



U.S. Transportation Sector: Part of the Solution

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U.S. Transportation Sector: Part of the Solution

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Outline

- U.S. transportation sector overview
- Overarching goals and initiatives
- Light duty fleet
- Medium and heavy duty fleet
- Highways
- Public transportation
- Aviation
- Maritime
- Adaptation to climate impacts





U.S. Department of Transportation

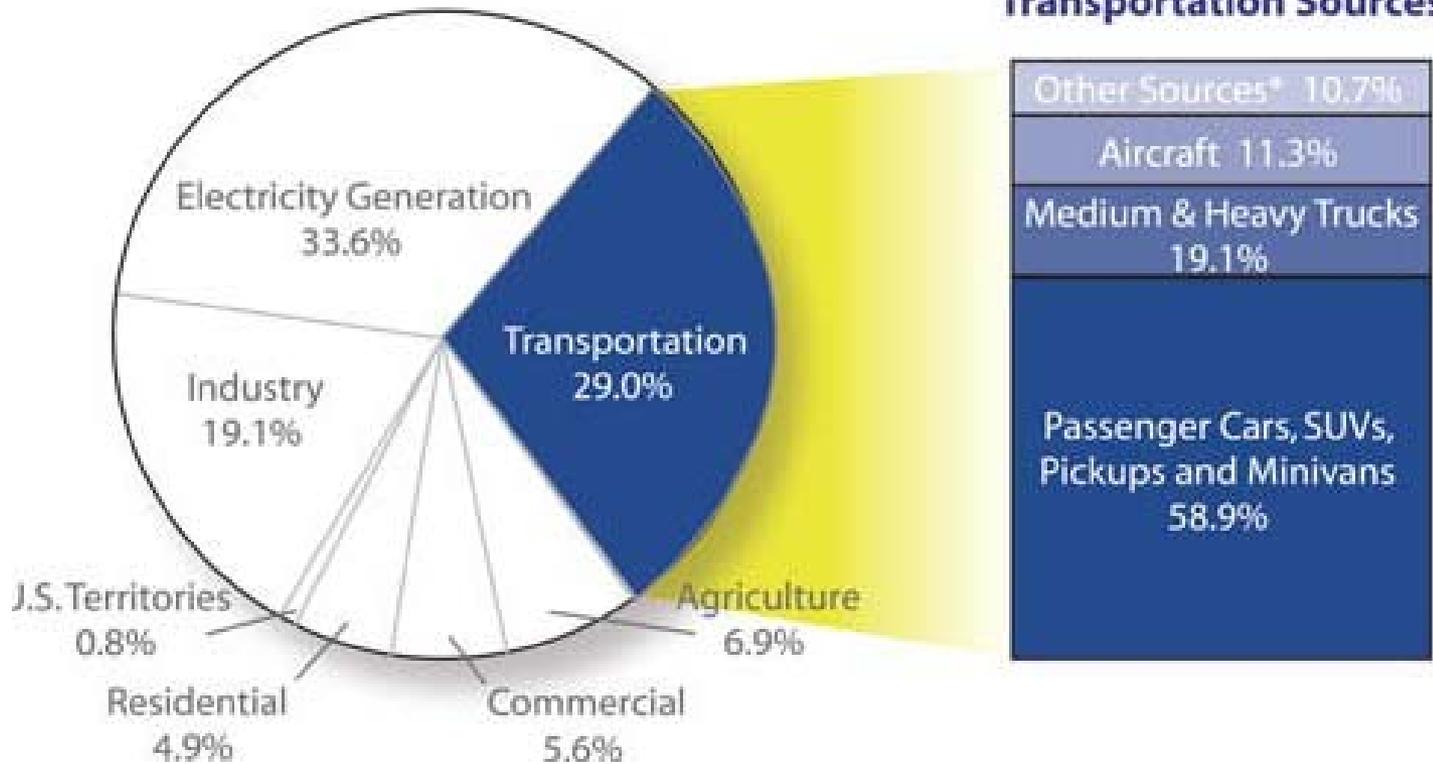
- USDOT serves the United States by ensuring a fast, safe, efficient, accessible and convenient transportation system that meets our vital national interests and enhances the quality of life of the American people, today and into the future.
- USDOT includes agencies with responsibility over U.S. aviation, roads, freight transport, rail, public transportation, safety, pipelines and hazardous materials, and transportation research.
- Recent major initiatives include projects under the American Reinvestment and Security Act, the Car Allowance Rebate System (“Cash for Clunkers”), and dramatic improvement of the fuel economy U.S. auto fleet.





