U.S. Department of Transportation

Action Plans

for Implementing

The U.S. National Blueprint for Transportation Decarbonization

January 13, 2025

Efficiency Action Plan

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of Transportation

Motivation

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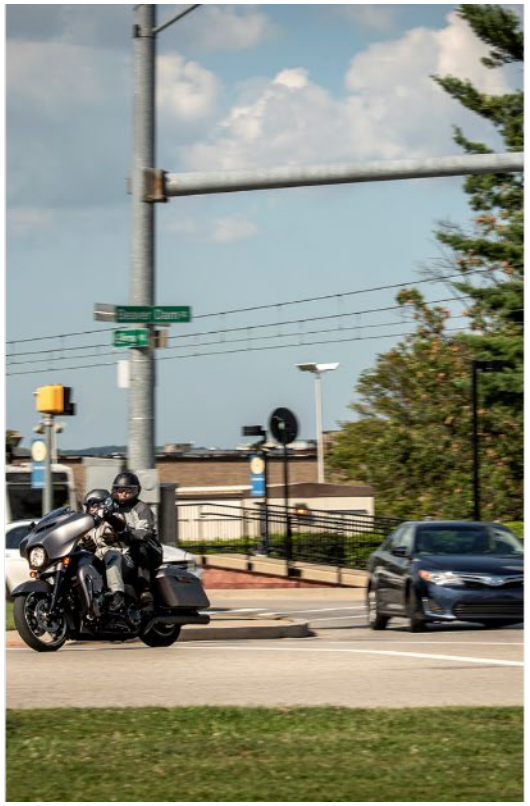
Transportation in the U.S. is:

- **largest source** of greenhouse gas (GHG) **emissions**
- responsible for **poor air quality**
- second largest household **expenditure**
- responsible for **42,000 fatalities** per year



The Blueprint

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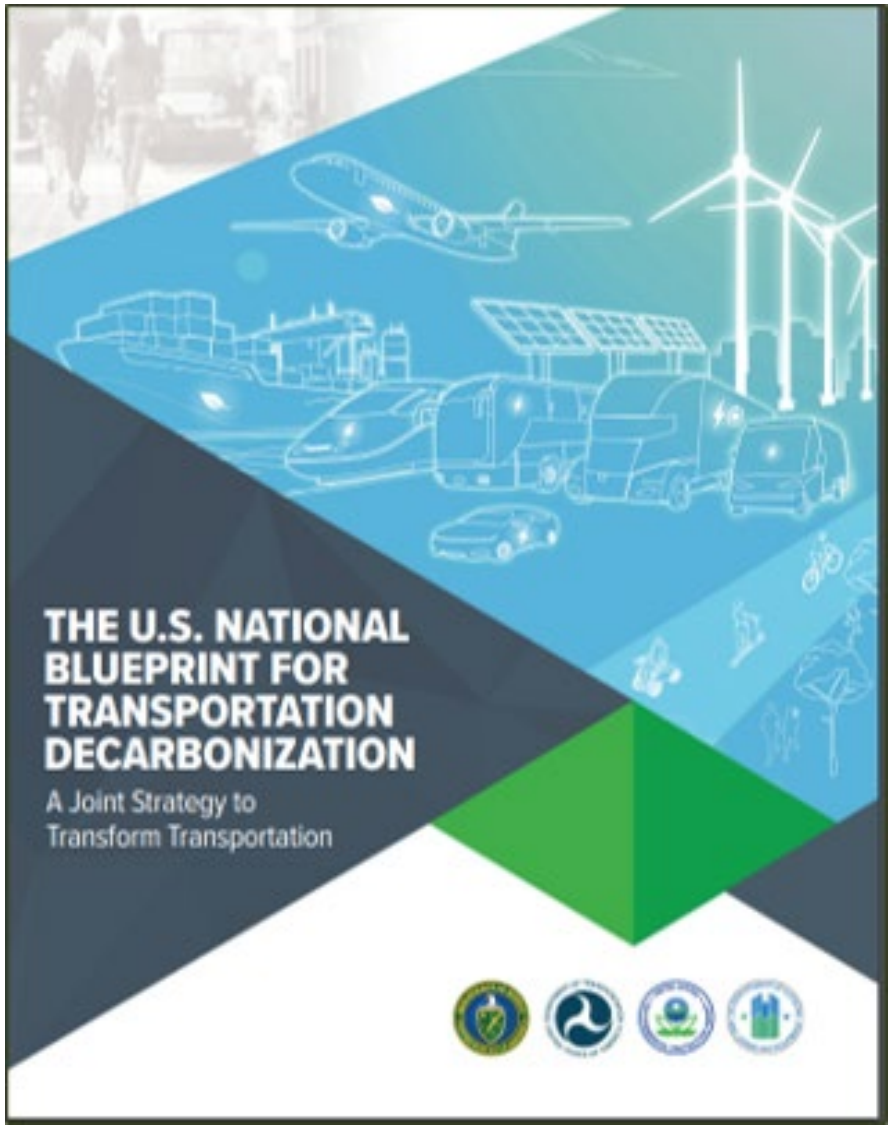

