

BART to Silicon Valley Phase I – Berryessa Extension

Residential Noise Insulation Program (RNIP)



Overview

Before the Berryessa Extension was approved for construction, studies and surveys were conducted to identify locations where noise levels during train operations would likely be louder than allowed by federal and state standards. VTA then incorporated into the project design a series of measures to lessen those impacts to the surrounding community.

The Residential Noise Insulation Program, or RNIP, addressed the identified concern of excessive noise in the second story living spaces of homes along the BART tracks. Over 500 multi-story homes were identified for follow-up testing. Of these, the upper floors of 252 homes received improvements that included some combination of acoustical (multi-paned) windows, solid core doors, insulation and/or weather stripping.

Other measures used to address noise from train and equipment operation include newly-constructed and previously-existing sound walls and building enclosures for stationary equipment. More information on noise and vibration related to BART service is available on VTA's website at www.vta.org/bart/noise.

Analysis of Noise Levels

The project noise studies determined that properly placed sound walls reduced noise levels to acceptable state and federal levels for one-story residences and for the ground floor of multi-level residences.

The studies found, however, that over 500 multi-story residences, even with sound walls in place, might experience elevated noise levels within their upper levels.

Permission was sought from property owners to take interior sound measurements while prerecorded train noise from other locations within BART's operating area was broadcast toward the home from portable loudspeakers positioned outside the home near the BART tracks. Homes that showed noise levels above state and federal standards were included in the RNIP. The resulting modifications to the homes in the RNIP were made at no cost to the individual homeowner because the costs were included in the overall construction cost of the project.

Noise Standards are Based on a 24-hour Average

The project's threshold of 45 decibels (dBA) for allowable noise inside a residence is based on an averaging of all noise present in a 24-hour period. The federal and state standards increase the significance of noise between 10 p.m. and 7 a.m. in residential areas, and noise during nighttime hours is weighted heavier to calculate the 45 dBA average. Because the 45 dBA is an average, a single-occurrence—or even multiple occurrences—of louder noise events within a 24-hour period do not automatically mean the noise level thresholds have been exceeded.

Projected Versus Real-Time Noise Levels

During this current phase of testing, smaller BART train sets (the number of trains connected together) run at random hours as VTA prepares to turn the project over to BART. Once a regular service schedule with full-length trains is in operation, VTA intends to have sound technicians in the field to evaluate if real-time noise levels experienced in upper levels of homes in the most exposed locations and/or select homes that received improvements through RNIP are at or below allowable federal and state thresholds.

Noise Regulations Affecting Federally Funded Transit Projects

This project is required to comply with federal and state noise and vibration levels (thresholds) in accordance with the *Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006* and the California Noise Insulation Standards, *California Administrative Code, Title 25, Chapter 1, Subchapter 1*; Adopted February 22, 1974.

Who Decided What Work was to be Done at Eligible Residences?

The need for acoustical treatments including windows, doors and or insulation, was determined by a specialized acoustical engineering consultant team, hired by VTA, who evaluated the needs of each home on a house-by-house basis. Proposed treatments were reviewed with VTA staff and then approved by each homeowner before installation.

More Questions or Concerns?

For more information about VTA's Residential Noise Insulation Program, please contact VTA Community Outreach at vtbart@vta.org or (408) 321-7575.