U.S. Transportation Sector Greenhouse Gas Emissions

U.S. Greenhouse Gas Emissions, mmt CO₂ equivalent



Other sources include waterborne (5.2%), rail (2.7%), pipelines (1.65), buses (0.6%), lubricants (0.5%) and motorcycles (0.1%)
U.S. EPA (2008). *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 to 2006.*





U.S. Transportation Sector: Part of the Solution

- USDOT is focused on mitigating transportation emissions and adapting to potential impacts on transportation infrastructure.
- Transportation's emissions can be reduced by:
 1. improving vehicle fuel economy
 2. transitioning to sustainable, low-GHG fuels
 3. reducing VMT growth through better planning and land use, including aviation
 4. improving vehicle and system operations.
- USDOT is improving fuel economy, developing sustainable alternative fuels, improving system efficiency, and fostering more sustainable transportation choices.





Transportation in the Recovery Act

- The American Reinvestment and Recovery Act includes funding for transportation projects that enhance sustainability and livability, including transit and high-speed rail.
- The Recovery Act included a \$1.5 billion discretionary grant program, and the response has been tremendous:
 - 1400 applications from all 50 states, D.C., and 3 territories
 - \$60 billion worth of projects submitted





Sustainable Communities Partnership



“...by working together, their agencies can make sure that when it comes to development -- housing, transportation, energy efficiency -- these things aren't mutually exclusive; they go hand in hand. And that means making sure that affordable housing exists in close proximity to jobs and transportation. That means encouraging shorter travel times and lower travel costs. It means safer, greener, more livable communities.”

President Barack Obama, July 13, 2009



- The Sustainable Communities Partnership, announced in July 2009, brings together government agencies to better coordinate federal transportation, environmental protection, and housing investments.
- Goal: build livable communities, where safe, convenient and affordable transportation is available to all people, regardless of what mode they use.

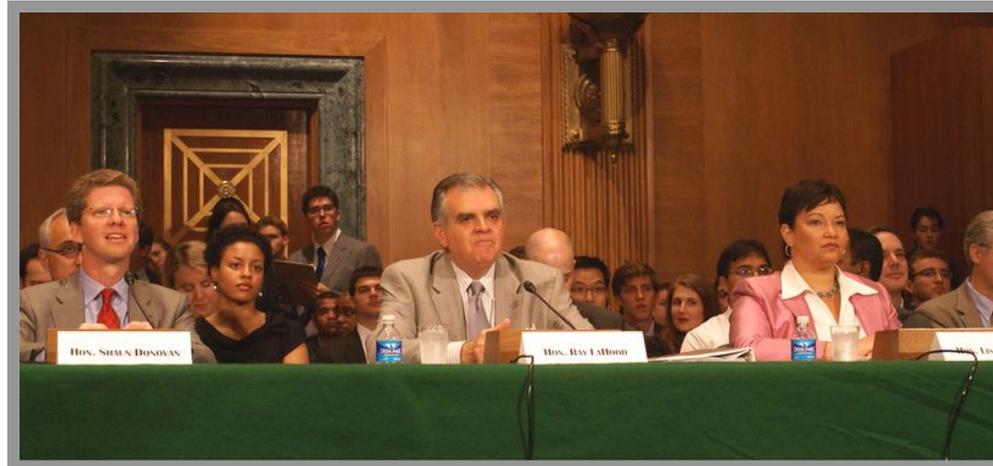




Sustainable Communities Partnership

- Partnership Principles:
 - Provide more transportation choices
 - Expand location- and energy-efficient housing choices
 - Improve economic competitiveness of neighborhoods by giving people reliable access to employment centers, education opportunities, and other basic services
 - Target federal funding toward existing communities through transit-oriented development and place-based policies
 - Align federal policies and funding to remove barriers to collaboration, leverage funding and increase the effectiveness of existing programs.

(from left) Department of Housing and Urban Development (HUD) Secretary Donovan, Department of Transportation (DOT) Secretary LaHood, and Environmental Protection Agency (EPA) Administrator Jackson





USDOT Center for Climate Change



- USDOT established the Center for Climate Change in 1999 to play a leadership role in meeting the challenge of climate change and transportation.
- The Center is a focal point within USDOT for transportation and climate change, working to coordinate research, policies, and actions.
- The Center promotes multimodal approaches to reduce GHG emissions and prepare for the effects of climate change.
- The Center established the Transportation and Climate Change Clearinghouse (<http://climate.dot.gov>) last year to serve as a one-stop source of information for the transportation community on transportation and climate change issues.
- The Center is about to release a report to Congress on the U.S. transportation sector's contribution to climate change and efforts to mitigate transportation's emissions.





Research and Innovation



DOT Secretary LaHood at RITA's Volpe Center, which performs cutting-edge research and deployment of technology and emissions modeling and analyses capabilities.

- DOT's Research and Innovative Technology Administration (RITA) coordinate's DOT's research on alternative fuels, alternative vehicles, hydrogen fuels and fuel cells.
- Advanced vehicle technology research include:
 - Emissions testing and performance of diesel engines
 - Development of fuel cells
 - Advanced transit and bus technologies
- Ongoing hydrogen research includes finding safe and effective storage materials and testing vehicles.
- RITA also develops aviation emissions modeling capabilities and aviation fuels research.





