

# Climate Change Strategies for the Mobile Sector in the Metropolitan Washington Region

Presentation for EESI Briefing:  
Transportation Strategies to Cut Carbon Emissions

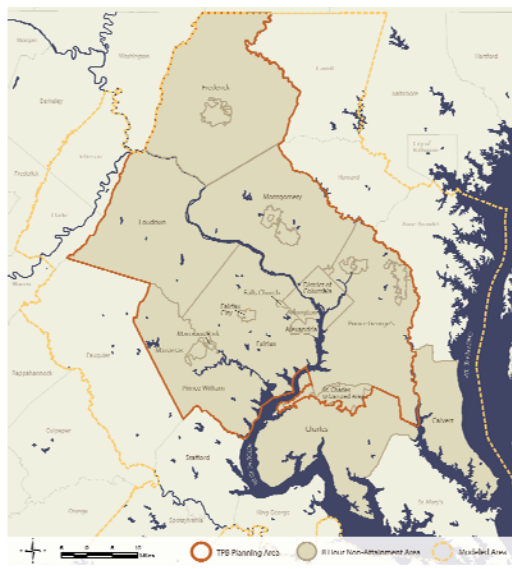
October 21, 2009

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# Transportation Planning in the Washington Region



TPB is the Metropolitan Planning Organization (MPO) and is housed within the Metropolitan Washington Council of Governments (COG)

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## COG Climate Change Report

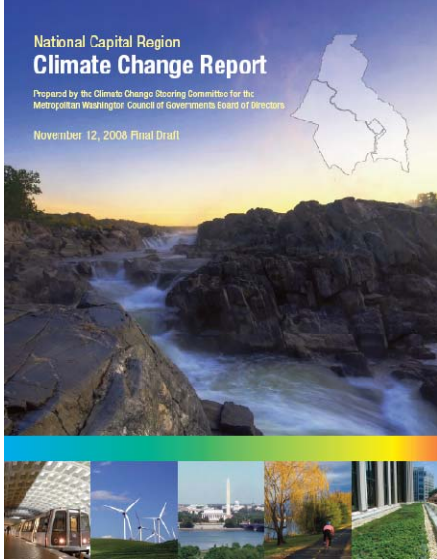
November 12, 2008

**Regional GHG reduction goals:**

- Return to 2005 levels by 2012
- 20% below 2005 levels by 2020
- 80% below 2005 levels by 2050

**TPB is applying these goals to the transportation sector:**

What would it take to meet these goals in transportation?



## How is TPB Addressing Climate Change?

- Developed baseline GHG projections for transportation through 2030
  - Updated for new CAFE standards and changing regional vehicle fleet
- Conducting a regional scenario study:
  - Using COG goals, analyzing a “What Would It Take?” Scenario for GHG reduction, including fuel efficiency, alternative fuels, travel efficiency
  - Analyzing a “Constrained Long Range Plan (CLRP) Aspirations” Scenario to examine the effects of pricing, more transit and transit-oriented land use development
- Seeking GHG reduction strategies that could be included in the region’s transportation plans and programs

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## Setting the Baseline

CO <sub>2</sub> Emissions from Cars, Trucks, and Buses Annual MT of CO <sub>2</sub> Emissions 8-hour Ozone Non-Attainment Area			
	2005	2020	2030
<b>BAU (prior to new CAFE standards)</b>	<b>24.1</b>	<b>29.9</b>	<b>32.3</b>
% Change from 2005 levels	---	24.2%	34.0%
<b>+ 2009 CAFE (35.5 mpg by 2016)</b>	<b>24.1</b>	<b>24.1</b>	<b>23.4</b>
% Change from 2005 levels	---	0%	-3%
<b>+ Committed Transportation Emission Reduction Measures (final baseline)</b>	<b>24.1</b>	<b>23.9</b>	<b>23.3</b>
% Change from 2005 levels	---	-1%	-3%
<b>CCSC Proposed Regional Goal</b>	<b>24.1</b>	<b>19.3</b>	<b>14.5</b>
% Change from 2005 levels	---	-20.0%	-40%
<b>What's Left to Meet the Goal?</b>	<b>---</b>	<b>4.6</b>	<b>8.8</b>
% Change from 2005 levels	---	-19%	-37%

Source: 2009 CLRP

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## Example Mobile GHG Reduction Strategies Being Examined

### Fuel Efficiency

- Extending CAFE requirements to heavy trucks (8% VMT, 20% GHG)
- Benefits of enhanced CAFE possibilities (eg 45/55 mpg by 2030)

