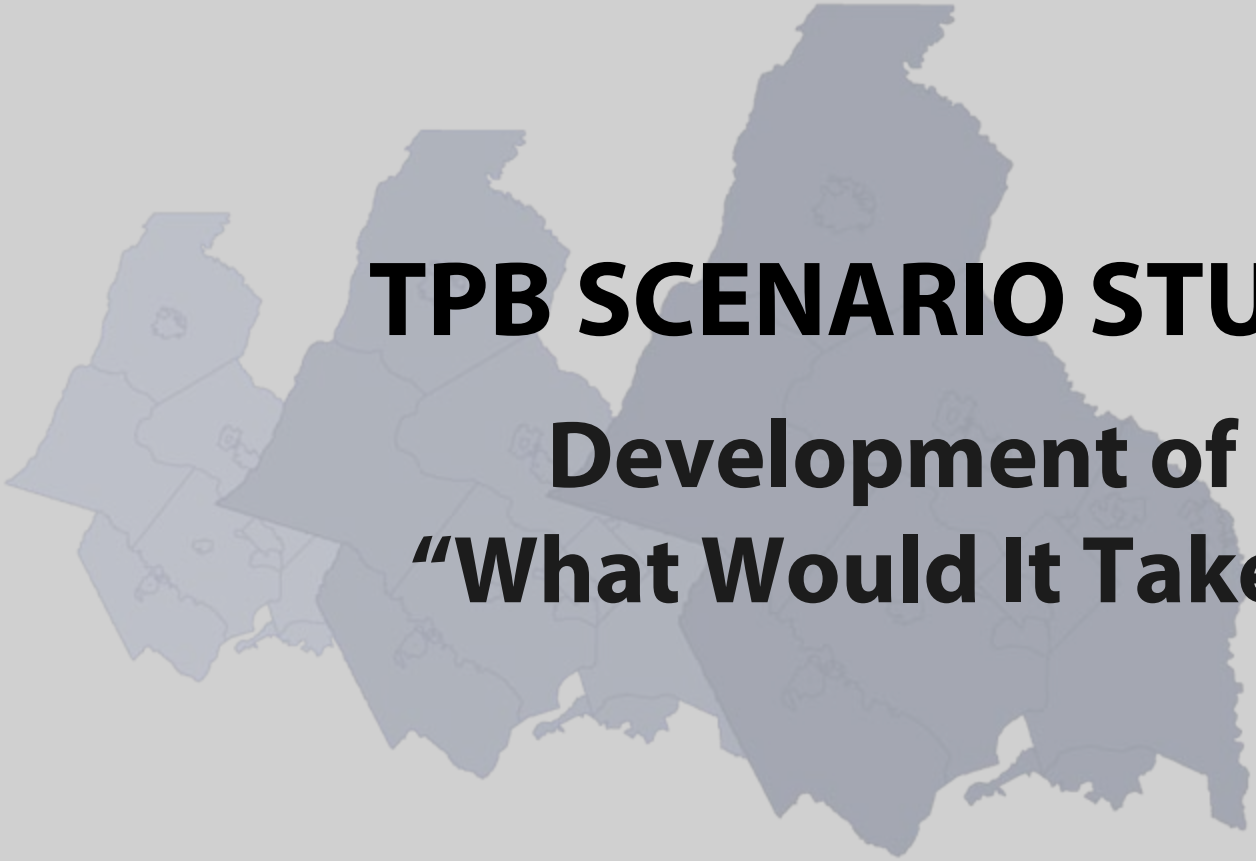


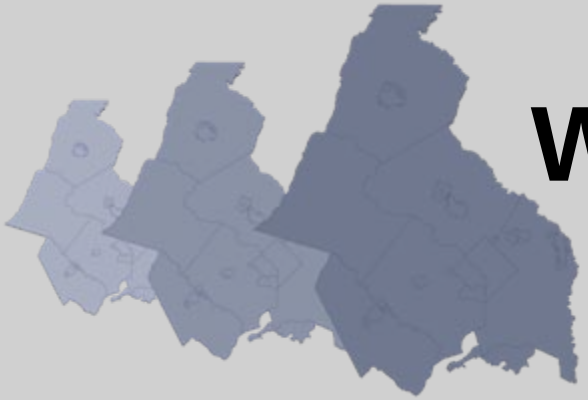
TPB SCENARIO STUDY

Development of "What Would It Take?"

