to communicate and potentially avoid collisions and offer additional mobility and environmental benefits;¹⁰
- Continue strong enforcement of vehicle safety laws to ensure defective and noncompliant vehicles and equipment are identified and remedied;
- Carry out research and demonstration projects in operator safety to reduce fatalities and injuries in rail and bus operations; and
- Provide national leadership in promoting and developing effective emergency medical services systems to enhance survival of motor vehicle crash patients by improving post-crash care, including the triage of patients to the appropriate levels of medical care and reducing the elapsed time from the crash until the patient arrives at definitive care.

Although only 21 percent of the U.S. population lives in rural areas, rural crashes accounted for 55 percent of all traffic fatalities in 2010. ¹¹However, fatalities in rural

areas have declined at twice the rate of fatalities in urban areas over the past decade. To further improve rural road safety, DOT will:

- Encourage State and local agencies to improve their data-driven, comprehensive safety strategies and collaborate with stakeholders such as Federal land management agencies, and 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.

PEDESTRIANS, BICYCLISTS, AND ALL ROAD USERS

While we have achieved many safety gains through traditional roadway safety design practices, there are too many roadways, especially in highly populated areas, that inconsistently provide adequate safety for pedestrians, bicyclists, and people with disabilities. While the ten year trend in pedestrian and bicycle fatalities is consistent with the downward trend in overall fatalities, pedestrian fatalities increased 3 percent and bicycle fatalities were up by 9 percent, respectively, between 2010 and 2011. When this increase is looked at in conjunction with a greater demand for pedestrian and bicycling options and an increased emphasis in many urban areas for a more diversified transportation network that accommodates that demand, more attention needs to be placed on how pedestrian and bicycling options can be more effectively and safely integrated into existing transportation networks.

Roadway designs that accommodate all users, referred to as complete streets, help to reduce fatalities and injuries. These roadway designs include features such as sidewalks, raised medians, turning access controls, better bus stop placement, better lighting, traffic calming measures, accessible sidewalks, curb cuts, accessible signage for sensory and cognitive disabilities, and other advances for travelers with disabilities. A safety review found that designing streets with these users in mind improves pedestrian, bicyclist, and motorist safety.¹² Instituting policies that accommodate all roadway users ensures that every transportation project becomes a comprehensive safety project. These policies have the added benefit of making walking and biking more attractive options and of enhancing the aesthetic quality and commercial activity on local streets.

Older road users are particularly vulnerable. They are more likely to suffer life-threatening injuries even in minor crashes compared with younger people. In 2011, more than 5,400 people age 65 and older were killed and 185,000 were injured in traffic crashes. With the rising number of Americans reaching retirement age over the next 10 to 20 years, strategies to address their transportation safety needs more attention.

To reduce fatalities and injuries for pedestrians, bicyclists, and older drivers, DOT will:

- Establish a new clearinghouse of information on determining medical fitness to drive as a resource for State licensing agencies;
- Encourage States to adopt policies and programs that improve pedestrian, and bicyclist safety;¹³

- Work with State, local, and Tribal governments to provide more technical assistance such as the application of pedestrian and bicycle safety assessments to ensure that transportation systems are designed for optimum safety for all;
- Develop training programs for motorists, children, pedestrians and bicyclists and promote the use of these programs in schools and other venues;
- Work with stakeholders to increase accessible sidewalks, curb cuts and signage, to increase safety for people with disabilities, older adults, novice drivers, and young children;
- Distribute community-oriented material, including material in multiple languages, and in culturally competent and accessible formats for people with disabilities, that offers technical guidance on improving pedestrian and bicycle safety through engineering, outreach and enforcement activities;
- Consider adopting vehicle standards to reduce pedestrian deaths by making vehicles less likely to harm the pedestrian and by providing driver warnings or automatic braking to prevent a pedestrian crash;
- Collaborate with the U.S. Department of Justice, and with 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
- Provide national leadership on comprehensive, data-driven and evidence-based emergency medical services and Next Generation 911 systems.

MOTORCYCLISTS

There were 4,612 motorcycle fatalities in 2011. When compared to 2,897 fatalities in 2000, this represents an increase of 60 percent over this period. Since the late 1990s, the number of registered motorcyclists has doubled. As a result, we are seeing an increase in motorcycle crash fatalities, which has partially offset an overall reduction in highway fatalities.¹⁴ In 2011, only 60 percent of motorcyclists nationwide were wearing motorcycle helmets, a decline from 2000 when 71 percent were helmeted.

We endorse efforts to encourage riders to wear DOT-certified motorcycle helmets on every trip. Additionally, we must increase awareness of motorcycle safety risks and identify best practices to improve the safety of motorcycle riding. In order to accomplish this, we need to identify factors that contribute to motorcycle crashes and identify strategies for reducing crash frequency and severity. To improve motorcycle safety, we will:

- Develop a set of voluntary national education standards for entry-level motorcycle rider training programs to promote more comprehensive and consistent programs nationwide, and best practices for States in implementing these programs;¹⁵
- Evaluate the benefits of improved motorcycle safety law enforcement and raising the number of licensed motorcyclists because unlicensed motorcyclists are overrepresented in crashes;

- Continue to encourage motorcyclists to use only DOT-certified helmets through educational and possibly regulatory actions;
- 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; and
- Conclude the FHWA Motorcycle Crash Causation Study to identify contributing factors for motorcycle crashes and identify effective countermeasures based on evaluation and analysis of the study data.

COMMERCIAL MOTOR VEHICLES

In 2011, commercial motor vehicles (CMV), or large trucks and buses, represented 4.3 percent of all registered vehicles and 9.5 percent of total Vehicle Miles Traveled (VMT) on the Nation's roadways. In 2011, about 12 percent, or 3,568, of all motor vehicle fatalities in the U.S. involved crashes with CMVs. The fatality rate declined from 0.205 to 0.136 fatalities per hundred million VMT between 2000 and 2011.

We attribute some portion of the overall improvement to the steady implementation of the FMCSA Compliance, Safety, Accountability enforcement model, which is modernizing the effectiveness and efficiency of motor carrier enforcement activities through early contact with a greater number of motor carriers.¹⁶ Targeted enforcement interventions, increased oversight of Commercial Drivers License programs, safety audits, and inspections of motor carriers and operators have contributed to reducing the fatality rate. The primary challenge in continuing to improve truck and bus safety is to make certain that a safety culture exists across the industry. To improve motor vehicle safety, we will:

- Implement a three-pronged strategy that raises the bar to enter the motor carrier industry, requires carriers to maintain high safety standards to remain in the industry, and removes high-risk carriers, drivers, and service providers from operation;
- 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, technical solutions, and operational effectiveness; and
- Consider regulatory actions to improve crashworthiness of motor coaches and other commercial vehicles and to require implementation of cost effective crash avoidance technologies to those vehicles.

STRATEGIC HIGHWAY RESEARCH PROGRAM SAFETY DATA

Researchers estimate that driver behavior causes or contributes to 90 percent of crashes. Yet, comparatively little is known about how drivers respond to the driving environment inside and outside their vehicles. To address this critical gap in our understanding of driver behavior, the second Strategic Highway Research Program

(SHRP2) safety program is developing the most comprehensive naturalistic driving study database in the world.

The study will capture a broad range of data on the behavior of approximately 3,100 volunteer drivers in real-world driving conditions at six sites in the continental United States. A complementary roadway information database will make it possible to relate driver behavior to roadway characteristics. These foundational databases along with improved data sets and analysis support tools are expected to be used by public, private, and academic researchers to improve safety for the next 30 years.

To improve our ability to use safety data to understand driver behavior and its contribution to crashes, we will:

- Establish policies and procedures for long-term stewardship of the SHRP2 safety data, including broad policies for data access, privacy, and information security;
- Ensure that the research community has broad access to the data in a useful, convenient, timely and affordable manner, while providing data and system security that meets all relevant standards;
- Provide technical assistance to users of secure data in the form of training, analysis support, and development of analytical tools;
- Promote the use of the data to study the interrelationship between the driver, vehicle, roadway, and the environment to further develop safety improvements; and
- Continue to work with stakeholders and partners to identify high-priority research needs that can be addressed using the data.

STRATEGIES TO REDUCE FATALITIES AND INJURIES IN AVIATION

There were 485 aviation-related fatalities in 2011, which represents about 1.4 percent of all transportation-related fatalities, as shown in Table A. Most of these fatalities were in general aviation and 80 percent of all fatal accidents were attributed to human factors. While past efforts have brought commercial aviation fatalities to historic lows, a shift in thinking will be necessary to drive additional safety improvements in the future. Looking forward, it will be essential to view aviation as a system of interacting elements, and to bring together all aviation stakeholders to achieve additional improvements.

Several government and industry initiatives are underway to shift from forensic, accident-based safety analysis with targeted mitigations to a more robust, integrated safety data and information driven environment with systemic safety solutions. The success of these initiatives requires the adoption of Safety Management Systems (SMS). We are ~~working~~ with domestic and international stakeholders, including airline carriers, to stimulate cooperation for, and protection of, open reporting of safety concerns. In our safety oversight capacity, FAA staff work with stakeholders to incorporate SMS principles throughout their operations.

We will continue to develop and deploy technologies to use U.S. airspace in safer, more efficient, and more environmentally sound ways.¹⁷ The Next Generation Air

Transportation System (NextGen) is providing air traffic managers and pilots with the tools to proactively identify and mitigate weather and other potential flight conflicts. It will enable us to better meet our national security needs and ensure that travelers benefit from the highest levels of safety. To meet this challenge, we will:

- Leverage optimum use of existing aircraft navigation and communication capabilities. Accommodate new aircraft capabilities through improved airport, terminal and en-route operations, and flight information services in order to improve or ensure there is no degradation of safety as NextGen technologies and operations are introduced;
- Modernize the criteria related to pilot qualification, training, testing, and hiring, including for pilots flying for regional airlines;
- Work to develop competency of civil aviation authorities worldwide to meet international safety oversight standards;
- Continue vital partnership initiatives with key aviation stakeholders to encourage the implementation of voluntary safety reporting programs in a protected environment;¹⁸ and
- Continue general aviation partnership efforts to develop safety strategies that will mitigate the root causes of accidents.

STRATEGIES TO REDUCE RAILROAD FATALITIES AND INJURIES

During FY 2012, rail-related accidents and incidents resulted in 684 fatalities and 7,481 injuries. The total rail-related accident and incident rate, which includes train accidents, highway rail grade crossing incidents, and other accidents and incidents, fell from 19.0 in FY 2004 accidents and incidents per million train-miles to 14.9 in FY 2012, which is the lowest since data collection began in the 1970s. The past 10 years were the safest ever for the railroad industry. From FY 2003 through FY 2012, the number of reportable rail-related events declined 23 percent to 11,068. Train accidents fell 39 percent to 1,815, highway rail grade crossing incidents decreased 31 percent to 2,037, and other accidents and injuries decreased 14 percent to 7,216.

To ensure the safety of the Nation's rail operations and infrastructure, we enforce safety regulations, administer financial assistance programs, and conduct rail safety research and development. Field inspectors and specialists use data-driven, risk-based targeting to focus their activities, with particular attention on human error and track flaws, which are the two leading causes of train accidents. Moreover, we are committed to helping resolve technical and spectrum availability issues that could hinder implementation of positive train control systems.¹⁹ To achieve higher levels of safety performance, railroads must adopt system safety and risk reduction programs, as well as new technologies such as positive train control systems.

To promote further increases in rail safety, we will:

- Continue working with the freight and passenger railroads to overcome technical and programmatic obstacles to implementation of positive train control system;

- Oversee initiatives to discourage employee distraction while performing safety critical duties; and work with the Railroad Safety Advisory Committee to develop recommendations in conjunction with the Department's effort to combat distracted driving across all modes; and
- Work with railroad management, labor and other stakeholders to implement Risk Reduction Program, including the Confidential Close Call reporting system, an FRA-led, industry wide initiative to build strong safety cultures by using predictive data to identify individual and systemic safety risks and developing innovative methods, processes, and technologies to correct problems and mitigate risks.

There are about 250 fatalities each year at approximately 216,000 public and private at-grade railroad-highway crossings in the U.S. About 94 percent of collisions and 87 percent of grade crossing fatalities are the result of risky motor vehicle driver behavior or poor judgment. To improve safety at these crossings, we will:

- Ensure that corridor plans for high-speed and intercity passenger rail operations address grade crossing safety;
- Use public awareness programs to help motor vehicle drivers learn to navigate grade crossings safely;
- Promote consistent enforcement of State and local traffic safety laws and sustained use of penalties on violators to deter motorists from making poor decisions at grade crossings; and
- Encourage installation of flashing lights and gates and traffic lane dividers that deter motorists from violating grade crossings and driving around lowered gates.

STRATEGIES TO REDUCE TRANSIT FATALITIES AND INJURIES

Transit, which provides more than 10 billion passenger trips each year, is one of the safest modes of travel. In 2011, 228 fatalities, of which only 36 were transit patrons, were associated with transit systems not regulated by the FRA. Despite this safe record, several significant transit accidents in recent years have raised important concerns about the safety practices at some of our Nation's largest transit agencies. The challenge confronting the transit sector is how to improve on the current transit safety record, even as the number of people using transit increases and as infrastructure and equipment age.

MAP-21 authorizes FTA to establish and enforce a new comprehensive safety oversight framework for all modes of public transportation, including heavy rail, light rail, buses, ferries, and streetcars. Among other activities, we will work with the DOT Transit Rail Advisory Committee to update and enhance the State safety oversight program for rail transit systems to ensure that these systems are meeting basic, common-sense safety requirements. The law also includes important new safety provisions for transit bus operators. To improve public transportation safety, we will:

- Establish requirements to approve and certify each State safety oversight agency to ensure that it assumes responsibility for safety oversight of rail transit systems and enforces federal law for rail transit safety;

- Develop safety performance criteria for all modes of public transportation;
- Develop minimum safety performance standards for transit vehicles not regulated by the FRA, FMCSA, or the U.S. Coast Guard;
- Establish requirements for these safety performance criteria to be integrated into the metropolitan planning process and the statewide (i.e., non-metropolitan) planning process; and
- Develop a public transportation safety certification program that applies to all modes of public transportation.

STRATEGIES TO REDUCE FATALITIES AND INJURIES IN HAZARDOUS MATERIALS TRANSPORTATION

We must also address the safety and economic impacts that transportation-related disruptions, such as the release of hazardous materials or pipeline spills, have on communities. Hazmat transportation fatalities across all modes of transportation occur at the rate of one for every 21 billion ton-miles moved, which represents an average of 13 fatalities per year between 2001 and 2010. Some of the most serious risks from hazardous materials are due to infrequent accidents that have significant consequences, such as a freight car derailment that releases chemicals listed as hazardous materials into the surrounding environment.

During the past decade, there were 94 hazmat incidents in the U.S. involving one or more fatalities. At least three-fourths of these involved a truck rollover or crash. Key targeted areas of risk include fire aboard aircraft, release of bulk quantities of materials that are toxic-by-inhalation, and tank truck rollovers. To increase hazmat safety, we will:

- Enhance the review of applicants for special permits and approvals to ensure that they are fit to perform the required functions and adhere to the provisions of their permit or approval;
- Develop uniform standards for training hazmat inspectors and investigators;
- Develop a risk management framework and improve hazmat data collection (i.e., incident, inspection, and investigation) to identify risk concentrations and target use of resources to manage the most serious risks;
- Advance research to develop technologies and procedures to better secure hazardous materials shipments and assess the risks of hazmat events;
- Develop software that systematically evaluates the risk of alternative rail routes for transporting hazardous material and provides respective scores for ranking purposes; and
- Under our Rail Accident Mitigation Project, conduct additional hazardous materials safety inspections in the Bakken Formation region.²⁰

STRATEGIES TO REDUCE PIPELINE FATALITIES AND INJURIES

Pipelines carry two-thirds of the Nation's energy supplies. Over the past twenty years, pipeline incidents involving fatalities or major injuries have declined by 50 percent. Improvements in risk management, such as integrity management programs for each pipeline system and damage prevention programs in the States, have markedly reduced accidents due to corrosion and excavation damage. Advances in pipeline materials and technology have reduced the risks from material failure. The possibility of a pipeline

spill is small. But, the risks are significant to people and the surrounding environment. In addition to safety impacts, communities can be economically impacted when people are evacuated from their homes, business activity is curtailed, and transportation services interrupted.

Most fatal pipeline incidents occurred on gas distribution systems. To address pipeline safety issues, we will:

- Work with State pipeline safety programs and pipeline operators to ensure that the identification, repair, rehabilitation, requalification, or replacement of the highest risk pipelines are accelerated;
- Investigate new technologies for improving the assessment, detection and control of pipeline risks;
- Enhance the *811-Call Before You Dig* program at the State and local levels to prevent pipeline damage from excavation;²¹
- Promote awareness and use of recommended practices for land use planning and development near transmission pipelines;²²
- Integrate, target, and expand safety inspections based on the most serious risks;
- Increase our focus on safety beyond compliance with standards, with particular attention to developing a strong safety culture in the companies that we regulate; and
- Improve leak detection and the use of product control systems such as excess flow valves, remote control valves, and automatic shutoff valves on gas and liquid pipelines.

STRATEGIES TO REDUCE FATALITIES AND INJURIES FROM ILLEGAL DRUG USE AND ALCOHOL MISUSE

For more than two decades, DOT has been the world leader in regulated drug and alcohol testing and our program is the largest of its kind worldwide. Our mission is to ensure the safety and security of the traveling public by requiring drug and alcohol testing of transportation industry employees. Employees who violate drug and alcohol testing rules are removed from performing safety-sensitive duties immediately. They must submit to an evaluation and successfully comply with treatment recommendations before returning to duty. We require employers subject to these regulations to report drug and alcohol data annually and laboratories to report drug positive test results on a semi-annual basis. DOT operating administrations - FAA, FMCSA, FRA, FTA, and PHMSA - as well as the U.S. Coast Guard collaborate with the DOT Office of Drug and Alcohol Policy and Compliance to ensure that regulations and enforcement efforts are carried out consistently and effectively. Additionally, they work together to educate and inform employers, service agents, and employees in the transportation industry of the regulations that cover more than 8 million safety-sensitive employees in the U.S. To continue this work, we will:

- Collaborate internally and with the U.S. Coast Guard to detect and deter illicit drug use and alcohol misuse with respect to safety-sensitive transportation industry employees;²³

- Ensure that DOT regulations are applied uniformly across the transportation modes to reduce the risks of fatalities and injuries;
- Work through high-level meetings and close coordination with the Office of National Drug Control Policy, the U.S. Department of Justice, and other Federal partners to ensure that our regulations and policies are efficient and effective in both drug interdiction work and reducing the demand for illegal drugs through prevention, education, and rehabilitation; and
- Work with NHTSA on issues related to drunk and drugged driving.

STRATEGIC OBJECTIVES, PERFORMANCE GOALS, AND INDICATORS

We will monitor our progress in achieving the Strategic Objectives for the Safety goal using the Performance Goals and Indicators in Table C.

Table C. Performance Goals, Indicators, and Lead by Safety Strategic Objective.

Performance Goal	Performance Indicators	Lead Office(s)
Strategic Objective: Improve the safety of the transportation system by addressing behavioral, vehicle, and infrastructure safety issues through the innovative and effective use of partnerships, programs, and resources (SA1).		
Reduce the rate of roadway fatalities to x.xx per hundred million VMT by FY 2018.	Indicator: Roadway fatalities per 100 million VMT Sub-Indicators: <ul style="list-style-type: none"> • Passenger vehicle occupant fatalities per 100 million passenger vehicle VMT. • Motorcycle rider fatalities per 100,000 motorcycle registrations. • Non-occupant (pedestrian and bicycle) fatalities per 100 million VMT. • Roadway fatalities involving large trucks and buses per 100 million VMT. 	NHTSA FMCSA FHWA
Reduce the commercial air carrier fatalities per 100 million persons on board to no more than 6.2 in 2018.	Commercial air carrier fatality rate.	FAA
Reduce the general aviation fatal accident rate to no more than one	General aviation fatal accident rate.	FAA

Performance Goal	Performance Indicators	Lead Office(s)
fatal accident per 100,000 flight hours by 2018.		
Reduce Category A & B (i.e., most serious) runway incursions to a rate of no more than 0.395 per million operations and maintain or improve the rate through FY 2018.	Rate of runway incursions (category A&B).	FAA
Implement 80 percent of approved interventions to mitigate the top 5 hazards associated with airborne losses of separation.	Percentage of risk interventions implemented.	FAA
Reduce total transit fatalities to no more than 220 by 2018.	Total annual transit fatalities.	FTA
Reduce total rail-related accidents and incidents to no more than 15.3 per million train miles in FY 2018.	Total rail-related accident and incident rate. ²⁴	FRA
Reduce natural gas and hazardous liquid pipeline incidents involving death or major injury to no more than xx by FY 2018.	Number of natural gas and hazardous materials pipeline incidents involving death or major injury.	PHMSA
Reduce hazmat transportation incidents involving death or major injury to no more than xx by FY 2018.	Number of hazmat transportation incidents involving death or major injury.	PHMSA

EXTERNAL RISK FACTORS

Traffic fatalities on the Nation's roadways declined 25 percent between 2006 and 2011. During this same period, vehicle miles of travel also declined by 2 percent after peaking in 2007. The decline in travel is likely associated with the downturn in economic activity following the 2008 recession. Since the U.S. economy has entered a period of stable growth that is forecast to continue for the next few years, we do not expect the same level of

decline in fatalities as was recently observed. Discretionary and recreational travel, which tends to increase in an economic rebound, is riskier than commuting to work and travel to meet family obligations. In these situations, drivers are behind the wheel for longer periods of time, during all hours of the day and night, and often in unfamiliar driving locations.

