

# Road Usage Charge Assessment: Evaluating Urban and Rural Equity and Financial Implications Using a Fuel Consumption and VMT Allocation Model

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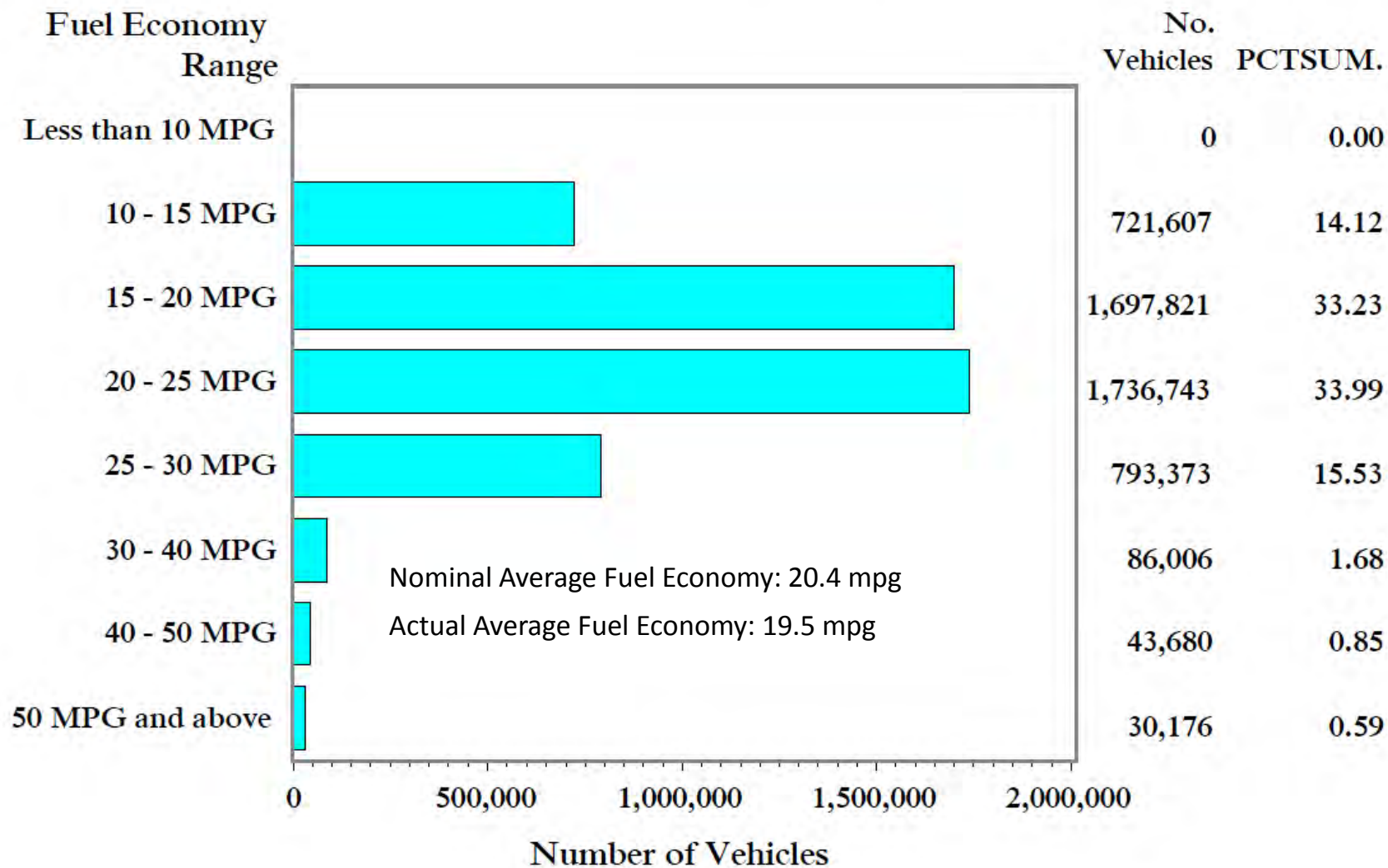
# Model Development