### Alternative Fuels

- Regional green fleet policy
- Accelerated adoption of clean-fuel vehicles (hybrids, flex fuel)

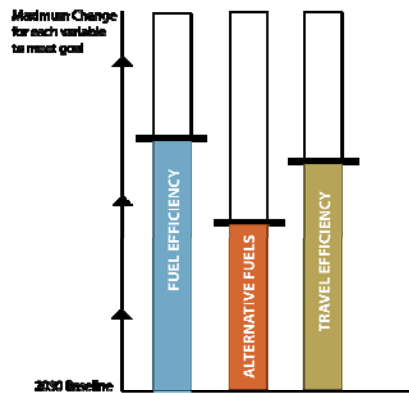
### Travel Efficiency:

- Pricing policies to reduce VMT (tolling, congestion pricing, parking pricing)
- Shift short trips to non-motorized modes
- Increased transit capacity
- Land use shifts (TOD, walkable activity centers)
- Signal optimization (operating speeds matter)

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## Putting the Strategies Together

### “Sliders” metaphor



How can strategies across these categories be combined to meet our regional climate change goals?

There can be compound effects from “bundling” strategies, such as transit and land use.

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## Fuel Efficiency

What about heavy trucks?

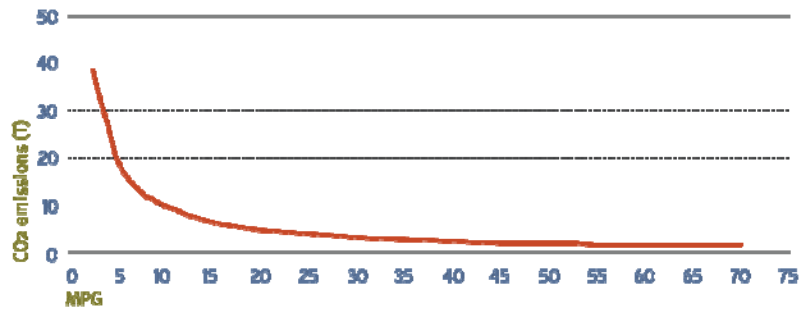
1. Currently, represent 8% of regional VMT, but 20% of CO<sub>2</sub> emissions
2. Not included in CAFE currently, but will be studied under EISA of 2007. We will not see heavy duty standards before model year 2014
3. Without standards, in 2030 heavy trucks are projected to be 9% of regional VMT and 30% of CO<sub>2</sub> emissions

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## Fuel Efficiency

CAFE has limitations:

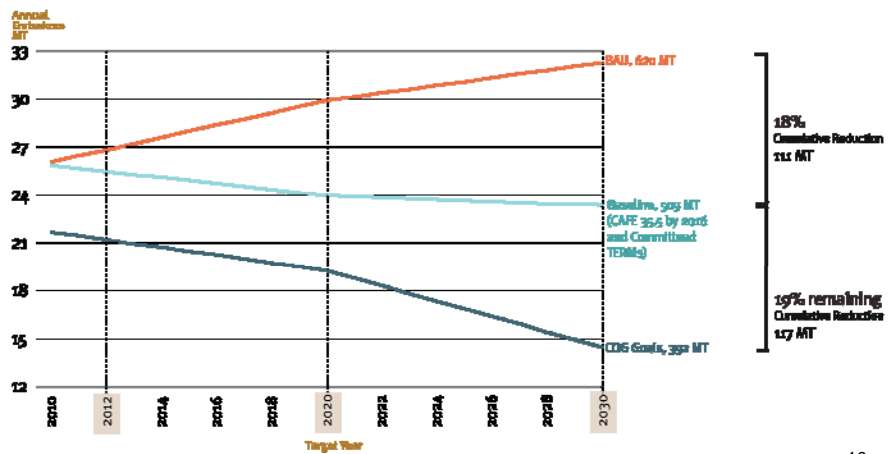
CO<sub>2</sub> Emissions in Tons for Gasoline Powered Vehicles Traveling 10,000 miles Under Different CAFE Standards



