FY2025-2028 CMAQ Program

METROPOLITAN PLANNING ORGANIZATION

Congestion Mitigation & Air Quality (CMAQ)
FY2025-2028
Project Selection Process

(TTAC Meeting March 8th, 2023)

FY2025-2028 CMAQ Program

METROPOLITAN PLANNING ORGANIZATION

Congestion Mitigation & Air Quality Program Purpose

- A federally funded reimbursement program that provides funds for projects that reduce traffic congestion & improve air quality
- Eligible projects & programs include those which would result in emissions reductions and air quality benefit
- Are likely to contribute to the attainment of national ambient air quality standards

FY2025-2028 CMAQ Program

METROPOLITAN PLANNING ORGANIZATION

NRPC 2025-2028 CMAQ Project Evaluation Timeline	
Date	**Description**
September 26, 2022	Application Cycle Announced
November 4, 2022	Letters of Interest due @ NHDOT
December, 2022	Mandatory Workshop
January 6, 2023	Completed applications due @ NHDOT
February 8, 2023	NRPC TTAC meeting to introduce process, Appoint Evaluation Subcommittee, & host Applicant Presentations
February 15, 2023	NRPC MPO meeting to introduce process
Jan 30 - Feb 17	NRPC conducts Air Quality Analysis for Submitted Projects
~~February 24, 2023~~	~~Evaluation Committee completes intial scoring~~
~~March 6, 2023~~	~~Evaluation Committee meets to Develop an Initial Prioritization Recommendation~~
March 8, 2023	NRPC TTAC Reaches Consensus on CMAQ Priorities for NRPC MPO Consideration
March 15, 2023	NRPC MPO Considers TTAC Recommendation & Reaches Consensus on CMAQ Priorities to be Submitted to NHDOT
March 24, 2023	Regional CMAQ Priorities Due to NHDOT

FY2025-2028 CMAQ Program

METROPOLITAN PLANNING ORGANIZATION

Current Round of Funding

- Approximately $30 million total funds available.
- 45 applications received (statewide)
- Approximately $45 million requested (statewide)
- 6 funding proposals in the Nashua region
- Approximately $7.3 million

" … NHDOT is prepared to move forward with the 24 non-EV applications immediately. Based on the total requests for these projects, NHDOT believes that all of them can be accommodated without the need to prioritize at the RPC/MPO level."

-NHDOT

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

PROJECT SUBMISSIONS

1) **Amherst:** Baboosic Greenway Expansion
2) ***Nashua:** Electric Vehicle (EV) Charging Station Installation
3) **Nashua:** Traffic Coordination Upgrades and Optimization
4) **NRPC:** NTS Service Expansion - Nashua to Milford
5) ***ReVision Energy:** Electric Vehicle (EV) Charging Station Installation
6) **Wilton:** Pedestrian Bridge Connecting Riverside Way and Howard St.

**NH DOT states that EV project submissions are to be placed on hold until further notice. This means all other projects that meet CMAQ emissions reduction requirements are eligible for funding without scoring. These projects will be revisited and assessed for air quality improvement potential at a later date.*

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

PROJECT SUMMARIES

APPLICANT	PROJECT	CMAQ CATEGORY	FED FUNDING	MATCH	TOTAL COST
Amherst	Baboosic Greenway	Bike/Ped Improvements	$1,221,600	$305,400	$1,527,000
Nashua	EV Charging Stations	EV Charging Infrastructure	$484,000	$121,000	$605,000
Nashua	Traffic Optimization	Traffic Signal Synchronization	$2,200,000	$550,000	$2,750,000
NRPC	NTS Route Expansion	Transit Service Expansion	$960,000	$240,000	$1,200,000
ReVision	EV Charging Stations	EV Charging Infrastructure	$1,552,660	$388,165	$1,940,825
Wilton	Pedestrian Bridge	Bike/Ped Improvements	$880,000	$220,000	$1,100,000
		Total	$7,298,260	$1,824,565	$9,122,825
		Total Minus EV Projects	$5,261,600	$1,315,400	$6,577,000

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

FHWA CMAQ EMISSIONS CALCULATOR TOOLKIT

APPROVED BY NH DOT FOR ASSESSING AIR QUALITY IMPACT

"The Federal Highway Administration (FHWA) Office of Natural Environment developed a series of tools to provide technical support and resources for the implementation of the Congestion Mitigation and Air Quality Improvement (CMAQ) Program"

-Federal Highway Administration

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

FHWA CMAQ EMISSIONS CALCULATOR

Bicycle and Pedestrian Improvements

This calculator will estimate the reduction in emissions resulting from improvements to bicycle and pedestrian infrastructure and associated mode shift from passenger vehicles to bicycling or walking, including but not limited to sidewalks, dedicated bicycle infrastructure, improved wayfinding, mid-block crossing installations, bike share systems, and bike parking improvements.