US National Blueprint for Transportation Decarbonization

- Developed by DOT, DOE, EPA, HUD, with input from OAs
- Released January 2023
- Strategy to reach Net-Zero transportation GHG by 2050
- While also improving safety, health, affordability, fairness, and access to destinations

Blueprint Strategies

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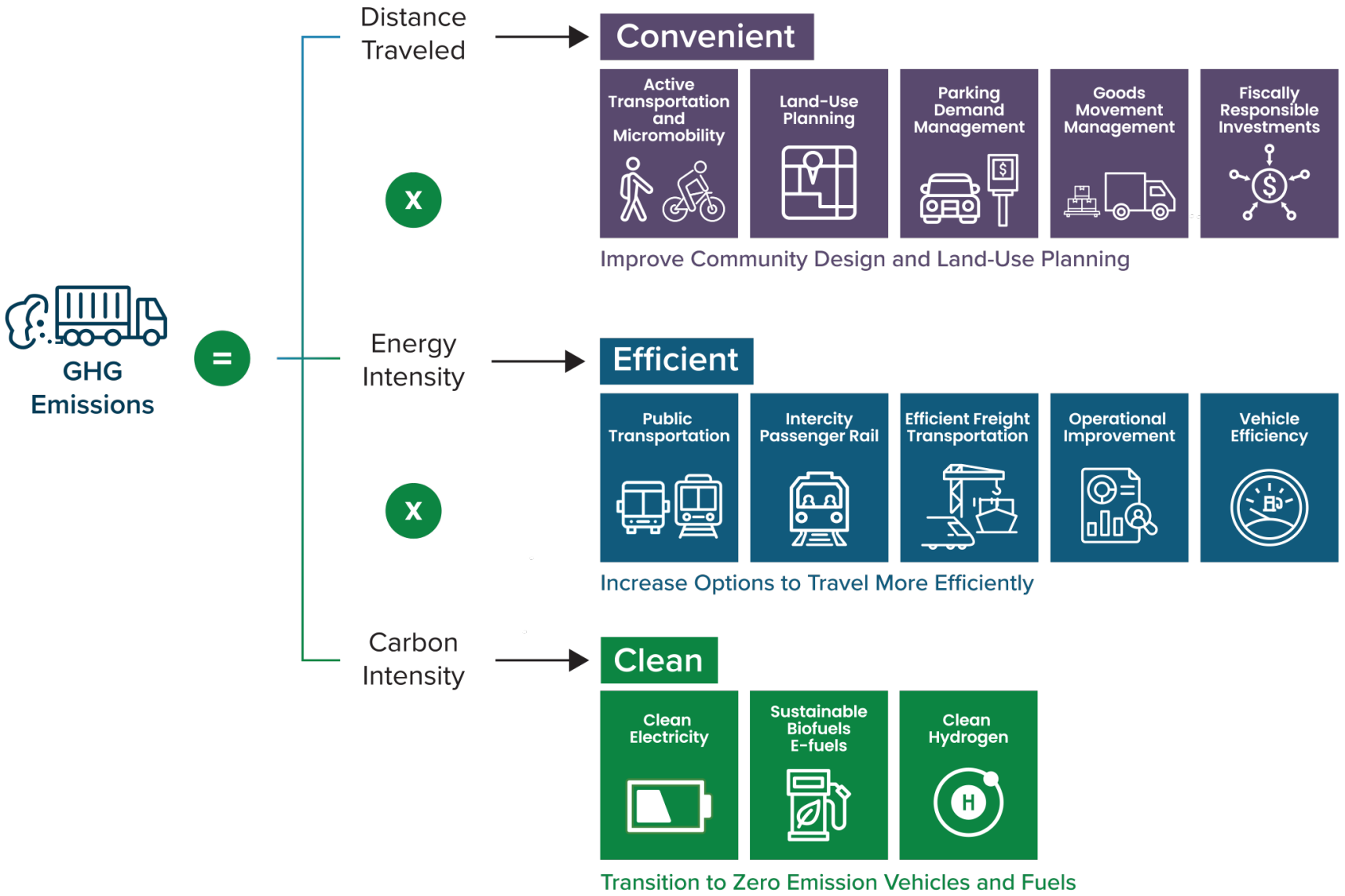

Multiple Benefits

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Action Plans

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- DOT, DOE, EPA, and HUD committed to developing action plans for implementing the Blueprint.
- Purpose is to identify actions needed to realize the goal of decarbonizing the transportation sector by 2050.
- Focus is on near term and mid term actions.
- Stakeholder engagement sessions and RFIs
- Emphasis on federal actions but also lay out actions that can be taken by the private sector, non-profits, and state, local and tribal governments.
- Published December 2024.