The troubling increase in fatalities among motorcyclists during the past few years is primarily due to increased exposure, but the risks are increased by the lack of universal helmet laws in a number of states. If all motorcyclists involved in crashes were to wear helmets, an estimated additional 700 lives could be saved each year.²⁵

Prescription and over-the-counter drug use is on the rise. From 2005 to 2009, the proportion of fatally injured drivers who tested positive for drugs (i.e., illicit, prescription, and over-the-counter) rose from 13 to 18 percent.²⁶ There is significant evidence that illegal drugs, over-the-counter and prescription medications are playing a greater role in crashes, but the effects of drug use on driving are not as well understood as alcohol, particularly when drugs may interact with each other.

While we do not yet have long term trend safety data, there were 3,331 fatalities in 2011 in which driver distraction was a contributing factor. This figure represents 10 percent of all fatalities during that year and indicates a growing traffic safety problem. More widespread adoption and use of mobile devices by Americans is a likely cause. By 2011, 87 percent of the U.S. population were mobile phone subscribers and 23 percent had used a mobile device to obtain traffic directions.²⁷ In a recent survey of drivers, 35 percent reported reading a text message or e-mail while driving, and 26 percent stated that they sent a text message.²⁸ Despite the potential for driver distraction, the adoption of these technologies may also increase transportation safety by providing additional information to drivers or operators, or even by taking control of a vehicle in imminently hazardous situations. However, the increased amount of information must be communicated to drivers and operators in ways that do not excessively divert their attention from the primary task of operating the vehicle.

More widespread commercial deployment of driver assistance technologies, such as adaptive cruise control and lane departure warning systems, as well as crash avoidance and crash notification systems, could help reduce human error as a cause of crashes. Future growth in vehicle-to-vehicle communications could yield safety benefits if, for example, drivers receive timely warnings about other vehicles stopped in or crossing their path. Likewise, vehicle-to-infrastructure communications may enable drivers to get warnings of road conditions or speed restrictions. All of these trends are likely to reduce the probability of a crash occurring and spare more lives in the event of a crash. Continuing automated vehicle research addresses issues such as how to ensure an effective driver-vehicle interface to enhance the likelihood that warnings are heeded, how to develop useful performance standards for highly automated systems, and how to ensure that automated control systems fail safe. Active research is underway now to determine effective security and credential management systems that support the trust of all the vehicles, people, and systems in a connected vehicle environment. The successful adoption of connected vehicles will also depend on a number of factors including how the Federal Communications Commission determines the uses of the wireless spectrum and to what extent it will be available for various transportation

uses, such as vehicle-to-vehicle and vehicle-to-infrastructure communication, as well as the fees associated with wireless connections.

Demographic trends will also affect roadway safety over the coming decade including the increasing age of the general population and greater prevalence of older drivers with age-related medical conditions that affect safe driving. Although older drivers are generally involved in fewer crashes per mile traveled, those crashes are more likely to be fatal. In addition, older Americans seeking alternatives to driving are at greater risk if they cannot walk to crosswalks, are able to cross broad street intersections in short periods of time, or can easily board public transit buses.

According to the 2009 National Household Travel Survey, about 11.9 percent of all reported trips were made by walking or bicycling, which is an increase in reported trips by about 25 percent since 2001.²⁹ But approximately one-third of Americans live in communities without sidewalks or bike lanes.^{30 31} About one-third of Americans do not drive including young people, elderly people, people with mobility disabilities, people who cannot afford to drive and people who choose not to drive. Poor provision for pedestrian and bicycle traffic will continue to impact their safety.

Air travel is also expected to increase as the economy rebounds. The implementation of NextGen will provide air traffic controllers with new tools to reduce airport congestion, increase operational awareness among airport vehicle drivers, and give pilots better weather information for decision-making. Risks of runway incursions can be offset if the aviation industry continues to endorse training and outreach. A risk-based prevention approach that comes with more widespread adoption of SMS should also yield benefits particularly for the General Aviation sector. Approximately 80 percent of fatal General Aviation accidents are related to one or more human factors including individual acts such as skill-based or judgment errors, personnel factors such as self-imposed stress, or inadequate supervision. Widespread adoption by aircraft owners and operators of an open reporting culture and voluntary safety reporting processes will help reduce aviation-related risks.

IV. STATE OF GOOD REPAIR

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

CHALLENGES AND STRATEGIES

Recent reports on the condition of our highways, bridges, transit assets, and passenger rail facilities reveal that many fall short of state of good repair, and as a result, they compromise the safety, capacity, and efficiency of the U.S. transportation network. As a Nation, we have not adequately maintained our major highway, transit, and rail systems. At a time when transportation programs face unprecedented fiscal challenges, we believe that stewardship of transportation infrastructure rises to the level of a strategic goal. We are committed to making state of good repair a top priority in the Department's ongoing programmatic and legislative proposals.

However, our role in achieving state of good repair varies from mode to mode. We can influence the condition of Federally-funded highway, transit and airport infrastructure through program guidance and technical assistance provided to State departments of transportation, transit agencies, and airport authorities, and through research and development to produce the knowledge, guidance and innovations needed to more effectively address the Nation's infrastructure challenges. We also help protect and preserve commercial service airports through safety regulations for airport safety certification, oversight and safety data programs, and supporting financial assistance programs. While we have some influence on state of good repair through our safety regulations in other modes like railroads, seaports, and pipelines, we lack the extensive infrastructure programs that would allow us to more directly influence their performance.

The Nation's road network includes more than 4 million miles of public roadways and approximately 605,000 bridges. In 2010, this network carried nearly 3 trillion vehicle miles of travel. All levels of government spent a combined \$205.3 billion for highway-related purposes in 2010. The portion of total highway capital spending funded with federal monies was 44.2 percent, while federal spending on system rehabilitation amounted to 59.9 percent of the total. The latter represents an increase of 9 percent from 2000, which is primarily due to federal investment related to the implementation of the American Recovery and Reinvestment Act (Recovery Act). Estimates of the total investment needed to address the remaining deficiencies in all existing highway and bridge assets ranges from \$72.9 billion to \$78.3 billion annually through 2030.³²

Public transportation systems provide service to tens of millions of Americans daily, especially in our Nation's largest metropolitan areas. These major transit systems, some of which are over one hundred years old, suffer from chronic under-investment and less than optimal application of asset management practices. As a Nation, we need to meet an increasing demand for public transportation and bring transit infrastructure into a state of good repair. More than 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.³³ We estimate that the current backlog in rail and bus facilities and rolling stock is \$77.7 billion, and that an annual expenditure of \$14.4 billion from all Federal and non-federal sources is needed to replace aging assets in poor

condition. An additional \$3.9 billion per year from all sources, Federal and non-Federal, would be needed to eliminate this backlog over 20 years. ³⁴

FAA funds initial infrastructure development at all airports. However, funding for maintenance is limited to those airports that generally do not have sufficient revenue sources for periodic repairs, which usually means smaller airports. In addition, airports can use non-federal passenger facility charges, landing fees, and other sources of revenue to fund maintenance. Proper maintenance of runways can delay the need for major runway rehabilitation. If current revenue sources for pavement maintenance were to diminish, maintenance at some runways could suffer and maintaining conditions would become more difficult.

We can influence the condition of rail infrastructure through safety regulations for railroads that are owned by private railroads, Amtrak, and certain transit agencies. The DOT *2008 National Rail Safety Action Plan* focused on reducing the two leading causes of train accidents--human factors and track flaws and the latter is clearly related to a state of good repair. Additionally, significant new Federal investments in high-speed and intercity passenger rail programs necessitate maintenance of nationally significant rail assets to ensure that they will provide safe and reliable service for future generations of rail travelers.

We can also influence the condition of pipeline infrastructure, which is owned and operated by private entities, through safety and environmental regulations. We set and enforce standards for the design, construction, operations and maintenance of pipelines carrying natural gas or hazardous liquids.

Our strategic objectives are presented below.

DOT will work with Congress and stakeholders to enact an immediate \$40 billion in *Fix It First* investments and \$10 billion to help spur State and local innovation in infrastructure development. These funds, when combined with State, local, tribal, and private funds, will spur job growth and allow States to initiate sound multi-year investments. The return on investment for Federal taxpayers will benefit from historically low interest rates and construction costs.

[FY'14 President's Budget to Congress](#), April 2013.

FY 2014-2018 STRATEGIC OBJECTIVES

- ❖ Maintain or improve the availability, reliability, and performance of the Nation's transportation infrastructure, equipment, and facilities by ensuring that they are functioning as designed within their useful lives (GR1).
- ❖ Reduce the costs of sustaining the Nation's transportation infrastructure, equipment, facilities, and technology by instilling proven asset management practices through partnerships with other governmental agencies and infrastructure owners (GR2).

In the following paragraphs, we describe the condition of our highways, bridges, transit assets, and airport runways in more detail. We recognize the important role our partners will play in meeting these challenges, particularly as we attempt to more widely deploy an asset management approach as best practice.

STRATEGIES TO IMPROVE THE CONDITION OF HIGHWAY INFRASTRUCTURE THROUGH STRATEGIC INVESTMENTS

Improving the safety and operating condition of our Nation's highways, which include many bridges and other structures particularly on the National Highway System (NHS), is critical to the structural integrity, functionality, and cost-effectiveness of the Nation's transportation network.³⁵ Working with the States, we monitor and report the condition of pavement on the NHS through measures of ride quality; and the condition of bridges across the Nation by tracking the percentage of deck area on deficient bridges. Ride quality condition affects the wear-and-tear on vehicles, the comfort of travelers, fuel consumption, and traffic congestion. In the last decade, the percentage of VMT on NHS roads classified as having good ride quality increased from 46 percent in 2000 to 58 percent in 2012.³⁶ Deficient bridge conditions can impact the movement of people and goods through reduced load carrying capacity and geometric constraints. During the past decade, the percentage of deck area on all publicly-owned deficient bridges was reduced from 30.9 percent in 2002 to 28.3 percent in 2012.³⁷ As noted earlier, these improvements are likely due, in part, to an increase in Federal spending for rehabilitation due to the Recovery Act.

Bridges located on the more heavily-traveled NHS are generally in better condition. In MAP-21, a specific standard was established for bridges on the NHS. Going forward, the percentage of deck area on structurally deficient bridges on the NHS in each State must be at or below 10 percent.³⁸ Nationally, the percentage of deck area on structurally deficient bridges on the NHS prior to MAP-21 decreased from 8.3 percent in 2010 to 7.1 percent in 2012.

To build on these accomplishments and bring our highways and bridges into a state of good repair, we will:

- Develop and use a nationally recognized, credible, and balanced set of system performance indicators that focus on the NHS, the Strategic Highway Network (STRAHNET), and other major arterials and intermodal connectors;
- Use the system performance information to drive programmatic and legislative linkages between system performance and Federal funding;

- Develop and implement a national research agenda to identify opportunities to manage and preserve surface transportation infrastructure through the use of improved and longer-lasting materials, construction techniques, preservation and management practices, and other methods;
- Make improvements to critical aspects of the highway system by developing a comprehensive process to regularly document infrastructure condition on the NHS, identify critical gaps that are jeopardizing the system, and direct resources to ensure safety and extending infrastructure service life;
- Establish and maintain robust inspection standards for bridges and tunnels to ensure that structural deficiencies are identified and acted upon to preserve safe operating conditions.
- Gather data during regular inspections that support performance based decision-making and strategic investment of resources;
- Implement the Long Term Bridge Performance Program to ensure a comprehensive examination of the Nation's highway bridges;³⁹ and
- Work with State and local agency partners to evaluate where transportation and community needs have changed over time and, recommend when appropriate, decommissioning a bridge structure as an alternative to rehabilitation or replacement.

STRATEGIES TO IMPROVE THE CONDITION OF AIRPORT RUNWAYS

We face a number of challenges as FAA takes steps to ensure that runway conditions at our airports are maintained in a state of good repair. We fund infrastructure development at eligible public-use airports. Funding for routine maintenance is limited to those airports that do not have sufficient revenue sources for periodic repairs, usually the smaller non-hub primary and non-primary airports. Airports of all sizes rely

EVERY DAY COUNTS

Led by FHWA in partnership with State transportation agencies and other stakeholders, [Every Day Counts](#) (EDC) initiatives are designed to shorten project delivery time, enhance the safety and effectiveness of our roadways, and improve environmental sustainability. EDC provides States and local transportation agencies with the information they need about the effectiveness of demonstrated strategies and technologies, so that they can decide which works best for them. Twenty eight separate initiatives have been deployed since October 2010. For example, Accelerated Bridge Construction promotes a number of technologies and practices that can significantly reduce bridge construction time, in some cases from months to days. More than 2,000 bridges were built in the past two years using these methods, and the EDC initiative will expand these bridge construction strategies significantly to states and municipalities across the country.

on our financial assistance for significant rehabilitation, resurfacing, and reconstruction of runways and major taxiways.

Periodic maintenance of runways, particularly resurfacing, is a cost effective way to delay the need for major runway rehabilitation. We fund a broad range of capital infrastructure development at most airports in the National Plan of Integrated Airports System (NPIAS). However, airports are generally responsible for funding periodic and ongoing maintenance. More significant rehabilitation, resurfacing or reconstruction projects may be funded through a variety of funding sources, including Airport Improvement Program (AIP) grants, passenger facility charge revenues, airport revenues and other funding sources. Deferred or delayed maintenance creates an increased risk of damage to aircraft and is a safety concern for the travelling public; and increases both the scope and cost of eventual rehabilitation or reconstruction. Our goal is to maintain at least 93 percent of the Nation's runways in excellent, good, or fair condition. This level is important because it is intended to limit the number of runways undergoing significant reconstruction at the same time. To continue maintaining airport runways, we will:

- Update priorities for infrastructure investments including runway capabilities, in order to maintain and enhance existing airport capacity across all types of airports; and
- Update standards and action plans through the Airport Obstruction Standards Committee for runway infrastructure and procedures such as end-around taxiways.

STRATEGIES TO IMPROVE THE CONDITION OF TRANSIT SYSTEMS

- We propose a strong programmatic focus and significant new investments in improving the state of good repair of our Nation's transit systems. FTA will work in partnership with States, local transit agencies, and other grant recipients to administer Federal transit programs. We will provide financial assistance, policy direction, technical expertise, and grant compliance oversight aimed at improving transit assets. Disability-related transit elements that ensure accessibility, such as elevators, escalators, lifts, boarding, and communications technology, are integral to a well maintained system. To bring our transit systems into a state of good repair, we will: Establish a definition of state of good repair through rulemaking, including objective standards for measuring the condition of transit assets, and establish a framework for transit agencies to set individual targets for their systems;
- Require our grant recipients, especially the largest systems, to develop transit asset management plans, including an asset inventory with condition assessments and investment prioritization;
- Conduct outreach to the transit industry through roundtable meetings and training sessions to encourage knowledge-sharing of best practices in transit asset management; and

- Administer the State of Good Repair Formula Grants program to fund capital projects to maintain transit systems, and to also support projects funded from our remaining grants programs.⁴⁰

STRATEGIES TO REDUCE AMTRAK STATE OF GOOD REPAIR BACKLOG ON THE NORTHEAST CORRIDOR

The Amtrak Northeast Corridor from Boston, Massachusetts to Washington, D.C., is the backbone of the rail transportation network in the Northeastern U.S. It provides high-speed passenger rail service that links four of the ten largest metropolitan areas in the country. When combined with connecting regional corridors and commuter services, the Northeast Corridor region serves nearly 50 million people. Amtrak is faced with an approximately \$5.8 billion backlog of state of good repair projects that must be addressed to ensure the safety and reliability of these services, as well as improve trip times and the overall passenger experience.⁴¹ To bring the Northeast Corridor into a state of good repair, we will:

- Assist Amtrak in updating the *Northeast Corridor State of Good Repair Spend Plan* to reflect recent investments in the Corridor;
- Work with Congress to pass a long-term reauthorization bill that provides financial assistance to eliminate the backlog of state of good repair projects by FY 2022; and
- Oversee federally funded projects to ensure that they are delivered on time and within budget.

STRATEGIES TO FOSTER AND MAINTAIN PARTNERSHIPS

MAP-21 requires States to develop and implement asset management plans and performance plans specifically for highways and bridge infrastructure. Because States have broad flexibility in deciding how to use their funds, which projects to select, and how to implement them, we must develop improved tools and techniques to help States allocate scarce resources more efficiently and to provide effective oversight of Federal investments through the use of data management systems and performance measures. In addition to States and local departments of transportation, the American Association of State Highway and Transportation Officials, the Transportation Research Board, and universities will be key partners in this effort.

MAP-21 also established a new National Transit Asset Management System, requiring a strategic approach to asset management by FTA grantees and prioritizing state of good repair in investment discussions. The legislation created the first stand-alone initiative that is dedicated to repairing and rebuilding the Nation's transit systems. These funds will help public transit operate safely, efficiently, reliably, and sustainably. In addition to transit agencies, other key partners include State and local governments, transit industry associations, and MPOs.

Maintaining runway pavement conditions requires careful coordination with individual airports, as projects must be timed carefully whether it is phased reconstruction of a single-runway airport or the sequential resurfacing of more than one runway over several years. Some of the nation's largest airports resurface their runways on an established revolving basis. In addition to individual airport owners, key partners

include State aeronautical agencies, aviation industry associations, commercial airline carriers, and other user groups.

To encourage partner agencies to adopt and use asset management practices, we will:

- Provide national leadership to encourage greater use of asset management practices in State departments of transportation through the delivery of training, workshops, peer exchanges, and technical assistance;⁴²
- Work to convince State departments of transportation and other partners to adopt a common performance reporting system by raising awareness and understanding of the performance information available in the Highway Performance Monitoring System and National Bridge Inventory through a series of webinars, workshops and technical assistance;
- Deliver research and technical assistance on capital asset management, and develop methods, tools, and guidance to improve transit asset management systems;
- Carry out research and demonstration projects in infrastructure and equipment resiliency; and emergency response methods to ensure that transit capital investments have a longer useful life; and
- Carry out research and demonstration efforts to improve asset management data collection and decision-making.

STRATEGIC OBJECTIVES, PERFORMANCE GOALS, AND INDICATORS

We will monitor our progress in achieving the Strategic Objectives for the State of Good Repair goal using the Performance Goals and Indicators in Table D.

Table D. Performance Goals, Indicators, and Lead by State of Good Repair Strategic Objective.

Performance Goal	Performance Indicator(s)	Lead Office
Strategic Objective: Maintain or improve the availability, reliability, and performance of the Nation's transportation infrastructure, equipment, and facilities by ensuring that they are functioning as designed within their useful lives (GR1).		
Increase percentage of pavements on the NHS and Interstate in good condition to 56 percent or higher by 2018.	Percentage of lane-miles of pavement on the NHS and Interstate in good condition	FHWA
Decrease the percentage of deck area of structurally deficient bridges on the NHS to XX percent or lower by 2018	Percent of deck area of NHS structurally deficient bridges.	FHWA
Maintain runway pavement in excellent, good, or fair condition for at least 93	Percentage of NPIAS airports with runway pavement in	FAA

percent of the open, paved runways in the NPIAS.	excellent, good, or fair condition.	
Keep the nation's state of good repair transit system backlog to less than \$100 billion (current-year dollars) in 2018.	Current-year dollar amount of backlog	FTA
Eliminate Amtrak state of good repair backlog by obligating at least XX percent of funds needed for the Northeast Corridor State of Good Repair Plan by 2018.	Cumulative percentage of funds obligated to complete the Northeast Corridor State of Good Repair Plan	FRA
Strategic Objective: Reduce the costs of sustaining the Nation's transportation infrastructure, equipment, facilities, and technology by instilling proven asset management practices through partnerships with other governmental agencies and infrastructure owners (GR2).		
Complete a Final Rule to establish a process for development of a Transportation Asset Management Plan by 2016; and all States in compliance by the end of FY 2018.	Publish Final Rule by December 31, 2015. Number of States in compliance with Final Rule.	FHWA
Complete a Final Rule establishing a National Transit Asset Management System by 2016.	Publish Final Rule by December 31, 2015.	FTA
Amtrak develops a comprehensive capital planning process that aligns planning and budgeting with implementation by 2018.	TBD	FRA

EXTERNAL RISK FACTORS

In general, under-investment in the Nation's infrastructure assets by Federal and State governments over the past decades has created a situation where many of our highway, airport, transit, and other facilities are only in fair or poor condition. According to recent surveys, the public continues to be unwilling to pay for all of the needed improvements through an increase in taxes; and legislators in some states reflect these views by passing short-term measures to keep systems operating while avoiding needed capital investments. In general, State departments of transportation and other infrastructure owners must make trade-offs between spending on maintenance and investments that would alternatively expand capacity, increase the life of facilities, or reduce a system backlog. The effectiveness of their investments can also be undermined by decisions that must meet multiple interests and concerns and are not based solely on engineering judgments or economic analysis.