INPUT — User Guide

Reset Interface

(1) What is your project evaluation year? - Select from list -

(2) Estimate the shift in daily motorized passenger vehicle trips to non-motorized travel due to the bicycle and pedestrian project.

Daily Passenger Vehicle Trips		
Before	After	Change

(3a) Select the data type used for entering the typical one-way trip distance of passenger vehicles below:

Trip Distance Source: - Select from list - <- Fill National Values

(3b) If you selected "Average" above, enter the typical one-way trip distance. If you selected "Distribution" above, enter the typical distribution of one-way trip distances

Typical Trip Distance (miles	Distribution of Trip Distances (daily fraction per					
	x<1	1≤x<2	2≤x<3	3≤x<4	4≤x≤5	Sum

OUTPUT — Calculate Output

EMISSION REDUCTIONS

Pollutant	Total
Carbon Monoxide (CO)	0.000
Particulate Matter <2.5 µm ($PM_{2.5}$)	0.000
Particulate Matter <10 µm (PM_{10})	0.000
Nitrogen Oxide (NOx)	0.000
Volatile Organic Compounds (VOC)	0.000
Carbon Dioxide (CO_2)	0.000
Carbon Dioxide Equivalent (CO_2e)	0.000
Total Energy Consumption (MMBTU/day)	0.000

*Units in kg/day unless otherwise noted

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

FHWA CMAQ EMISSIONS CALCULATOR

OUTPUT

Calculate

EMISSION REDUCTIONS

Pollutant	Total
Carbon Monoxide (CO)	0.000
Particulate Matter <2.5 µm ($PM_{2.5}$)	0.000
Particulate Matter <10 µm (PM_{10})	0.000
Nitrogen Oxide (NOx)	0.000
Volatile Organic Compounds (VOC)	0.000

Carbon Dioxide (CO_2)	0.000
Carbon Dioxide Equivalent (CO_2e)	0.000
Total Energy Consumption	0.000

