

# An Introduction to Transportation Control Measures

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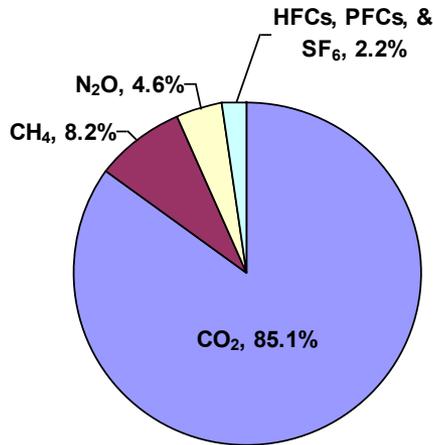
# Overview

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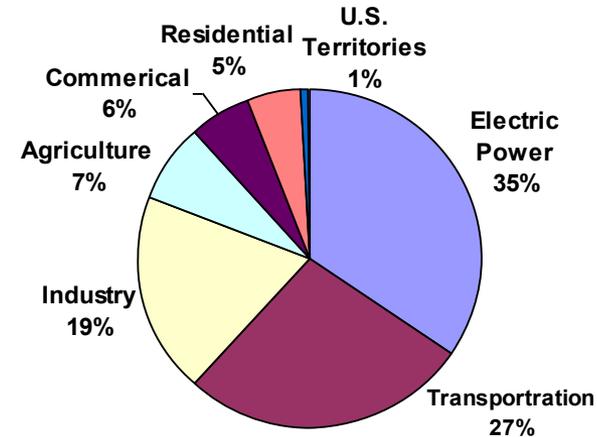


- Transportation and Climate Change
- Reducing GHG Emissions from Transportation
- Transportation Control Measures (TCMs)
- [A Quick Note on Conformity]
- Examples of TCMs
- Multiple Benefits of TCMs
- Opportunities for Local Governments
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- Integrated Planning for Comprehensive Programs
- Resources for Implementation

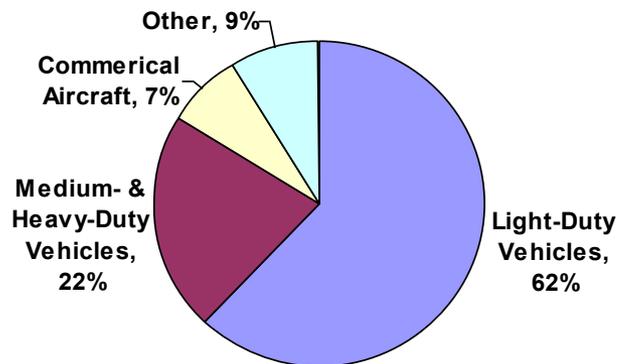
# Transportation and Climate Change



2008 U.S. GHG Emissions by Gas



2008 U.S. GHG Emissions by Economic Sector



2008 U.S. Transportation Sector CO<sub>2</sub> Emissions by Mode

- In 2008, transportation represented 32% of U.S. CO<sub>2</sub> emissions
- From 1990-2008, U.S. emissions from transportation rose 22% and light-duty vehicle VMT rose 37%; slight decreases from 2007-2008

Percentages are based on Teragram CO<sub>2</sub> equivalent. One teragram is equal to 10<sup>12</sup> grams or one million metric tons.

Source: U.S. EPA. 2010. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008*. Available: <http://epa.gov/climatechange/emissions/usinventoryreport.html>.

# Transportation and Climate Change



- Land use and development patterns influence the demand for transportation and mode share (i.e. percentage of travelers using a particular form of transportation)
- Spread out and automobile-centric development patterns have promoted high vehicle miles traveled (VMT)
- Nearly all the energy consumed by the transportation sector comes from fossil fuels – in 2008, approx. 53% of transportation-related CO<sub>2</sub> emissions were from gasoline consumed for private vehicle use\*

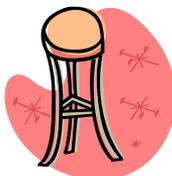
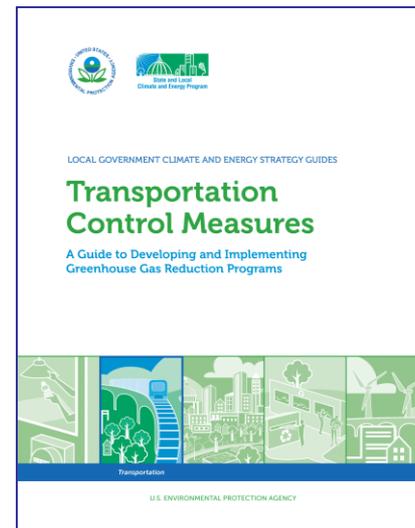
# Reducing GHG Emissions from Transportation

- The “Three-Legged Stool”

- What are we driving?  
(Vehicle fuel efficiency)
- How are we fueling what we drive? (Fuel carbon content)
- How much are we driving? (Vehicle miles traveled or VMT)