During the 2008 recession, States and local governments were also placed under tighter financial constraints that limited their funding options and held up planned projects. An offsetting trend is the increased authorities for innovative financing such as public-private partnerships provided by legislatures in some States and increasing interest among Federal, State and local governments in using credit support mechanisms to attract more private funding for improvement projects.

Increasing construction materials costs, which peaked in the mid-2000s, can also hinder efforts to meet all of the needed improvements. Between 2011 and 2012, highway construction costs increased by 3 percent but were still below the peak that was observed during 2008. The trend in costs is largely driven by asphalt prices, which have been rising steadily since 2009 and are driven by the price of oil and the costs for aggregates used in all types of construction. Between 2011 and 2012, rail transit construction costs increased by 1.6 percent excluding the costs for rolling stock. Prices for steel, which is the most volatile commodity, peaked in 2008, then subsequently declined but are now increasing more modestly than before the 2008 recession. Concrete prices are relatively flat after peaking in 2009.⁴³

DOT has limited ability to systematically improve pavement quality and bridge condition, since State and local highway agencies and airport authorities prioritize investments in projects. The extent to which our partners can or will adopt asset management approaches to realize more optimal decisions will be an important determinant of conditions over the next few years. This situation should improve for highways and bridges as States recognize and meet the requirements associated with MAP-21, including the requirements for using National Highway Performance Program funds on projects. In addition, we are making greater efforts to apply a risk-based approach to oversight of roadway projects using Federal funds, as well as to improve compliance with National Bridge Inspection Standards, and assist our State partners in their asset management and decision-making processes. In the aviation sector, recent Congressional budget actions may defer maintenance for runways and undermine plans for future investments by diverting Federal funds towards other important uses such as operating expenses for air traffic operations.

Despite the establishment of a new State of Good Repair Formula Grants Program, the Nation's transit state of good repair backlog did not develop quickly, and no single funding initiative will be sufficient to tackle it. Implementing transit asset management systems nationwide will only succeed to extent that it causes individual transit systems to prioritize asset rehabilitation and replacement over other competing priorities in a fiscally-constrained environment. Ultimately, tackling that state of good repair backlog will require leveraging existing Federal, state, and local funding sources to support bringing the Nation's transit systems into a state of good repair.

V. ECONOMIC COMPETITIVENESS

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

CHALLENGES AND STRATEGIES

By 2018, the U.S. population is expected to increase from 310 million in 2010 to 335 million and U.S. Gross Domestic Product (GDP) is forecast to increase to \$21.3 Trillion.⁴⁴ Over the next 40 years, the U.S. population is projected to increase to 439 million by 2050 and GDP is expected to almost triple from \$14 trillion in 2010 to \$41 trillion.⁴⁵ Based on these forecasts, it is likely that the movement of people and goods within the U.S. and abroad will continue to increase and the transportation sector will continue to enable economic growth and job creation. The transportation sector contributed approximately \$1.466 trillion, or 9.7 percent, to GDP in 2011.⁴⁶

Travel, in passenger miles, by transport mode is illustrated in Table E. As noted earlier highway travel by passenger vehicle and light truck is by far the dominant mode of travel in the U.S., representing about 87 percent of all passenger miles.

Table E. Travel in Passenger Miles by Mode, 2010.

(Source: National Transportation Statistics, Table 1-40, U.S. DOT)

Travel Mode	Passenger Miles (millions)	Percent of Total
Highways (Passenger vehicle, light truck)	4,244,157	87.2
Air Carrier, Domestic All Services	564,790	11.6
Transit (Motor Bus, Light/Heavy Rail, Ferry)	52,627	1.1
Rail, Intercity	6,420	<0.2

Highway travel, which peaked at approximately 3.05 trillion miles in 2007 and then declined for the first time during the 2008 recession, has begun to rebound. VMT was nearly 3 trillion miles in 2011 and is forecast to grow annually at an average of 1.5 percent between 2014 and 2018.⁴⁷ The number of U.S. commercial air and air taxi/commuter flights, and passengers, also peaked in 2007; and the number of flights has fluctuated annually at just below the peak level since then. Though passenger levels fell 8 percent between the peak level and 2009, passenger levels have since been steadily increasing, as have load factors. The growth in the number of passengers on commercial air flights is projected to increase over the next twenty years at an annual average rate of 2.2 percent.

The long-term outlook for business aviation also remains favorable.⁴⁸ Transit ridership will reach 12.5 billion trips by 2020, if ridership continues to grow at the same rate of 2 percent annually as it did during the past decade.⁴⁹

The impact of trade globalization on the economy is reflected in the recent trends for U.S. exports and imports of goods and services. As illustrated in Figure 3, U.S. exports of goods and services increased from 12.2 percent of GDP in 1990 to approximately 19 percent of GDP in 2012.⁵⁰ Similarly, imports increased from 13.1 percent to 21 percent of GDP during the same period.

Figure 3. Exports and Imports of Goods and Services as a Percent of GDP, 1990 to 2012.
(Source: U.S. Commerce Department, Bureau of Economic Analysis, NIPA Table 1.1.5, April 2013)



The recent trend towards more international movement of people and goods and globalization of markets is expected to continue. U.S. markets continue to shift from local or regional to national and international. The new drivers of economic growth are services, information, and innovation. Manufacturers in the U.S. are increasingly shifting their production to high-value, high-tech products whose manufacture integrates transportation into a just-in-time supply chain based on efficient performance and consistent reliability.⁵¹ This means that there will be continued growth in international air traffic and more goods and services transported from within the country to ports and across national borders. Total passenger air traffic between the U.S. and other countries, at 172 million passengers in 2012, is forecast to grow at an average rate of 4.1 percent annually to 402.9 million by 2033.⁵² Freight tonnage is forecast to increase by 1.6 percent annually to 27.1 billion tons by 2040, with the bulk of exports and imports moving through intermodal transport. The value of freight moved is expected to increase faster than the weight, or tonnage, increasing by approximately 5.4 percent annually to \$39.3 trillion dollars in 2040. The majority of these goods, particularly high-value, small packages, will move by air and truck.⁵³

To retain our economic competitiveness, the Nation must make strategic investments that enable the movement of people and goods more efficiently with full utilization of the existing capacity across all transportation modes, as well as a focus on creating new opportunities in foreign markets for U.S. transportation-related goods and services. In 2010, President Obama issued Executive Order (E.O.) 13534, which creates an Export Promotion Cabinet to develop a National Export Initiative to meet the goal of doubling U.S. exports in five years.⁵⁴ This increase will support the creation of 2 million jobs and additional demand for transportation capacity. Currently exports account for 32 percent of jobs in the transportation equipment sector and this percentage is expected to increase.

Transportation services and equipment are among the Nation's most important exports. The U.S. is a net exporter of travel services, aircraft, vessels for sport and pleasure, 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 to open foreign markets to U.S. exports of transportation services and equipment and the investments of U.S. transportation firms.

Our strategic objectives are presented below.

FY 2014-2018 STRATEGIC OBJECTIVES

- ❖ Improve the contribution of the transportation system to the Nation's productivity and economic growth by supporting strategic, multi-modal investment decisions and policies that reduce costs, increase reliability and competition, satisfy consumer preferences more efficiently, and advance U.S. transportation interests worldwide (EC1).
- ❖ Increase foreign market access and opportunities for American business overseas by eliminating barriers to trade in transportation-related goods and services; and spur the development of export-related jobs through federal transportation investments, global transportation initiatives, and cooperative research efforts (EC2).
- ❖ Improve the efficiency of the Nation's transportation system through transportation-related research, knowledge sharing, and technology transfer (EC3).
- ❖ Foster the development of a dynamic and diverse transportation workforce through partnerships with the public sector, private industry, and educational institutions (EC4).

In the following paragraphs, we describe several dimensions of our approach to supporting U.S. economic competitiveness. The cornerstones of this strategy are investments in high-performance passenger rail, the development of a national freight strategy, investments in public transportation, mitigating traffic congestion on our highways, and implementing NextGen systems and procedures to improve operations, alleviate airport congestion, and reduce delays for travelers. We are expanding credit support programs to achieve these aims. We are also continuing our effort to create a more competitive air transportation

system and protect the rights of traveling consumers. We will advance U.S. economic interests in targeted markets abroad in order to create additional transportation-related jobs, especially among small businesses. To ensure that our Nation remains at the cutting edge of transportation, we will encourage the commercialization of research and development and promote technology transfer as a means to accelerate deployment of innovations and knowledge. Finally, we will also place a renewed focus on developing the transportation workforce of the future.

STRATEGIES TO IMPROVE THE CONTRIBUTION OF THE TRANSPORTATION SYSTEM TO THE NATION'S ECONOMIC GROWTH

DOT supports investing new resources in the full range of transportation infrastructure—highway, transit, rail, aviation, and port facilities—and drawing upon a wider range of sources of finance to address infrastructure investment. The Nation needs a flexible transportation financing system that can meet the needs of each mode, and that can provide intermodal connections, including to ports and railroads.

HIGH-PERFORMANCE PASSENGER RAIL

The Recovery Act provided an unprecedented \$8 billion investment in high-speed and intercity passenger rail. This initial funding, and \$2.1 billion in additional FY 2010 appropriations, generated an extraordinary amount of interest across the country. We received nearly 500 applications from 39 states, the District of Columbia, and Amtrak, requesting more than \$75 billion, an amount that far exceeds what was available. The resulting investments are expected to move us closer to the goal of providing 80

percent of Americans with convenient access to high-speed rail within 25 years. The investments will also spur economic growth, revitalize domestic rail manufacturing and supply industries, and establish an economic base of highly skilled, well-paying American jobs.

Over 30 rail manufacturers, both domestic and foreign, agreed to establish or expand their U.S. bases of operations if they are hired to build America's next generation high-performance rail lines and equipment. This is a commitment the Administration secured to ensure that new jobs are created here at home. In addition, Amtrak and the States are using nearly \$1.7 billion in *Recovery Act* funds, other appropriations and loans to purchase over 100 American-made locomotives and 250 railcars.

DOT will work with the Congress and stakeholders to pass a five-year, \$40 billion rail reauthorization proposal to significantly improve existing intercity passenger rail services, develop new high speed rail corridors, and strengthen the economic competitiveness for our freight rail system.

[FY'14 President's Budget to Congress](#), April 2013.

To advance high-performance rail services, DOT will work with Congress to develop and fund a multi-tiered passenger rail network that accounts for different markets and geographic contexts throughout the U.S. This vision includes:

- ❖ Core Express Corridors that form the backbone of the national high-performance passenger rail system, operating in and between large, dense metropolitan regions;
- ❖ Regional Corridors to connect mid-sized urban areas with convenient, frequent service on a mix of dedicated and shared track; and
- ❖ Emerging Corridors that will connect regional urban areas on shared track.

Efficient, multi-modal connections are critical to the ultimate success of high-performance and intercity passenger rail. We will continue to work with Amtrak, States, freight railroads and other key stakeholders in transit, airports and other transportation modes to ensure intercity passenger rail is effectively integrated into the national transportation system

MORE EFFICIENT FREIGHT MOVEMENT

An efficient freight transportation system that connects population centers, economic activity, production, and consumption 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 abroad. But other countries have increased their investments in transportation infrastructure and closed the gap with the U.S. The efficiency of freight movement in the U.S. is challenged by growth in global and domestic demands that are outpacing existing capacity. Additional transportation infrastructure investment is needed, and the investment needs to be carefully targeted where it will have the greatest economic payoff and achieve our other strategic goals. We are committed to providing sufficient resources and programmatic focus to

FREIGHT ADVISORY COMMITTEE

To help oversee a multimodal implementation of MAP-21 freight provisions, the Department established the Freight Policy Council, chaired by the Deputy Secretary. To further the Department's commitment to public input and the role experts can provide, a National Freight Advisory Committee (NFAC) was also created. The NFAC consists of a diverse public and private sector membership, including State DOT Secretaries, elected officials from across the country, representatives of freight modes, shippers, researchers, as well as safety, labor, and environmental advocates. The Committee is led by Chair and Vice Chair, Illinois Transportation Secretary Ann Schneider and former Deputy DOT Secretary Mort Downey, respectively. Over the next two years, the NFAC will provide specific, implementable recommendations for the Department to consider as we implement MAP-21 freight provisions. Both the Freight Policy Council and the NFAC will be working together to implement MAP-21 freight provisions and specifically one of the most important provisions, the development of a National Freight Strategic Plan due October 1, 2015.

a comprehensive national freight transportation strategy that bolsters our Nation's economic competitiveness.

We are developing a road map for moving the U.S. towards a comprehensive and effective strategy for improving freight transportation. MAP-21 calls for a national freight policy, and directs DOT to undertake several actions to define and implement this strategy including to:

- ❖ Develop a National Strategic Freight Plan within three years;
- ❖ Develop a set of metrics that will enable an assessment of the condition and performance of the national freight system; and
- ❖ Define a national freight network of not less than 27,000 centerline miles of highways.

MAP-21 also directs DOT to take particular note of the need for intermodal connectors between highways and rail or port terminals, and to consider the need for transport of energy products from energy-producing regions to consumers. Both of these factors will play a role in the development of the National Strategic Freight Plan. Although the 2008 economic downturn reduced pressures on the freight transportation system, the economic recovery will create new pressures. The National Export Initiative, with the goal of doubling exports by 2015, will result in new demands on the freight network as will the rebound in the economy.

Freight moves across jurisdictional boundaries, complicating responsibility for maintenance of efficient freight corridors. 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 mostly at public airports. 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 multiple public authorities and private companies. 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 performance and reduce the public costs of the freight transportation system.

Domestic maritime transportation has the potential to reduce highway, bridge, and rail maintenance costs by diverting freight from congested landside modes to underutilized water transportation services. However, for these services to be competitive, the ports where intermodal transfers occur need to be well integrated into the surface transportation system. Currently, many port owners are unaware of how to engage in the local and state-level transportation planning process. Since there are no dedicated federal funding sources for land side port infrastructure and Marine Highway development, integration into state transportation plans is now vital to ensure the future prosperity of the U.S. maritime sector.

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, congestion, and negative environmental and public health impacts that have been

the unfortunate side effects of freight transportation. To improve the efficiency of freight movement and reduce its detrimental effects, we will:

- Promote new technologies and operating procedures that reduce air emissions and noise from freight movements, while increasing the efficiency and operational speed 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;
- Make targeted investments in capacity expansion of our national freight highway corridors to address bottlenecks that cannot be adequately addressed by operational improvements;
- 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 other Federal agencies to ensure that all regulations on the marine and surface transportation systems facilitate the flow of commerce in a safe and secure environment;
- Identify and implement solutions to the inefficient movement of freight through major metropolitan regions using a variety of technologies and operational approaches such as real time information on the performance

FREIGHT TRANSPORTATION DATA

Major gaps in freight data such as freight flows hinder our ability to analyze the benefits of freight transportation projects. There are numerous public and private entities that provide international freight shipment data with varying degrees of timeliness, coverage, and reliability. However, inland movements of imports are difficult, if not impossible, to track. Data are limited or non-existent on truck movements within metropolitan areas. Records of freight moved by rail in intermodal service often do not publicly include data detailed enough to identify specific commodities. MAP-21 requires us to develop improved models and data sources for freight planning purposes. We are undertaking the development of cross-modal measures of freight system conditions and performance; and implementation of these measures will likely require the development of new data. The existing Freight Analysis Framework, the principal DOT freight planning tool, will need to be enhanced to meet the needs of MAP-21.

of the system for passengers and freight, tools to optimize systems operations 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 U.S. infrastructure assets of the St. Lawrence Seaway as part of a decade-long Seaway Asset Renewal Program.

PUBLIC TRANSPORTATION

Every day tens of millions of people use public transportation to get to the places they need to go, including commuting to work, attending a class, visiting a doctor, going shopping, or making a trip for social visits and recreation. In many large metropolitan areas, public transportation provides an essential transportation alternative to crowded rush-hour streets and highways. In almost every city, public transportation also provides the only transportation to many of the people in our economy who need it the most. Commuters among the 5 percent of U.S. households that don't own a vehicle rely on carpools, transit, bus travel, bicycling, walking, and taxis to get to work.⁵⁵ We will continue to support our Nation's investment in public transportation services for all through:

- Grants for operating assistance, preventive maintenance, and schedule replacement and renewal of bus fleets and other transit assets; and
- Support for existing public transportation investments through formula program grants.⁵⁶

HIGHWAY CONGESTION

While automobile and truck congestion currently imposes a relatively small cost on the overall economy of about 0.6 percent, the cost of congestion is growing faster than GDP. If current trends continue, congestion is expected to impose a larger proportionate cost in the future. The cost of congestion has risen at a rate of almost 7 percent per year over the past 25 years, which is a rate more than double the historical growth rate of GDP.

Highway congestion adversely affects our economy, our communities, and our quality of life. Traffic congestion in 2011 worsened in American cities of all sizes, creating a \$121 billion annual drain on the U.S. economy in the form of 5.5 billion lost hours resulting from travel delay and 2.9 billion gallons of wasted fuel. Congestion caused the average peak-period traveler to spend an extra 38 hours of travel time and consume an additional 19 gallons of fuel annually, amounting to a cost of \$818 per traveler.⁵⁷ To address traffic congestion, we will:

- Promote operational strategies that reduce the impact of congestion-causing incidents and bottlenecks including the use of effective traffic incident management, traveler and traffic information systems, and arterial and corridor management systems;
- Provide support for better and a wider variety of transit services and increased transit capacity;

- Advocate adoption of demand management strategies which improve the efficiency of existing capacity such as ridesharing, car- and van-pooling, flextime, parking demand management, road pricing, car sharing, and bike sharing;
- Promote research, development and deployment of advanced vehicle-to-vehicle and vehicle-to-infrastructure communication technologies; and
- Foster investment in high-performance, intercity passenger rail to balance demand across modes and relieve traffic on roads and in the airspace.

AVIATION

Our nation's economy depends on aviation. 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 connections that allow economic activity to grow and expand. By one estimate, the costs attributed to airport congestion will increase from \$24 billion in 2012 to \$34 billion in 2020; and an additional investment of \$18.9 billion is needed, plus the development of Next Gen, to ensure \$313 billion in GDP and approximately 350,000 jobs.⁵⁸

NextGen will improve the air transportation system by expanding capacity and improving the passenger experience with more reliable and predictable operations. Congestion, noise, fuel burn, and emissions will be reduced. This system is the foundation for continually improving and accommodating future air transportation needs, while strengthening the economy locally and nationally with one seamless, global sky. To advance the aviation system, we will work with the aviation industry to:

- Meet the new and growing demands for air transportation services through 2025 with ongoing, incremental implementation of NextGen capabilities;
- Increase airport and airway capacity through more efficient operations on the airport surface and in aircraft approaches, departures and en-route operations;
- Complete the transition of surveillance from ground-based radar to satellite-based positioning data transmitted directly by aircraft;
- Shift pilot-controller communications from voice to data, simplifying the workload of each pilot, reducing the likelihood of error or misunderstanding, and relieving pressure on available radio frequencies;
- Replace current systems that distribute information, particularly about weather and other conditions that must be mitigated, to controllers, pilots, operations centers, airports and other stakeholders with a single, integrated, system-wide data network that delivers information simultaneously to all who need it;
- Set investment and infrastructure priorities and policies accordingly that enhance capacity where economically justified;
- Implement procedures with supporting infrastructure to increase the efficiency of individual flights, deliver increased activity for high density operations, and maintain higher levels of capacity in low-visibility conditions;
- Implement modified separation standards to increase capacity and safely allow more efficient use of congested airspace;
- Direct Airport Improvement Program funding to provide greater safety, capacity, and efficiency at airports, including greater access to regional airports in

- congested metropolitan areas, in order to improve system-wide performance; and
- Safely integrate unmanned aircraft systems into the National Airspace System.