- A multi-agency staff group oversaw the model development, which took place from April-Nov. 2014.
- The model is fundamentally based on:
  - Light-duty household-based vehicle records from the Washington Department of Licensing (DOL) central database for vehicles; and
  - Washington Department of Transportation (WSDOT) estimates of light-duty vehicle miles of travel statewide.
- Fuel economy ratings for each vehicle were obtained from the Environmental Protection Agency.
- A distribution of vehicle miles of travel was obtained from the 2009 National Household Travel Survey.

# Profile of Household Light-Duty Vehicles In Washington in June, 2014

<b>By Geography:</b>					
41% Rural			59% Urban		
<b>By Vehicle Age Range:</b>					
18% 1 to 5 yrs	27% 6 to 10 yrs	26% 11 to 15 yrs	16% 16 to 20 yrs	13% 21 + yrs	
<b>By Number of Vehicles in Household:</b>					
23% 1	30% 2	22% 3	13% 4	6% 5	6% 6+
<b>By Vehicle Type:</b>					
50% Car or Station Wagon		19% Pickup Truck	25% SUV	6% Van	
<i>Source: Department of Licensing Vehicle Headquarters System and U.S. Census</i>					

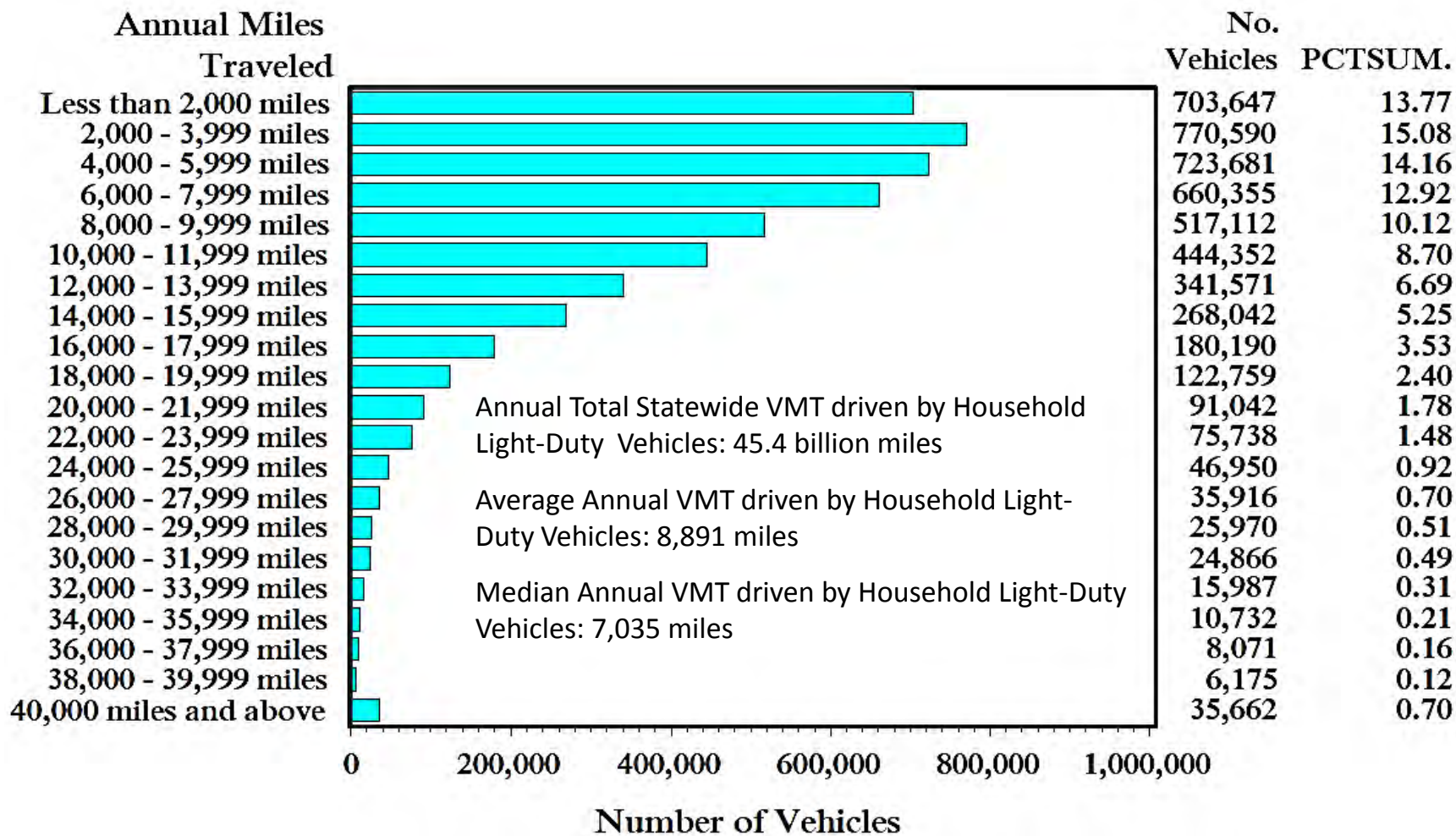
# Number of Light-Duty Vehicles in Washington Households in June 2014 By Fuel Economy Range



