

# Potential Changes in Emissions Due to Improvements in Travel Efficiency – Final Report

Summary Presentation

June 1, 2012

# Potential Changes in Emissions Due to Improvements in Travel Efficiency - Final Report



# Topics

- Purpose of Report
- Focus
- Analytical Approach
- Emissions Benefits

# Purposes of Report

1. To establish a reliable and useful source of information on the effectiveness of Transportation Control Measures (TCMs) for changing travel activity
2. To quantify the potential national emissions reductions that could result from those changes
3. To support a national policy-level assessment of TCMs by using actual MPO travel demand modeling results and examining their effectiveness at a national scale

# Focus

The study focus is on ***light-duty cars & trucks.***

The results represent the reduction in  
***Urban VMT and emissions nationwide.***  
***Rural travel assumed to remain unaffected.***

*The predicted changes to travel activity and the resulting emissions are **not intended to represent the effectiveness of the TCMs for any particular area.***

# Analytical Approach

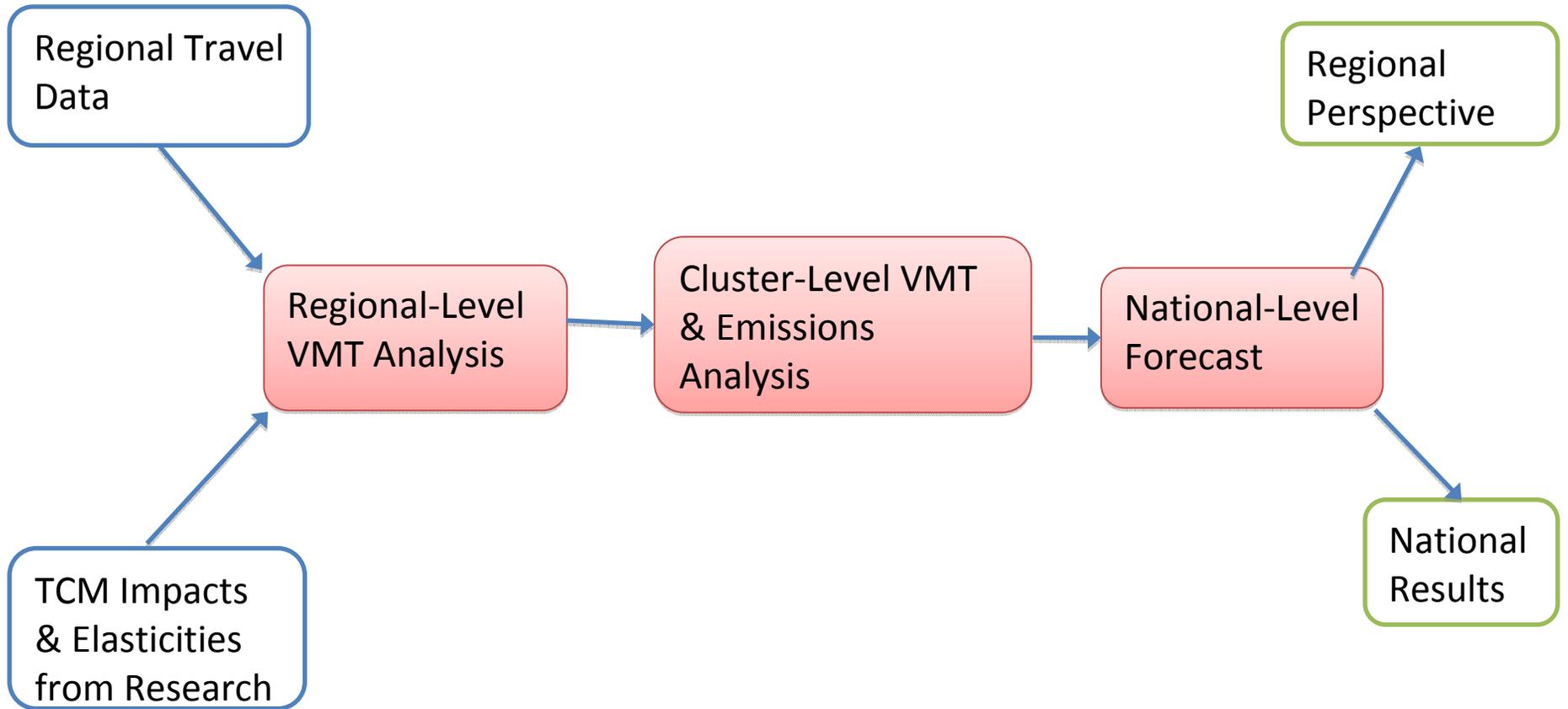
## **Regional Framework**

1. National Survey of Metropolitan Regions
2. Dividing regions into clusters
3. Selecting 2 representative regions for each cluster

## **Strategies**

- TCM strategies selected
- Strategies defined to meet TRIMMS model requirements
- Individual strategies combined into 7 scenarios

Cluster	Definition	Representative Areas
1	Population $\geq 2.9$ million High Transit Share ( $>9\%$ )	San Francisco, CA <b>Washington, DC</b>
2	Population $\geq 2.9$ million Low Transit Share (9% or Less)	San Diego, CA Seattle, WA
3	Population 1,500,000-2,899,999 High Transit Share ( $>4\%$ )	Portland, OR Denver, CO
4	Population 1,500,000-2,899,999 Low Transit Share (4% or Less)	Sacramento, CA Salt Lake City, UT
5	Population 750,000-1,499,999	Memphis, TN Raleigh-Durham, NC
6	Population 250,000-749,999	Fresno, CA Knoxville, TN Rochester, NY