Action Plans by Strategy and Mode

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By Strategy

By Mode

Emissions Trends and Goals

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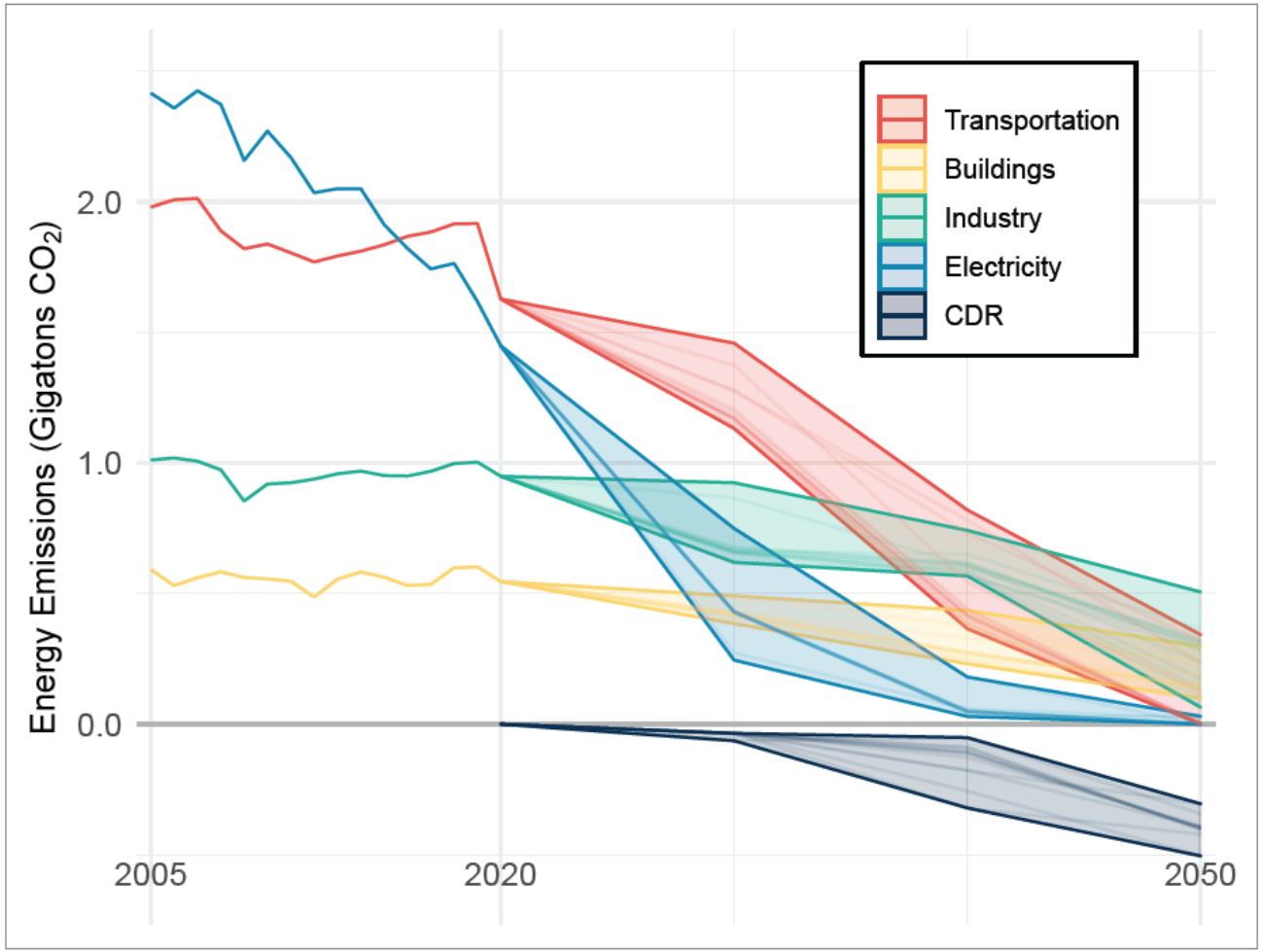
- **Progress:** 2005 to 2021:
  - U.S. GHG fell 17%,
  - U.S. transport GHG fell 8%.
- **Outlook:**
  - Inflation Reduction Act getting us closer to our goals
  - US GHG to fall by 33 to 42% by 2030
  - U.S. transport GHG to fall 12 to 25% by 2030
- **Bottom Line:** Making progress but need additional action to meet goals of 50% below by 2030 and net zero by 2050.