# Number of Light-Duty Vehicles in Washington Households in June 2014

## By Annual Vehicle Miles of Travel Range

Estimates are for Calendar 2014



# Comparison of Fuel Tax and Hypothetical RUC Payments For Washington Light-Duty Household Vehicles

<b>Measure</b>	<b>Household Light-Duty Fleet <i>Modeled estimates</i></b>
Vehicle Miles of Travel	45.4 billion miles
Gallons of Fuel Consumed	2.329 billion gallons
Fuel Tax Receipts (at 37.5 cents/gal)	\$873 million
Hypothetical Road Usage Charge Receipts (at 1.92 cents/mi)	\$872 million

# Washington Light-Duty Household Vehicles, Fuel Tax and Hypothetical RUC Payments: Rural and Urban Comparison

<b>By Urban/Rural Location:</b>	<b>Avg. Annual Miles Driven (miles)</b>	<b>Avg. Annual Fuel Consumption (gallons)</b>	<b>Avg. Annual Fuel Tax Paid @ 37.5 ¢/gal</b>	<b>Avg. Annual Equivalent Road Usage Charges @ 1.92 ¢/mile</b>
<b>Rural</b>	9,288	484	<b>\$182</b>	<b>\$178</b>
<b>Urban</b>	8,611	436	<b>\$163</b>	<b>\$165</b>
<b>Overall</b>	8,891	456	\$171	\$171

# Analysis: Change From Fuel Tax to a Hypothetical 1.9 cents/mile Road Usage Charge

## Change by County in Taxes Paid, Under a Statewide Revenue-Neutral Scenario



Change in Taxes Paid: ■ (12.5%) to (7.5%) ■ (7.5%) to (5%) ■ (5%) to (2.5%) ■ (2.5%) to 0% ■ 0% to 2.5% ■ 2.5% to 5%




## Washington Light-Duty Household Vehicles, Fuel Tax and Hypothetical RUC Payments: Comparison by Type of Vehicle

<b>By Vehicle Type:</b>	<b>Avg. Annual Miles Driven (miles)</b>	<b>Avg. Annual Fuel Consumption (gallons)</b>	<b>Avg. Annual Fuel Tax Paid @ 37.5 ¢/gal</b>	<b>Avg. Annual Equivalent Road Usage Charges @ 1.92 ¢/mile</b>
<b>Passenger Car/ Station Wagon</b>	8,586	369	<b>\$138</b>	<b>\$165</b>
<b>Pickup Truck</b>	7,791	510	<b>\$191</b>	<b>\$150</b>
<b>Sport Utility Vehicle</b>	10,268	580	<b>\$218</b>	<b>\$197</b>
<b>Van or Minivan</b>	9,025	498	<b>\$187</b>	<b>\$173</b>
<b>Overall</b>	8,891	456	\$171	\$171

