

# UNDERSTANDING Air Quality

## BACKGROUND

The B&P Tunnel Project preferred alternative, Alternative 3B, includes the construction of new tunnels under several West Baltimore neighborhoods. The project also requires the construction of ventilation plants located on the surface and connected to the underground tunnels to provide air circulation and egress for passengers and crews in the event of an emergency.

The Environmental Protection Agency (EPA) maintains standards for six common air pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide. An area with measured pollutant concentrations which are lower than the National Ambient Air Quality Standards (NAAQS) is designated as an attainment area and an area with pollutant concentrations that exceed the NAAQS is designated as a nonattainment area. Once a nonattainment area meets the NAAQS, the US EPA will designate the area as a maintenance area.

Baltimore City is presently designated by the EPA as a nonattainment area for ozone and a maintenance area for particulate matter. To determine whether the proposed project has impacts to air quality, project scientists compared emissions with and without the project to federal de minimis thresholds for nitrogen dioxide, volatile organic compounds (a precursor to ozone), and particulate matter. This analysis showed that the project is in conformity with the clean air regulations



MARC electric/diesel locomotive

because it would not result in a net increase in emissions in exceedance of the applicable de minimis thresholds.

## CHANGE IN TRAIN OPERATIONS

To determine air quality impacts, the project team compared daily train operations in 2014 to anticipated operations in 2040, showing anticipated numbers of trains with and without the Preferred Alternative (3B) being constructed. The numbers of estimated daily trains are presented in **Table 1**, below.

**Table 1: Daily Trains through the Tunnel**

Train Service	Locomotive Type	Total (NB & SB) Daily Train Frequencies		
		2014	2040 No Build	2040 Alt. 3B
MARC	Electric/Diesel	55	82	164
Amtrak Acela	Electric	39	58	82
Amtrak NE Regional	Electric	49	52	48
Amtrak Metropolitan	Electric	0	0	92
Freight	Diesel	2	2	2
<b>Total</b>		<b>145</b>	<b>194</b>	<b>388</b>

**Table 2: Diesel Locomotive Emissions (2040)**

Scenario	2040 No Build	2040 Alt. 3B	Net Increase	Federal Threshold	Below Federal Threshold?
Carbon Monoxide (CO)	8.6	19.4	10.9	N/A*	N/A*
Nitrogen Dioxide (NO <sub>2</sub> )	6.7	15.2	8.5	100	Yes
Volatile Organic Compounds (VOCs)	0.3	0.6	0.3	50	Yes
Particulate Matter	0.1	0.2	0.1	100	Yes

### CHANGE IN AIR POLLUTION EMISSIONS

The project team then modeled future emissions of diesel trains to the federal de minimis thresholds. These are presented in **Table 2**, above.

Amtrak operates a fleet of electric locomotives along the Northeast Corridor. Electric locomotives do not produce local air pollution emissions, so the increase in Amtrak trains does not create an impact. MARC plans to transition its fleet from a combination of electric and diesel vehicles to all diesel vehicles. The additional air pollution emissions anticipated would be caused by the projected increase in MARC diesel trains.

### VENTILATION PLANTS

The project is not permitted to violate federal air quality thresholds when releasing emissions into the atmosphere. The ventilation plants would be designed to ensure air quality requirements are met. Under normal operation, the pollutant concentrations emitted from the ventilation system are well below regulatory thresholds.

Predicted levels of nitrogen dioxide in the summer and winter seasons are indicated in **Table 3**, below.

Because concentrations of NO<sub>2</sub> are predicted to be within acceptable levels, all other criteria pollutant concentrations from ventilation plant emissions would also be within applicable thresholds of the NAAQS.

**Table 3: Ventilation Plant Emission Rates**

Ventilation Facility	NO <sub>2</sub> Emission Rate (lb/hr)
<b>Summer Season (April - September)</b>	
SVF	17.0
IVF	3.6
NVF	7.3
<b>Winter Season (October - March)</b>	
SVF	15.0
IVF	3.2
NVF	6.3

*Note: IVF = Intermediate Ventilation Facility, NVF = North Ventilation Facility, SVF = South Ventilation Facility, lb/hr = pounds per hour.*



**To request more information**

Via email: [info@bptunnel.com](mailto:info@bptunnel.com) | By mail: B&P Tunnel Project • 81 W Mosher Street • Baltimore, MD 21217 | [bptunnel.com](http://bptunnel.com)