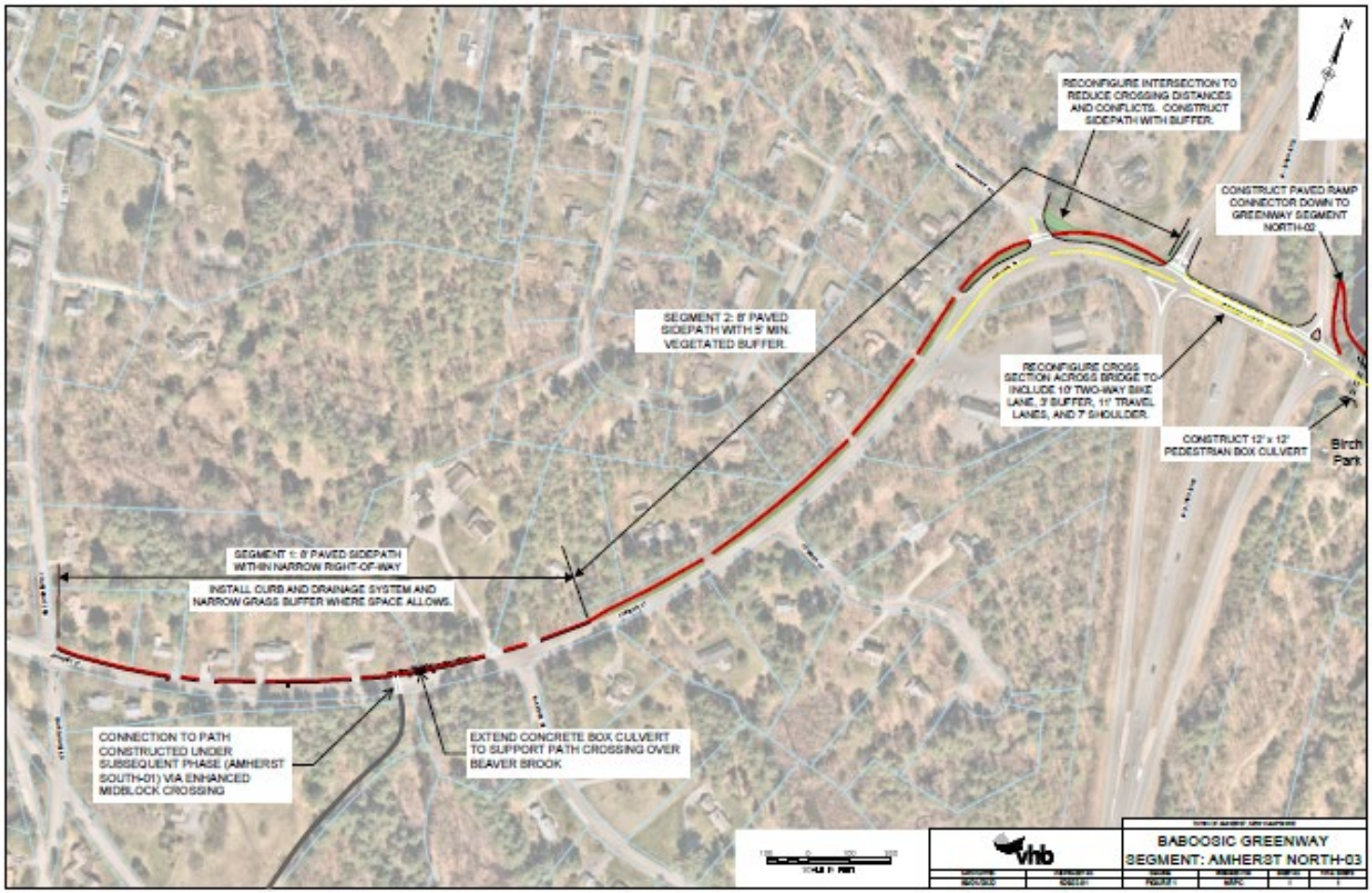
*Units in kg/day unless otherwise noted

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

AMHERST

Baboosic Greenway



CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

AMHERST

Bicycle and Pedestrian Improvements

This calculator will estimate the reduction in emissions resulting from improvements to bicycle and pedestrian infrastructure and associated mode shift from passenger vehicles to bicycling or walking, including but not limited to sidewalks, dedicated bicycle infrastructure, improved wayfinding, mid-block crossing installations, bike share systems, and bike parking improvements.

INPUT

User Guide

Reset Interface

(1) What is your project evaluation year? 2025

(2) Estimate the shift in daily motorized passenger vehicle trips to non-motorized travel due to the bicycle and pedestrian project.

Daily Passenger Vehicle Trips		
Before	After	Change
8000	7985	15

(3a) Select the data type used for entering the typical one-way trip distance of passenger vehicles below:

Trip Distance Source: Average <- Fill National Values

(3b) If you selected "Average" above, enter the typical one-way trip distance. If you selected "Distribution" above, enter the typical distribution of one-way trip distances.

Typical Trip Distance (miles one way)	Distribution of Trip Distances (daily fraction per mileage bin)						
		x < 1	1 ≤ x < 2	2 ≤ x < 3	3 ≤ x < 4	4 ≤ x ≤ 5	Sum
0.68							