Light-Duty Fleet

On-Road Vehicles Greenhouse Gas Emissions (2006)

Transportation Sources	Million Metric Tons CO ₂ Equivalent		Change from 1990 to 2006	
	1990	2006	Absolute	Percent
On-Road Vehicles	1231.9	1653.9	422.0	34.3%
Light-Duty Vehicles	993.1	1235.0	241.9	24.4%
Passenger Cars	656.9	678.4	21.5	3.3%
Light-Duty Trucks	336.2	556.6	220.4	65.6%
Motorcycles	1.8	1.9	0.1	6.3%
Buses	8.5	12.5	4.0	46.7%
Medium and Heavy-Duty Trucks	228.6	404.6	176.0	77.0%

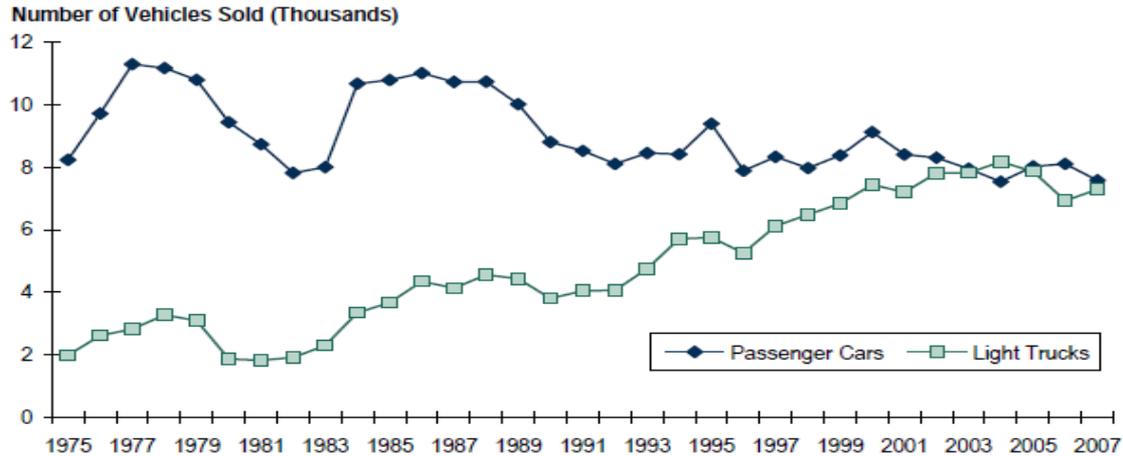
U.S. EPA (2008). *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 to 2006*





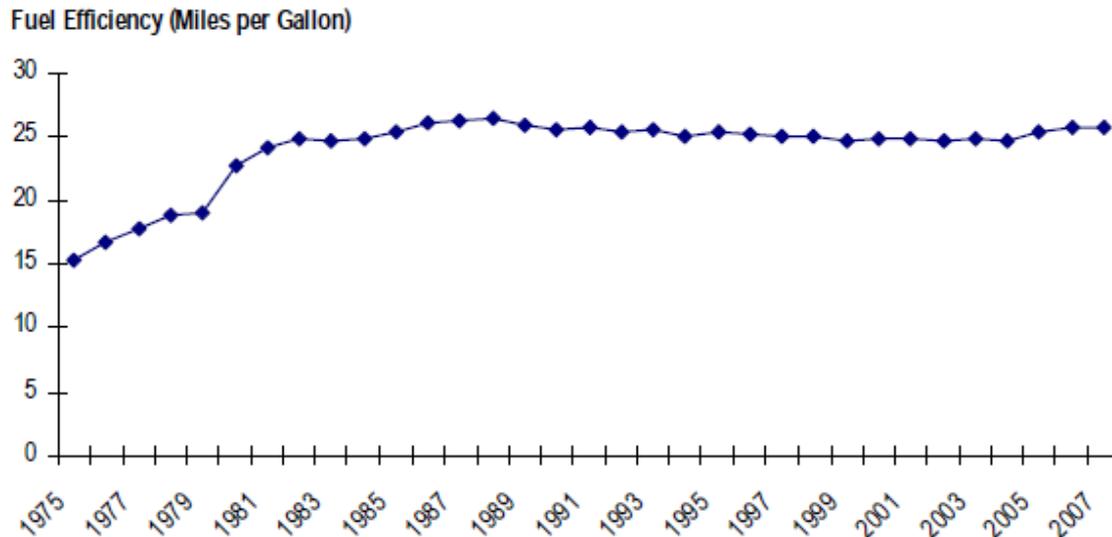
Light-Duty Fleet

Sales of New Passenger Cars and Light-Duty Trucks



U.S. EPA (2007). *Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2007.*

Sales Weighted Fuel Economy of Light-Duty Vehicles



U.S. EPA (2007). *Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2007.*





Light-Duty Fleet: Fuel Economy

- The National Highway Traffic and Safety Administration (NHTSA) of the U.S. Department of Transportation and the U.S. Environmental Protection Agency (EPA) issued a joint proposal to establish a national program for regulating passenger cars and light trucks to both reduce fuel consumption and greenhouse gas emissions.
- Over the lifetime of vehicles sold during 2012-2016, the national program is projected to reduce U.S. carbon dioxide emissions by 950 million metric tons and save 1.8 billion barrels of oil.
- The combined standards would reduce carbon dioxide emissions from the U.S. light-duty fleet by approximately 21 percent by 2030.



