Emissions Reduction Cost-Benefit Analysis [1]

[1] *based on ARB Methods to Find the Cost-Effectiveness of Funding Air Quality Projects*

Wilson Rd

Between Edgemont St and Chester Ave				
Project Length (mi)	2.95			
Operating Days per Year	250			
Effective Life of Project (n), years	5			
Discount Rate (i)	3%			
Capital Recovery Factor (A/P,3%,5)[2]	0.22			
CMAQ Funding Dollars	**$1,123,269**			
CoFund Dollars	**$145,531**	***Local Match***	**11.47%**	
CMAQ + CoFund Funding Dollars	**$1,268,800**	*$1,268,800*		
Average Annual Daily Traffic	14,498			
Ave. Speed Before Coordination (mph)	**20**			
Ave. Speed After Coordination (mph)	**40**			
Annual Project VMT [3] (mi/yr)	**10,692,275**			

[2] *CRF = (((1+i)^n)* i)/(((1+ i)^n) - 1)*

[3] *Annual Project VMT = Operating Days per Year * Project Length * AADT*

Emissions	**ROG**	**CO**	**NOx**	**PM2.5 Ex**
Before Speed Factor[4] (g/mi)	0.0384	1.4894	0.2603	0.0035
After Speed Factor[4] (g/mi)	0.0166	1.04	0.1368	0.0018
Annual Emission Reduction[5] (lbs/yr)/mi	257	749	1454	20
Annual Emission Reduction[6] (kg/day)/mi	**0.32**	**0.93**	**1.81**	**0.02**

[4] *Emissions factors are referenced from Table 3 of Methods to Find the Cost-Effectiveness of Funding Air Quality Projects, Emission Factor Tables, December 2024*

[5] *Annual Emissions Reductions (lbs/yr) = [(0.50)*(VMT)*(Before Speed Factor - After Speed Factor)]/454 grams per lb.*

[6] *Annual Emissions Reductions (kg/yr) = [Annual Emissions Reductions (lbs/yr)]*2.2 kg per lb.*

The calculation divides CO by 7

	dollars per lb.	dollars per ton
CMAQ Cost-Effectiveness[7]	**$98.88**	*$197,763*
Total Cost-Effectiveness[8]	**$111.69**	*$223,385*

[7] *Cost-Effectiveness of CMAQ Funding Dollars = (CRF * CMAQ Funding Dollars) / (ROG + CO + NOx + PM10)*

[8] *Cost-Effectiveness of Total Funding Dollars = (CRF * Total Funding Dollars) / (ROG + CO + NOx + PM10)*