Historic U.S. Emissions 2005-2020 and Pathways from 2020 to 2050 to Reach Net Zero



Source: Long Term Strategy of the United States, 2021

Rail Action Plan

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Deploy Zero-Emission Technologies

- Support development of battery electric and hydrogen fuel cell locomotives for line-haul operations.
- Immediately deploy transitional technologies to reduce emissions from locomotives that still have many years of use.

Cut Pollution From Rail Yard Operations

- Identify rail yards to quickly deploy zero-emission locomotive and idling-reduction measures to improve public health.

Support Feasibility and Economic Studies for Rail Electrification

- Study the feasibility of catenary and discontinuous catenary electrification on high-potential routes, including necessary electric grid planning.

Expand Access and Opportunities for Passenger Rail Service

- Expand intercity and intracity passenger service and initiate new, electrified high-speed options.

Improve Freight Rail System Efficiency

- Support options to increase locomotive energy efficiency, reduce bottlenecks in the rail system, and identify locations for potential freight rail expansion.

Maritime Action Plan

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Deploy Low-Carbon Vessels
- Increase operational efficiencies.
- Deploy solutions to reduce at-berth emissions, including shore power.
- Increase deployment of vessel retrofits, rebuilds, and replacements with cleaner and zero-emission technologies.

Deploy Low-Carbon and Zero-Emission Fuels and Energy Solutions
- Produce 700 million heavy fuel oil gallon equivalent of sustainable maritime fuel annually by 2030.
- Produce 80 million gallons of gas equivalent of marine green gasoline annually by 2030.

Decarbonize Through Infrastructure Development and Shipbuilding
- Support leadership in ship design and construction for low- and zero-emission vessels.
- Support production and bunkering of sustainable maritime fuels in the United States.

Strengthen and Expand the Maritime Workforce
- Prepare current and future generations of engineers, scientists, and technical specialists in decarbonization.
- Promote a more diverse maritime workforce.

Build Partnerships and Collaborations Through Strategic Planning
- Collaborate with port-adjacent communities and stakeholders to inform technical and policy decision making.
- Support expansion and resources for tools and models for calculating greenhouse gas emissions and potential emissions reductions from the maritime sector.

Create a **Sustainable Maritime Grand Challenge** to coordinate with industry to quickly deploy competitive, affordable, and scalable fuels and technologies.

Lead through international collaborations and commitments such as the **International Maritime Organization** and the **Green Shipping Challenge**.

Medium / Heavy Duty Vehicle (MHDV) Action Plan

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Maximize Inflation Reduction Act and Bipartisan Infrastructure Law Investments

- Incentivize early adopters of zero-emission vehicles, reduce vehicle and infrastructure deployment costs, and scale vehicle and component manufacturing.

Deploy Zero-Emission Fueling Infrastructure

- Invest in the strategic deployment of the National Zero-Emission Freight Corridor Strategy, including a phased and coordinated deployment of high-speed charging/zero-emission refueling infrastructure within key freight hubs and along corridors.
- Scale production of hydrogen as a transportation fuel through the U.S. Department of Energy Regional Clean Hydrogen Hubs Program and the National Clean Hydrogen Strategy.

Conduct Stakeholder Engagement and Build Partnerships

- Host zero-emission MHDV charging and refueling infrastructure stakeholder workshop(s) to coordinate local, state, regional, and federal actions to streamline the charging and refueling infrastructure deployment process.

Support Research, Development, Demonstration, and Deployment (RDD&D)

- Continue to expand RDD&D activities for zero-emission vehicles and component technologies to enable lowered costs, improved performance, and expanded zero-emission vehicle model offerings.
- Designate a National Multimodal Freight Network.

Implement the **Global Memorandum of Understanding** on Zero-Emission Medium- and Heavy-Duty Vehicles supporting 100% zero-emission sales by 2040 for all new commercial MHDVs.

Implement the all-of government **National Zero-Emission Freight Corridor Strategy** to quickly deploy reliable, affordable zero-emission MHDV charging and fueling infrastructure.