MARITIME

Ports serve as gateways 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 has a role in ensuring that access into and out of our ports and marine facilities can meet both our security needs and the needs of the economy.

There are 400 ports owned and operated by State and local governments, private corporations, or a combination of those entities in the U.S. Historically, our role in financing port infrastructure has been limited. Through federal investments in port infrastructure using Transportation Investment Generating Economic Recovery (TIGER) grants and America's Marine Highway Program, we incentivize improvements in operations, facilities, and equipment that will make our Nations' ports more efficient and productive.

The maritime system is a shared responsibility. Federal, State, local, and private sector entities provide input to the condition and operation of existing facilities. To remain competitive in a global economy, the maritime network will require both technical assistance and incentives to improve efficiency and maximize the use of existing facilities—and the associated costs are not insignificant. For example, U.S. public ports spent nearly \$9 billion on capital improvement projects from 2004 to 2008.⁵⁹ Additional public investment is needed. By one estimate, the costs attributed to delays in the nation's inland waterways system were \$33 billion in 2010, and it is expected to increase to nearly \$49 billion by 2020. The American Society of Civil Engineers estimates that an additional, cumulative investment in ports and waterways of \$15.8 billion between 2012 and 2020 would protect a total of \$697 billion in GDP during that period and, as of 2020, 738,000 jobs.⁶⁰

The U.S. will need sufficient maritime port capacity to meet the requirements of current and projected import and export trade. Transportation planners must 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, which could accommodate cargoes between the Far East to the U.S. East Coast.

Commercial and government access to privately-owned U.S.-flag commercial ships serving international markets is augmented through the Maritime Security Program (MSP). MSP provides an annual stipend payment to 60 modern and efficient U.S.-flag vessels that also participate in the U.S. Voluntary Intermodal Sealift Agreement (VISA) program. The VISA program provides for a time-phased activation of state-of-the-art commercial intermodal equipment to coincide with DOD requirements while minimizing disruption to U.S. commercial operations. The MSP and VISA programs help to ensure that the United States will have U.S.-flag commercial companies, vessels, and crews operating in U.S. foreign trade, along with the intermodal assets of the companies—providing reliable and efficient commercial and military access to critical foreign markets in the event of disruptions to global supply chains.

EXPAND CREDIT ASSISTANCE PROGRAMS

Providing broader access to flexible and favorable financing options will make it easier for State and local governments, and the private sector, to invest in our Nation's infrastructure. Increasingly, public officials are dedicating long-term sources of revenue to transportation projects. Among other sources, the revenue comes from tolling, pricing, and other user fees, as well as new sales taxes and other state or local sources or revenue. DOT credit assistance programs were created and expanded by Congress to provide better access to financing for these investments, so we can accelerate project delivery and reduce costs by fully funding the projects upfront. In addition, many State and local governments are turning to innovative public-private partnerships to better integrate private sector involvement in the delivery and financing of transportation projects. DOT credit assistance programs are of critical importance to Federal efforts to promote these new arrangements.

Providing better access to DOT credit assistance programs will help ensure that new and improved transportation facilities are delivered more quickly and at reduced cost, which enhances the ability of our transportation system to contribute to economic growth and other strategic goals. Of particular note, accelerating these investments through innovative financing approaches helps address the growing backlog of capital investments, which is a primary element of DOT's focus on the state of good repair of our Nation's infrastructure. Broader use of flexible financing programs also encourages co-investment of public and private funds, stretching the value achieved through Federal credit assistance programs.

To advance credit support programs, we will:

- Fully implement the Transportation Infrastructure Finance and Innovation Act (TIFIA) program as expanded by MAP-21, by lending \$15 to \$20 billion to eligible surface transportation projects, leveraging substantial public and private sector co-investment and supporting innovative public-private partnerships;
- Allocate remaining Private Activity Bonds authority to project sponsors that are developing eligible surface transportation or freight transfer facilities, increasing private investment in transportation infrastructure;
- Facilitate and encourage the use of the Railroad Rehabilitation and Improvement Financing (RRIF) program's financing capacity to support upfront and accelerated investments in freight and commuter rail facilities; and
- Administer the Title XI loan guarantee program to support investment in the U.S. shipbuilding industry.

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

One of our key missions is to negotiate liberalized international aviation agreements that result in opportunities for increased air service, lower fares for consumers, and demand for additional aircraft. 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. In addition, promote competition in the aviation industry by

monitoring industry developments in foreign and domestic markets. This includes maintaining vigilance against unfair competitive practices that may impair airlines' ability to make full use of U.S. rights. To foster a competitive air transportation system, we 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 as well as other matters affecting competition in the airline industry; and
- Exercise our 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 of a competitive 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, we will:

- Vigorously enforce Federal law protecting air travelers provide information for consumers to make decisions about air travel;
- Ensure greater accessibility of air travel for passengers with disabilities and older adults;
- Investigate and resolve civil rights-related complaints made by air travelers in a timely manner; and
- Continue to strengthen consumer protections for air travelers when appropriate.

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. Our 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 strengthens international trade and helps make our products and services competitive.

To address these challenges, DOT will:

- Advance the transportation-related initiatives of the President's National Export Initiative to improve the private sector's ability to export;
- Advance a vital and viable U.S. maritime transportation system, including vessels, port infrastructure, and intermodal assets, to meet the nation's economic and security needs;

- Determine how the expansion of the Panama Canal will impact U.S. and global trade as well as U.S. ports, waterways, and intermodal freight systems;
- 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;
- Work with Metropolitan Planning Organizations (MPO) and State departments of transportation to better incorporate their maritime assets into their freight movement plans, as well as promote the expansion of the Marine Highway System, when economically viable, to meet current and projected movements of freight and passengers;
- Work with our Mexican and Canadian partners to develop and deploy interoperable technology architecture at our land ports of entry that is integrated with ITS initiatives outside ports of entry; and
- Conduct outreach and forums with industry stakeholders to seek effective solutions to our maritime system challenges without significantly impacting private sector costs.

We 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 or operational rules and compatible technical standards. We exert extensive positive influence over international transportation development as well as to heighten U.S. competitiveness.

To advance U.S. transportation-related economic interests, we will:

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

FOREIGN POLICY SUPPORT

Transportation plays an important role in U.S. foreign policy initiatives. U.S. developmental programs increasingly seek transport technical assistance to achieve their objectives. In addition to long standing and positive engagement in the Western Hemisphere, we are expanding our commitments in the Middle East and North Africa. Special long-term, post-conflict assistance to Iraq and the Islamic Republic of Afghanistan (Afghanistan) are foreign policy priorities to which the DOT will continue to contribute significant resources.

For example, we assisted our Afghan and U.S. AID partners in the design and construction of regional airports and performed an extensive assessment of Kabul International Airport to identify the improvements needed to meet international safety standards. We helped the Ministry of Transport develop plans for increased air cargo service operations at the Kabul and Kandahar international airports.

- Advocate worldwide adoption of harmonized standards and global technical regulations through participation in bilateral and regional forums or international organizations at the ministerial and working levels;
- Fulfill our commitments to international partners and agreements, such as the Asia-Pacific Economic Cooperation forum, and the North Atlantic Treaty Organization; and
- 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.

STRATEGIES TO IMPROVE RESEARCH, KNOWLEDGE SHARING, AND TECHNOLOGY TRANSFER BUSINESS PROCESSES

Transportation research has little value if its technological outcomes are not transferred to those that might apply them. The application of research outcomes can be as simple as knowing what does not work or can be as complex as implementing highly advanced, revolutionary technologies. Research implementation should not be based on the sophistication of a new technology alone. All outcomes must be considered and compared with other research outcomes to determine a best solution or most effective technology, i.e., product or service, for any given situation. The DOT Technology Transfer (T2) program is designed to:

- ❖ Increase the number of T2 partnerships with commercial, non-profit, government and non-government organizations;
- ❖ Increase the commercialization activity within the DOT; and
- ❖ Improve the efficiency of T2- related business processes within the DOT.

We provide leadership and expertise to facilitate the exchange of knowledge and technologies for the development and advancement of products and methodologies that will improve transportation safety and efficiency.⁶¹ To meet these challenges, we will:

- Evaluate and improve processes for executing partnership agreements including grants, contracts, Cooperative Research and Development Agreements, and collaborative agreements;
- Streamline partnership processes to maximize and provide for efficient technology transfer;
- Initiate collaborative agreements with local and regional transportation safety focused entities including DOT regional offices; and
- Increase awareness of commercialization and technology transfer opportunities within the DOT by collecting and disseminating within DOT best practices for commercialization and by searching for opportunities to apply DOT commercialized technologies.

In keeping with the Open Government concept, we are developing an open access policy for data and publications resulting from all DOT-funded research.⁶² We will make data, reports, and publications available to the public, as well as researchers and entrepreneurs across the country that might benefit and have the potential to create

and commercialize new technologies, thereby leveraging federally funded research and benefitting the economy through technological development.

The economic competitiveness of the U.S. can also be improved through international dialogues such as the International Transportation Forum, cooperation agreements with global partners, and international research initiatives. Such exchanges will result in additional innovation and improvements in technology, governance, and regulatory best practices. Targeting emerging technologies and collaborating with international partners at the early stages of the regulatory development process provides a critical foundation for future regulatory compatibility efforts and facilitate innovation in the transportation sector.

STRATEGIES TO BUILD A DYNAMIC NATIONAL TRANSPORTATION WORKFORCE

The operation of the Nation’s transportation system depends on a highly skilled and qualified workforce, now and for the foreseeable future. Whether in the burgeoning realm of sustainable transportation or in simply responding to the growing demand for services, there are numerous opportunities in the transportation industry to address the urgent national priority of creating new jobs. To be successful in addressing unmet infrastructure needs, we will need a broad spectrum of skilled workers. As demand for transportation services increase, both public and private sector transportation organizations face the ever increasing difficulty of finding qualified workers and managers to fill priority occupations. At the same time, increasing competition for workers from other industries and difficulties in reaching women and under-represented population groups compounds the challenge.

To retain and develop workers, we need to give employees the opportunity to develop skills in all areas of transportation including financing, project management, sustainability, livable communities, and greater public engagement. These skills go beyond traditional engineering disciplines, which are themselves expanding to reflect new materials and technologies. The growing number of baby boomers eligible to retire accelerates the need to transfer resident knowledge to the next generation, and thereby avoid a shortfall of experience and skills that will be difficult to replace.

The rapidly evolving transportation industry and associated transformation of its workforce including changes to the makeup and diversity of the workforce, as well as shifts in the types and priorities of transportation occupations, demonstrate the critical need for public and private sector transportation organizations, training providers, academic institutions and other strategic partners to focus attention on the challenges facing transportation workforce development. We can successfully address these issues by collaborating with our partners in government agencies, private and public employers, educational institutions, and workforce and labor organizations. These partnerships must also address current and future transportation workers.

To meet these challenges, we will work with our partners to undertake the following strategies:

- Partner with the Department of Education, Department of Labor, State departments of transportation, other federal agencies, education systems, community colleges, universities, private and public transportation employers,

- and labor unions to advance transportation workforce development including career and technical education pathways to transportation jobs;
- Engage with national, state, and local education interests to enhance transportation career awareness and preparation for K-12 students including a focus on science, technology, engineering and mathematics (STEM) through transportation-related academic and certification programs;
 - Work to improve pathways into various levels of transportation occupations for all, with a special focus on women and under-represented populations in partnership with Minority-Serving Institutions and organizations;
 - Advance education programs of the U.S. Merchant Marine Academy and State Maritime Academies to help meet the needs for trained merchant mariners for industry and national security;
 - Engage with key public and private sector transportation organizations to ensure that the current transportation workforce has the ability to lead, anticipate, and apply innovation;
 - Expand the pool of qualified transportation workers to meet the current and future challenges of a multimodal transportation system; and
 - Encourage investments in data collection, research, and analysis of the transportation workforce and disseminate notable practices in workforce development.

STRATEGIC OBJECTIVES, PERFORMANCE GOALS, AND INDICATORS

We will monitor our progress in achieving the Strategic Objectives for the Economic Competitiveness goal using the Performance Goals and Indicators in Table F.

Table F. Performance Goals, Indicators, and Lead by Economic Competitiveness Strategic Objective.

Performance Goal	Performance Indicator(s)	Lead Office
Strategic Objective: Improve the contribution of the transportation system to the Nation's productivity and economic growth by supporting strategic, multi-modal investment decisions and policies that reduce costs, increase reliability, satisfy consumer preferences more efficiently, and advance U.S. transportation interests worldwide (EC1).		
Targets under development to achieve initial operating capability and operational readiness decision at all 20 Air Route Traffic Control Centers in the continental United States.	TBD	FAA
Maintain an average daily capacity for core airports of xxx, or higher, arrivals and departures.	TBD	FAA

Sustain adjusted operational availability at 99.70 percent for the reportable facilities that support the Core Airports through FY 2018.	Adjusted operational availability at Core-30 airports.	FAA
Maintain a NAS on-time arrival rate at core airports of 88 percent or higher through FY 2018.	Percentage of on-time arrivals at Core airports.	FAA
Maintain US presence in foreign maritime commerce through ships enrolled in the Maritime Security Program (MSP) at 19,200 vessel operating days a year while ensuring availability of sealift capacity for the Department of Defense.	Vessel operating days per year	MARAD
Maximize support of surface transportation project delivery by leveraging available budget authority. On an annual basis, for each \$1 in TIFIA budget authority, provide at least \$10 in credit assistance to leverage support for at least \$22 of project costs.	TBD	FHWA
Increase Travel Time Reliability in Urban Areas as Measured by a Reduction in the Travel Time Index to No More Than 1.xx in 2018.	Travel time index	FHWA
Maintain Travel Time Reliability in Key Domestic Freight Significant Corridors At or Below xx.x Percent in 2018.	Freight buffer index	FHWA
Congestion management strategies that could manage demand, reduce single occupant vehicle travel, improve transportation system management and operations, and enhance integration across modes are identified and evaluated.	All MPOs serving a Transportation Management Area (TMA) develop and utilize a congestion management process (CMP) in making programming and project decisions within five years.	FHWA
Maintain the U.S. Saint Lawrence Seaway System and Lock Availability At 99 Percent through 2018.	System and lock availability.	SLSDC

Strategic Objective: Increase foreign market access and opportunities for American business overseas by eliminating barriers to trade in goods and services; and spur the development of export-related jobs through federal transportation investments, global transportation initiatives, and cooperative research efforts (EC2).		
Establish or participate in at least 14 technology transfer and capacity building programs to improve training opportunities for international transport ministries.	DOT participation in technology transfer and capacity building programs	OST
Reach [3 or more] new bilateral or multilateral agreements to remove market distorting barriers to trade in transportation.	Number of bilateral or multilateral agreements	OST
Strategic Objective: Improve the efficiency of the Nation's transportation system through transportation-related research, knowledge sharing, and technology transfer (EC3).		
Improve the efficiency of USDOT technology transfer (T2) business process.	Number of T2 processes revised and modified.	RITA, FMCSA, FAA, FHWA, FTA, FRA, and OST
Strategic Objective: Foster the development of a dynamic and diverse transportation workforce through partnerships with the public sector, private industry, and educational institutions (EC4).		
Facilitate transition from military occupational specialties to civilian certification and licensing in transportation related careers.	Number of veterans trained through CDL training grants.	RITA

EXTERNAL RISK FACTORS

Most economists are predicting annual growth rates for GDP of two to three percent over the next few years.⁶³ 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.⁶⁴ Recent reports of stronger housing starts are a positive sign for the economy, but could have a negative effect as prices for construction materials increase with competition from other industries.

Foreign trade is projected to grow at a faster rate than the U.S. economy. Exports currently account for 32 percent of jobs in the transportation equipment sector. While growth in exports has increased during the past two decades, disruptions in the economic environment such as an increase or decrease in the price of oil and other energy supplies, the enactment of policies in other countries or regions that positively or negatively impact the free flow of trade, or the contraction of slow growing economies particular in Europe could alter the current dynamic. In technology-based industries, we are already seeing a shift towards resourcing of manufacturing in the U.S. due to increased transportation and logistics costs in overseas operations, more favorable energy prices in the U.S., and a more productive and competitive U.S. workforce.⁶⁵

A highly skilled and capable workforce is needed to meet the planning, design, and operational requirements of future transportation systems. In the next decade, as much as fifty percent of all transportation workers are expected to retire, taking much of their institutional knowledge with them.⁶⁶ For example, expansion of high-performance passenger rail will depend on the availability of a highly skilled workforce. Moreover, many public transportation agencies have dealt with fiscal constraints by downsizing and limiting hiring. Consulting and engineering firms have also downsized due to reductions in development projects and a slowdown in transportation design and operations projects.

VI. LIVABLE COMMUNITIES

Foster livable communities by integrating transportation policies, plans, and investments with coordinated housing and economic development policies to increase transportation choices and access to transportation services for all.

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 idea in an unprecedented way. Fostering and maintaining livable communities, or places where transportation, housing and commercial development investments are coordinated so that people have access to adequate, affordable, and environmentally sustainable travel options, represents a transformational policy shift for DOT. The quality of life benefits that we will work to achieve under our livable communities goal include improvements in the public transit user experience, provision of additional pedestrian and bicycle networks, and improved access to transportation for people with disabilities, older adults, and lower income populations. With these improvements, we expect to maintain or lower household expenditures for transportation and offer more affordable connections to jobs and other necessities.

U.S. transportation investments over the last 50 years have often been poorly coordinated with other investments such as housing and commercial development. This has contributed to a prevalence of low-density, scattered, auto-dependent and inaccessible communities, and disinvestment in many of our core urban centers and first suburbs. These development patterns have been amplified by single-use zoning that separated housing from shopping, work, and schools. Such zoning emphasizes wide streets, ample off-street parking, and large front and side yard setbacks. Federal programs for roadway construction promoted wide, high-speed roadways ill-suited to pedestrian and bicycle use even in quiet residential communities.

The United States' heavy reliance on car-dependent, dispersed development is not without costs.⁶⁷ For example, 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,⁶⁸ and the average American household has to spend \$7,658 annually to buy, maintain, and operate personal automobiles.⁶⁹

Alternatives to auto travel are lacking in many communities. Fewer than one in 20 households are located within a half-mile of rail transit and only 53 percent of Americans have access to any form of public transportation service.^{70 71} Health experts believe that auto-dependent development patterns contribute to a host of health problems by making walking and biking dangerous in some residential neighborhoods.^{72 73 74} Nearly one-third of Americans live in neighborhoods without sidewalks.⁷⁵ 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 five to 18 years of age walked or bicycled to school. In 2001, only 16 percent walked or bicycled to school, which is one of the causes of rising childhood obesity.^{76 77 78 79 80 81}

A study of 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.⁸² Another study, which was the first to examine the relationship between sprawl and a wider spectrum of chronic illnesses, suggests that the physical attributes of where a person lives can encourage or discourage active living and, therefore, have an impact on health.⁸³ 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.

Creating livable communities is just as important to the quality of life of residents of rural areas as it is for residents of urban and suburban areas. Rural town centers have experienced disinvestment in much the same way as urban core areas. Indeed, many rural areas are fighting to attract local commercial development through the revitalization of their 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

Building livable communities involves a whole government approach and DOT is collaborating across lines of authority to leverage related Federal investments. With the Department of Housing and Urban Development (HUD) and the Environmental Protection Agency (EPA), we formed the *Partnership for Sustainable Communities* to promote sustainable development and more livable communities. The Partnership is working to address barriers to coordinating transportation, housing, and environmental programs and investments. For instance, integrating transportation planning with housing and community development planning not only improves connectivity and influences how people choose to travel, but also enables communities to consider transportation and land use planning simultaneously and, ultimately, make the best use of limited funds. If these barriers are based on Federal administrative rules or regulation, we are proposing modifications to lift them. Where they are statutory, we are working with Congress to address them. Through the Partnership, we coordinate related federal programs and technical assistance opportunities among all three agencies. For example, DOT and HUD provide staff and resources to support the EPA Smart Growth Technical Assistance Program. DOT collaborates with EPA in the administration of the HUD affordable housing and planning programs. In addition, HUD and EPA are providing technical assistance in the evaluation of DOT TIGER Discretionary Grant applications, for which livability and sustainability are two key criteria.⁸⁴ To achieve our Livable Communities agenda, we will:

- Provide best practices in financing and implementing livable communities strategies;
- Encourage coordination of land use planning with the current MPO transportation planning process, including preparation of plans and programs that support local economic development, multi-modal networks, and land use plans;

- Develop, pilot, and link tools that can help communities evaluate the trade-offs among various street space allocations and scenarios;
- Develop national and local performance measures that can be used to track livability across the Nation; 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 to support complementary infrastructure investments, both public and private.