Efficient Fleets



# Transportation Control Measures (TCMs)



- **Broad definition** - strategies that reduce VMT and improve roadway operations to reduce air pollution, greenhouse gas emissions, and fuel use from transportation
  - Reduce demand for vehicle travel and single-occupancy vehicles (SOVs)
  - Provide less-polluting alternatives
  - Make travel more efficient
  - ★ **EPA's *Local Government Climate and Energy Strategy Guide* uses this definition**
- **Legal definition** – any measure that is specifically identified and committed to in the applicable implementation plan, including a substitute or additional TCM that is incorporated into the applicable State Implementation Plan (SIP) through the process established in CAA section 176(c)(8), that is either one of the types listed in CAA section 108(f), or any other measure for the purpose of reducing emissions or concentrations of air pollutants from transportation sources by reducing vehicle use or changing traffic flow or congestion conditions\*
  - Do **not** include vehicle technology-based, fuel-based, and maintenance-based measures
  - Measures included only in an area's transportation plan and transportation improvement program, but not in the approved SIP, are not considered TCMs for the purposes of **conformity**



\* 40 CFR 93.101

# [A Quick Note on Conformity]



- Transportation conformity is required by the CAA to ensure that federal funding and approval are given to highway and transit projects that are consistent with ("conform to") the air quality goals established by a state air quality implementation plan (SIP)
- Conformity, for the purpose of a SIP, means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the national ambient air quality standards

Transportation Plan ↔ State Implementation Plan

# Examples of TCMs



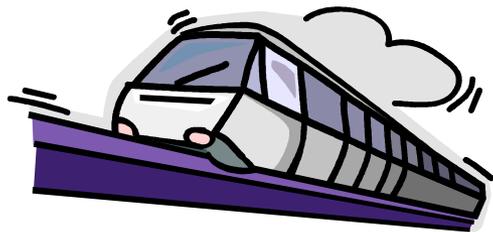
Based on our **broad** definition...

- Public Transportation
  - Provide and promote
  - Transit-oriented development
- Bicycling and walking
  - “Complete streets”
- Commuter choices
  - Rideshare Matching
  - Vanpool Services
  - Emergency ride home services
  - Workplace flexibility programs
  - Employee financial incentives
- Transportation management improvements
  - Traffic signalization
  - Infrastructure and congestion
  - Incident management systems
  - Intelligent transportation systems
- Value pricing
  - Roadway and congestion pricing
  - Parking fees and taxes
  - “Pay-as-you-drive” insurance

# Multiple Benefits of TCMs

## Benefits

- Reduce GHG emissions and improve air quality
- Reduce energy and travel costs
- Demonstrate leadership
- Increase community choices and reduce traffic congestion
- Improve public health and quality of life



## Considerations

- ⚠️ Benefits will vary from community to community based on site-specific factors, such as existing development patterns, fleet mix, and average VMT
- ⚠️ **Induced demand** occurs when improvement in travel conditions makes it more attractive for drivers to use roadways, offsetting some of the initial congestion and air quality benefits of TCMs

# Opportunities for Local Governments

## Some Examples (not comprehensive)

- **Mayors or county executives** – provide policy direction; allocate funding; influence action through communication and outreach
  - Los Angeles, CA Mayor’s 30/30 left turn arrow initiative (2007)
- **City councils** – influence government operations through oversight and budget; set “rules of the road”
  - Chicago City Council’s “Resolution to Support 21st Century Transportation For America” (2008)
- **Local transportation agencies** – ensure quality of public transportation; provide transportation system management; implement “rules of the road;” directly implement TCMs
  - Ventura County (CA) Transportation Commission’s Ride Share and Guaranteed Ride Home programs



# Opportunities for Local Governments



## Examples Continued

- **Local and Regional Planning Agencies** – metropolitan planning organizations (MPOs) and regional planning agencies (RPAs) conduct planning required for federal funding programs; may have authority over development rules and zoning ordinances; instrumental in pursuing smart growth strategies
- **Other local agencies** – adopt TCMs to lead by example and promote further adoption throughout the community
  - Bellevue, WA Flexcar (now Zipcar) program (2006)
- ★ **Additional key stakeholders that are important to work with include: the private sector, employers, drivers, and non-profits**



