



U.S. Department  
of Transportation

Federal Highway  
Administration Office  
of Operations

# Analysis of Emissions Benefits of State-Level Transportation Repricing

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# Why VMT/Repricing Analysis?

- Reducing vehicle-miles traveled (VMT) offers benefits related to emissions, congestion, safety, and equity
- Flat fees or bundled costs (e.g., free workplace parking) encourage driving by keeping the marginal cost of additional vehicle use low
- By introducing opportunities to save, transportation repricing strategies (converting fixed transportation costs to variable ones) are effective at reducing VMT through encouraging mode shift and driving discretion
- Transportation leaders seek tools to better understand the effects that different state-level choices would have on VMT and related driving externalities



# FHWA Project Goal

- Develop a toolkit and supporting report to aid state policymakers in understanding and advancing six repricing strategies
  - The analysis toolkit is in the form of a spreadsheet elasticity model that yields VMT reduction projections for each component of the transportation repricing policy bundle, and for the entire bundle (or a user-determined “mini-bundle”) in each of 50 states and the District of Columbia
  - VMT reductions are also translated to reductions in emissions, congestion, and crashes
  - Effects of the scenarios on equity are also explored

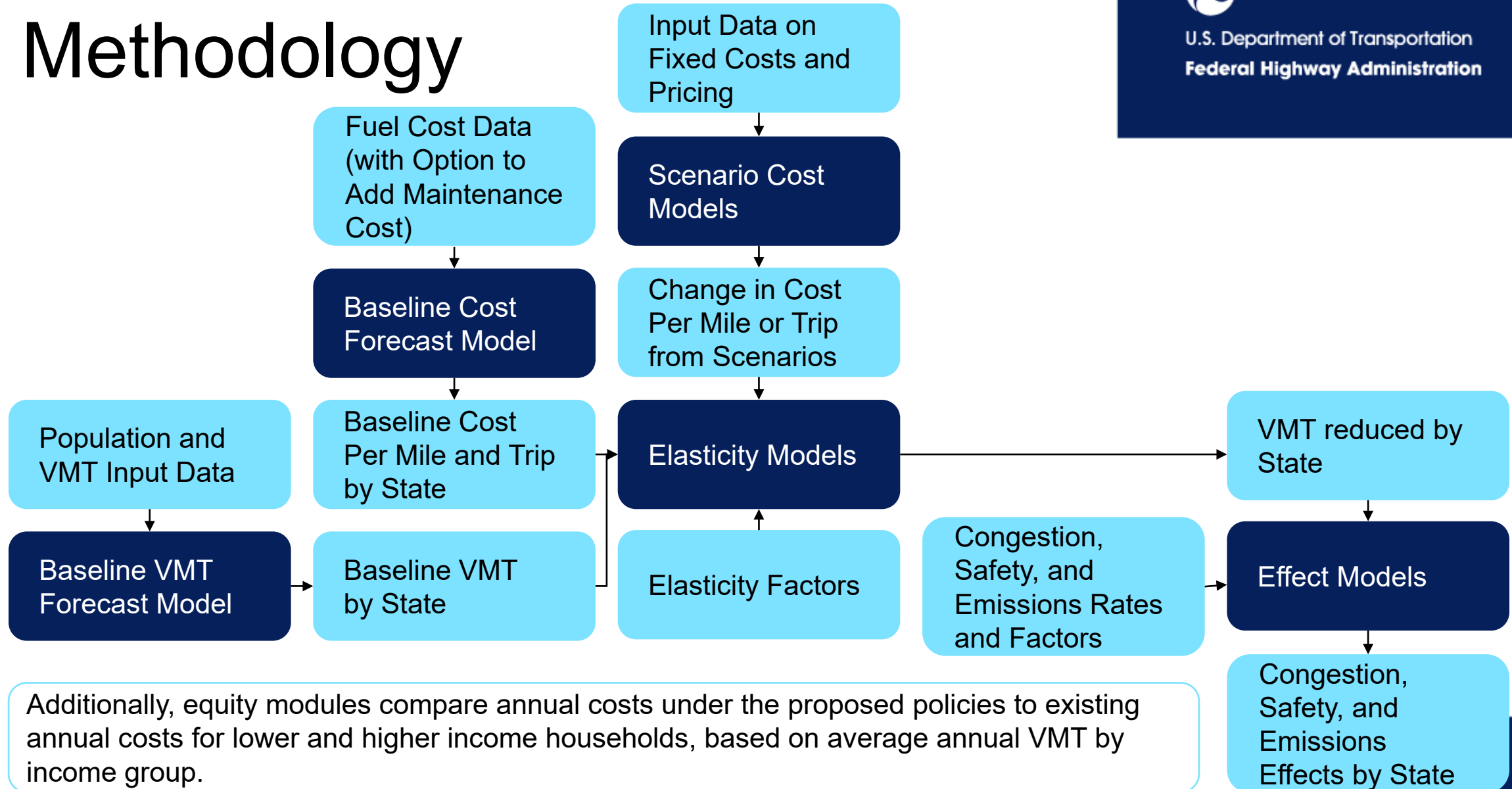


# Policy Selections

Strategy	Description
Per-mile state sales taxes on newly purchased and leased vehicles	State sales taxes on newly acquired vehicles are converted to per-mile taxes, assessed over a defined timeframe (e.g., the first three years a vehicle is driven after acquisition).
Per-mile annual vehicle registration fees	Annual vehicle registration fees are converted to per-mile fees, assessed over a year.
Per-mile personal property taxes on owned vehicles	Annual personal property taxes on owned and leased vehicles are converted to per-mile fees, assessed over a year.
Pay-per-mile car insurance	A small portion of drivers' insurance premium is paid as a baseline rate, with the remainder being variable based on mileage driven.
Parking cash-out	Employers that provide free parking at work offer employees a new option to take an equivalently-valued benefit in the form of employer-paid transit and a taxable cash payment on a monthly or daily basis.
Per-mile monthly vehicle lease depreciation charges	A portion of fixed monthly vehicle lease charges is converted to per-mile fees to reflect the share of vehicle depreciation attributable to driving mileage.



# Methodology





# Individual Policy Results (2030)

Policy	% Change in VMT	CO2 Emissions in Millions of Metric Tons
Per-mile state sales taxes on newly purchased and leased vehicles	-8.4%	-71.4
Per-mile annual vehicle registration fees	-1.1%	-11.2
Per-mile personal property taxes on owned vehicles	-3.4%	-28.8
Pay-per-mile car insurance	-13.2%	-136.7
Parking cash-out	-6.4%	-66.7
Per-mile monthly vehicle lease depreciation charges	-0.9%	-8.8

# Policy Bundle VMT Reductions (2030)



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Policy	Individual Policy (-0.30 Elasticity)	Policy within Whole Bundle (Approx. -0.30 Elasticity for "Dampened" Bundle)	CO2 Emissions from Bundle (in Millions of Metric Tons)
Per-mile state sales taxes on newly purchased and leased vehicles	-8.4%	-6.5%	-54.8
Per-mile annual vehicle registration fees	-1.1%	-0.9%	-9.6
Per-mile personal property taxes on owned vehicles	-3.4%	-2.7%	-22.5
Pay-per-mile car insurance	-13.2%	-8.9%	-92.0
Parking cash-out	-6.4%	-4.6%	-48.0
Per-mile monthly vehicle lease depreciation charges	-0.9%	-0.6%	-5.9
<b>Total Bundle (Multiplicative Dampened)</b>		<b>-24.2%</b>	<b>-232.8</b>





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# Questions & Contact

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