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

AMHERST

Baboosic Greenway: Bicycle and Pedestrian Improvements

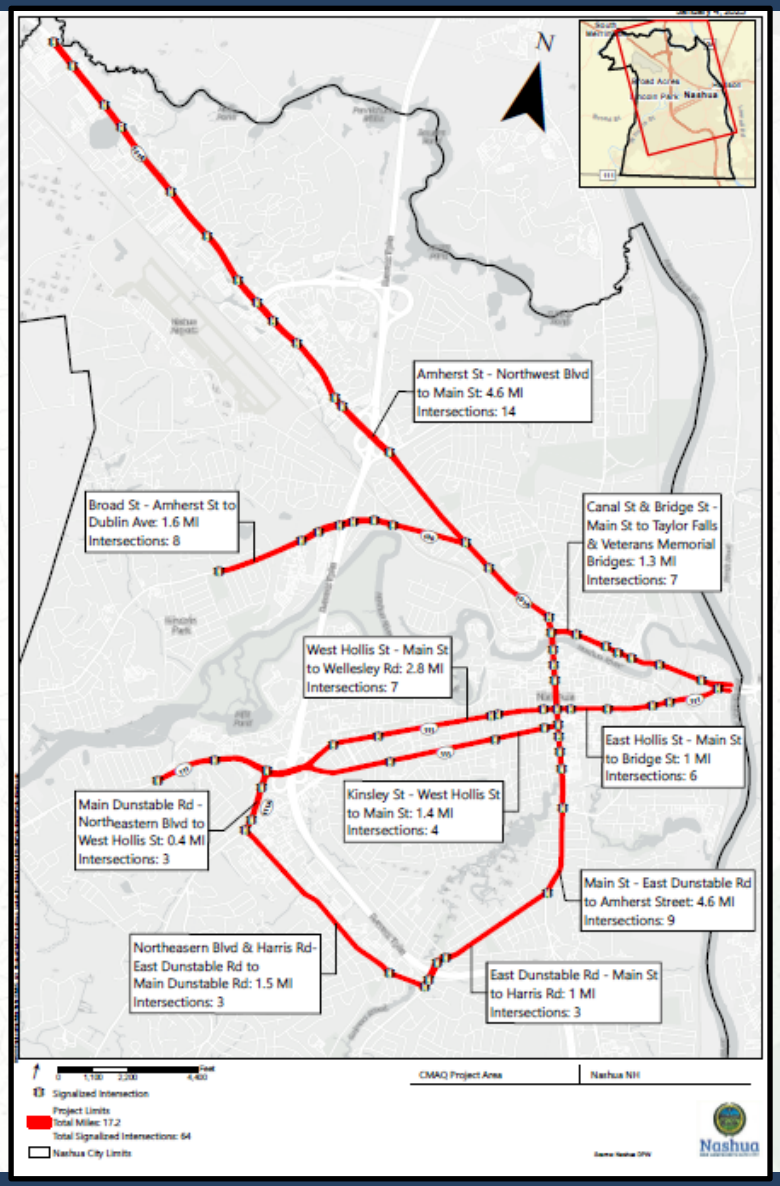
OUTPUT	
Pollutant	**Total**
Carbon Monoxide (CO)	0.041
Particulate Matter <2.5 µm ($PM_{2.5}$)	0.000
Particulate Matter <10 µm (PM_{10})	0.000
Nitrogen Oxide (NOx)	0.002
Volatile Organic Compounds (VOC)	0.002
Carbon Dioxide (CO_2)	3.874
Carbon Dioxide Equivalent (CO_2e)	3.912
Total Energy Consumption (MMBTU/day)	0.052

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

NASHUA

Traffic Signal Upgrades and Optimization



NRPC

Value yesterday. Enhance tomorrow. Plan today

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

NASHUA

Traffic Signal Synchronization

This calculator will estimate the emission reductions resulting from synchronizing the traffic signals along a previously unsynchronized corridor.

INPUT

User Guide

Reset to Default Values

Evaluation Year	2025	
Area Type	Urban	
Corridor Length	1.3	miles
Number of Signalized Intersections	7	
Number of Lanes (one direction)	1	
Posted Speed Limit	30	miles per hour (1 - 75 MPH)
Average Cycle Length	90	seconds
Truck Percentage	6%	
Annual Average Daily Traffic (AADT) (both directions)	9,729	veh/day
Peak-hour Volume (both directions)	747	veh/hr
Existing Corridor Travel Time	4	minutes
Total peak hours per day (AM+PM)	4	

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

NASHUA

Traffic Optimization: Traffic Signal Synchronization

OUTPUT — Calculate Output

PERFORMANCE

	PEAK-HOUR	OFF-PEAK	
Volume (both directions)	747	337.05	veh/hr
Existing Average Speed	20	19	mph
Travel Time Savings	32	28	min
Proposed Average Speed	22	21	mph