DOT Secretary LaHood and EPA Administrator Jackson announcing the national joint proposed standards.

Average Required Fuel Economy (mpg) under Proposed Standards

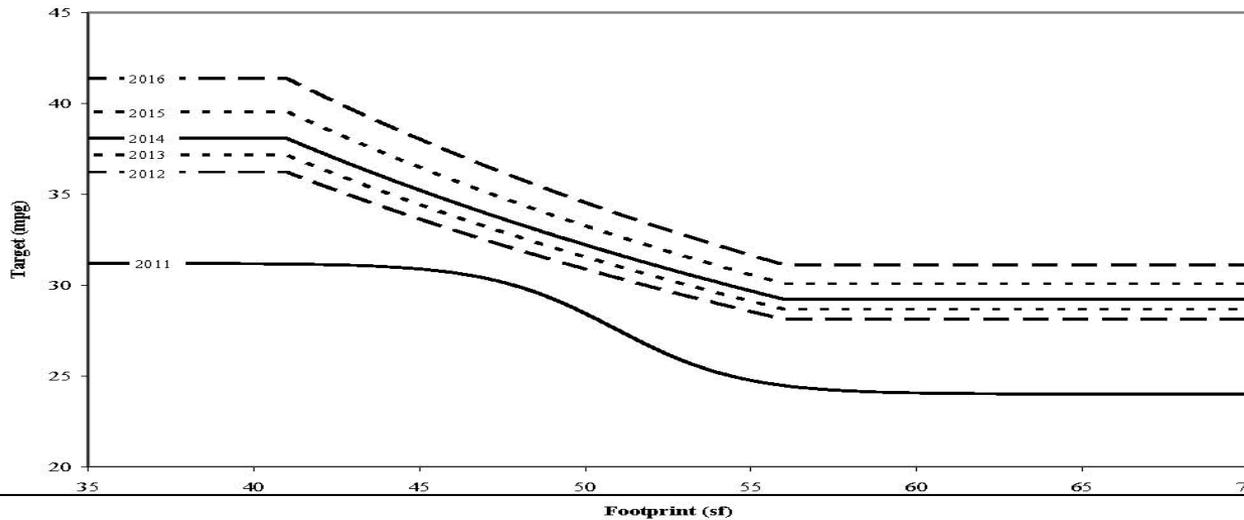
	2012	2013	2014	2015	2016
Passenger Cars	33.6	34.4	35.2	36.4	38.0
Light Trucks	25	25.6	26.2	27.1	28.3
Combined	29.8	30.6	31.4	32.6	34.1