Aviation Action Plan

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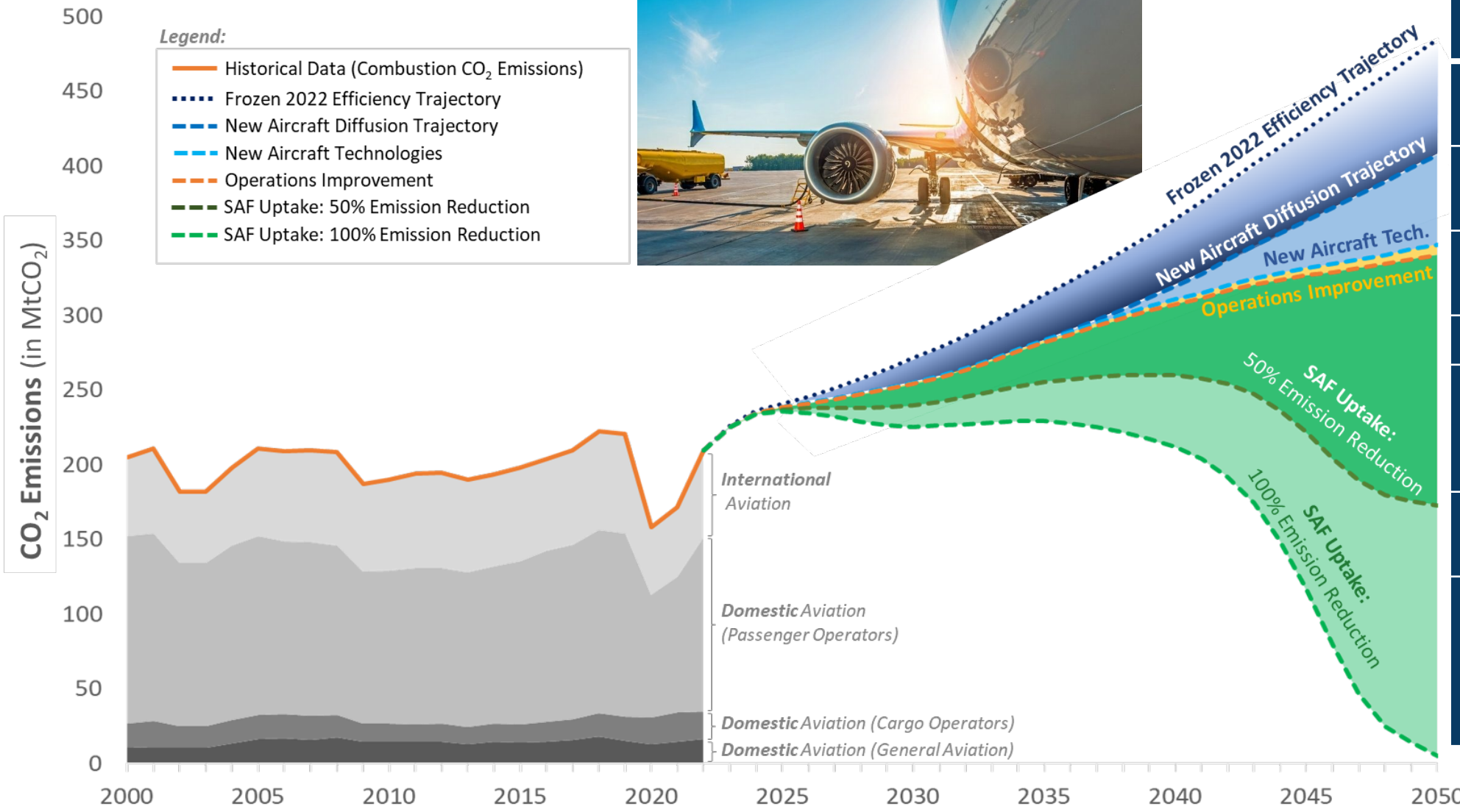