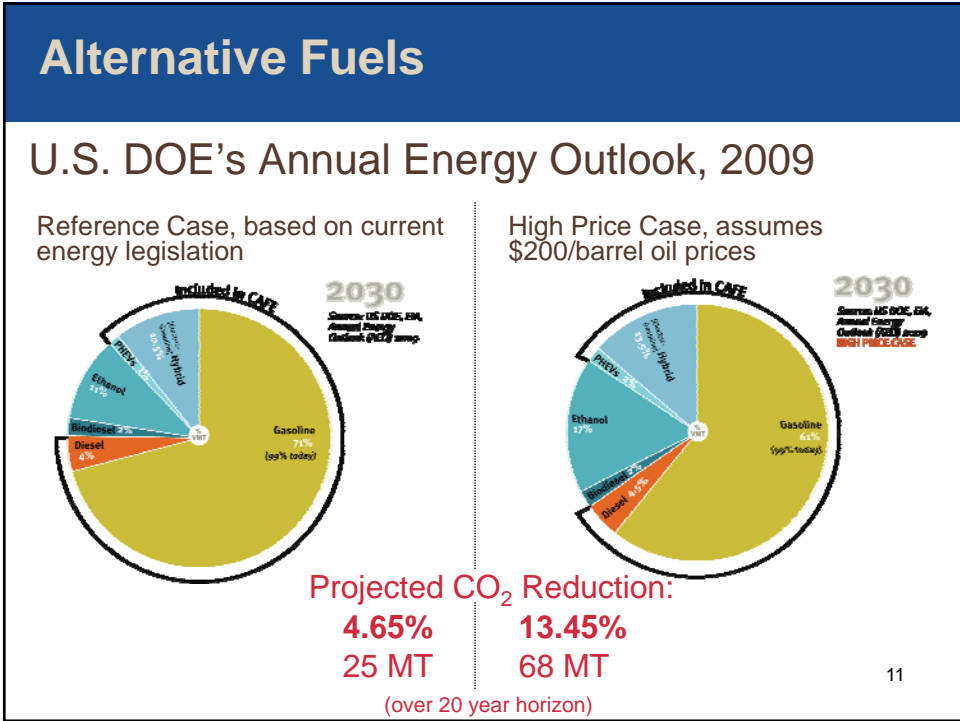
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## CO<sub>2</sub> is a Cumulative Problem

Translating the regional goals into cumulative reductions



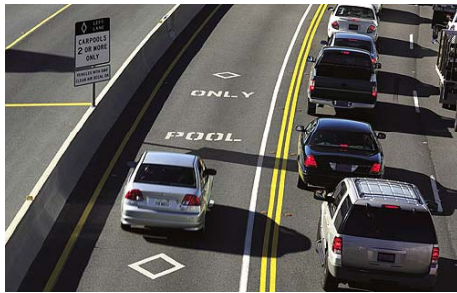
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- ## Transportation Efficiency Strategies
- Reduce VMT
  - Reduce congestion/idling (Vehicle speeds matter)
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## Carpool Incentive (early implementation)

In January 2009, TPB's Commuter Connections Program began a Carpool Incentive Demonstration Study and a three month pilot project is scheduled to begin in November 2009. The goal of this Carpool Incentive Program is to increase carpooling in select corridors in the Washington, DC region. Participants switching from single occupant vehicles only will receive \$1 for each work trip taken by carpool (up to \$2/day/person).



Projected CO<sub>2</sub> Reduction:  
**61,000 tons**  
 (over 20 year horizon)

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## Bike-Sharing (early implementation)

Regional expansion of DC's bike-sharing program to 3250 bikes throughout the region (DC, Arlington, Alexandria, Fairfax City, Bethesda, Silver Spring, Hyattsville, College Park, and National Harbor). Assumptions are based on other bike-sharing models and include mode shifts from car, taxi, transit, walk, personal bike, and trips not taken before.