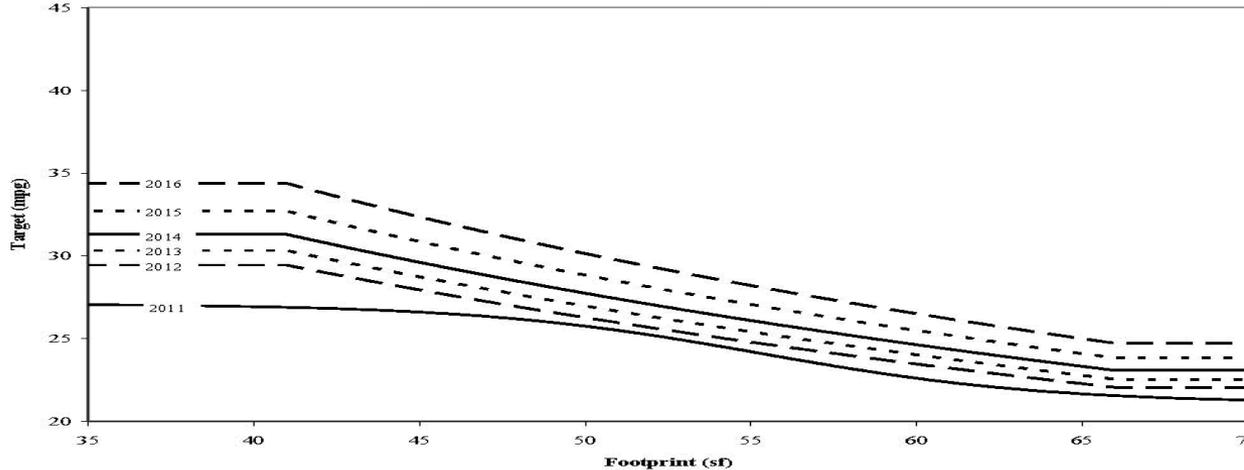


Light-Duty Fleet: Fuel Economy

Final MY 2011 and Proposed MY 2012-2016 Passenger Car Fuel Economy Targets



Final MY 2011 and Proposed MY 2012-2016 Light Truck Fuel Economy Targets

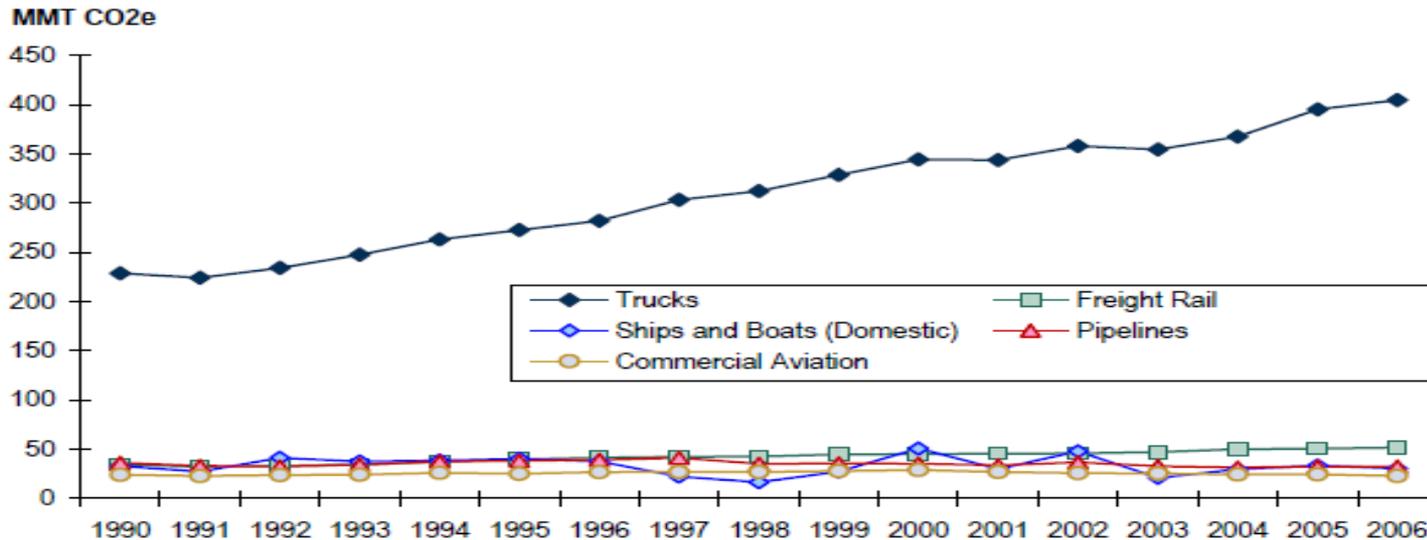




Medium and Heavy Duty Fleet

- The National Highway Traffic and Safety Administration (NHTSA) is also working on a report to evaluate medium-duty and heavy-duty truck fuel economy standards.
- NHTSA will conduct a study concerning fuel efficiency of medium-duty and heavy-duty trucks and will issue fuel economy regulation for these vehicles by September 2012.

GHG Emissions from U.S. Freight Sources



U.S. EPA (2008). *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 to 2006.*

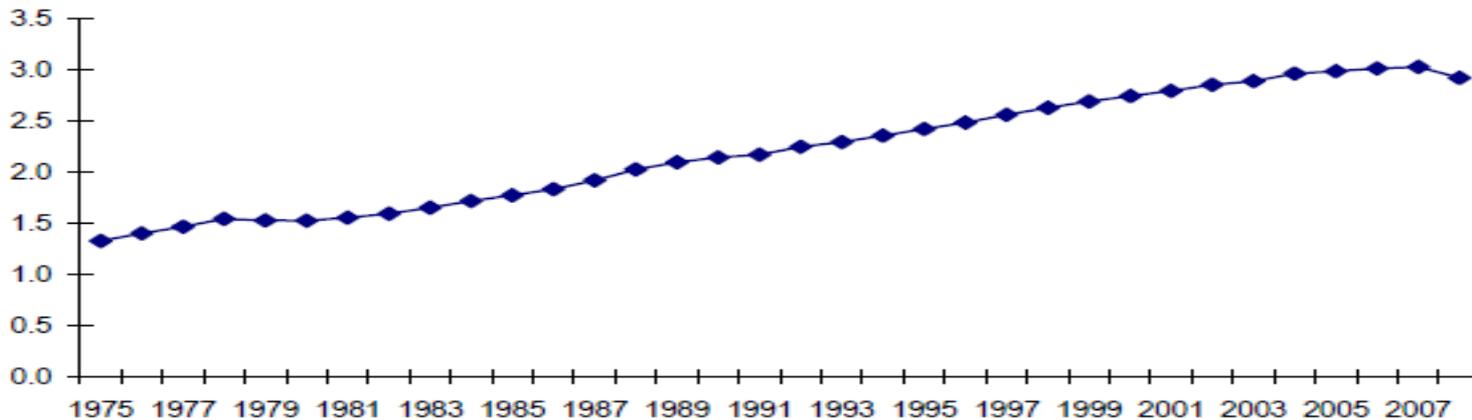




Highways

Vehicle Miles Traveled by Light Duty Vehicles (1975-2008)

