

Ventilation Plants: Overview

Fall 2015 Public Involvement



Purpose

Tunnels require ventilation for safe operation. Ventilation occurs through vent plants which are above-ground buildings that contain fans, operation and control equipment, fire protection equipment, and emergency exits. The purpose of a vent plant is to pull fresh air into the tunnel and ventilate the tunnel air to the outside; this is done through both passive (from train movement) and active (from fans) ventilation.

Operations

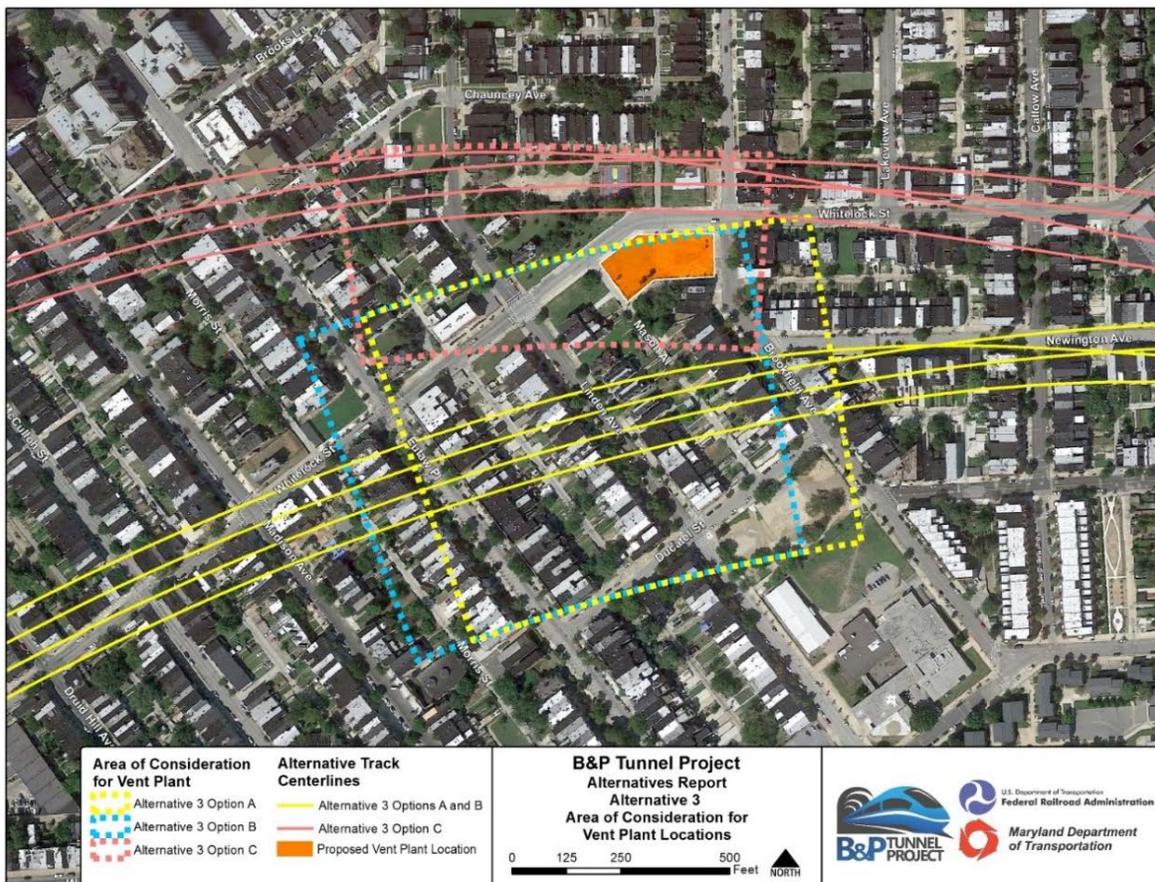
Typically, the movement of trains within a tunnel will push and pull air into and out of the tunnel to keep the air fresh. When additional air movement is needed, the fans will begin to operate in one of two modes:

1. At a relatively low speed that ensures that air in the tunnel is always fresh; or
2. At an emergency high speed that rapidly removes hot and/or smoky air so that, if necessary, crews and passengers can evacuate the tunnel safely.

Location

The proposed B&P Tunnel vent system includes three above-ground structures: one at the north portal, one at an intermediate tunnel location, and one at the south portal. The location of the intermediate vent plant must be located above the tunnels being ventilated, but some offset is permitted to accommodate buildings at the surface.

The Project Team is seeking public comments on the location and design of the vent plants. A location for the intermediate vent plant for Alternative 3— Options A, B, and C is proposed for a site at the intersection of Whitelock Street and Brookfield Avenue within the Reservoir Hill community (see figure below).



(over)

Design

The vent plants will be designed with input from the community to complement and blend with the surrounding built environment. The B&P Tunnel ventilation system, including vent plant equipment and operations, will be designed and implemented in accordance with National Fire Protection Association (NFPA) 130 fire/life/safety codes.

Noise

In general, vent plants are relatively quiet. During normal operations, they emit a low hum (around 45 decibels) that is approximately as loud as a quiet urban street at night. Because noise decreases quickly with distance from its source, surrounding residents will generally not hear the noise of a vent plant when fans are running; only a person standing at the louvers would hear the machinery in operation. Under emergency operation, when the fans run at their highest speed, a louder humming sound and the whooshing of air exiting the louvers could be heard at a greater distance from the plant.

The Project Team will conduct a detailed noise analysis to determine the anticipated noise level of the vent plants for the B&P Tunnel Project. The use of noise attenuators in the vent plant will be evaluated to reduce the noise to Baltimore City noise criteria levels (or below).

Air Quality

Under normal operation, the ventilation system will dilute emissions so that pollutant concentrations are well below regulatory thresholds. Vent plants eject tunnel air into the surrounding sky at a height that would not have any measureable effect on air quality, when accounting for wind currents and particle dispersion.

In the very rare event of a tunnel fire, the path from a tunnel fire to the exhaust louvers is long and circuitous, with many bends that reduce the ability of particles to travel through the fans and louvers. During an extreme event, if the emitted air is determined to be unsafe, evacuation of the areas surrounding the vent plant may be required.

A qualitative assessment of vent plant impacts, including noise, air quality, and other community impacts, will be included in the Draft Environmental Impact Statement.



Amtrak's Weehawken, NJ, Vent Plant



Dyer Avenue, NY, Proposed Vent Plant

Should you have questions or concerns related to the B&P Tunnel Project, comments may be submitted via e-mail (info@bptunnel.com) or the online comment form (www.bptunnel.com). If you wish to speak to a project representative, you may contact:

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The Project Team is also available by mail:
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