Monica Bansal
Department of Transportation Planning

Presentation to the TPB Scenario Study Task Force

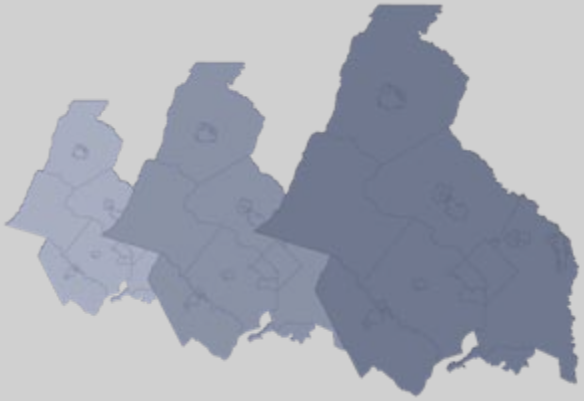
June 18, 2008



What Would it Take? Scenario Goals

COG Climate Change Steering Committee goals:

2012	10% reduction in CO2 below 2012 business as usual levels, getting us to 2005 levels
2020	20% reduction in CO2 below 2005 levels
2050	80% reduction in CO2 below 2005 levels



Building the Scenarios
What Would it Take?

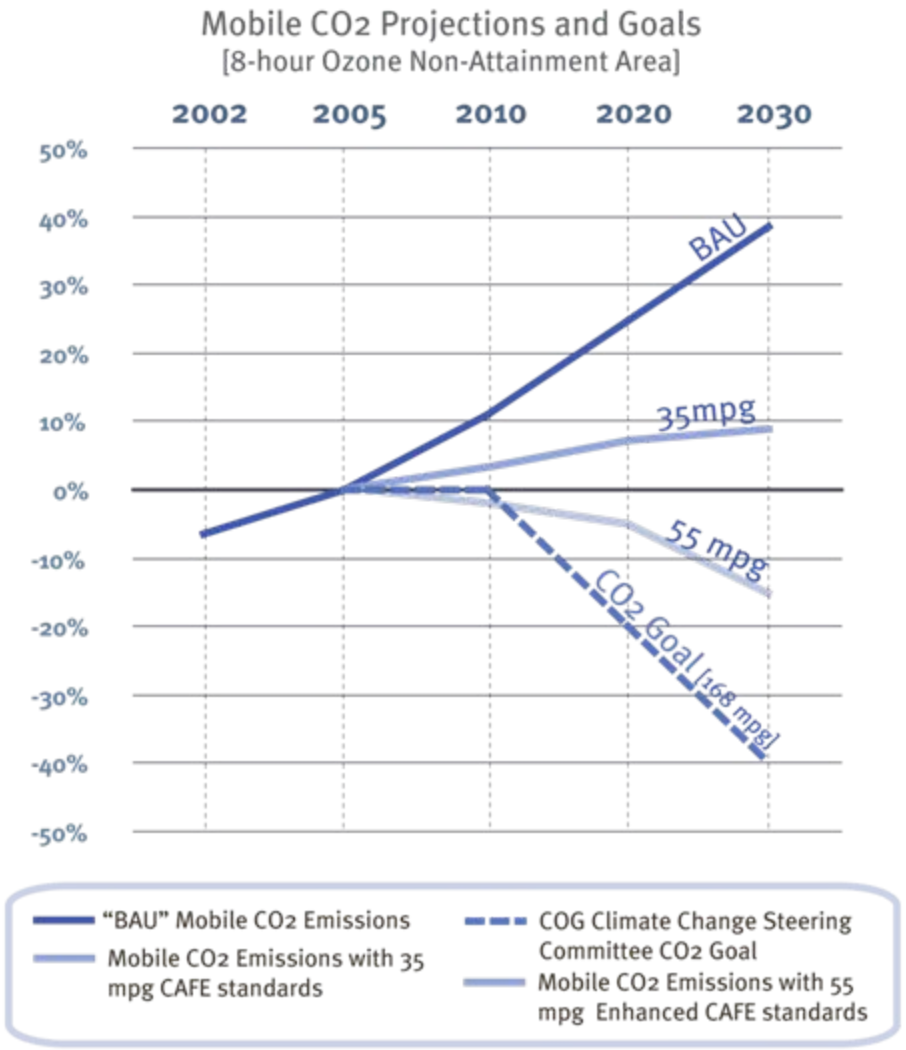
Three categories of strategies to reduce mobile CO2 emissions