EMISSION REDUCTIONS

Pollutant	Peak-hour Kilograms/day	Off-Peak Kilograms/day	Total Kilograms/day
Carbon Monoxide (CO)	1.024	2.532	3.556
Particulate Matter <2.5 µm ($PM_{2.5}$)	0.007	0.018	0.025
Particulate Matter <10 µm (PM_{10})	0.028	0.071	0.099
Nitrogen Oxide (NOx)	0.123	0.303	0.426
Volatile Organic Compounds (VOC)	0.036	0.089	0.125
Atmospheric Carbon Dioxide (CO2)	89.507	219.624	309.131
Carbon Dioxide Equivalent (CO2e)	90.141	221.226	311.367
Total Energy Consumption (MMBTU)	1.176	2.886	4.062

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

NASHUA

Traffic Optimization: Traffic Signal Synchronization

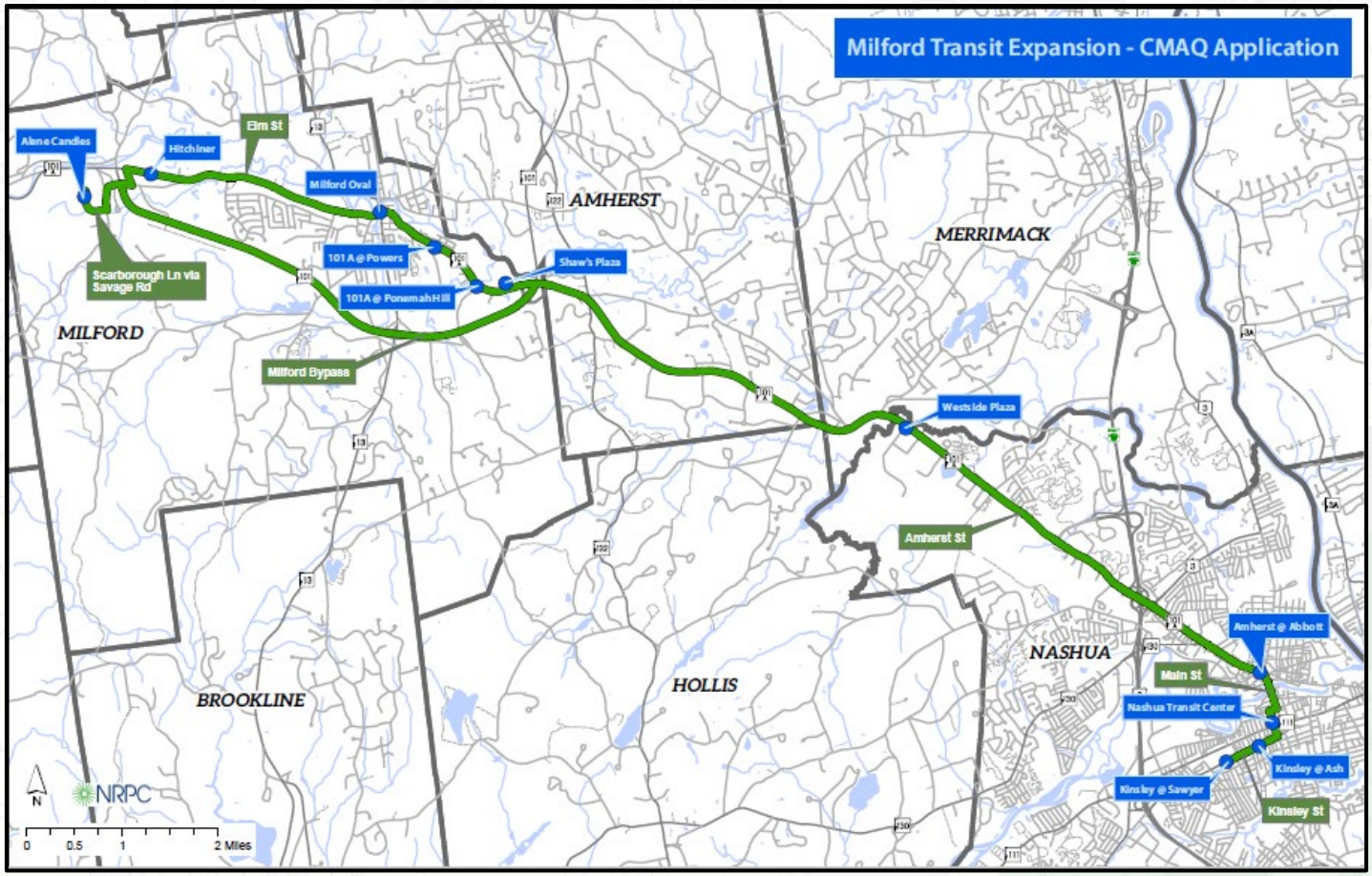
Pollutant	Peak	Off Peak	kg/day	kg/year
Carbon Monoxide (CO)	20.223	34.746	54.969	20063.8
Particulate Matter <2.5 µm ($PM_{2.5}$)	0.179	0.328	0.507	185.0
Particulate Matter <10 µm (PM_{10})	0.808	1.542	2.350	857.7
Nitrogen Oxide (NOx)	3.049	5.450	8.499	3102.2
Volatile Organic Compounds	0.904	1.622	2.526	921.9
Atmospheric Carbon Dioxide	2,248.386	4,038.409	6,286.795	2294680.2
Carbon Dioxide Equivalent	2,264.119	4,066.714	6,330.833	2310754.2
Total Energy Consumption	29.553	53.092	82.645	30165.5