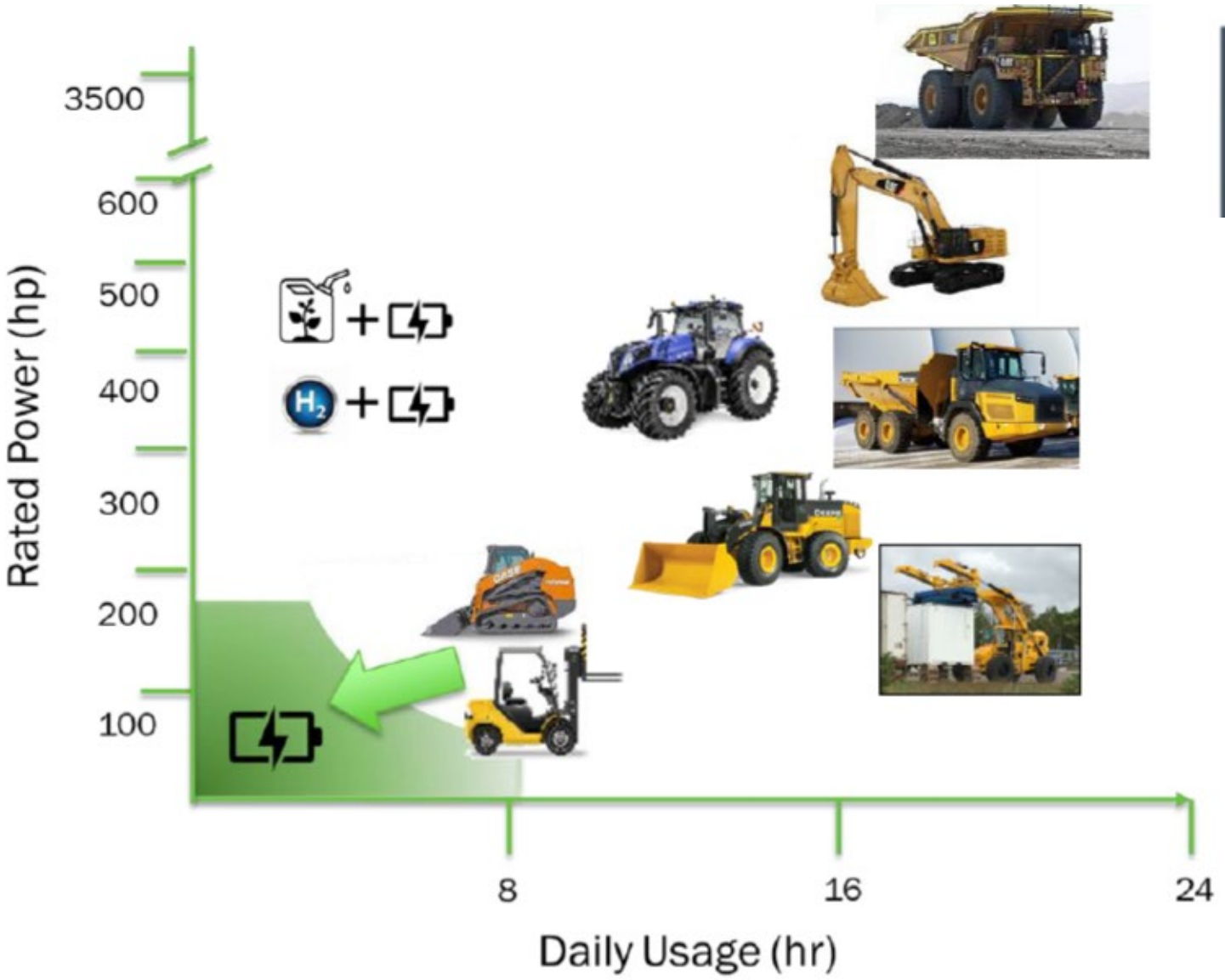
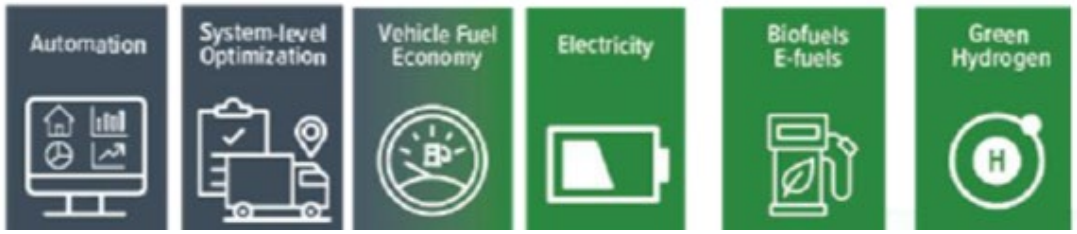