Our strategic objectives for the Livable Communities goal are presented below.

FY 2014-2018 STRATEGIC OBJECTIVES

- ❖ Expand convenient, safe, and affordable transportation choices for all users by directing federal investments in infrastructure towards projects that more efficiently meet transportation, land use, and economic development goals developed through integrated planning approaches (LC1).
- ❖ Ensure federal transportation investments benefit all users by emphasizing greater public engagement, fairness, equity, and accessibility in transportation investment plans, policy guidance, and programs (LC2).

Our strategies for addressing each objective are discussed in the following paragraphs.

STRATEGIES TO INCREASE ACCESS TO CONVENIENT AND AFFORDABLE TRANSPORTATION CHOICES

We will enhance the quality of life for all Americans by creating and maintaining a safe, reliable, integrated and accessible transportation network that enhances choices for transportation users, provides easy access to employment opportunities and other destinations, and promotes positive effects on the surrounding community. We will build on innovative ways of doing business that promote mobility and enhance the unique characteristics of our neighborhoods, communities and regions. To increase access to transportation choices, we will:

- Continue to encourage States and MPOs to consider the impact of transportation investments on local land use, affordable housing, and additional infrastructure needs;
- Continue to invest in high-speed and intercity passenger rail to complement highway, transit, and aviation networks and encourage projects that improve transit connectivity to intercity and high-speed rail, airports, roadways, and walkways;
- Increase the capacity and reach of public transportation, improve the quality of service, and improve travel time reliability through deployment of advanced

- technologies and significant gains in the state of good repair of transit infrastructure;
- Advocate for transportation investments that strategically improve community design and function by providing an array of safe transportation options such as vanpools, smart paratransit, car sharing, bike sharing, and pricing strategies that, in conjunction with transit services, reduce single-occupancy driving;
 - Encourage rural areas to plan for opportunities to walk and ride bicycles as well as provide reliable means of high-quality, accessible public transportation services to connect them to vital destinations now accessible only by automobile;
 - Support Pedestrian and Bicycle Safety Assessments, which analyze current engineering practices, enforcement strategies, and education programs. The assessments can be used to assist with long-range planning and resource allocation, generate support for program improvement, and serve as a benchmarks against which to measure future improvements;
 - Promote the use of bicycling and walking for daily activities through investment in on- and off-street bike and pedestrian infrastructure and safety enhancements;
 - Develop planning data and analytic techniques to support planning for non-motorized travel, including Geographic Information System-based methods to estimate non-motorized travel, standardized methods for non-motorized travel data collection, data collection and analysis of trends in non-motorized travel, data analysis of related travel trends such as VMT per capita and travel time reliability, and analytic tools to study the relationship between non-motorized travel and greenhouse gas (GHG) emissions;
 - Encourage Federal Land Management Agencies, 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 planning, design, construction, maintenance, safety, ways to encourage using these modes for trips and continue to develop methods to evaluate the walkability and bikeability of a community.

STRATEGIES FOR IMPROVED COORDINATION OF HUMAN SERVICES TRANSPORTATION

The Transportation Secretary leads the Federal Coordinating Council on Access and Mobility (CCAM) in support of the United We Ride (UWR) initiative. UWR is a Federal inter-agency 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 these persons, we will continue to support the CCAM mandates and also:

- 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 mobility needs of persons with disabilities, older adults, low-income persons and others without cars or who are unable to access the fixed route system and trains;
- Conduct research to develop transportation management center capabilities for automated scheduling, mapping, routing, and dispatching to link human services transportation providers for easier access, and 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.

STRATEGIES TO INCREASE ACCESS FOR PERSONS WITH DISABILITIES

The *Americans with Disabilities Act of 1990* (ADA) prohibits discrimination against persons with disabilities in all aspects of life, and applies to all entities, i.e., public or private regardless of funding source. Title II of the ADA applies to all programs, services and activities provided or made available by public entities including State and local governments or any of their instrumentalities or agencies. The scope of Title II coverage extends to the entire operations of a public entity, and includes all stations in transit systems, airports facilities, intercity rail transportation system, and roadway facilities including sidewalks or pedestrian crosswalks. We can provide guidance, assistance, and funding in a limited number of cases, to encourage ADA compliance in existing facilities. While many entities have developed ADA transition plans, implementation has been slowed by competing priorities for limited funds.

We consider how environmental justice principles will be integrated into all DOT planning and programming, rulemaking, and policy formulation.⁸⁵ We seek to prevent disproportionately high and adverse effects onto minority or low-income populations through Title VI analyses and environmental justice analyses conducted as part of federal transportation planning and environmental permitting provisions.

To increase access for persons with disabilities, we will:

- Identify and address disproportionately high and adverse human health and environmental effects of transportation policies and programs on minority populations and low-income populations;
- Increase access to transportation for Special Needs Populations and Individuals with Disabilities;
- Ensure full compliance and accountability for ADA requirements including the prompt resolution of claims;
- Increase the number of State and local government ADA transition plans that provide schedules for including curb ramps or other sloped areas at pedestrian crosswalks, identify physical obstacles that limit accessibility, describe the methods that will be used to make facilities accessible, and specify a schedule for achieving compliance for pedestrian accessibility in public rights-of-way; and

- Reduce language barriers when providing services and benefits to persons with limited English proficiency.⁸⁶

STRATEGIC OBJECTIVES, PERFORMANCE GOALS, AND INDICATORS

We will monitor our progress in achieving the Strategic Objectives for the Livable Communities goal using the Performance Goals and Indicators in Table G.

Table G. Performance Goals, Indicators, and Lead by Livable Communities Strategic Objective.

Performance Goal	Performance Indicator(s)	Lead Office
Strategic Objective: Expand convenient, safe, and affordable transportation choices for all users by directing federal investments in infrastructure towards projects that more efficiently meet transportation, land use, and economic development goals developed through integrated planning approaches (LC1).		
Improved networks that accommodate pedestrians and bicycles by increasing to 65 the number of States, MPOs, and local governments with polices and/or plans that improve transportation choices for walking and bicycling by FY 2018.	Number of States, MPOs, and local governments with polices and/or plans that improve transportation choices for walking and bicycling.	FHWA
Increase intercity passenger rail ridership to at least XX billion miles traveled by 2018.	Total number of intercity rail passenger-miles traveled.	FRA
Strategic Objective: Ensure federal transportation investments benefit all users by emphasizing greater public engagement, fairness, equity, and accessibility in transportation investment plans, policy guidance, and programs (LC2).		
Improve accessibility on Public Rights of Way by increasing the number of State DOTs and sub-recipients with adequate transition plans that include the Public Rights of Way.	Number of State DOTs and sub-recipients with adequate transition plans that include the Public Rights of Way.	FHWA
Increase the percentage of the Veterans Transportation Community Living Initiative (VTCLI) partner community sites using social media strategies to at least 25 percent, or 22 out of 86, by 2018.	Number of VTCLI partner communities	FTA
Improve access to transportation for people with disabilities and older adults by ensuring that at least XX percent of	Cumulative percentage of intercity passenger rail stations that comply with the	FRA

intercity passenger rail stations comply with the requirements of ADA by the end of 2018.	requirements of ADA, where AMTRAK is responsible.	
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EXTERNAL RISK FACTORS

Current laws and associated DOT guidance provide States and MPOs with great flexibility; they neither give priority to nor require the expenditure of funds by grant recipients on projects that are explicitly intended to improve livability.

Transportation infrastructure and housing have long useable lives, which can provide or limit 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. Retrofits of existing communities therefore require strong direction and leadership as well as the involvement of all stakeholders throughout the planning process.

Federal-aid roadway design standards do not apply to local streets. DOT can give guidance and publish best practices, but cannot require that transportation infrastructure include walking and bicycling facilities. Typically, sidewalks and bike paths are optional in road construction. Where sidewalks do exist, they are often not well-connected, accessible, or safely designed. Other barriers to livable communities include the lack of crosswalks, traffic signals with insufficient time for crossing, wide roads without medians, fast-moving traffic, long blocks, lack of gridded streets, sidewalk obstructions, and narrow sidewalks.

Community and institutional resistance to changes in business practices, planning procedures, and transportation norms that will be needed to build livable communities can be strong and pervasive. Obstacles to change include lack of information 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. The costs of change are often immediate, while the benefits are long-range. This cost-benefit disparity reduces the political appeal of change.

Important demographic trends could have a profound effect on the demand for transit and walking and alter current resistance to change. The demographic groups that are growing most quickly in the U.S. are older, non-traditional families, and non-white households. Historically, these groups have used alternatives to personal vehicles such as transit in higher numbers.⁸⁷ Nationwide, the use of private vehicles for commuting to work is just below 88 percent. But, usage is closer to 80 percent in the largest metropolitan areas with the difference being made up mostly by increases in transit and walking.⁸⁸

Preferences and attitudes among younger Americans could also be a driving force for change. In one survey, half of the population age 18 to 34, often referred to as Millennials, agreed that an easy walk to stores was an extremely important determinant in their choice of housing and neighborhood. In the same survey, over two-thirds felt that living in a walkable community was important.⁸⁹ Among this same group, a more recent survey revealed that the loss of a personal vehicle is of less consequence than the loss of their mobile devices. The survey results suggest that the availability of car sharing and ride sharing services make it easier for Millennials to live without owning a car.⁹⁰

Among older Americans, preferences could be changing too. Another survey of older households reported that 71 percent of respondents want to live within walking distance of transit.⁹¹ In more walkable communities, older Americans will have more opportunity to age in place if transportation is available to them. Even if they have to curtail their driving, they will still have access to medical services, shopping, family, friends and social amenities.

VII. ENVIRONMENTAL SUSTAINABILITY

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

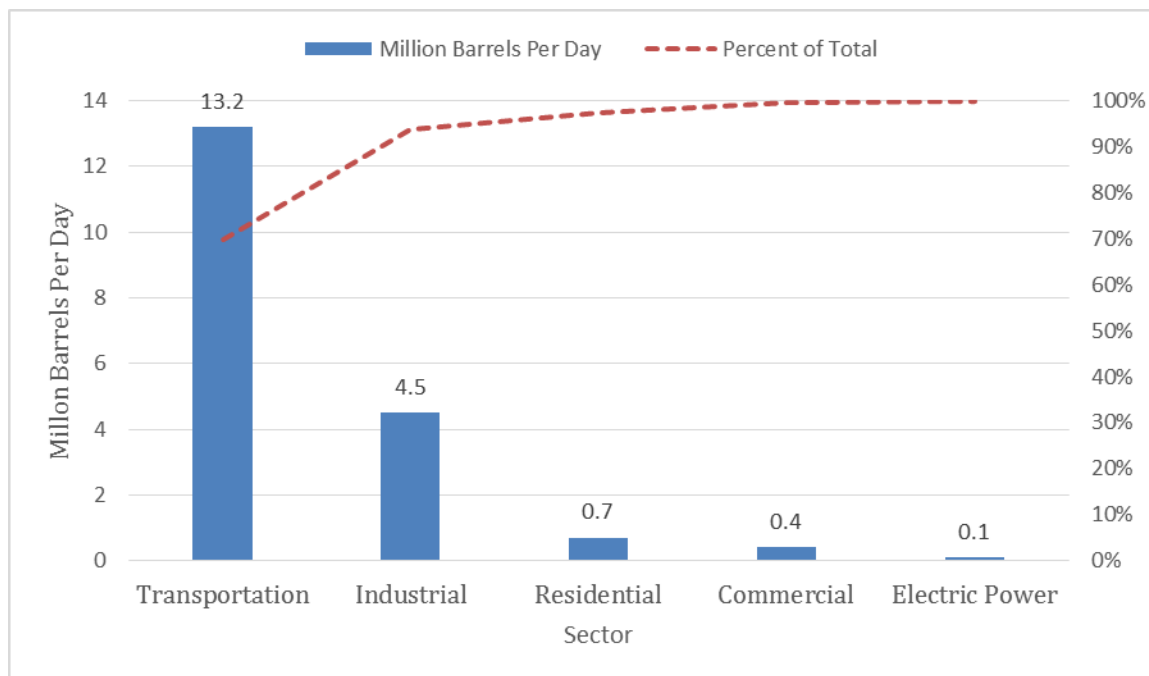
CHALLENGES AND STRATEGIES

Transportation is crucial to our economy and our quality of life, but there are environmental consequences to building, operating, and maintaining transportation systems. Today we face a new set of transportation challenges, which include limiting transportation's environmental footprint, reducing noise and harmful air emissions, promoting energy independence, addressing global climate change, and improving the resiliency of transportation systems. Our goal is to foster more sustainable approaches to transportation so that future generations will be able to enjoy even higher standards of living and mobility.

While energy use has declined since its peak in 2007, the transportation sector still accounted for about 28 percent of total U.S. energy consumption in 2011 (in BTUs). About 93 percent of the energy consumed was in the form of petroleum.⁹² Consumption in the transportation sector was 13.2 million barrels per day, which represents 70 percent of all petroleum usage in the U.S. as illustrated in Figure 4. Of all petroleum consumed for transportation, use for motor gasoline represents 46 percent (in BTUs).⁹³

Figure 4. U.S. Petroleum Consumption by Sector, in Million Barrels Per Day, 2011.

(Source: Energy Information Administration, Annual Energy Review, Figure 5-13A)



About 84 percent of total greenhouse gas (GHG) emissions in the U.S. are carbon dioxide (CO₂) and the largest source of CO₂ is fossil fuel combustion. Since most transportation activity is petroleum-based fuel consumption, the transportation sector is a significant contributor to total U.S. GHG emissions. In 2011, about 27 percent of U.S. GHG emissions

were due to transportation activities. Passenger cars, heavy and medium duty trucks, and light duty trucks were collectively responsible for nearly 83 percent of transportation-related GHG emissions as shown in Table H.

Table H. Transportation-related Greenhouse Gas Emissions by Mode, 2011.

(Source: U.S. EPA *Inventory of U.S. GHGs Emissions and Sinks, 1990-2011*, Table 2-15.)

Transportation Mode	GHG Emissions (Teragrams of CO ₂ equiv.)	Percent of Total Emissions
Passenger Cars	787.4	42.9
Heavy and Medium Duty Trucks	401.1	21.9
Light Duty Trucks	331.4	18.1
Commercial and Other Aircraft	149.9	8.2
Ships and Boats	48.2	2.6
Rail	48.0	2.6
Pipelines	37.7	2.1
Other (Buses, Motorcycles and Lubricants)	30.1	1.6

Total GHG emissions in the U.S. increased by 21 percent from 1990 to 2011, with over 60 percent of the total increase attributed to the transportation sector.⁹⁴ However, transportation-related GHG emissions declined 4 percent from 2008 to 2009, largely due to a decline in economic activity and personal vehicle travel. Between 2009 and 2011, GHG emissions declined further by 0.6 percent, even as the level of economic activity recovered.⁹⁵ During the same period, the Freight Services Index showed a 13 percent increase and VMT increased about 1 percent, suggesting that this small reduction in emissions was accomplished through some combination of improved light duty vehicle efficiency and improvements in overall freight system efficiency.⁹⁶

Over the past three decades, significant reductions in emissions of criteria air pollutants have been achieved in the transportation sector, largely by progressively strengthening the regulation vehicle emissions and fuel quality under provisions of the *Clean Air Act*. Since 1990, national transportation emissions, defined as the sum of highway and off-highway nitrogen oxides have been reduced 52 percent, volatile organic compounds by 70 percent, and primary PM_{2.5} by 56 percent. Nonetheless significant challenges remain, particularly

as new National Ambient Air Quality Standards (NAAQS) are revised to protect public health. As of 2010, some 123.8 million Americans lived in counties or regions that exceeded health-based NAAQS for at least one regulated air pollutant.⁹⁷

President Obama has recognized the vital role that the transportation sector can play in reducing greenhouse gas emissions, improving energy efficiency, and combating climate change. The President has challenged DOT to transform the way transportation serves the American people by encouraging transportation that is less carbon-intensive such as transit, car- and van-pooling, intercity passenger buses, rail, as well as active transportation like biking and walking that produces zero emissions.

Our recent emphasis on ecosystem approaches to determining the environmental impact of transportation projects has promoted broader mitigation and conservation strategies. For example, wetland acreage has been replaced at a rate exceeding losses from transportation projects. However, the Nation's investments in transportation systems and infrastructure will only be sustainable if we more broadly consider the secondary effects of construction and land use. Although transportation projects comply with requirements for management of stormwater 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.

Recent weather events such as Superstorm Sandy, which disrupted major portions of air, highway, transit, and rail line service in the New Jersey-New York metropolitan region, has prompted us to consider more carefully how we plan, design, and build transportation infrastructure. Superstorm Sandy was the largest tropical storm to impact the Northeast U.S. in recent history. Climate change research predicts that storms will become stronger, so we need to consider climate change impacts and the incorporation of adaptation strategies into DOT planning, operations, policies, and programs to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services and operations remain resilient under extreme climate conditions. In anticipation of more extreme weather events, it is imperative that we create a more resilient transportation system, especially when rebuilding or replacing storm damaged infrastructure.

Our strategic objectives are presented below:

FY 2014-2018 STRATEGIC OBJECTIVES

- ❖ Reduce foreign oil-dependence and carbon emissions through research and deployment of new technologies including alternative fuels, and by promoting more energy-efficient modes of transportation. (ES1).
- ❖ Avoid and mitigate transportation-related impacts to climate, ecosystems, and communities by helping partners make informed project planning decisions through an analysis of acceptable alternatives, balancing the need to obtain sound environmental outcomes with demands to accelerate project delivery (ES2).
- ❖ Promote infrastructure resilience and adaptation to extreme weather events and climate change through research, guidance, technical assistance, and direct federal investment (ES3).

Our strategies for addressing each objective are discussed in the following paragraphs.

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

We are working across all modes to improve the energy and environmental performance of the transportation sector. The aviation industry has made significant gains in fuel efficiency. Modern aircraft are up to 70 percent more fuel efficient than early commercial jet aircraft.⁹⁸ Notwithstanding this success, there is renewed emphasis on improving the fuel efficiency of the NAS. Fuel currently represents the largest operating cost for U.S. airlines, and this cost category has grown dramatically in recent years.

We support the conversion of airport ground vehicles to alternative fuels through the Voluntary Airport Low Emissions (VALE) Program, and co-sponsor the Commercial Aviation Alternative Fuels Initiatives (CAAFI) focused on achieving drop-in sustainable alternative jet fuels for commercial aircraft. We launched the Continuous Lower Energy, Emissions, and Noise (CLEEN) program that will accelerate the development of new engine and airframe technologies and advance alternative jet fuels to reduce noise, emissions, and energy consumption.

DOT and the EPA have worked closely with auto manufacturers, the State of California, environmental groups and other stakeholders to develop a series of programs to increase fuel economy for the Nation's vehicle fleet. In, 2010, DOT and EPA jointly established new fuel economy and tailpipe carbon dioxide standards for light duty vehicles as well as medium and heavy trucks. Building on this accomplishment, the Administration announced an historic agreement in 2011 with thirteen major automakers to increase fuel economy to 54.5 mpg for cars and light duty trucks by model year 2025. By building on the 2012 to 2016 model year agreements, the proposal would save American families \$1.7 trillion in fuel costs, and by 2025 result in an average fuel saving of over \$8,000 per vehicle over the lifetime of the vehicle. Additionally, these programs would dramatically cut the oil we consume, saving a total of 12 billion barrels of oil, and by 2025 reduce oil consumption by 2.2 million barrels a day. The proposed standards will also curb carbon pollution, cutting more than six billion metric tons of greenhouse gas over the life of the program. This is more than the amount of CO₂ emitted by the U.S. in 2010.⁹⁹

In 2010, DOT and EPA announced the final rule for improving fuel efficiency in medium and heavy-duty trucks, which covers model years 2014 to 2018 for vehicles from three quarter-ton pickups and vans to delivery and utility trucks to big-rig combination tractors. These new standards are expected to save a projected 530 million barrels of oil and reduce carbon pollution emissions by approximately 270 million metric tons over the lifetime of the vehicles built for model years 2014 to 2018.¹⁰⁰

We will take the following additional actions to address the challenges of reducing carbon emissions, improving energy efficiency, and reducing dependence on oil:

- 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, do not adversely affect safety, and take interdependencies between emissions and noise into account;¹⁰¹

- Promote maturation of technologies that lower aircraft energy consumption, emissions, and noise through the CLEEN program;
- Work with CAAFI stakeholders to advance the use of drop-in alternative jet fuels for aviation;¹⁰²
- Improve operational solutions in aviation that include more precise and efficient flight paths, such as Optimum Profile Descents, as well as airport surface movement, and en route and terminal area traffic optimization for energy efficiency and reduction in aircraft noise and emissions;
- Conduct research and promote development and deployment of advanced vehicle-to-vehicle and vehicle-to-infrastructure communication technologies that can significantly increase the capacity of existing highways, move people and goods to their destinations more efficiently and effectively, and reduce fuel consumption and generation of greenhouse gases;
- Use efforts such as the Aviation Climate Change Research Initiative to increase understanding of the impacts from aircraft emissions, and expand international engagement on reducing aviation emissions by working with ICAO in coordination with the Department of State and the U.S. EPA; and
- In cooperation with other agencies, promote the deployment of advanced vehicle technologies, alternatives fuels and alternatives fuels infrastructure where feasible to reduce energy consumption and greenhouse gas emissions of transportation systems, including highway vehicles, transit systems ships and airport support vehicles.