U.S. Vehicle Miles Traveled (in Millions)



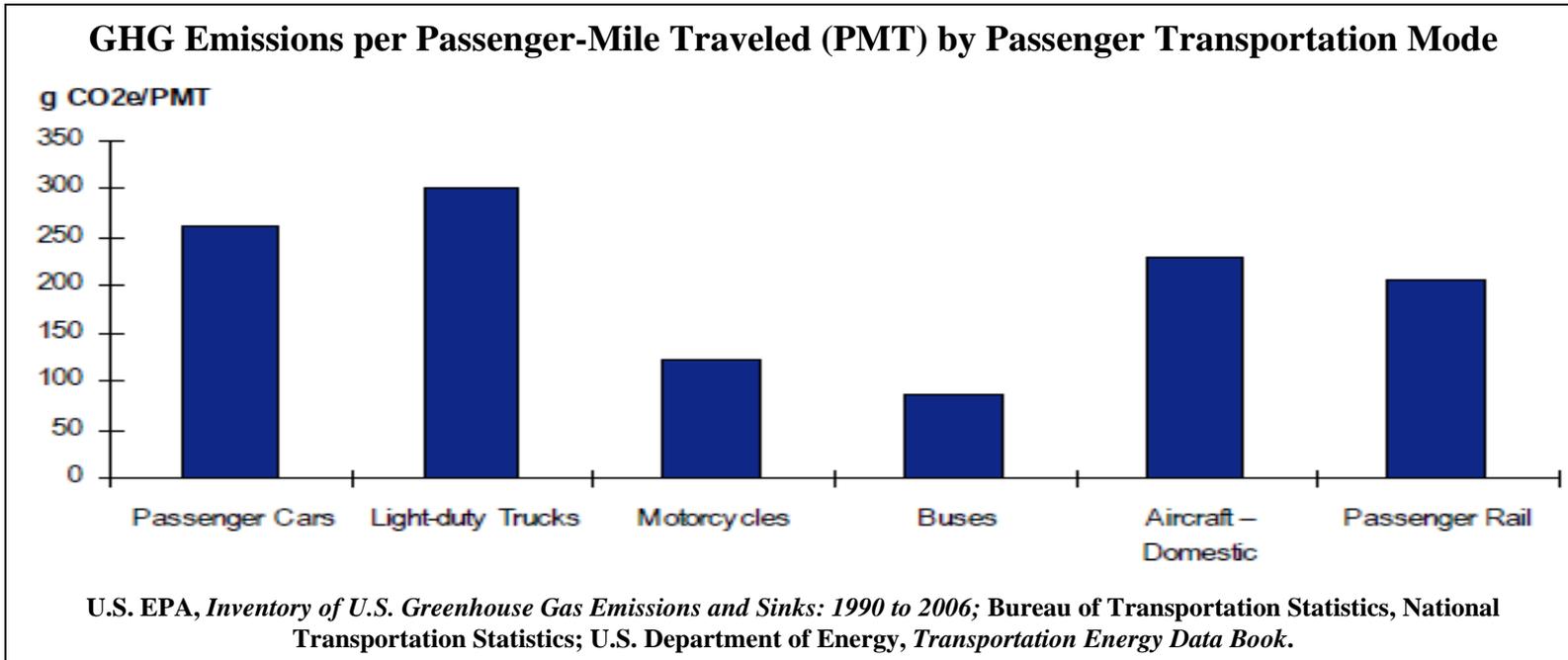
Bureau of Transportation Statistics. National Transportation Statistics.

- USDOT efforts to decrease emissions from our on-road vehicle fleet includes improving vehicle fuel economy, transitioning to low-GHG fuels, reducing vehicle-miles traveled, and improving vehicle and system operations
- The Federal Highway Administration (FHWA) is evaluating how land use, transportation infrastructure, and policy changes would affect travel activity and greenhouse gas emissions.
- FHWA is determining how new energy and GHG performance goals impact system performance and inform measures for emissions reductions.





Public Transportation



- A comprehensive transportation strategy will include the promotion of public transportation over single occupancy vehicles.
- A record 10 billion trips were taken in the U.S. last year on public transportation. Ridership has increased 25% in the past decade.