1. Aircraft and Engine Technology Development
2. Operational Improvements
3. Sustainable Aviation Fuels
4. International Leadership and Initiatives
5. Airport Initiatives
6. FAA Leadership on Climate, Sustainability, and Resilience at FAA
7. Non-CO_2 Climate Impacts of Aviation
8. Other Policies and Measures to Close the Gap

Off-Road Technical Report





Convenience Action Plan

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Active Transportation and Micromobility

- Infrastructure for walking, biking, rolling
- Shared and electric micromobility
- Incentives for active transportation

Land-Use Planning

- Transit-oriented development
- Zoning reform to enable compact, mixed-use development
- Coordinated planning across sectors and levels of government

Parking Demand Management

- Reduce parking requirements
- Repurpose curb space
- Financial incentives to encourage car-free trips
- Unbundle parking and housing costs

Goods Movement Management

- Warehouse and distribution center siting
- Last-mile delivery solutions
- Curb management

Fiscally Responsible Investments

- Prioritize alternatives or maintenance over highway capacity expansion
- Reconnect communities divided by highways
- Congestion pricing
- Convert fixed costs to variable costs to encourage more efficient choices

Efficiency Action Plan

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Public Transportation

- Increased funding
- Expanded and improved service
- First-mile/last-mile connections

Intercity Passenger Rail

- Increased funding
- Expanded and improved service

Efficient Freight Transportation

- Investments in rail and marine transport
- Intermodal freight facilities
- Emissions impacts of shipping options

Operational Improvement

- Using data and technology to optimize operations
- Reducing idling

Vehicle Efficiency

- Improving parts, materials, and performance of vehicles and infrastructure
- Fuel economy and GHG emissions standards
- Incentives to reduce vehicle size

Chicago Example - Argonne National Laboratory

Robust investment in transit service in Chicago would result in:

- 53% increase in transit boardings in the region (CTA, Metra and Pace)
- 9% travel time savings
- 11% reduction in greenhouse gas emissions.

https://www.transitchicago.com/argonne-led-research-shows-robust-investment-in-transit-benefits-both-transit-and-non-transit-users/

https://www.anl.gov/sites/www/files/2024-09/ANL%20-%20Mobility%2C%20Equity%2C%20and%20economic%20impact%20of%20transit%20Expansion%20in%20Chicago%20Region%20-%20240911.pdf

Efficient Freight Transportation

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- Intermodal freight options
  - enable shippers to use rail or maritime for long distance and truck for reaching final destination
  - more energy efficient, lower emissions
  - Cheaper
- CN Rail recently started a new intermodal service to encourage the shift from truck to rail.
- U.S. funding feasibility studies for new US-Mexico intermodal routes, to shift additional tonnage from trucks to rail.
- Oklahoma State Carbon Reduction Strategy aims to increase use of inland waterways to reduce dependency on trucking.

Operational Improvement

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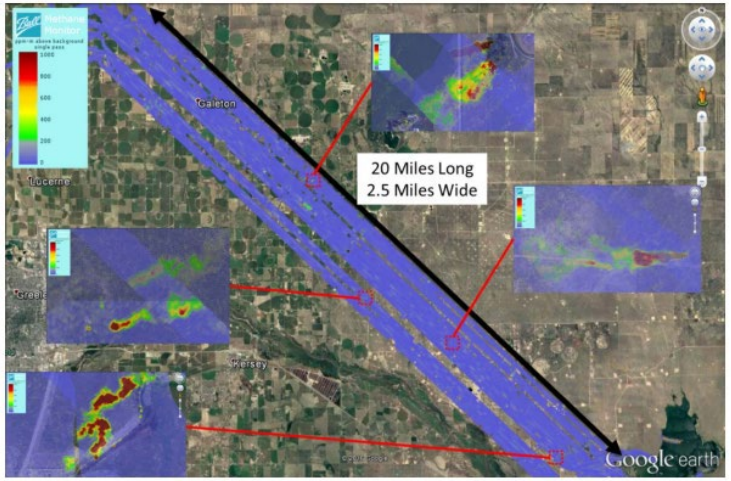
- Truck Stop Electrification installation (an auxiliary HVAC unit) to reduce truck idling for cooling/heating.
- PHMSA's research, grants, and regulations are reducing methane leaks from natural gas pipelines.
- EPA SmartWay program is a partnership with industry to inventory emissions, assess efficiency gains and financial returns from freight network investments, and report progress.



SmartWay®

Vehicle Efficiency

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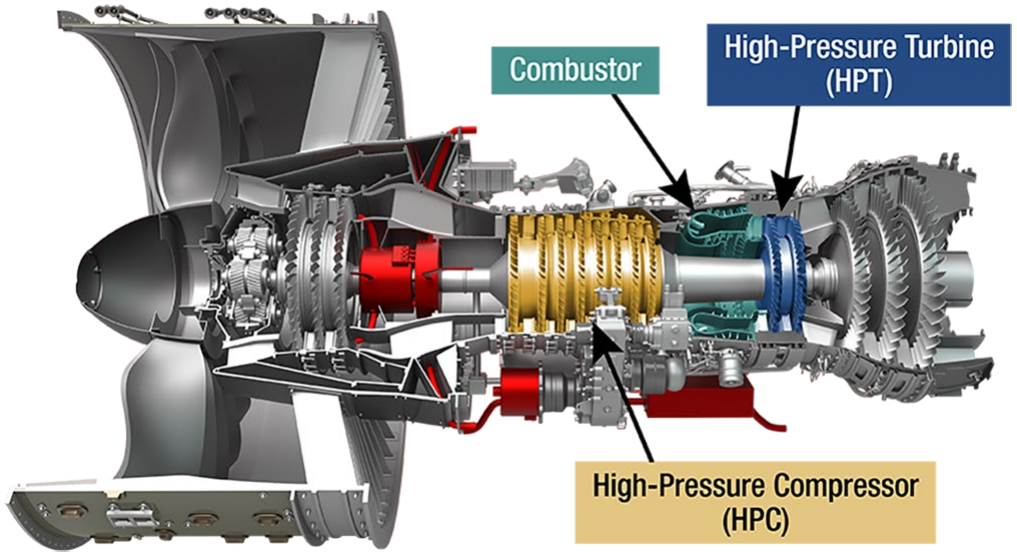
- DOT and EPA fuel economy and emissions standards
- California Advanced Clean Cars II and Advanced Clean Truck Standards
- FAA regulation requires incorporating improved fuel-efficient technologies for airplanes manufactured after Jan 1, 2028.
- FRA Locomotive Replacement Initiative.
- Research initiatives



