

Air Emissions

The cost for the increase in emissions of select air quality parameters from the project was estimated for the year 2025. This is based on the 2025 traffic analysis from the Environmental Assessment report. To calculate the air emissions cost of the project, the Build alternative emissions were compared to the No Build alternative. The PM peak hour air emissions were provided in the Synchro analysis of the project. It was assumed that the air emissions of the PM peak hour traffic, which was reported in the traffic analysis, would be equal to 10% of the daily emissions. The daily emissions were multiplied by 300 effective weekday traffic level days to calculate the annual emissions.

Emission	PM Peak Hour Emissions by Alternative (kg/PM peak)		Daily Emissions by Alternative (kg/day)		Annual Emissions by Alternative (kg/year)	
	No Build	Build	No Build	Build	No Build	Build
CO	1.87	2.44	18.7	24.4	5610	7320
NO _x	0.36	0.48	3.6	4.8	1080	1440
VOC	0.43	0.57	4.3	5.7	1290	1710

The Annual Emissions were then converted from kilograms/year to tons/year, using 1 kg = 0.00110231 ton.

Emission	Annual Emissions by Alternative (kg)		Annual Emissions Burden by Alternative (ton)	
	No Build	Build	No Build	Build
CO	5610	7320	6.18	8.07
NO _x	1080	1440	1.19	1.59
VOC	1290	1710	1.42	1.88

The 2010 emission damage cost for each of the emissions was provided in Table VIII-16 of the Corporate Average Fuel Economy for MY 2017-MY 2025 Passenger Cars and Light Trucks (NHTSA, August 2012) report. These 2010 costs were then increased to 2015 costs using a 2.4% annual interest rate. The cost for each emission was calculated by subtracting the cost of emissions for the Build alternative from the No Build alternative. The twenty year value of cost for each emission shown below was calculated using a 3% and a 7% annual discount rate.

Emission	Annual Emissions Burden by Alternative (ton)		2010 Emission Damage Cost ² (\$/ton)	20 Year Value of Emission Damage Cost Increase at 3% discount	20 Year Value of Emission Damage Cost Increase at 7% discount
	No Build	Build			
CO	6.18	8.07	\$0	--	--
NO _x	1.19	1.59	\$6,700	\$56,900	\$39,108
VOC	1.42	1.88	\$1,700	\$16,603	\$11,411

² Corporate Average Fuel Economy for MY 2017 – MY 2025 Passenger Cars and Light Trucks (NHTSA, August 2012), Table VIII-16

³ An annual increase of 2.4% to air emission damage costs was applied (Corporate Average Fuel Economy for MY 2011 Passenger Cars and Light Trucks (NHTSA, March 2009), Table VIII-5).