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

Making transportation more sustainable requires reducing its impact on human health and ecosystems by reducing emissions of urban air pollutants, water and noise pollution, and waste from transportation sources. To accomplish these objectives, we will:

- Advance multi-jurisdictional and regional decision-making 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 in partnership with the private sector;
- Work to ensure that transportation projects meet national environmental and economic objectives and that project decisions are made in a timely and collaborative manner. DOT will improve internal project delivery processes and identify opportunities for enhanced interagency harmonization, through continued DOT initiatives, implementing E.O. 13604 and other efforts.¹⁰³

- Promote the smart use of ITS to decrease air pollution by maximizing the efficient movement of goods and people across the entire transportation network, using data to facilitate green transportation choices by transportation system users and operators;
- Promote effective use of winter maintenance materials, such as salt and sand, to minimize environmental impacts while achieving safe and efficient levels of service through the implementation of ITS solutions, technical assistance, and capacity building programs;
- Ensure through inspections that hazardous liquid pipeline systems and operators are following the sound integrity management practices described in new rules, advance the safety of pipeline control room operations, and lead the national program for pipeline damage prevention;
- Conduct the ship recycling program for obsolete, Federally-owned, merchant-type vessels in an environmentally responsible manner that further reduces the risk of environmental contamination;
- Modernize the U.S. air transportation system through NextGen by setting investment and infrastructure priorities 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
- Work with industry stakeholders and the U.S. Army Corps of Engineers to maintain the capability of the inland lock and waterway system.

IMPROVING PERFORMANCE OF FEDERAL PERMITTING AND REVIEW OF TRANSPORTATION PROJECTS

In 2012, President Obama signed E.O. 13604, which is intended to “significantly reduce the aggregate time required to make decisions in the permitting and review of infrastructure projects by the Federal government, while improving environmental and community outcomes.” This order expanded upon an earlier Presidential Memorandum signed in March 2011 directing federal agencies to speed up project delivery. Six of the 14 infrastructure projects selected as a high-priority for job creation were transportation projects. Following the selection of these projects, we identified 12 additional projects of national or regional significance. Progress reports and current schedules for each of these projects are tracked on the [Federal Infrastructure Permitting Dashboard](#). As a member of the steering committee on Federal Infrastructure Permitting and Review, we work closely with other Federal agencies to implement process improvements that result in fast delivery and better outcomes.

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

Our goal is to make the design of U.S. transportation systems more sustainable and ensure their operation is more efficient, which will in turn reduce the negative environmental effects of transportation and also reduce the use of scarce resources. This goal is most effectively achieved by changing the way that our transportation systems are planned, designed, and operated. Specifically, we will:

- Encourage and support research toward more sustainable and durable transportation materials, construction, and infrastructure;
- Promote best practices that increase sustainability in transportation planning, construction, operation, and maintenance; and economic sustainability;
- Advocate the use of Environmental Management Systems as tools to increase the sustainability of airports, highways, 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;
- Conduct exploratory advanced research that promotes a more environmentally friendly highway template that mitigates environmental impacts and reduces environmental pollution;¹⁰⁴ and
- Conduct maritime environment and compliance activities that address improving marine air emissions, energy efficiency and alternative energy usage, and conduct cooperative efforts to advance development of effective ballast water treatment systems and compliance monitoring methods.

DOT SUSTAINABILITY PERFORMANCE PLAN

We strive to be a leader in the use of environmentally sustainable practices in Departmental operations. We are working to:

- ❖ Reduce petroleum consumption and increase alternative fuel use in DOT vehicles;
- ❖ Increase awareness and usage of renewable energy;
- ❖ Increase the number of buildings that meet the High Performance Sustainable Building criteria;
- ❖ Support programs for reductions in GHG emissions and energy use;
- ❖ Decrease potable water use; and
- ❖ Meet or exceed green purchasing requirements.

Our annual [Strategic Sustainability Performance Plan](http://sustainability.performance.gov/) outlines these initiatives in more detail. This effort also contributes to a federal, cross-agency priority goal. More information about federal agency efforts to achieve sustainability is available at: <http://sustainability.performance.gov/>

STRATEGIES TO ENSURE INFRASTRUCTURE RESILIENCE

We define resilience as the capability to anticipate, prepare for, respond to, and recover from significant multi-hazard threats with minimum damage to social well-being, the economy, and the environment.¹⁰⁵ Specifically, resilience as applied to infrastructure includes the following elements;

DOT will work with Congress and stakeholders to provide \$200 million to communities that include enhanced resilience to extreme weather and other impacts of climate change in their planning efforts, and that have proposed, or are ready to break ground on, infrastructure projects to improve resilience.

[FY'14 President's Budget to Congress](#), April 2013

- ❖ Reducing the likelihood of failure through such options as hardening and relocation, maintenance, and support for natural barriers and ecosystem services;

- ❖ Reducing the consequences of failure through redundancy; and

- ❖ Improving recovery time in the event of a system impairment.

Resiliency projects may include hardening of existing facilities; relocation of facilities or elements of facilities to less vulnerable locations; maintaining existing facilities more frequently; supporting natural resources that provide ecosystem services to protect infrastructure; adding redundancy or redundant elements to facilities or systems; providing alternative power, fuel supply, or communications to facilities or systems; and acquisition of spares, supplies, repair materials, long lead-time items, auxiliary power, and lighting systems aimed at rapid repair or recovery of damaged systems.

Resiliency policies and programs should be informed by continual improvement, prioritization of assets, redundancy, and risk analysis and reduction. To

guide decision making, DOT will use the best available science as identified by the Federal Emergency Management Agency (FEMA), which includes advisory data such as Advisory Base Flood Elevations, preliminary and final Flood Insurance Rate Maps, and Flood Insurance Studies. If FEMA data is mutually determined by DOT and the recipient to be unavailable or insufficiently detailed, other Federal, State, or local data may be used as the best available information in accordance with E.O. 11988.¹⁰⁶

To advance DOT policies on resilience, we will:

- Encourage DOT funding recipients to perform climate change vulnerability assessments for their transportation infrastructure and integrate the results into their decision-making, including in the areas of transportation planning, asset management, project design, emergency management, maintenance and operations;

- Provide technical assistance and best practices information to DOT funding recipients:
- Coordinate the implementation of the President’s Council on Environmental Quality climate adaptation planning initiatives, and participate in the Global Change Research Program working groups; and
- Work through the DOT Center for Climate Change to better coordinate climate-related activities, research and products.

STRATEGIC OBJECTIVES, PERFORMANCE GOALS, AND INDICATORS

We will monitor our progress in achieving the Strategic Objectives for the Environmental Sustainability goal using the Performance Goals and Indicators in Table I.

Table I. Performance Goals, Indicators, and Lead by Environmental Sustainability Strategic Objective.

Performance Goal	Performance Indicator(s)	Lead Office
Strategic Objective: Reduce foreign oil-dependence and carbon emissions through research and deployment of new technologies including alternative fuels, and by promoting more energy-efficient modes of transportation (ES1).		
Improve NAS energy efficiency by at least 26 percent by FY 2018, relative to the FY 2001 baseline.	Aviation fuel burned per revenue-ton-mile.	FAA
Set light-duty vehicle fuel economy standards, and medium-and heavy-duty vehicle fuel efficiency standards for each model year, and monitor manufacturer compliance to fuel economy and fuel efficiency standards.	TBD	NHTSA
Avoid and mitigate transportation-related impacts to climate, ecosystems, and communities by helping partners make informed project planning decisions through an analysis of acceptable alternatives, balancing the need to obtain sound environmental outcomes with demands to accelerate project delivery (ES2).		
Reduce environmental contamination risk from prolonged storage of federally-owned, non-retention vessels at DOT facilities by meeting a 1.0 rate for ship disposal. For every incoming vessel destined for storage and disposal at a DOT facility, dispose of at least one	Number of ships disposed per number of incoming vessels.	MARAD

ship. ¹⁰⁷		
Lead FHWA implementation of MAP-21 and future reauthorization environmental provisions through FY 2018.	Submit three reports to Congress annually on MAP-21 Section 1306 regarding the status of environmental impact statement and environmental assessment processes.	FHWA
Reduce the number of people exposed to significant noise around U.S. airports to less than 300,000 people in FY2018. ¹⁰⁸	Number of people exposed to significant noise (i.e., Day-Night Average Sound Level of 65dB or greater) around U.S. airports	FAA
Strategic Objective: Promote infrastructure resilience and adaptation to extreme weather events and climate change through research, guidance, technical assistance, and direct federal investment (ES3).		
Encourage at least 63 State DOTs and MPOs to undertake an assessment of vulnerabilities or negative risks posed by climate change effects or extreme weather events on transportation infrastructure by FY 2018. ¹⁰⁹	Number of State DOTs and MPOs that have conducted vulnerability assessments of the highway system to climate change and/or extreme weather events.	FHWA
Advance energy and sustainability goals within DOT practices by FY 2018.	Yellow or better score for at least 85 percent of the DOT indicators on the public OMB Energy and Sustainability Scorecard	OST/ALL

EXTERNAL RISK FACTORS

There is still a great deal of political and policy debate about the best way to address the environmental challenges posed by our transportation system, especially its effects on climate change, and the potential costs of migrating transportation from fossil-based energy to other alternatives. 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 gasoline.

However, fuel cells, batteries or hydrogen engines that can provide travel distances equal to a tank of fossil fuel are not yet available. Current passenger-vehicle battery technologies provide less than 100 miles on a single charge, far below most consumers' expectations of a

250-300 mile range. While growing in use, hybrid electric vehicles continue to represent a small fraction of all vehicle sales. Some vehicle manufacturers are introducing all electric vehicles that have zero GHG emissions at the tailpipe, but consumer adoption will be slow until a nationwide infrastructure of charging stations is in place.

With the exception of 10 percent ethanol and five percent biodiesel, 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, emergency response, and engine warranties.

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 a limited infrastructure for hydrogen fuels, which is primarily in California, and it will take decades to create a nationwide network. In addition, at present, only a limited number of natural gas pipelines can move hydrogen over long distances.

Natural gas production in the U.S. is forecast to increase by approximately 50 percent between 2011 and 2040; and almost all of this increase is due to projected growth in shale gas production, which is projected to more than double during this period.¹¹⁰ Liquefied natural gas (LNG) holds some promise for long-haul trucking because it can be supported by a centralized refueling infrastructure. However, its use will depend on the costs of natural gas relative to oil.

The price of crude oil and other liquid fuels will continue to fluctuate significantly in response to price shocks that affect the global market. While U.S. oil production is increasing, fuel prices are still subject to fluctuations in response to changes in global supply and demand. Oil prices are forecast to remain stable between \$90 and \$100 per barrel through 2015-2016, but then increase slowly to about \$180 per barrel in 2030.¹¹¹ Low or stable oil prices give consumers an impetus for additional spending including travel, but dampen prospects for wider acceptance of alternatives to petroleum. Higher oil prices over the longer term could cause the transportation industry and consumers to more readily accept alternatives.

VIII. ORGANIZATIONAL EXCELLENCE

Develop an innovative, world-class organization to advance the U.S. transportation system and serve the Nation's long-term safety, social, economic, security, and environmental needs.

CHALLENGES AND STRATEGIES

We understand and recognize that our ability to provide transportation programs and services that meet the Nation's needs depends on excellent management of our organization and resources. The Organizational Excellence goal emphasizes how our people, property, and processes are central to achieving all of our strategic goals and objectives. In this chapter, we describe two important challenges from among the many that our leadership and managers identified through the strategic planning process. First, we must build a Departmental workforce that can meet the challenges of this decade, especially in light of the pending retirement of many of our eligible employees. Second, we must focus on improving our information technology (IT) and financial management business processes. In the case of IT, we are highlighting priorities such as cyber security that are described in more detail in the DOT IT Strategic Plan.¹¹² Our strategic objectives are presented below:

FY 2014-2018 STRATEGIC OBJECTIVES

- ❖ Put people first. Build a capable, diverse, and collaborative workforce of highly-skilled, innovative, and motivated employees by making DOT a workplace of choice through employee empowerment and engagement, learning and development, succession planning, workplace flexibilities, and a healthy and safe workforce (OE1).
- ❖ Advance secure and innovative information systems and technology platforms that protect against cyber threats and support the efficient use of information and data for financial management (OE2).

These are our highest management priorities during the period of this strategic plan. The challenges and strategies associated with each are addressed in the following paragraphs.

STRATEGIES FOR ENABLING HUMAN CAPITAL SOLUTIONS

Retirement eligibility among the DOT workforce threatens our ability to achieve our strategic goals and objectives. Approximately 14 percent of all DOT employees were eligible to retire in 2012, with 36 percent of Senior Executive Service members being retirement eligible. Retirement eligibility among our employees will continue to increase over the next several years given current workforce demographics. Recruitment, retention and succession planning will be the key to successfully managing the retirement impact on mission. Key competencies and skill sets needed in the future will be another important objective. Achieving high employee engagement will be critical for retaining employees. To ensure a workforce that is ready, capable, and willing to achieve our mission, we will:

- Implement workforce planning, competency-based hiring, and competency-based training to ensure DOT has a diverse and capable workforce;
- Promote selfless leadership that focuses on performance and thrives on collaboration, while leveraging employee inclusion and engagement; and
- Foster a culture of continuous learning and improvement among our employees.

STRATEGIES FOR ENABLING INNOVATIVE INFORMATION TECHNOLOGY AND CYBER SECURITY SOLUTIONS

In this increasingly connected, complex, and interdependent digital world, the demand for technology systems and infrastructure that are cost effective and support operations efficiently requires creative solutions and innovative approaches. This same digital infrastructure is increasingly being targeted for exploitation and disruption by a growing array of adversaries, with threats that have grown more sophisticated, targeted, and serious. We must ensure that both IT and cyber security enable the achievement of our strategic goals through innovative, pragmatic, and flexible approaches that address these risks.

We will provide secure, customer-focused information systems and technology platforms that support the innovative, effective, and efficient use of information and data for the management of all DOT business processes. We will leverage new technologies and ensure contingency plans are in place for our employees to function as a mobile workforce in all situations by encouraging telework, enabling work features on mobile devices, and providing broadband connectivity to our DOT workforce allowing them to securely work from anywhere. Our key strategies will be to:

- Increase the utility and accessibility of information and technology solutions across the Department;
- Leverage collaborative opportunities to drive innovation and cost reductions;

The 3E (Economy, Effectiveness, and Efficiency) Initiative

In support of the President's Management Agenda, DOT is undertaking an aggressive initiative to deliver a smarter, more innovative, and more accountable government agency. The initiative is identifying opportunities throughout DOT to meet the following goals:

- Economic Growth – government that supports an ever-growing economy and job creation
- Effectiveness – government that works better
- Efficiency – a government that costs less

At the core of this initiative, DOT will generate significant, tangible, and positive differences in the lives of the citizens we serve. We will produce results that are measureable and drive lasting change in how government works and focus on continuous improvement in results. As a result of this effort, DOT will consider innovative and fundamental change to our policies and procedures, consolidation of offices and functions, smart purchasing agreements, and improve financial management. DOT will also work to use performance measures and departmental programs to spur economic development with the ultimate goal of delivering better services to the American people.

- Drive performance excellence and service delivery through effective IT governance and resource management; and
- Develop our IT workforce with mission critical and emerging technology competencies.

We will strengthen our cyber security posture through improved situational awareness, effective risk management practices, and pragmatic application of mission-aligned capabilities that will enhance the effectiveness of the Operating Administrations. To accomplish this, we will:

- Implement a cyber risk management program that continually adapts to changing threats, vulnerabilities, and assets;
- Enhance the DOT cyber security incident response program to provide interdependent, enterprise-wide coordination, collaboration, information-sharing and response; and
- Strengthen our security posture by focusing efforts on data and information entering and exiting our networks, the assets on our networks and changes to their security status, and knowing who is using our systems.

STRATEGIES FOR IMPROVING FINANCIAL PERFORMANCE

We will continue to emphasize improving our financial management practices by focusing on increased oversight and proper recording of Undelivered Orders, which are budget obligations that have not yet been fully liquidated by making a final payment. With the large number and dollar value of DOT-funded grants and projects, identifying unused portions of this funding is constant and important work. By recovering these unused funds, we can make additional monies available to be used for eligible, higher priority projects.

Continued vigilance of improper payments is also an important safeguard in ensuring that the financial resources of the Department are used appropriately and effectively. ¹¹³ DOT currently has a rate of estimated improper payments at less than 1 percent. ¹¹⁴ However, with the large amounts of funding handled by the Department, we strive to avoid any improper payments. We will continue to emphasize internal controls aimed at reducing the percentage even further.

Improving financial management and oversight ensures our financial resources are used as efficiently and effectively as possible, which contributes to the achievement of our strategic goals and objectives. Through fostering financial stewardship in DOT, we protect valuable taxpayer resources and ensure they are used in the most fiscally responsible manner possible. We strive to offer an example of how tax dollars should be effectively spent to achieve the benefits that we seek for the Nation. To improve financial management and provide quality customer service, we will:

- Reduce undelivered orders and improper payments;
- Develop budgets aligned to advance the mission-related DOT goals and objectives, based on meeting internal and external user needs;

- Provide oversight to ensure funds are not committed, obligated, or expended in excess of appropriation allotments and fiscal plans, and ensure no violations of the Anti-Deficiency Act or other fiscal law;
- Provide improved financial management service to Departmental programs, so we can meet and address current and emerging program and management requirements;
- Develop and provide access to accurate and timely financial information to leadership and programs to inform their decision-making as well as policy and program development; and
- Promote transparency of financial information to strengthen accountability.

STRATEGIC OBJECTIVES, PERFORMANCE GOALS, AND INDICATORS

We will monitor our progress in achieving the Strategic Objectives for the Organizational Excellence goal using the Performance Goals and Indicators in Table J.

Table J. Performance Goals, Indicators, and Lead by Organizational Excellence Strategic Objective.

Performance Goal	Performance Indicator(s)	Lead Office
Strategic Objective: Build a capable, diverse, and collaborative workforce of highly-skilled, innovative, and motivated employees by making DOT a workplace of choice through employee empowerment and engagement, learning and development, succession planning, workplace flexibilities, and a healthy and safe workforce (OE1).		
Increase DOT employee engagement index score) to 70.5 percent positive responses by 2018.	Employee engagement index score (positive responses) on the OPM Federal Employee Viewpoint Survey.	OST/ALL
Increase the hiring of persons with targeted disabilities for eligible positions to 2 percent by 2018.	Percent in eligible positions of new hires with targeted disabilities.	OST/ALL
Achieve no greater than a 5 percent difference between the score of a demographic group and the DOT-wide average employee engagement index score by 2018.	Employee engagement index scores (various demographic groups).	OST/ALL
Strategic Objective: Advance secure and innovative information systems and technology platforms that protect against cyber threats and support the efficient use of information and data for financial management (OE2).		