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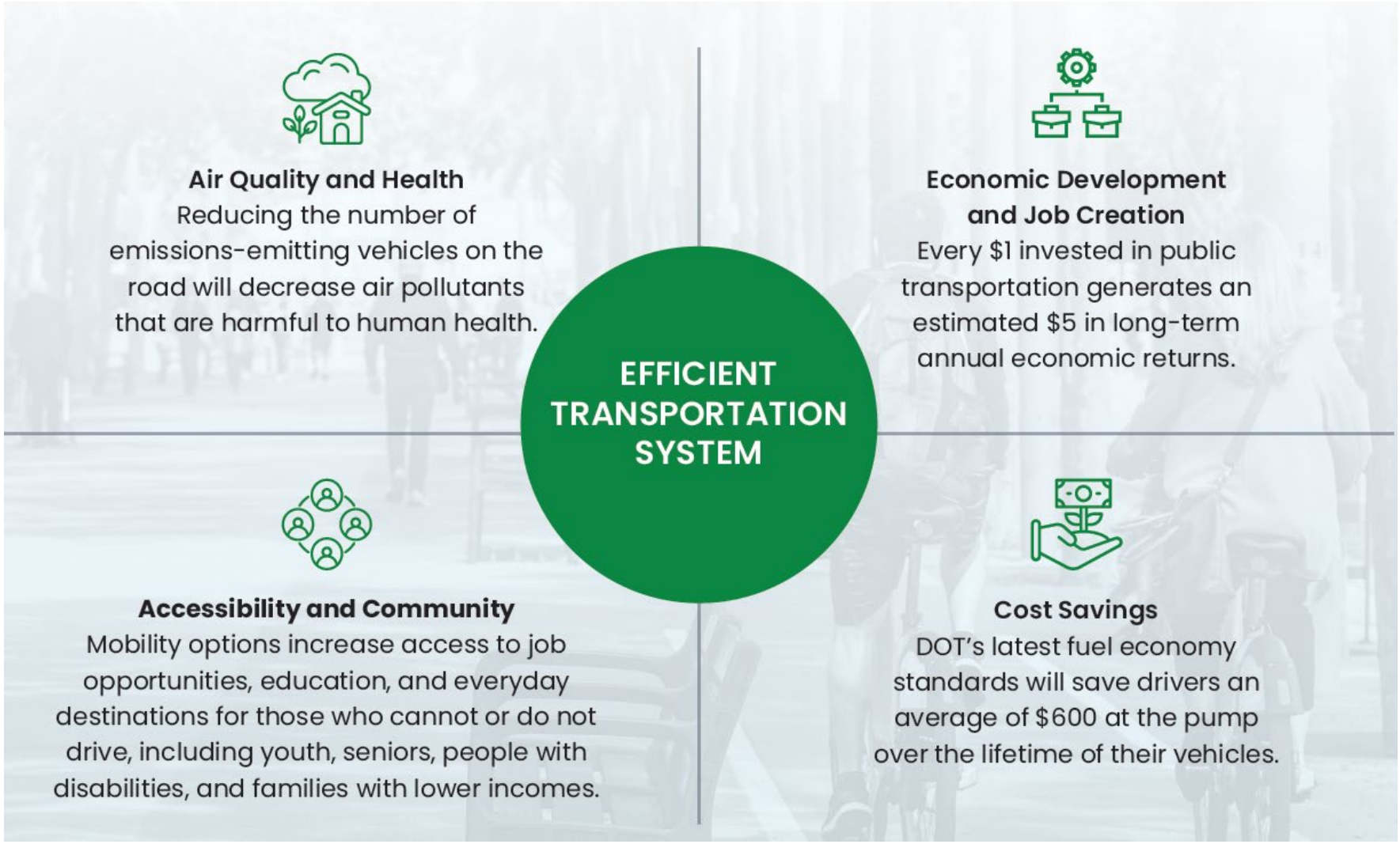

Resources

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Visit the DOT Climate Change Center website:

https://www.transportation.gov/priorities/climate-and-sustainability/dot-climate-change-center to

- access an array of technical assistance resources
- sign up for email updates

- Download the Action Plans
- Check out *Climate Strategies that Work Playbook*