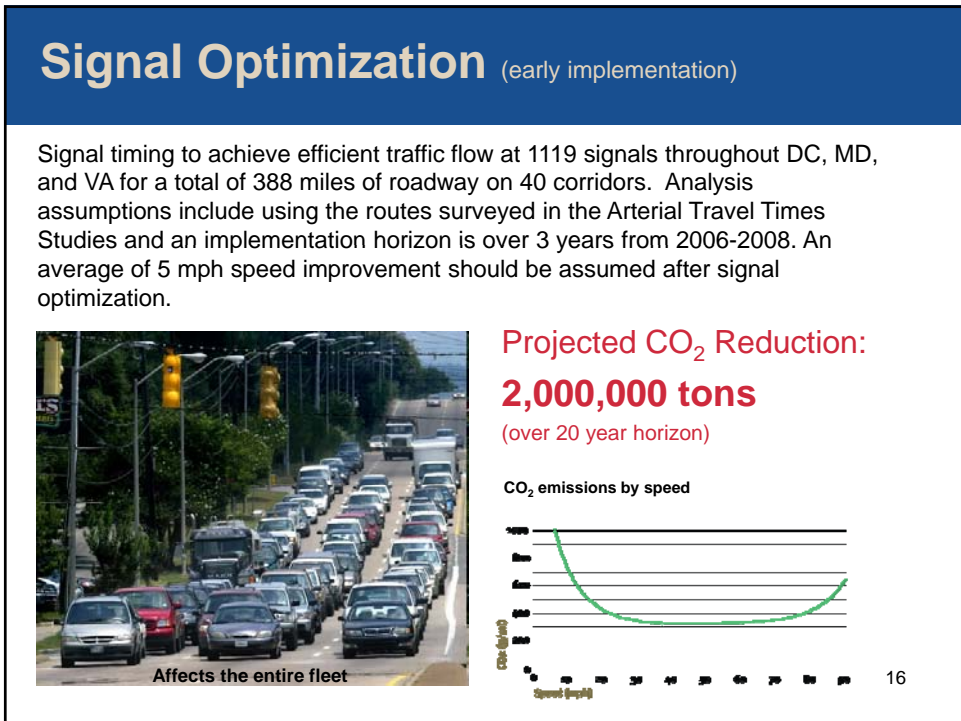
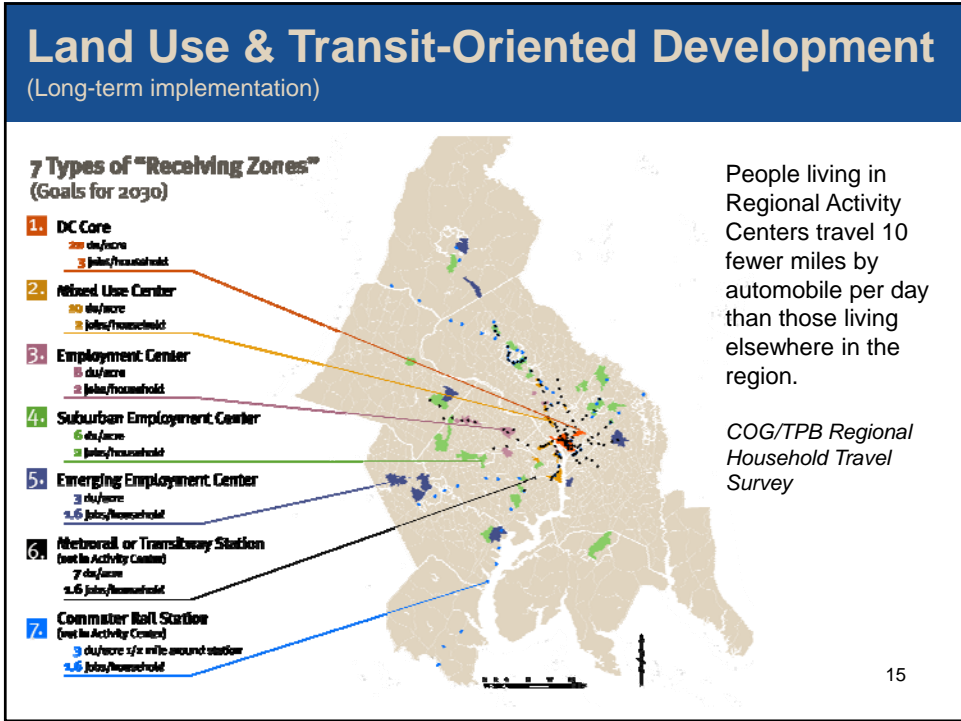


### Comprehensive Cost-Benefit Analysis, 20 Year Horizon


Costs		\$231,000,000
Capital		\$16,000,000
Operating		\$75,000,000
Increased Accidents		\$145,000,000
Benefits		\$625,500,000
User Cost Savings		\$197,000,000
Travel Time Savings		\$378,000,000
Reduced Accidents (from reduced VMT)		\$1,300,000
Public Health		\$2,000,000
Increased Access		\$38,000,000
Congestion Reduction		\$3,500,000
Environmental Benefits		\$5,700,000
<b>CO<sub>2</sub></b>		<b>66,000 tons</b>

Works similar to Zipcar, but bikes can be picked up and dropped off anywhere

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## Pricing (medium to long-term implementation)



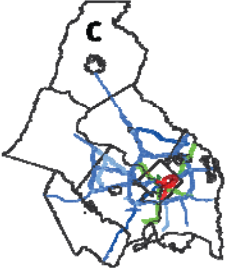
**A**

Adding new lanes on major highways with variable pricing



**B**

+ pricing existing arterials in DC



**C**

+ pricing National Park Service Parkways

**Projected CO<sub>2</sub> Reduction:**  
**1% - 2% region-wide**  
**(25-28% in the central city)**

(assumed 2030 implementation, range represents Scenario A without additional transit to Scenario C with enhanced transit)

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