Strengthen the Cybersecurity posture of the Department through holistic situational awareness and risk management capabilities.	<p>Indicator:</p> <p>An enterprise, risk-based, cyber program that continuously adapts to changing threats, vulnerabilities, and assets in near-real time.</p> <p>Sub-Indicators:</p> <ul style="list-style-type: none"> • 100 percent of systems governed by Automated Continuous Monitoring capabilities within each Component by the end of FY 2018. • 100 percent of systems converted to an ongoing authorizations process by the end of FY 2018. 	OST-CIO
Maintain the percentage of improper payments to one percent or less of all payments.	Percent improper payments.	OST/ALL
Keep improper payments below the level of significant improper payments (i.e., greater than \$100 million, regardless of error rate) for all major programs.	Total dollar amount of improper payments.	OST/ALL

IX. SECURITY, PREPAREDNESS, AND OTHER SUPPORTING OBJECTIVES

CHALLENGES AND STRATEGIES

In this second edition of *Transportation for a New Generation*, we include three important strategic objectives that will be achieved through Departmental activities that support Federal government-wide goals. The three objectives represent the Departmental role in emergency preparedness, national security, and small business assistance. As they are more cross-cutting and do not support any one strategic goal, they are designated as non-aligned objectives. This does not diminish their importance to the Nation or within the Department. Our strategic objectives are presented below:

FY 2014-2018 STRATEGIC OBJECTIVES

- ❖ Mitigate the impacts to transportation due to all hazards by developing effective response planning and training for leaders and responders (OS1).
- ❖ Meet transportation needs for national security through interagency cooperation with the Departments of Defense, State, Homeland Security, and State and local agencies (OS2).
- ❖ Expand opportunities for small and disadvantaged businesses in the transportation sector (OS3).

The challenges and strategies associated with each are addressed in the following paragraphs.

STRATEGIES FOR ENABLING EMERGENCY PREPAREDNESS

Preparedness is the key to carrying out our responsibilities. Preparedness is the process of identifying the personnel, training, and equipment needed for a wide range of potential incidents, and developing disaster-specific plans for delivering capabilities when needed for an incident. This involves a combination of planning, resources, training, exercising, and organizing to build, sustain, and improve operational capabilities.

We proactively prepare to use our internal authorities for the safety and resilience of the U.S. transportation systems including air cargo, passenger aviation, rail, transit, highways, maritime, and pipeline modes; and to support the transportation mission of the Department of Homeland Security (DHS) and other federal departments and agencies to improve the security of domestic and intermodal transportation.¹¹⁵ We collaborate with DHS to strengthen the transportation network and effectively mitigate risk through an integrated systems approach. We also support the U.S. Department of State and U.S. Agency for International Development in preparedness and response to international incidents impacting transportation.

Under the provisions of multiple Executive Orders and Presidential policy directives, DOT is responsible for coordinating civil transportation during all hazards. In 2008, DHS released the National Response Framework, a guide to how the Nation conducts all-hazards response. It is designed to capture specific authorities and best practices

agencies should follow to manage incidents that range from the serious but purely local, to catastrophic natural or manmade disasters.¹¹⁶

During a response, trained DOT staff work to respond to incidents at various locations including the National Response Coordination Center, Regional Response Coordination Centers, and Joint Field Offices. Along with staff from other supporting agencies, we provide assistance in domestic incident management to regulate transportation, manage the Nation's airspace, and ensure the safety and security of the national transportation systems. The responsibilities include to:

- ❖ Monitor and report the status of, and damage to, the transportation system and infrastructure as a result of an incident;
- ❖ Identify temporary alternative transportation solutions that can be implemented by others when systems or infrastructure are damaged, unavailable, or overwhelmed;
- ❖ Perform activities conducted under DOT statutory authority to support aviation, maritime, surface, railroad, and pipeline transportation; and
- ❖ Coordinate the prevention, preparedness, response, restoration and recovery of the transportation systems and infrastructure.

We also help the Nation recover from emergencies by ensuring the availability of transportation services after natural disasters. The FHWA and FTA have authority to provide funding for the recovery of transportation systems. For example, in the aftermath of Superstorm Sandy, FTA provided \$2 billion to more than a dozen transit agencies and laid the groundwork to continue helping them rebuild stronger than before.¹¹⁷

Our strategies and competencies for emergency management include:

- Enhance a security preparedness policy to ensure personnel and facility safety, security and preparedness, so that we can mitigate the consequences of transportation sector emergencies;
- Ensure continuity of operations by maintaining emergency preparedness and response capabilities to effectively provide leadership and response to incidents to fulfill our commitments under Presidential Directives, Departmental Orders and the National Response Framework;
- Coordinate with FEMA, the U.S. State Department, Department of Defense (DOD), and other federal agencies to provide security and emergency management training, including technical assistance and information sharing to transit agencies;
- 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 and 7 days a week; during emergency operations strengthen operational

- coordination, communication, and command and control capabilities needed to prepare for, respond to, and recover from crises; and
- Improve the security of data and information using advanced cyber defense strategies;
 - Assist in timely, relevant, expert intelligence analysis that focuses on preparedness efforts, supports operational response; and international programs, and fulfills technical requests from the intelligence, defense, and law enforcement communities;
 - Document and report on suspicious activity that may be indicative of intelligence gathering or pre-operational planning related to terrorist, counterintelligence, 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 on time-sensitive threats or situations that may affect local security environments and may require response;
 - Implement the Controlled Unclassified Information Framework and monitor compliance with policy, standards, and markings;
 - Coordinate with DHS to ensure that U.S. transportation assets are employed to maximum effectiveness during emergencies;
 - Coordinate procedures through interagency agreements to safely and efficiently enable operation of needed emergency transportation resources;
 - Maintain emergency response and continuity capabilities and provide immediate financial assistance to air carriers in the DOT Aviation War Risk Insurance Program for aircraft incidents involving acts of terrorism, war, and other perils;
 - Fulfill DOT commitments to international partners and agreements including the Asia-Pacific Economic Cooperation forum and the North Atlantic Treaty Organization;
 - Coordinate with the Department of State on preparedness and response measures within DOT authorities; and
 - Develop and fulfill bilateral emergency preparedness cooperative arrangements with other nations including Canada and China to improved transportation disaster preparedness in both countries.

STRATEGIES FOR NATIONAL SECURITY

DOT has responsibility for a number of modal emergency preparedness programs that provide the DOD and civilian agencies with assured access to commercial transportation during times of national emergency. One of our competencies is to maintain reserve sealift capacity in support of national defense. We maintain government-owned ships in the Ready Reserve Force (RRF), which is a part of the National Defense Reserve Force (NDRF). The RRF is comprised of 46 vessels that provide surge sealift capacity for DOD deployments and other emergencies. These RRF

vessels are operated and maintained according to strict DOD readiness timelines, employing the expertise of commercial ship management companies and civilian crews to be mission ready within five days of activation. In response to Superstorm Sandy in late 2012, MARAD activated one RRF vessel and two NDRF training vessels to provide berthing and meals to for Federal-relief workers in the New York City area.

Our strategies for ensuring defense mobility include:

- Maintain government-owned transportation assets, and provide access to commercial transportation assets for critical support for defense mobility and emergency response;
- Maintain steadfast defense readiness across all operating administrations in their respective national security responsibilities through interagency cooperation and drills with the DOD, DHS and other Federal, State, and local agencies.
- Coordinate with DOD to designate and maintain the STRAHNET and the Strategic Rail Corridor Network (STRACNET); ¹¹⁸ and
- Support DOD Civil Reserve Air Fleet operations needed to augment airlift requirements during times of crisis and protect national security interest of the U.S. air carrier industry.

STRATEGIES TO EXPAND OPPORTUNITIES FOR SMALL AND DISADVANTAGED BUSINESSES IN THE TRANSPORTATION SECTOR

The federal government provides opportunities through its acquisitions to small businesses, which include small disadvantaged, women-owned, veteran-owned, service-disabled veteran-owned, and Historically Underutilized Business Zone small business concerns. These small businesses must also have the maximum practicable opportunity to participate in DOT contracts and subcontracts. In compliance with the *Small Business Act*, we have the responsibility to ensure that small businesses have an opportunity to compete and be selected for a fair amount of the Agency's contract dollars. We provide various types of assistance to ensure that small businesses have access to transportation-related projects. Through outreach events, we demonstrate a commitment to growing the small business supplier base and increasing their awareness of procurement opportunities. To expand these opportunities, we will continue to:

- Participate in small business outreach events to include vendor outreach sessions to encourage small business participation in DOT procurements;
- Provide management and technical assistance for small businesses to work closely with state and local transportation agencies;
- Help small businesses gain the financing they need to participate in transportation-related contracts;
- Conduct bonding educational programs to help small businesses become bond ready;
- Increase awareness and participation in all stages of the DOT Small Business Innovation Research program;

- Implement a Final Rule that seeks improvements to the implementation of existing Disadvantaged Business Enterprise (DBE) regulations;¹¹⁹
- Develop regional certification program or reciprocity agreements with DOT recipients to assist small, women-owned, and minority-owned businesses to more easily become certified and possibly obtain federally-assisted highway, transit, and airport contracts for which they are eligible; and
- Increase compliance with *Buy America* and enhance the ability of the domestic manufacturers and suppliers to meet content requirements.

STRATEGIC OBJECTIVES, PERFORMANCE GOALS, AND INDICATORS

We will monitor our progress in achieving the Non-Aligned Strategic Objectives using the Performance Goals and Indicators in Table K.

Table K. Performance Goals, Indicators, and Lead by Supporting Strategic Objective.

Performance Goal	Performance Indicator(s)	Lead Office
Strategic Objective: Mitigate the impacts to efficient transportation due to emergencies by developing effective response planning and training for leaders and responders (OS1).		
DOT staff supporting emergency relief operations meets minimum training standards established by DOT and FEMA by 2015.	TBD	OST/All
Strategic Objective: Meet transportation needs for defense readiness through interagency cooperation with the Departments of Defense, State, Homeland Security, and State and local agencies (OS2).		
Comply with all national security-related interagency agreements.	TBD	OST/ALL
Strategic Objective: Expand opportunities for small and disadvantaged businesses in the transportation sector (OS3).		
Maintain the percent of total dollar value of DOT direct contracts awarded to women-owned businesses at 5 percent through FY 2018.	Percent of total dollar value of DOT direct contracts awarded to women-owned businesses	OST/ALL
Maintain percent of total dollar value of DOT direct contracts awarded to small disadvantaged businesses at 5 percent through FY 2018.	Percent of total dollar value of DOT direct contracts awarded to small disadvantaged businesses	OST/ALL

X. ACRONYMS

ADA	Americans with Disabilities Act of 1990
AIP	Airport Improvement Program
CAAFI	Commercial Aviation Alternative Fuels Initiative
CAFÉ	Corporate Average Fuel Economy
CCAM	Coordinating Council on Access and Mobility
CLEEN	Continuous Lower Energy, Emissions, and Noise
CMP	Congestion Management Process
CMV	Commercial Motor Vehicles
CO2	Carbon Dioxide
DHS	Department of Homeland Security
DOD	Department of Defense
DOT	Department of Transportation
EDC	Every Day Counts
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
FY	Fiscal Year
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GPS	Global Positioning System
HAZMAT	Hazardous Materials
HUD	Department of Housing and Urban Development
ICAO	International Civil Aviation Organization
IT	Information Technology
ITS	Intelligent Transportation Systems
MAP-21	Moving Ahead for Progress in the 21st Century
MARAD	Maritime Administration

MPO	Metropolitan Planning Organization
MSP	Maritime Security Program
NAAQS	National Ambient Air Quality Standards
NAS	National Airspace System
NDRF	National Defense Reserve Force
NextGen	Next Generation Air Transportation System
NFAC	National Freight Advisory Committee
NHS	National Highway System
NHTSA	National Highway Traffic Safety Administration
NPIAS	National Plan of Integrated Airports System
NTSB	National Transportation Safety Board
OA	Operating Administration
PHMSA	Pipeline and Hazardous Materials Safety Administration
Recovery Act	American Recovery and Reinvestment Act of 2009
RITA	Research and Innovative Technology Administration
RRF	Ready Reserve Force
RRIF	Railroad Rehabilitation and Improvement Financing
SLSDC	Saint Lawrence Seaway Development Corporation
SHRP2	Second Strategic Highway Research Program
SMS	Safety Management Systems
STEM	Science, Technology, Engineering and Math
STRAHNET	Strategic Highway Corridor Network
STRACNET	Strategic Rail Corridor Network
T2	Technology Transfer
TIFIA	Transportation Infrastructure Finance and Innovation Act
TIGER	Transportation Investment Generating Economic Recovery
UWR	United We Ride
VALE	Voluntary Airport Lower Emissions
VTCLI	Veterans Transportation Community Living Initiative
VMT	Vehicle Miles Traveled

END NOTES

¹ This is the current revised version of DOT’s original mission statement, which is in Section 101 of Title 49, U.S.C. as “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.”

² For more information, see *U.S. DOT: A Brief History*, available at <http://ntl.bts.gov/historian/history.htm> accessed April 24, 2013.

³ With passage of the Interstate Commerce Commission Termination Act of 1995, Congress established the Surface Transportation Board within DOT, effective January 1, 1996. While formally part of DOT, the Board decisions are 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)).

⁴ U.S. Department of Commerce, Census Bureau (2012). *The 2012 Statistical Abstract*, National Estimates and Projections, Tables 1 and 2, available at <http://www.census.gov/compendia/statab/cats/population.html>, accessed April 24, 2013.

⁵ An early definition of State of Good Repair was provided by then Secretary Mary Peters to Congress in 2008, as when “existing physical assets, both individually and as a system, are functioning as designed within their useful lives and sustained through regular maintenance and replacement programs.”

⁶ U.S. DOT, NHTSA (2002). *The Economic Impact of Motor Vehicle Crashes*. DOT HS 809 446 Available at <http://www-nrd.nhtsa.dot.gov/Pubs/809446.PDF> accessed May 28, 2013.

⁷ There were 9,878 alcohol-impaired-driving fatalities in 2011, a 27-percent decrease from the 13,472 alcohol-impaired-driving fatalities reported in 2002. From 1975 through 2011, NHTSA estimates that seat belts saved the lives of 292,471 passenger vehicle occupants age 5 and older, including 11,949 lives saved in 2011. More information is available at: <http://www-nrd.nhtsa.dot.gov/Pubs/811753.pdf>

⁸ In 2008, a five-year cooperative research agreement, titled Driver Alcohol Detection System for Safety (DADDS), was entered into with the Automotive Coalition for Traffic Safety 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. Due to the substantial progress being made through 2013, the Department expects to extend the agreement for an additional five years.

⁹ The Blueprint for Driver Distraction is designed to address the growing and dangerous practice of using hand held cell phones behind the wheel. More information is available at: [http://www.nhtsa.gov/About+NHTSA/Press+Releases/2012/DOT+Sec.+LaHood+Issues+Blueprint+for+Ending+Distracted+Driving,+Announces+\\$2.4+Million+for+California,+Delaware+Pilot+Projects](http://www.nhtsa.gov/About+NHTSA/Press+Releases/2012/DOT+Sec.+LaHood+Issues+Blueprint+for+Ending+Distracted+Driving,+Announces+$2.4+Million+for+California,+Delaware+Pilot+Projects)

¹⁰ For more information, see *Transforming Transportation through Connectivity: ITS Strategic Research Plan, 2010–2014 - Progress Update, 2012*. available at: <http://www.its.dot.gov/strategicplan/pdf/ITS%20Strategic%20Plan%20Update%202012.pdf>

¹¹ U.S. Department of Commerce, Census Bureau (2012). *2010 Census Urban and Rural Classification*, available at <http://www.census.gov/geo/reference/ua/urban-rural-2010.html> accessed, August 5, 2013.

¹² B.J. Campbell, C. Zegeer, H. Huang, and M. Cynecki (2004). *A Review of Pedestrian Safety Research in the United States and Abroad*. Federal Highway Administration, Publication Number FHWA-RD-03-042.

¹³ These policies include Safe Routes to School, walking school buses, pedestrian crossing medians, sidewalks, walkable road shoulders, roundabouts, and bike lanes. A walking school bus is a group of children walking to school with one or more adults.

¹⁴ Twenty States and the District of Columbia have motorcycle helmet laws that require all riders to wear helmets.

¹⁵ The standards will establish baseline content that all entry-level riders should be taught, including pre-ride skills, vehicle-control skills, street strategies and roadway management, and skills for group riding.

¹⁶ More information about Compliance, Safety, Accountability program is available at <http://csa.fmcsa.dot.gov/>

¹⁷ NextGen is a transformation of the National Airspace System, including our national system of airports, using 21st Century technologies to ensure future safety, capacity, and environmental needs are met. For more information, see the NextGen Implementation Plan at http://www.faa.gov/nextgen/implementation/media/NextGen_Implementation_Plan_2013.pdf

¹⁸ These programs include the Air Safety Action Program, the Flight Operations Quality Assurance, and Line Operation Safety Audit.

¹⁹ Positive train control is a communication-based or processor-based technology that reliably and functionally prevents train-to-train collisions and over speed derailments. Technical obstacles to implementation include availability of communications spectrum, radios, design specifications, back office server and dispatch systems, track database verification, installation engineering, and reliability and availability. Programmatic obstacles include budgeting, contracting, and stakeholder availability.

²⁰ The Bakken Region includes a 200,000 square mile formation covering parts of Montana, North Dakota, and Saskatchewan. According to the U.S. Energy Information Administration, Bakken shale crude oil production grew nearly five-fold to 820,000 barrels per day between 2008 and 2012. In 2012, 58 percent of the total production of Bakken shale oil, or 234,000 carloads, were transported by rail according to the Association of American Railroads.

²¹ We want everyone to think automatically about calling 811 whenever they think about digging, and we want the process to be so quick and easy that it becomes second nature. Our efforts will focus on increased visibility and public awareness, supporting states and the Common Ground Alliance through state grants, targeted promotion, and participation in committees to broaden awareness of 811.

²² Working with local governments, real estate and development interests, insurers, pipeline operators, other Federal and state agencies and others, the Pipeline and Informed Planning Alliance has developed standards and best practices. Our efforts over the next several years will focus on engaging others to help implement the recommended practices.

²³ This group of employees includes including pilots, truck drivers, school bus drivers, subway operators, ship captains, pipeline controllers, airline mechanics, flight attendants, locomotive engineers, public bus drivers, and armed security personnel.

²⁴ Total rail-related accidents and incidents include train accidents, highway rail grade crossing incidents, and other rail-related events that cause physical harm to persons.

- ²⁵ U.S. DOT, NHTSA. *2010 Traffic Safety Facts: Motorcycles*, DOT HS 811 639. Available at <http://www-nrd.nhtsa.dot.gov/Pubs/811639.pdf> accessed April 26, 2013.
- ²⁶ U.S., DOT, NHTSA (2010). *Drug Involvement of Fatally Injured Drivers*, Report No. DOT HS 811 415. Washington, DC. Available at <http://www-nrd.nhtsa.dot.gov/Pubs/811415.pdf> Accessed July 29, 2013.
- ²⁷ Rainie, L. *Privacy in the Digital Age*, Pew Internet Project. Presentation at the 2012 Transportation Research Board annual meeting, Washington, D.C. Available at <http://www.pewinternet.org/Presentations/2012/Jan/Transportation-Research-Board.aspx> accessed April 30, 2013.
- ²⁸ AAA Foundation for Traffic Safety (January 2013). *Distracted and Risk-Prone Drivers: Selected Findings from the 2012 Traffic Safety Culture Index*. Available at: <https://www.aaafoundation.org/distracted-and-risk-prone-drivers> accessed April 30, 2013.
- ²⁹ U.S.DOT, FHWA (2010). *The National Bicycling and Walking Study: 15-Year Status Report*. Pedestrian and Bicycle Information Center. Available at http://www.walkinginfo.org/15_year_report/ accessed May 8, 2013.
- ³⁰ U.S. DOT, Bureau of Transportation Statistics (2004). *Sidewalks Promote Walking*, Issue Brief 12. Available at http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/special_reports_and_issue_briefs/issue_briefs/number_12/html/entire.html accessed April 30, 2013.
- ³¹ National Complete Streets Coalition (2009). *Fact Sheets: Complete Streets Change Travel Patterns*. Available at: <http://www.completestreets.org/complete-streets-fundamentals/factsheets/change-travel-patterns/> accessed April 30, 2013.
- ³² U.S. DOT, FHWA, *2013 Conditions and Performance Report*. (unpublished).
- ³³ U.S. DOT, FTA (2009). *Rail Modernization Study*. Available at http://www.fta.dot.gov/documents/Rail_Mod_Final_Report_4-27-09.pdf accessed May 2, 2013.
- ³⁴ U.S. DOT, FTA (2010). *National State of Good Repair Assessment*. Available at http://www.fta.dot.gov/documents/National_SGR_Study_072010%282%29.pdf accessed May 2, 2013.
- ³⁵ The National Highway System Designation Act of 1995 (P.L.104-59) designated the NHS, which includes the Interstate system, other principal arterials, the STRAHNET, and major intermodal connectors. See <http://www.fhwa.dot.gov/planning/nhs/index.html>.
- ³⁶ The results reported herein are for the NHS as defined prior to the passage of MAP-21, which established an enhanced NHS composed of the Interstate Highway System, all principal arterial routes, intermodal connectors, and the STRAHNET. Based on the redefined NHS, the percent of VMT having good ride quality increased from 55 percent in 2010 to 56.2 percent in 2012. MAP-21 requires the U.S. DOT to develop performance measures before May 2014 for Interstate and NHS pavement condition, NHS bridge condition, and Interstate and NHS performance, in consultation with States, MPOs, and other partner agencies.
- ³⁷ A deficient bridge is classified as either structurally deficient or functionally obsolete. Bridges are considered structurally deficient if significant load carrying elements are in poor condition or worse due to deterioration and/or damage, or if the adequacy of the waterway opening provided by the bridge is insufficient to the point of causing intolerable traffic interruptions. Functional obsolescence is a function of the geometrics, waterway adequacy, and load-carrying capacity of the bridge in relation to the requirements of current design standards. While structural deficiencies are generally the result of deterioration of the conditions of the bridge components, functional

obsolescence results from changing traffic and waterway demands on the structure. If a bridge is classified as deficient, it does not imply that it is likely to collapse or that it is unsafe.