# Strategies for Success

## A Sample of Lessons Learned

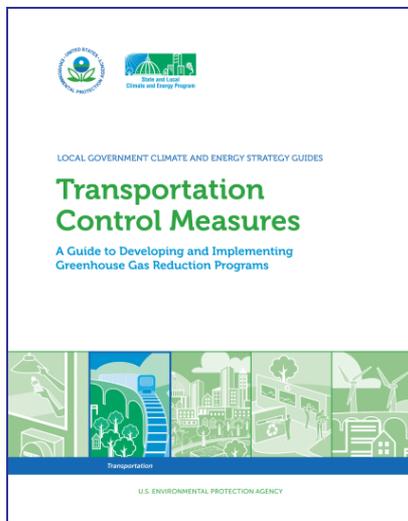
- ★ Select TCMs that are appropriate to the local transportation context
- ★ Pursue complementary programs
- ★ Engage stakeholders (internal & external)
- ★ Implement TCMs that provide revenue sources
- ★ Consider multiple funding options
- ★ Allow sufficient time for development and implementation
- ★ Enhance workplace flexibility to reduce commuting-related travel
- ★ Encourage behavioral response
- ★ Lead by example
- ★ **Incorporate TCMs into land use plans**



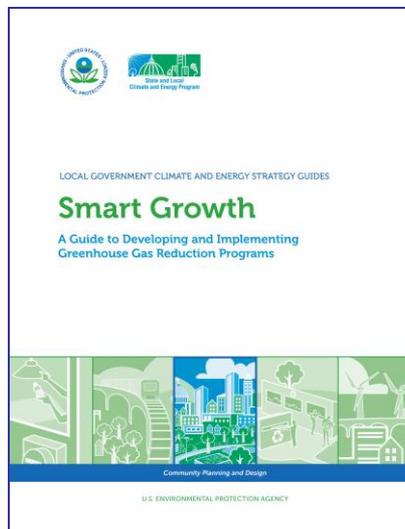
# Integrated Planning for Comprehensive Programs



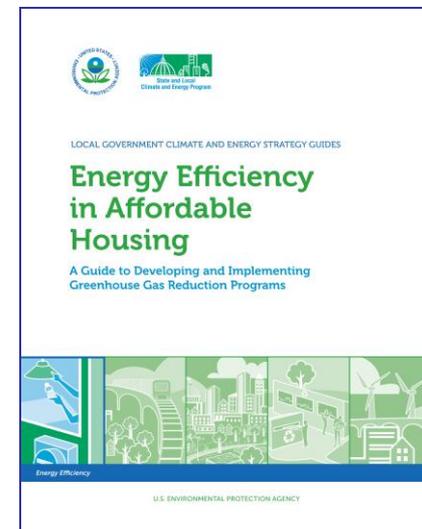
- Transportation planning can be integrated with other local/regional planning considerations (e.g. land use, affordable housing) to enhance effectiveness of TCMs and provide multiple environmental, public health, economic, and social benefits
  - Ensure various plans are complementary
  - Develop comprehensive plans/community master plans



*Coming soon!*



*Draft available*



*Draft available*

# Resources for Implementation

- **U.S. EPA Office of Transportation and Air Quality** - protects public health and the environment by regulating air pollution from motor vehicles, engines, and the fuels used to operate them, and by encouraging travel choices that minimize emissions
  - **Policy and guidance documents on TCMs:**
    - [http://www.epa.gov/otaq/stateresources/policy/pag\\_transp.htm#tcm](http://www.epa.gov/otaq/stateresources/policy/pag_transp.htm#tcm)
  - **Grants and Funding Opportunities:**
    - <http://www.epa.gov/otaq/stateresources/grants.htm>
  - **MOVES (Motor Vehicle Emission Simulator):** EPA's current official model for estimating air pollution emissions from cars, trucks and motorcycles
    - <http://www.epa.gov/otaq/models/moves/index.htm>
  - **COMMUTER Model:** Calculates transportation and emissions benefits associated with selected commuter benefits, incentives, and other voluntary strategies to reduce solo commuting. Emission reductions for VOCs, NOx, CO, air toxics, and CO2 may be calculated.
    - [http://www.epa.gov/otaq/stateresources/policy/pag\\_transp.htm#cp](http://www.epa.gov/otaq/stateresources/policy/pag_transp.htm#cp)
  - **Business Benefits Calculator:** Estimates the financial, environmental, traffic, parking, and related values of offering employees high quality commuter benefits
    - <http://www.bestworkplaces.org/resource/calc.htm>



# Resources for Implementation

- **It All Adds Up to Cleaner Air** - a public education and partnership-building initiative developed by several federal agencies for the purpose of informing the public about the impact of their transportation choices on traffic congestion and air quality. provides state and local agencies free commercial-quality promotional materials that emphasize four simple, convenient actions people can take to improve air quality and reduce traffic congestion:
  - Trip chain, or combine errands into a single car trip
  - Keep cars properly maintained
  - Refuel in the evening and don't top off the gas tank
  - Choose alternate modes of transportation, such as carpooling, mass transit, biking, or walking



➤ <http://www.italladdsup.gov/>

- **Center for Clean Air Policy Transportation and Emissions Guidebook** - calculates the cost savings, fuel reductions, and emissions reductions from TCM policies:

➤ <http://www.ccap.org/guidebookAccess/login.php>

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**U.S. EPA Local Climate & Energy Program**

**<http://www.epa.gov/statelocalclimate/local/index.html>**