Public Transportation

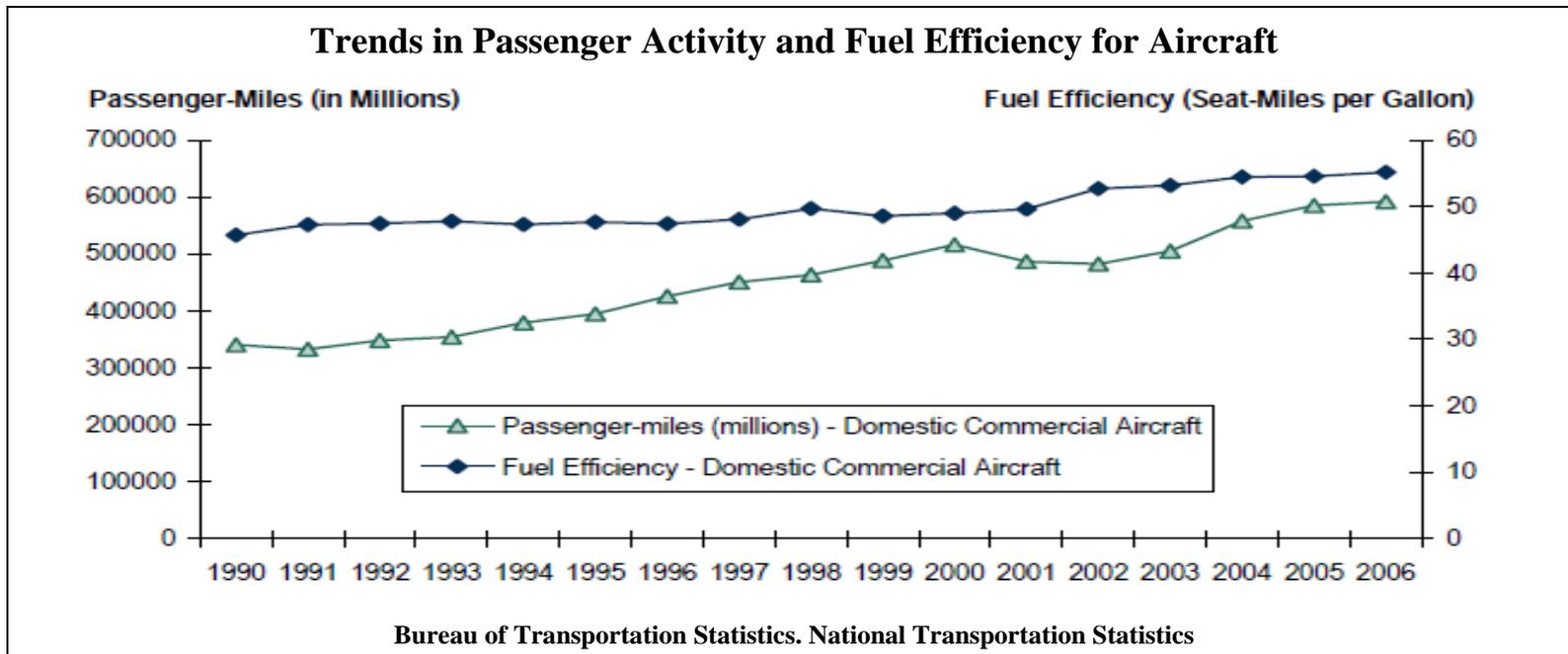
- Combining public transit investment with compact, mixed-use development amplifies emission benefits.
 - Denver
 - Salt Lake City
 - Portland
- Transit agencies are also reducing their own carbon footprints. The Federal Transit Administration (FTA) will award \$100 million to 43 transit agencies to help reduce global warming and create green jobs.
 - Alabama
 - Massachusetts
 - Vancouver, Washington





Aviation

- From 1978 to 2008, U.S. airlines improved fuel efficiency by 110%.
- From 2000 to 2008, U.S. airlines:
 - Reduced absolute fuel burn and emissions by 5.5%
 - Increase passengers and cargo by 17%





Aviation

- **The Challenge:**
 - Enable increase mobility while reducing climate impacts in absolute terms
- **The Solution: Five Pillars**
 - Mature new aircraft technology
 - Accelerate operational changes
 - Develop alternative fuels
 - Examine policies and market-based measures
 - Advance scientific understanding, improve environmental analysis capabilities
- **International Cooperation:**
 - Develop global CO₂ standard for aircraft by end of 2012
- **The Goals:**
 - Aggressive efficiency improvements of at least 2% per year
 - Carbon neutral growth by 2020, absolute reductions by 2050



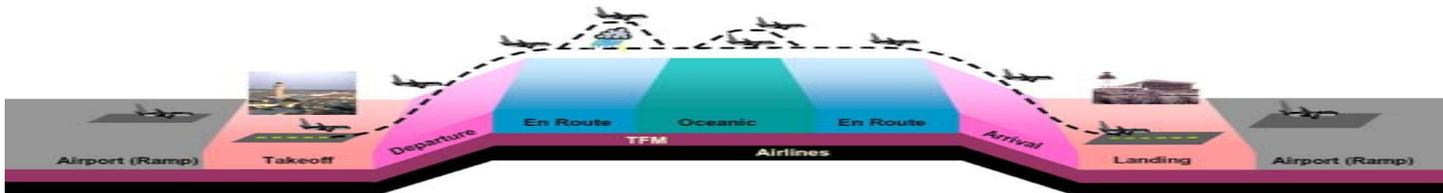


Next Generation Air Transportation System (“NextGen”)

- NextGen will transform the U.S. air transportation system at all stages, moving from ground-based to satellite-based technologies.