Fuel Efficiency	Fuel Carbon Intensity	Reduce VMT
Beyond CAFE standards [currently 35 mpg by 2020]	Alternative fuels (biofuels, hydrogen, electricity) Vehicle technology (hybrid engine technology)	Changes in land use development Changes in travel behavior Changes in prices for travel

What Would it Take with Fuel Efficiency?

Fuel Efficiency

Beyond CAFE standards [currently 35 mpg by 2020]



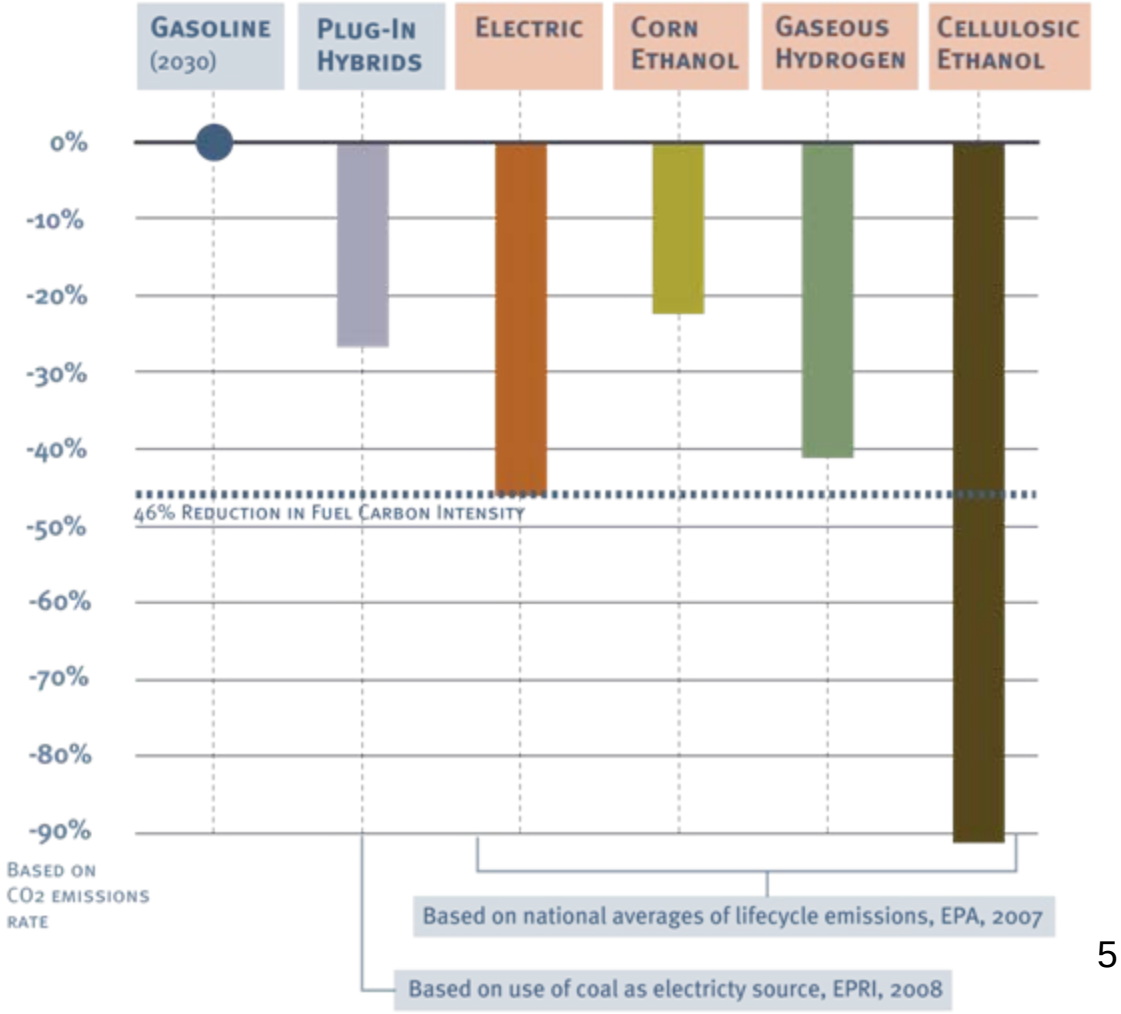
What Would it Take with Alternative Fuels?

