

Appendix E1

I-205 Toll Project Truck Toll Multiplier Sensitivity Analysis – Energy and Greenhouse Gas Effects

I-205 Toll Project Truck Toll Multiplier Sensitivity Analysis – Energy and Greenhouse Gas Effects Memorandum

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Subject	Truck Toll Multiplier Sensitivity Analysis – Energy and Greenhouse Gas Effects

As part of the *I-205 Toll Project Energy and Greenhouse Gas Technical Report*, analysts estimated vehicle emissions of greenhouse gases, as well as total energy consumption, for the No Build Alternative and Build Alternative. The estimates in these quantitative analyses were based on traffic modeling performed with toll rate schedule assumptions developed for the I-205 Toll Project Build Alternative.

This memorandum outlines the findings of a sensitivity analysis based on traffic modeling that applies a truck toll multiplier that assumes higher toll rates for medium and heavy trucks. The new toll rate schedule assumptions, referred to in this memorandum as the Truck Toll Multiplier Assumptions, allows analysts to consider potential effects of different toll rates based on vehicle class.

The traffic model results with the Truck Toll Multiplier Assumptions show similar reductions, relative to the No Build Alternative, of vehicle miles traveled (VMT) within the Area of Potential Impact (API) as the Build Alternative.¹ However traffic model results with the Truck Toll Multiplier Assumptions have slightly different vehicle volumes and vehicle mix as compared to the Build Alternative.

Using methodology consistent with that presented in the *I-205 Toll Project Energy and Greenhouse Gas Technical Report*, greenhouse gas emissions and energy consumption were estimated for the Build Alternative with Truck Toll Multiplier Assumptions (Build TTM). The results are presented in Table 1. Previous results from the No Build and Build Alternatives are included for context, but they have not changed as part of this sensitivity analysis.

Applying the assumptions of the Build TTM results in less estimated greenhouse gas emissions and energy consumption than the No Build Alternative and the Build Alternative. The effects presented in this Truck Toll Multiplier Sensitivity Analysis do not change any of the impact conclusions in the *I-205 Toll Project Energy and Greenhouse Gas Technical Report*.

¹ See the *I-205 Toll Project Truck Toll Multiplier Sensitive Analysis – Transportation Effects Memorandum*.

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Table 1. Greenhouse Gas Emissions and Energy Consumption

Parameter	2027					2045				
	No Build	Build	Build TTM	Build % Change from No Build	Build TTM % Change from No Build	No Build	Build	Build TTM	Build % Change from No Build	Build TTM % Change from No Build
Annual VMT	1,051,694,624	965,576,193	960,409,068	-8%	-9%	1,222,083,927	1,162,440,219	1,151,422,862	-5%	-6%
Energy Consumption (mmBtu)	4,568,902	4,281,492	4,151,213	-6%	-9%	4,772,647	4,572,465	4,333,581	-4%	-9%
Direct Tailpipe CO _{2e} Emissions (MT)	348,397	326,604	316,477	-6%	-9%	364,684	349,473	330,911	-4%	-9%
Indirect Fuel Cycle CO _{2e} Emissions (MT)	94,067	88,183	85,449	-6%	-9%	98,465	94,358	89,346	-4%	-9%
Total CO _{2e} Emissions (MT)	442,464	414,787	401,926	-6%	-9%	463,149	443,831	420,257	-4%	-9%

Note: Update of Table 6-2 from *I-205 Toll Project Energy and Greenhouse Gas Technical Report*

CO_{2e} = carbon dioxide equivalent; mmBtu = million British thermal units; MT = metric tons; TTM = Truck Toll Multiplier Assumption; VMT = vehicle-miles traveled