

VTA TOD BENEFITS EVALUATION MODEL

Overview

The VTA TOD Benefits Evaluation Model developed by Nelson\Nygaard transportation planners provides a simple, yet powerful way of quantifying the ridership and revenue impacts of different Transit Oriented Development (TOD) project opportunities and levels of replacement park-and-ride provision at light rail stations and transit centers within the VTA service area. BART has deployed a similar best-practice model since 2005, using their model to consider TOD, revenue, and ridership together when considering potential investments in capacity or amenities.

The goal of the TOD Benefits Evaluation Model is to provide a working tool that VTA can “plug and play” to understand the potential impacts of various potential or proposed TOD scenarios on VTA, BART, or Caltrain ridership and VTA revenue measures. The tool allows the VTA Real Estate & TOD group to track station-specific data over time, as well as evaluate TOD project scenarios.

Alternatives Calculation

One of the key components of the tool is Alternatives Calculation which generates outputs by taking user-generated scenario inputs through a series of analytical steps to calculate trips generated, trips impacted by changes in parking rates or fares, trips impacted by changes in parking supply, and transit financial impacts of development and parking operations.

The new trips generated by user-inputted development scenarios values addresses a variety of land use categories:¹

- Residential (units)
- Hotel (rooms)
- Office (sf)
- Medical-Dental Office (sf)
- Advanced Manufacturing (sf)
- Life Science Lab (sf)
- Retail (sf)
- Restaurant (sf)
- Coffee shop (sf)
- Café (sf)

This number of trips generated by land use is transformed into transit trips using transit capture rates that vary by land use.² Transit trips are then distributed to each transit mode at the station according to the share of existing pre-pandemic ridership at that station. In the instance that the year projected is 2035 or later, BART Phase II Extension ridership and fare revenues are included

The trip generation data is used to summarize the new transit revenues associated with each development scenario. Fare revenues are calculated for each transit model based on the Trip Generation results.

¹ **Trip Generation Rates** are based on ITE generation rates from the 10th Edition of the ITE Trip Generation Manual are compared to trip generation rates from identified peer TOD and infill projects for a variety of land uses based on a literature review to identify a reduction in ITE vehicle trip generation rates for a TOD site.

² **Transit Capture Rates** are identified and mode shares are calculated for commute trips and non-work trips for station area residents of five sites, as well as retail patrons, hotel visitors, and office workers destined for the station area. The source for these mode shares is “Travel Characteristics of Transit-Oriented Development in California (Lund, Cervero, Willson, 2004).”