Fuel Carbon Intensity

Alternative fuels (biofuels, hydrogen, electricity)

Vehicle technology (hybrid engine technology)

How would this look with lifecycle emissions for the region?



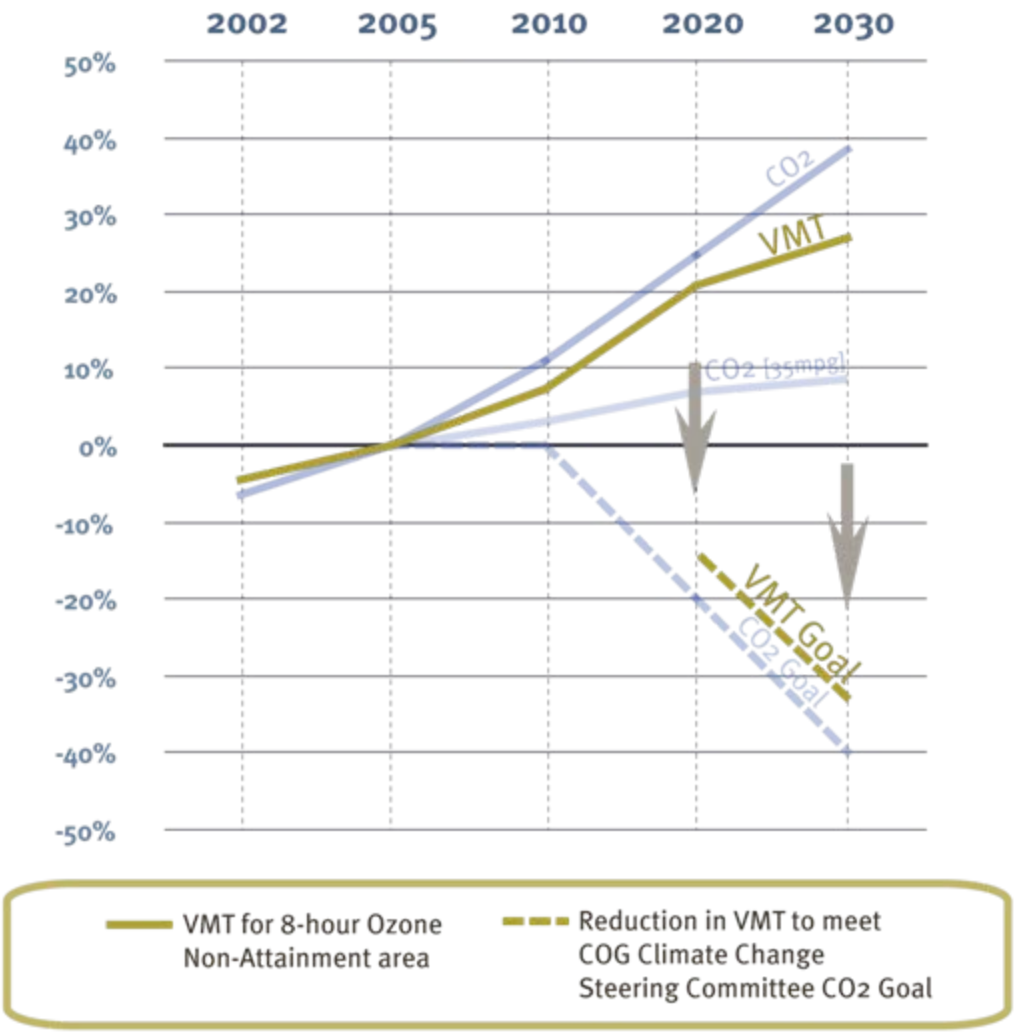
What Would it Take with VMT?