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

NRPC

Transit Bus Service Extension



CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

NRPC

Transit Bus Service and Fleet Expansion

This calculator will estimate the reduction in emissions from projects which expand transit bus service and fleets, including new routes, new schedules, and new vehicles. Emissions reductions are associated with the mode shift from passenger vehicle to transit activity. Users are recommended to forecast activity by mode with an external travel demand model.

INPUT

User Guide

Reset to Default Values

(1) What is your project evaluation year? 2025

(2) Please input the number of days that the bus service is operated annually: 260

Note: Default is 365 days per year.
For weekdays only, enter 260 days per year.
For weekends only, enter 105 days per year

Transit Bus Information

(3a) Enter the estimated vehicle miles traveled annually by the transit buses before and after the transit project is completed.

	Before	After	
Transit Bus Miles Traveled	0	141,960	Miles

(3b) Enter the VMT allocations of your transit bus fleet on the separate tabs before and/or after project completion. If desired, default national average distributions can be used to fill these tables.

Allocations of Model Years	Transit Bus Model Year Distribution
Allocations of Fuel Types	Transit Bus Fuel Type Distribution
Allocations of Road Types	Transit Bus Road Type Distribution

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

NRPC

Transit Bus Service Extension

Passenger Vehicle Information

(4a) Enter the annual passenger vehicle activity information before and after the project. Annual passenger vehicle activity can be entered either in terms of vehicle miles traveled, or number of passenger trips diverted. The passenger vehicle average one-way trip distance should be entered in miles.

Passenger Vehicle Activity Type

Passenger Activity Type
- ○ Passenger Vehicle Miles Traveled
- ◉ Passenger Vehicle Trips

	Before	After	
Passenger Vehicle Activity	24,960	0	Trips
Average One-Way Trip Distance	21.00		Miles

Note: National Default value is 4.52

(4b) Do you expect most passenger vehicle trips to be linked with bus trips as a result of the service or fleet expansion?

Linked Passenger Vehicle Trips
- ○ Yes, passengers will drive to transit hubs to use the expanded transit bus service or fleet.
- ◉ No, the expansion will eliminate full passenger vehicle trips (reduction of running and start activity)

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

NRPC

Transit Bus Service Extension

ACTIVITY ALLOCATIONS

User Guide

(1) Enter the model year distribution of transit bus activity before and/or after completion (fractions for each distribution/column must sum to 1*).

Update Emission Results

Clear Inputs

(2) Use the button below to fill the table with national defualt model year distributions if desired. These distributions are specific to the year input on the "Transit Bus Service & Fleet Expansion" Tab.

Set to National Default Values

Model Year	Age	Fraction Before	Fraction After
2025	0		
2024	1		
2023	2		
2022	3		
2021	4		
2020	5		
2019	6	1.0000	1.0000
2018	7		
2017	8		
2016	9		
2015	10		
2014	11		
2013	12		
2012	13		
2011	14		
2010	15		
2009	16		
2008	17		
2007	18		
2006	19		
2005	20		
2004	21		
2003	22		
2002	23		
2001	24		
2000	25		
1999	26		
1998	27		
1997	28		
1996	29		
1995	30		
SUM		1.0000	1.0000

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

NRPC

Transit Bus Service Extension

ACTIVITY ALLOCATIONS

User Guide

(1) Enter the fuel type distribution of transit bus activity before and/or after completion (fractions for each distribution/column must sum to 1*).