- It will open America’s skies to continued growth and increased safety while reducing aviation’s environmental impact.





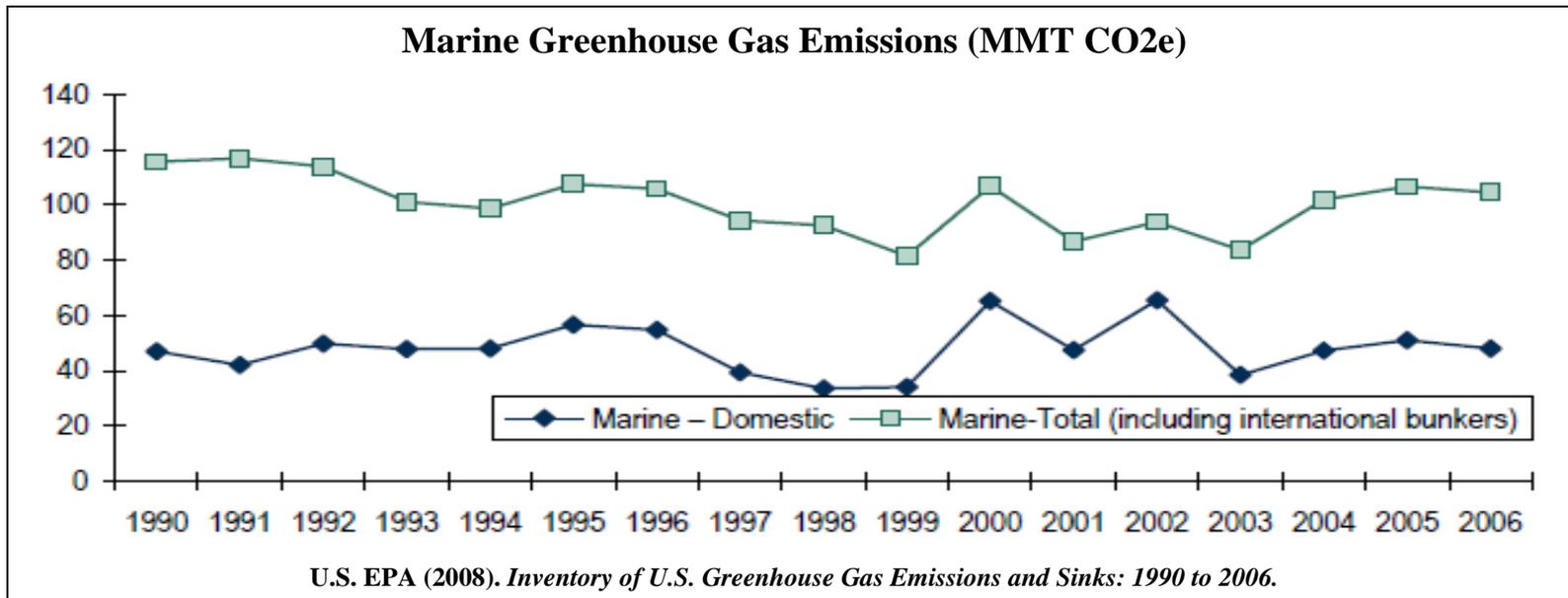
Aviation

- The Aviation Climate Change Research Initiative (ACCRI) accelerates scientific understanding that will inform policy decisions on mitigation.
- The Continuous Lower Energy Emissions and Noise (CLEEN) Program advances mature technologies for quicker deployment into the fleet.
- The Commercial Aviation Alternative Fuels Initiative (CAAIFI) develops and deploys alternative jet fuels for commercial aviation.





Maritime



- The Maritime Administration (MARAD) is pursuing America's Marine Highway Program to foster the use of the energy efficiencies of the marine highway system to further U.S. efforts to reduce transportation-related greenhouse gases.
- MARAD is developing a Geospatial Intermodal Freight Transport (GIFT) tool that can determine optimal crossmodal freight pathways based on energy conservation and emissions reductions.





Climate Adaptation: Why it's important

- The design life of transportation infrastructure is decades or longer.
- As climate changes, our infrastructure will need to evolve to handle new conditions.
- Each region has unique transportation assets and faces different vulnerabilities and risks.



Flooded roadways in Houston





Climate Adaptation: USDOT Efforts

- USDOT participates in the Interagency Committee on Climate Change Adaptation Workgroups, led by the White House's Council on Environmental Quality.
- USDOT completed ground-breaking research on the potential impacts of climate change in the Gulf Coast region.
- In addition, the Federal Highway Administration is:
 - Developing a strategy to address climate change adaptation
 - Working with scientists to develop information on climate effects at the regional level
 - Developing and piloting an interim framework for conducting assessments on transportation infrastructure vulnerable to climate change
- Phase II of the Gulf Coast Study has just begun, which will include an in depth look at potential impacts and adaptation opportunities at the metropolitan level.





For more information:
<http://climate.dot.gov>

