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Sustainable Transportation

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Sustainable Transportation

- What is Sustainable Transportation?
- How can Transportation Technology Help?
- What can we do to ensure National Policy support?

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Sustainable Transportation

- **“Sustainable Transportation” requires consideration of three core impacts: environmental, economic and social**
 - It can be defined as meeting the mobility needs of the present without compromising the ability of future generations to meet their needs
 - Transportation technologies that facilitate mode shifts and system efficiency will help mitigate negative environmental consequences associated with growth and mobility

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The Context

- **American’s drive 5 billion miles a day**
- **We consume 40% of US petroleum products**
- **We contribute 22% of US Greenhouse gases**
- **Doing something about it is now in all of our collective consciousness**
- **We have an opportunity to do good while doing our jobs**

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Why is the Environment an Issue for us?

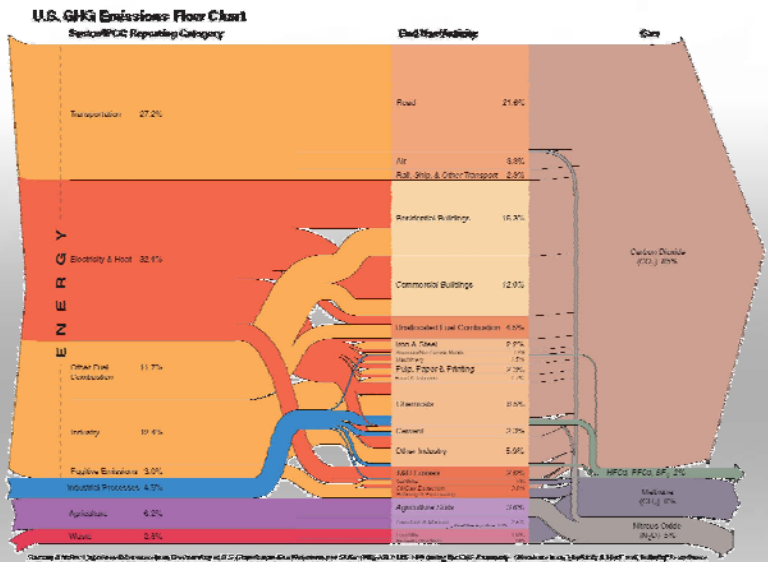
- **The Problem:**
 - Congestion is bad, and projected to get worse
 - Transportation system is aging
 - Climate change is real and related to GHG emissions
- **The Discussion:**
 - Government and corporate groups are addressing climate change
 - EPA pressured to regulate greenhouse gas emissions
 - State creating regional climate initiatives
 - Industry calling for climate change legislation

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Why is the Environment an Issue for us?

- **Transportation is a big part of the climate change debate**
 - Transportation sector is the largest single producer of carbon emissions
 - GHG emissions directly linked to energy usage
 - Emissions for systems more complex than for individual vehicles
 - Models needed for systematic innovations

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The 3 Legged Stool of Sustainable Transportation



- **Fuel Efficiency**
 - CAFÉ Standards
- **Alternative Fuels**
 - E-85
 - CNG
 - Electricity
 - Hydrogen
- **Transportation Technology**
 - Intelligent Transportation Systems
 - Electronic Toll Collection

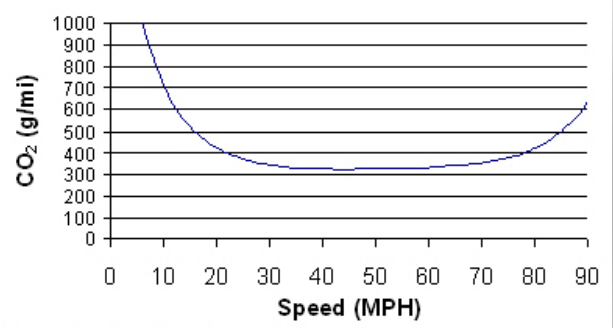
Emissions

Travel Efficiency

- Reduce VMT through changes in land use, travel behavior, prices
- Reduce congestion
- Improve operational efficiency

What Can We Do by Reducing Congestion?