³⁸ If this percentage exceeds 10 percent for three consecutive years, States are penalized through directed use of funds under the National Highway Performance Program. In 2014, FHWA will determine the first data point to be used in assessing the three year penalty.

³⁹ The Long Term Bridge Performance program, initiated in 2008, is a research program that aims at collecting scientific quality data from a large number of our Nation's highway bridges, representing the most common bridges in the National Bridge Inventory, to help bridge owners make the best decisions possible in managing and maintaining their bridge inventory. This is the first time that quantitative bridge-performance data is collected uniformly across the United States.

⁴⁰ These programs include Urbanized Area Formula Grants, Rural Area Formula Grants, Enhanced Mobility of Seniors and Person with Disabilities Formula Grants, and Bus and Bus Facilities Formula Grants.

⁴¹ Amtrak (2012). *2011 Engineering State of Good Repair*, p. 10. Washington, D.C.; unpublished report.

⁴² Topics to include improved highway design and construction procedures, innovative quality assurance practices, materials, tools and techniques that advance asset management principles.

⁴³ Parsons Brinckerhoff (December 2012). "Trends in Highway and Rail Transit Construction Costs," *EFR*, Vol. 6, Issue 2, pp. 35-39, Gunasekera, G. and B. Ship. Available at <http://www.pbworld.com/news/publications.aspx#efr> accessed April 30, 2013.

⁴⁴ U.S. Office of Management and Budget (2013). *Analytical Perspectives, Budget of the U.S. Government, FY 2014*. Available at http://www.whitehouse.gov/sites/default/files/omb/budget/fy2014/assets/econ_analyses.pdf accessed April 18, 2013.

⁴⁵ U.S. Commerce Department, Census Bureau (2012). *Statistical Abstract of the U.S.*, National Estimates and Projections, Table 3. Resident Population Projections, 2010 to 2030, Available at <http://www.census.gov/compendia/statab/cats/population.html> accessed April 18, 2013.

⁴⁶ U.S. Department of Transportation (2013). *National Transportation Statistics*, Gross Domestic Production by Major Function, Table 3-9. Available at http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/index.html accessed April 18, 2013.

⁴⁷ U.S. DOT, FHWA, Office of Highway Policy Information. Personal communication. May 1, 2013.

⁴⁸ U.S. DOT. FAA (2013). *FAA Aerospace Forecast, 2013-2033*. Available at: http://www.faa.gov/about/office_org/headquarters_offices/apl/aviation_forecasts/aerospace_forecasts/2013-2033/media/2013_forecast.pdf accessed April 19, 2013.

⁴⁹ U.S. DOT, Federal Transit Administration, Office of Policy. Personal Communication, May 2, 2013.

⁵⁰ U.S. Department of Commerce, Bureau of Economic Analysis, *National Economic Accounts*, 2012. Available at www.bea.gov/national accessed April 18, 2013.

⁵¹ U.S. Chamber of Commerce, National Chamber Foundation (2008). *The Transportation Challenge: Moving the U.S. Economy*. Washington, D.C., Cambridge Systematics, Inc.

⁵² U.S. DOT, FAA (2013). *FAA Aerospace Forecast, 2013-2033*, p. 51.

⁵³ U.S. DOT, FHWA (2010). *Freight Facts and Figures – 2010*. Tables 2-1 and 2-2. Publication No. FHWA-HOP-10-058. Available at http://ops.fhwa.dot.gov/freight/freight_analysis/nat_freight_stats/docs/10factsfigures/ accessed May 2, 2013.

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- ⁵⁴ E.O. 13534, *National Export Initiative*, Available at <http://www.whitehouse.gov/the-press-office/executive-order-national-export-initiative> accessed April 29, 2013.
- ⁵⁵ Transportation Research Board (2013). *Commuting in America –The Third National Report on Commuting Patterns and Trends*, pp. 72-73. Washington, D.C., Alan E. Pisarski.
- ⁵⁶ Includes the Urbanized Area Formula Program, Rural Area Formula Program, Enhanced Mobility for Seniors and Persons with Disabilities Formula Program, and Bus and Bus Facilities Formula Program.
- ⁵⁷ Texas Transportation Institute (2012). *Urban Mobility Report*. Available at <http://d2dtl5nnlpr0r.cloudfront.net/tti.tamu.edu/documents/mobility-report-2012.pdf> accessed April 29, 2013.
- ⁵⁸ American Society of Civil Engineers (2012). *Failure to Act: The Economic Impact of Current Investment Trends in Airports, Inland Waterways, and Marine Ports Infrastructure*. Available at <http://www.asce.org/Infrastructure/Failure-to-Act/Airports,-Inland-Waterways,-and-Marine-Ports/> accessed April 29, 2013.
- ⁵⁹ American Association of Port Authorities Fact Sheet (2008). *U.S. Public Port Facts*. Available at <http://aapa-ports.org/> accessed May 31, 2013.
- ⁶⁰ American Society of Civil Engineers (2012). *Failure to Act: The Economic Impact of Current Investment Trends in Airports, Inland Waterways, and Marine Ports Infrastructure*, pp. 6-8. Available at <http://www.asce.org/Infrastructure/Failure-to-Act/Airports,-Inland-Waterways,-and-Marine-Ports/>
- ⁶¹ A Presidential memorandum directing the acceleration of technology transfer and commercialization of federal research in support of high-growth entrepreneurship was issued by President Obama in October 2011. See <http://www.whitehouse.gov/the-press-office/2011/10/28/presidential-memorandum-accelerating-technology-transfer-and-commerciali>
- ⁶² U.S. DOT (2012). *DOT Open Government Plan*. Available at <http://www.dot.gov/mission/open/open-government> accessed April 29, 2013.
- ⁶³ Using a weighted average of International Monetary Fund, Congressional Budget Office, and Moody's, U.S. GDP growth is expected to remain unchanged between 2012 and 2013 staying around 2.6 percent. Growth is expected to pick up beginning in 2014, peaking in 2015 at around 4.5 percent, and then falling back to 3.5 percent in 2017 settling into a long-term growth rate of approximately 3.2 percent starting around 2019. This forecast according to Parsons Brinckerhoff (December 2012), "Economic Review and Outlook: Implications for the U.S." *EFR*, Vol. 6, Issue 2, p. 28, Rodriguez, M., Romani, H. and I. Hirschman. Available at <http://www.pbworld.com/news/publications.aspx#efr> accessed April 30, 2013.
- ⁶⁴ U.S. DOT (2007). *Transportation Services Index and the Economy*, Publication No. BTS TR-002.
- ⁶⁵ Regaladao, A. (January 11, 2013). "Made in America, Again." *MIT Technology Review*. Available at <http://www.technologyreview.com/news/509326/made-in-america-again/> accessed May 1, 2013.
- ⁶⁶ Council of University Transportation Centers (2012). *National Transportation Workforce Summit – Summary*. Available at <http://www.artba.org/mediafiles/pdfhdntwssummary.pdf>, accessed April 25, 2013.
- ⁶⁷ Transportation Research Board (2002). *The Costs of Sprawl-2000*. TCRP Report 74, National Academy Press, Washington D.C., Available at http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_74-a.pdf accessed May 1, 2013.
- ⁶⁸ U.S. DOT, Bureau of Transportation Statistics (2003). *Highlights of the 2001 National Household Travel Survey*, Publication No. BTS03-05, Washington, D.C. Available at:

http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/highlights_of_the_2001_national_household_travel_survey/index.html accessed April 30, 2013.

⁶⁹ U.S. Department of Commerce (2013), *Statistical Abstract of the U.S.*, National Estimates and Projections, Table 684, Average Annual Expenditures of All Consumer Units by Type of Expenditure in 2009. Available at:

http://www.census.gov/compendia/statab/cats/income_expenditures_poverty_wealth.html accessed April 30, 2013.

⁷⁰ Center for Transit Oriented Development and Federal Transit Administration (2010). *National Transit Oriented Development GIS Database*.

⁷¹ Center for Urban Transportation Research (2007). *Public Transit in America: Analysis of Access Using the 2001 National Household Travel Survey*.

⁷² Pucher, John, and Lewis Dijkstra (2003). "Promoting Safe Walking and Cycling to Improve Public Health: Lessons from The Netherlands and Germany." *American Journal of Public Health* (93)9.

⁷³ Goldberg, David, Lawrence Frank, Barbara McCann, Jim Chapman, and Sarah Kavage (2007). *NEW DATA FOR A NEW ERA: A Summary of the SMARTAQ Findings Linking Land Use, Transportation, Air Quality and Health in the Atlanta Region*.

⁷⁴ 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.

⁷⁵ U.S. DOT, Bureau of Transportation Statistics (2004). *Sidewalks Promote Walking*. Issue Brief 12, Washington, D.C.

⁷⁶ U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (2008). *Kids Walk-to-School: Then and Now-Barrier and Solutions*. Available at http://www.cdc.gov/nccdphp/dnpa/kidswalk/then_and_now.htm accessed April 30, 2013.

⁷⁷ Cooper, Ashley, Angie Page, Lucy Foster, and Dina Qahwaji (2003). "Commuting to school: Are children who walk more physically active?" *American Journal of Preventive Medicine* (25)4, 273-276.

⁷⁸ Future of Children (2006), "Childhood Obesity: Trends and Potential Causes," 16(1), Patricia M. Anderson and Kristin F. Butcher. Available at http://www.futureofchildren.org/futureofchildren/publications/docs/16_01_02.pdf accessed May 3, 2013.

⁷⁹ Future of Children (2006). *The Role of Built Environments in Physical Activity, Eating, and Obesity in Childhood*. Vol. 16(1), Sallis, J. and K. Glanz. Available at http://www.futureofchildren.org/futureofchildren/publications/docs/16_01_05.pdf accessed April 30, 2013.

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⁸² Smart Growth America, Surface Transportation Policy Project (2003). *Measuring the Health Effects of Sprawl A National Analysis of Physical Activity, Obesity and Chronic Disease*. Available at: <http://www.smartgrowthamerica.org/report/HealthSprawl8.03.pdf> accessed April 30, 2013.

⁸³ Ewing, Reid, Tom Schmid, Richard Killingsworth, Amy Zlot, and Stephen Raudenbush (2008). "Relationship Between Urban Sprawl and Physical Activity, Obesity, and Morbidity." *Urban Ecology*.

⁸⁴ The American Recovery and Reinvestment Act of 2009 appropriated \$1.5 billion of discretionary grant funds 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.

⁸⁵ The DOT Environmental Justice Order is available at http://www.fhwa.dot.gov/environment/environmental_justice/ accessed May 1, 2013.

⁸⁶ In a Memorandum for Heads of Federal Agencies regarding the Federal Government’s Renewed Commitment to Language Access Obligations under E.O. 13166, the Attorney General requested each Federal agency notify the public through mechanisms that will reach the Limited English Proficiency communities it serves of its policies and access-related developments

⁸⁷ Reconnecting America and Center for Transit Oriented Development (2008). *TOD 101-Why Transit Oriented Development and Why Now*. Available at <http://www.reconnectingamerica.org/resource-center/browse-research/2007/tod-101-why-transit-oriented-development-and-why-now/> accessed April 30, 2013.

⁸⁸ Transportation Research Board (2013). See End Note 50.

⁸⁹ Center for Transit Oriented Development (2004). *HIDDEN IN PLAIN SIGHT: Capturing the Demand for Housing Near Transit*. Washington, D.C. Available at <http://reconnectingamerica.org/resource-center/books-and-reports/2004/hidden-in-plain-sight-capturing-the-demand-for-housing-near-transit/> accessed April 30, 2013.

⁹⁰ ZipCar (February 2013). *Driving Deeper: Millennials and Technology*. Available at http://www.slideshare.net/Zipcar_Inc/millennial-slide-share-final-16812323 accessed April 29, 2013.

⁹¹ American Association of Retired Persons (2011). *More Older Americans Use Public Transportation And More Drivers are 65+*. Available at <http://www.aarp.org/about-aarp/press-center/info-05-2011/more-older-americans-use-public-transportation-and-more-drivers-are-sixty-five-plus-says-aarp-report.html>

⁹² U.S. DOT, Bureau of Transportation Statistics (2013). *National Transportation Statistics*, Table 4-4: U.S. Energy Consumption by the Transportation Sector (Quadrillion Btu).. Available at http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/index.html#chapter_4 accessed April 23, 2013.

⁹³ U.S. Department of Energy, Energy Information Administration (2011). *Annual Energy Review, 2011*, Petroleum Consumption Estimates by Sector, Figure 5-13A. Available at <http://www.eia.gov/totalenergy/data/annual/pdf/aer.pdf> accessed April 23, 2013.

⁹⁴ U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2011*, p. 2-5, April 2013. Available at <http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2013-Main-Text.pdf> accessed May 28, 2013.

⁹⁵ U.S. EPA (2013). p. 2-25.

⁹⁶ For VMT, see FHWA *Traffic Volume Trends*, December 2009 and December 2011, Available at: http://www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm The Transportation Services Index is available at: https://1bts.rita.dot.gov/xml/tsi/src/datadisp_table.xml

⁹⁷ U.S. EPA (2012). *Our Nation’s Air: Status and Trends Through 2010*, EPA-454/R-12-001, p. 1. Available at <http://www.epa.gov/airtrends/2011/report/highlights.pdf> accessed May 30, 2013

⁹⁸ According to the Aerospace industries Association, technological improvements have resulted in increased efficiency of aircraft. See http://www.aia-aerospace.org/issues_policies/civil_aviation/aviation_and_the_environment/frequently_asked_questions/ accessed May 30, 2013.

⁹⁹ The oil savings, consumer, and environmental benefits of this comprehensive program are detailed in *Driving Efficiency: Cutting Costs for Families at the Pump and Slashing Dependence on Oil*. Available at http://www.whitehouse.gov/sites/default/files/fuel_economy_report.pdf

¹⁰⁰ U.S. Environmental Protection Agency (August 2011). *EPA and NHTSA Adopt First-Ever Program to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium-and Heavy-Duty Vehicles*, Publication No. EPA-420-F-11-031. Available at: <http://www.epa.gov/otaq/climate/documents/420f11031.pdf>

¹⁰¹ For example, FAA is conducting a study to identify and assess metrics for CO2 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 CO2 standard.

¹⁰² Commercial Aviation Alternative Fuels Initiative (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.

¹⁰³ E.O. 13604, Available at <http://www.whitehouse.gov/the-press-office/2012/03/22/executive-order-improving-performance-federal-permitting-and-review-infr> accessed April 30, 2013. On May 17, 2013, the President issued an E.O. that follows this earlier E.O. and requires federal agencies to make additional process and policy improvements to accelerate environmental permitting for infrastructure projects, available at <http://www.whitehouse.gov/the-press-office/2013/05/17/presidential-memorandum-modernizing-federal-infrastructure-review-and-pe> accessed May 20, 2013.

¹⁰⁴ 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 stormwater runoff, and the use of transportation rights-of-way to contribute to improvements in air quality and electricity generation.

¹⁰⁵ U.S. DOT (April 2013). *Draft Policy Statement on Climate Change Adaptation* .

¹⁰⁶ *E.O. 11988, Floodplain Management*, requires Federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. The E.O. provides an eight-step process that agencies should carry out as part of their decision-making on projects that have potential impacts to or within the floodplain. Available at <http://www.fema.gov/environmental-planning-and-historic-preservation-program/executive-order-11988-floodplain-management> accessed April 30, 2013.

¹⁰⁷ This goal quantifies the annual and long-term progress made by the program to reduce the environmental risks posed by non-retention ships at the reserve fleet sites. A rate of at least 1.0 is the target for each year and indicates that the program removed at least one ship for every new ship that is designated obsolete and added to one of the fleet sites. An actual annual value that is less than 1.0 indicates the target was exceeded with the removal of more ships for disposal than have been designated for disposal on an average annual basis.

¹⁰⁸ The community noise exposure goal reflects the number of people who live in areas with significant aircraft noise, regardless of whether their houses or apartments have been sound-insulated. Significant aircraft noise levels are currently defined as values greater than or equal to Day-Night Average Sound Level (DNL) of 65 dB. The FAA noise mitigation grant program helps address this exposure through a combination of property acquisition and sound insulation. The area of the noise contour representing DNL 65 dB and above and the number of people exposed to

these levels can change over time due to fluctuations in flight activity levels, operational procedures, aircraft fleet mix and weather (particular wind conditions). The FAA is continuing to examine trends and possible relationships between noise mitigation efforts and community noise exposure estimates. The FAA may revise or refine the performance goal at a later date to reflect its findings.

¹⁰⁹ This goal is cumulative and counts State DOTs and MPOs with activities that are well underway or completed. Assessments will be counted if they are: led by or substantially involve a State DOT or MPO; involve a systems level analysis, predominately at the statewide, MPO, corridor or sub-area level; and include the application of a systematic vulnerability assessment process such as the FHWA Vulnerability Assessment Framework.

¹¹⁰ U.S. Department of Energy, Energy Information Administration (December 5, 2012). *What is Shale Gas and Why Is It Important?* Available at http://www.eia.gov/energy_in_brief/article/about_shale_gas.cfm accessed May 1, 2013.

¹¹¹ U.S. Department of Energy, Energy Information Administration. *Annual Energy Outlook 2013*, Table 1. Total Energy Supply, Disposition, and Price Summary. Available at http://www.eia.gov/forecasts/aeo/IF_all.cfm#updated_nosunset accessed May 1, 2013.

¹¹² U.S. DOT (2013). *Information Resource Management Strategic Plan*, unpublished.

¹¹³ For more background, see OMB Memorandum M11-16, Issuance of Revised Parts I and II to Appendix C of OMB Circular A-123. Available at <http://www.whitehouse.gov/sites/default/files/omb/memoranda/2011/m11-16.pdf> Accessed July 29, 2013

¹¹⁴ This figure is below the OMB's 2.5 percent criterion of what would constitute significant improper payments.

¹¹⁵ U.S. Department of Homeland Security (2010), *Quadrennial Homeland Security Review Report: A Strategic Framework for a Secure Homeland*. Available at http://www.dhs.gov/xlibrary/assts/qhsr_report.pdf accessed May 28, 2013.

¹¹⁶ The National Response Framework was required by the Post-Katrina Emergency Management Reform Act and Presidential Policy Directive- 8. DOT supports E.O. 12656 and the National Response Framework through Emergency Support Function 1 – Transportation. The National Response Framework is available at <http://www.fema.gov/national-response-framework> E.O. 12656, National Defense Resources Preparedness, see <http://www.whitehouse.gov/the-press-office/2012/03/16/executive-order-national-defense-resources-preparedness> accessed May 28, 2013.

¹¹⁷ These funds are part of the \$10.9 billion in Federal-aid funding made available by Congress through the *Disaster Relief Appropriations Act*, which was signed into law by President Obama on January 29, 2012. The FTA administers these funds through its Emergency Relief Program.

¹¹⁸ STRAHNET is a system of public highways that is a key component in U.S. strategic policy. It provides defense access, continuity, and emergency capabilities for movements of personnel and equipment in both peace and war. It totals approximately 61,000 miles, including over 45,000 miles of Interstate System and nearly 16,000 miles of other important public highways. The DOD's Railroads for National Defense Program, in conjunction with FRA, has established the Strategic Rail Corridor Network (STRACNET), which allows for the mobilization and deployment of personnel, equipment, and supplies in the event of a national emergency or natural disaster. The STRACNET is owned and operated by individual rail operators, principally the Class I railroads, and it comprises 38,000 miles of rail track serving 170 defense installations.

¹¹⁹ Among its provisions, the rulemaking will revise key forms in the program used by applicants and recipients; modify certification related provisions of the rule; and modify several other provisions concerning such subjects as good faith efforts, transit vehicle manufacturers and counting of trucking companies. The rule will assist the Department and its recipients in improving compliance with the regulations to ensure that the program benefit only eligible Disadvantaged Business Enterprises.