Update Emission Results

Clear Inputs

(2) Use the button below to fill the table with national defualt fuel type distributions if desired. These distributions are specific to the year input on the "Transit Bus Service & Fleet Expansion" Tab.

Set to National Default Values

Fuel Type	Fraction Before	Fraction After
Gasoline		
Diesel		
Compressed Natural Gas (CNG)		
Liquefied Natural Gas (LNG)		
20% Biodiesel (B20)		
100% Biodiesel (B100)		
Dual Fuel (Natural Gas/Diesel)		
Hybrid Electric (HEV)	1.0000	1.0000
Hydraulic Hybrid (HHV)		
Battery Electric (BEV)		
Hydrogen Fuel Cell (FCV)		
SUM	**1.0000**	**1.0000**

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

NRPC

Transit Bus Service Extension

ACTIVITY ALLOCATIONS

User Guide

(1) Enter the road type distribution of transit bus activity before and/or after completion (fractions for each distribution/column must sum to 1*).

(2) Use the button below to fill the table with national defualt road type distributions if desired. These distributions are specific to the year input on the "Transit Bus Service & Fleet Expansion" Tab and shown below.

Set to National Default Values

Update Emission Results

Clear Inputs

Road Type	Fraction Before	Fraction After
Rural Restricted		
Rural Unrestricted		
Urban Restricted		
Urban Unrestricted	1.0000	1.0000
SUM	**1.0000**	**1.0000**

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

NRPC

Transit Bus Service Extension

OUTPUT — Calculate Output

FLEET PERFORMANCE

Transit Bus VMT increase	141,960	Miles
Passenger Vehicle Trip Reduction	24,960	Trips
Passenger Vehicle VMT reduction	524,160	Miles

EMISSION REDUCTIONS

Pollutant	Total kg/day
Carbon Monoxide (CO)	4.655
Particulate Matter <2.5 µm ($PM_{2.5}$)	-0.012
Particulate Matter <10 µm (PM_{10})	-0.123
Nitrogen Oxide (NOx)	-1.418
Volatile Organic Compounds (VOC)	0.071