CO₂ Emissions Rates by Speed



Source: University of California, Riverside

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How Might Transportation Technology Reduce Emissions from the Transportation Sector?

- **Improve efficiency and mobility of transportation system**
 - Improvements should help reduce fuel consumption and GHG emissions
- **Advance second leg of stool by supporting the creation of the infrastructure needed for alternative fuels**
- **Can help us adapt to our changing climate by tracking road conditions, warning of potential system failures, and re-routing traffic**

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Transportation Technology 1

- **Traffic Signal Synchronization**
 - Adjust the timing of traffic signals
- **Transit Signal Priority**
 - Transit vehicle to get extra green time
- **Traffic Management Centers**
 - Synthesize data and dispatch emergency vehicles
- **Electronic Toll Collection**
 - To include ORT
- **iPark**
 - Real time information and reservations
- **Speed Management**
 - Help enforce speed laws

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Transportation Technology 2

- **Road Weather Information**
 - Remote weather and surface conditions
- **Demand responsive Transit Service**
 - Dispatch small transit vehicles
- **511 Traveler Information**
 - Telephone traveler information
- **Dynamic Route Guidance**
 - In-vehicle using GPS and map databases
- **Fleet and Freight Administration**
 - Bypass truck weigh stations
- **Crash avoidance**
 - Intersection collision avoidance
- **Historical Traffic Data**
 - Aggregated data for planners

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Technology and Sustainability

- **Electronic Toll Collection**
 - Reduce congestion
 - Balance traffic flow
 - Modify travel patterns
 - HOT lanes and cordon pricing
 - Allow free flow traffic
- **Traffic Management Centers**
 - Reduce or eliminate congestion
 - Clear incidents
 - Provide information to drivers

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Technology and Sustainability

- **Transit Systems**
 - Make transit more accessible
 - Provide parking information
 - Modify travel patterns
 - Facilitate modal shifts
 - Reduce auto usage

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Systemic Approaches

- **Active Traffic Management**
 - Speed Harmonization
 - Hard Shoulder Running
 - Travel Time Signs
 - Junction Control
- **The Actively Managed Network**
 - Traffic System Management
 - Traveler Information
 - Public Policy

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ITS America's Commitment to Sustainable Transportation

- **Implement Environmental Stewardship Program**
- **Promote Sustainable Transportation Technology**
 - Identify environmental benefits of transportation technologies
 - Collect data from members, government agencies, private companies, non-governmental and international organizations, and associations
 - Create a robust database
 - Identify data gaps and steps to fill them

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ITS America's Commitment to Sustainable Transportation (cont'd)

- **Identify the most effective technologies in the National ITS Architecture**
 - Technical forums to provide supporting documentation that technologies reduce (1) fuel consumption; (2) VMT; (3) congestion; and (4) GHG emissions
 - Evaluate technologies according to ability to deliver environmental benefits at the lowest cost

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ITS America's Commitment to Sustainable Transportation (cont'd)

- **Educate and disseminate information to lawmakers, government agencies and the public about the environmental benefits of transportation technology**
 - Monetize permanent, quantifiable and voluntary emissions reductions
 - If data shows transportation technologies help reduce GHG emissions, ITSA will work to ensure that transportation projects qualify as emissions offsets that can be traded on the carbon market
 - Support investment in technological innovations
 - Tax credits, tax incentives, and government grants

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Cap and Trade

- **Economy wide-Market Driven**
- **Specific Limits on GHG Emissions**
- **Ensure Reduction Targets Will be met**
- **Price Signal leads to Innovation and Investment**
- **Create Domestic Market for GHG Emissions**

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A Few More Thoughts

- **ITSA to develop a decision tree to assess how transportation decisions affect climate change and our ability to adapt**
- **Propose the creation of a “Sustainable Transportation Institute” at an existing transportation research center to be funded by the federal government, major universities, and the private sector**
- **Engage the international transportation community in a discussion of the role of transportation technology projects in climate change policy**

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Thank You

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