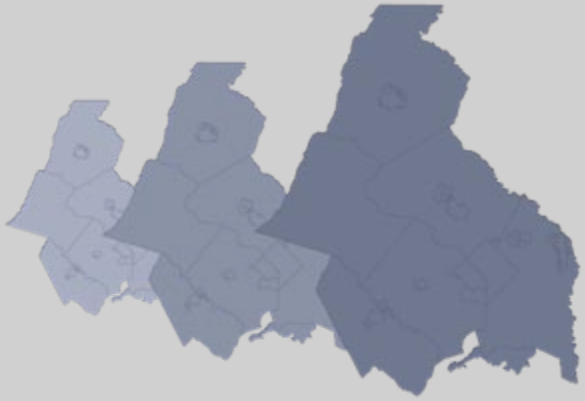
Reduce VMT

Changes in land use development

Changes in travel behavior

Changes in prices for travel



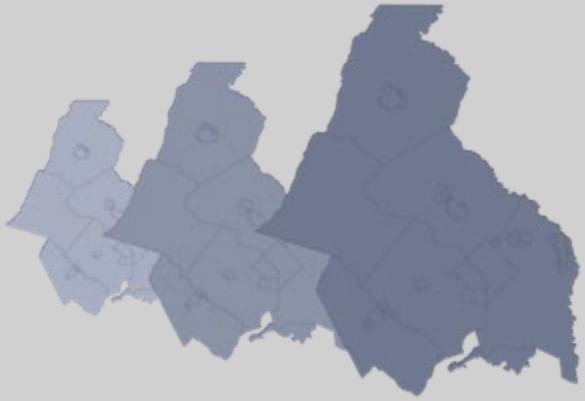


Cost-Effectiveness

Current studies put the price threshold somewhere between **$30 and $50 per ton** of CO2 abated.

Initial analysis of cost-effectiveness of Transportation Emissions Reduction Measures

Number	Category Description	CO_2 Cost Effectiveness Range *
1	Access Improvements to Transit/ HOV	$100 to $400
2	Bicycle / Pedesrian projects	$50 to $100
3	Transit Service improvements	$100 to $800
4	Rideshare Assistance Programs	$30 to $300
5	Park & Ride Lots (Transit and HOV)	$100 to $500
6	Telecommute Programs	$10 to $40
7	Traffic Improvements/TSM	In Progress
8	Engine Technology/Alternative Fuel Programs	In Progress



Prioritizing Strategies

In addition to cost-effectiveness, interventions can be organized by timeframe for implementation and realization of benefits

To mitigate the effects of global warming, important to get GHG reductions as early as possible

Short Term	Medium Term	Long Term
"Low-hanging fruit" that are relatively fast and cost-effective (fuel economy packages)	Major transit investments Advanced vehicle technologies	Major changes to current land use patterns Emerging technologies and energy sources

Scenario Outcomes

Different combinations of interventions can be assessed for cost-effectiveness and feasibility:

A series of **"sliders"**