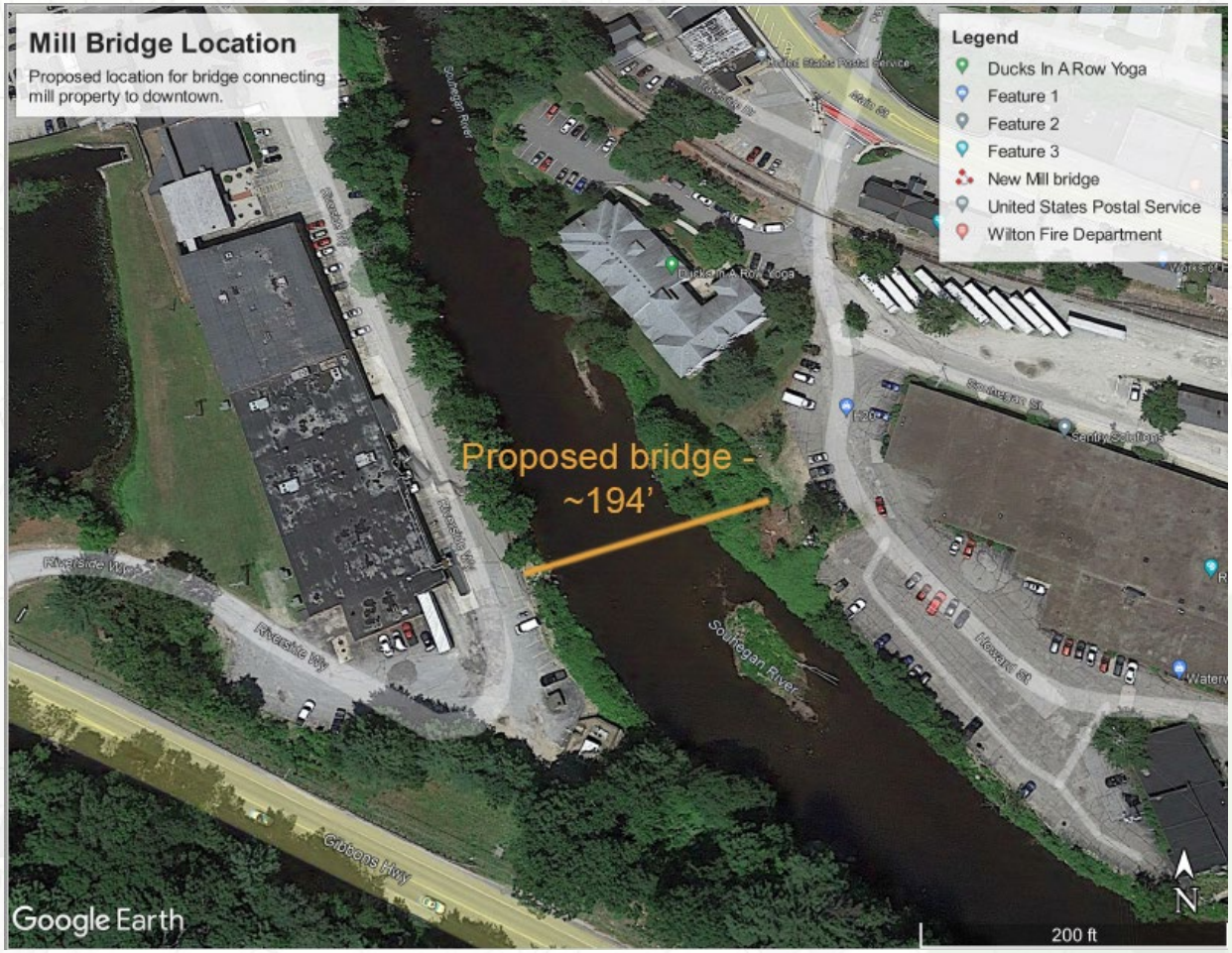
Carbon Dioxide (CO_2)	683.892
Carbon Dioxide Equivalents (CO_2e)	686.513
Total Energy Consumption (MMBTU)	9.011

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

WILTON

Pedestrian Bridge



CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

WILTON

Pedestrian Bridge

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

WILTON

Bicycle and Pedestrian Improvements

This calculator will estimate the reduction in emissions resulting from improvements to bicycle and pedestrian infrastructure and associated mode shift from passenger vehicles to bicycling or walking, including but not limited to sidewalks, dedicated bicycle infrastructure, improved wayfinding, mid-block crossing installations, bike share systems, and bike parking improvements.

INPUT

User Guide

Reset Interface

(1) What is your project evaluation year? 2025

(2) Estimate the shift in daily motorized passenger vehicle trips to non-motorized travel due to the bicycle and pedestrian project.

Daily Passenger Vehicle Trips

Before	After	Change
100	0	100

(3a) Select the data type used for entering the typical one-way trip distance of passenger vehicles below:

Trip Distance Source

Average <- Fill National Values

(3b) If you selected "Average" above, enter the typical one-way trip distance. If you selected "Distribution" above, enter the typical distribution of one-way trip distances

Typical Trip Distance (miles	Distribution of Trip Distances (daily fraction per					
	x<1	1≤x<2	2≤x<3	3≤x<4	4≤x≤5	Sum
0.36						

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

WILTON

Pedestrian Bridge

OUTPUT — Calculate

EMISSION REDUCTIONS

Pollutant	Total
Carbon Monoxide (CO)	0.188
Particulate Matter <2.5 µm ($PM_{2.5}$)	0.001
Particulate Matter <10 µm (PM_{10})	0.002
Nitrogen Oxide (NOx)	0.011
Volatile Organic Compounds (VOC)	0.010
Carbon Dioxide (CO_2)	14.526
Carbon Dioxide Equivalent (CO_2e)	14.753
Total Energy Consumption	0.197

*Units in kg/day unless otherwise noted

CMAQ AIR QUALITY ANALYSIS: FY 25-28

METROPOLITAN PLANNING ORGANIZATION

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