## Washington Light-Duty Household Vehicles, Fuel Tax and Hypothetical RUC Payments: Comparison by Fuel Economy Range

<b>By Fuel Economy Range:</b>	<b>Avg. Annual Miles Driven (miles)</b>	<b>Avg. Annual Fuel Consumption (gallons)</b>	<b>Avg. Annual Fuel Tax Paid @ 37.5 ¢/gal</b>	<b>Avg. Annual Equivalent Road Usage Charges @ 1.92 ¢/mile</b>
<b>Less than 10 MPG</b>	3,308	368	\$138	\$64
<b>10 - 15 MPG</b>	7,055	533	\$200	\$135
<b>15 - 20 MPG</b>	8,881	523	\$196	\$171
<b>20 - 25 MPG</b>	8,916	412	\$155	\$171
<b>25 - 30 MPG</b>	9,916	373	\$140	\$190
<b>30 - 40 MPG</b>	11,015	348	\$131	\$211
<b>40 - 50 MPG</b>	10,746	246	\$92	\$206
<b>50 MPG and above</b>	12,654	205	\$77	\$243
<b>Overall</b>	8,891	456	\$171	\$171

# Fuel Tax and Hypothetical Road Usage Charge: An Illustration for 2014 Using Selected Vehicle Models



Make/Model:	2013 Nissan Titan	1996 Ford Explorer 2WD	1999 Plymouth Voyager	2005 VW Jetta 5-cylinder	2008 Toyota Prius	2013 Tesla Model "S"
Number of Vehicles in WA in June 2014	73	360	1,319	1,386	5,674	834
Estimated Annual VMT (miles)	13,068	5,724	8,327	10,909	10,992	13,157
Fuel Economy (miles/gal)	14	16	18	22	46	∞
Estimated Fuel Consumed (gal)	933	358	463	496	239	-
Estimated Fuel Tax Paid (\$)	\$350	\$134	\$173	\$186	\$90	\$0
Hypothetical Road Usage Charge (\$)	\$251	\$110	\$160	\$209	\$211	\$253
<b>Impact of Change to Hypothetical RUC</b>	<b>(\$99)</b>	<b>(\$24)</b>	<b>(\$14)</b>	<b>\$24</b>	<b>\$121</b>	<b>\$253</b>
Current-Law: Annual Fuel Bill + Tax (\$)	\$3,455	\$1,326	\$1,714	\$1,837	\$885	\$0
Current Law: (Ann'l Fuel Bill+Tax) / VMT	26.4 ¢/mi	23.2 ¢/mi	20.6 ¢/mi	16.8 ¢/mi	8.1 ¢/mi	0.0 ¢/mi
Hypothetical: Annual Fuel Bill + RUC (\$)	\$3,357	\$1,301	\$1,700	\$1,861	\$1,007	\$253
Hypothetical: (Ann'l Fuel Bill+RUC) /VMT	25.7 ¢/mi	22.7 ¢/mi	20.4 ¢/mi	17.1 ¢/mi	9.2 ¢/mi	1.9 ¢/mi

Estimates of vehicle miles of travel, fuel consumption, and amounts paid are annual averages. VMT are estimates based on WSDOT and national survey data. Fuel consumption estimates are based on WSDOT and DOL data. Road usage charge estimates are based on a rate of 1.92 cents per mile. Fuel bill is based on the average EIA western region fuel prices from 2011-2013.

# Conclusions

- On the whole, a change from fuel tax to a hypothetical RUC would not impact rural or urban drivers significantly.
  - However, certain rural and urban counties or areas within the state might endure more pronounced impacts.
- At the driver/vehicle level, the impact of a change from fuel tax to a hypothetical RUC depends fundamentally on the vehicle driven and how it compares to the “average” vehicle in the state.