7	Population $<250,000$	Burlington, VT Wilmington, NC



Strategy Categories	TCMs Included in the Analysis
Travel Demand Management	Rideshare Programs
	Employer-Based Programs
	Public Outreach / Education
Land Use / Smart Growth	TOD: Improved Transit Access
	Mixed Land Use
	Promotion of Higher Density
Transit	Increased Transit Frequency
	Lower Fares or Transit Subsidies
Pricing	Parking Pricing
	Mileage Fees

# Analytical Approach

1. Sketch planning tool  
***Trip Reduction Impacts for Mobility Management Strategies (TRIMMS)***
2. Emissions Factors  
**EPA's MOVES 2010 (Motor Vehicle Emissions Simulator)**

# Analytical Approach

Key aspects of this study include:

1. A review of recent studies
2. Development of an assessment methodology – **Travel Efficiency Assessment Method**
3. Defining future scenarios
4. Sketch planning analysis of actual metropolitan areas
5. MOVES 2010 modeling

# Analytical Approach

The time period for analysis and forecasting begins in 2010 with current year policies and develops through 2050.

MOVES 2010 was used to generate national-level, fleet-wide emissions factors from start, refueling and urban driving activities for 2010, 2020, 2030, 2040 & 2050.

***No additional strategies, including alternative vehicles and fuels or special use or retrofit technologies were included.***

Scenario	2030 CO <sub>2</sub> e	2030 NO <sub>x</sub>	2050 CO <sub>2</sub> e	2050 NO <sub>x</sub>
Region-Wide TDM	0.10%	0.10%	0.26%	0.26%
TDM + Land Use Changes	1.01%	1.00%	2.97%	2.93%
TDM + Land Use Changes + Transit Fare Reductions	1.40%	1.39%	4.19%	4.16%
TDM + Land Use Changes + Transit Fare Reductions + Transit Service Improvements	1.44%	1.43%	4.30%	4.28%
TDM + Land Use Changes + Transit Fare Reductions + Transit Service Improvements + Parking Fees	2.92%	2.91%	6.98%	6.87%
TDM + Land Use Changes + Transit Fare Reductions + Transit Service Improvements + Mileage Fees	1.94%	1.92%	6.28%	6.17%
TDM + Land Use Changes + Transit Fare Reductions + Transit Service Improvements + Parking Fees + Mileage Fees	3.43%	3.40%	8.83%	8.65%