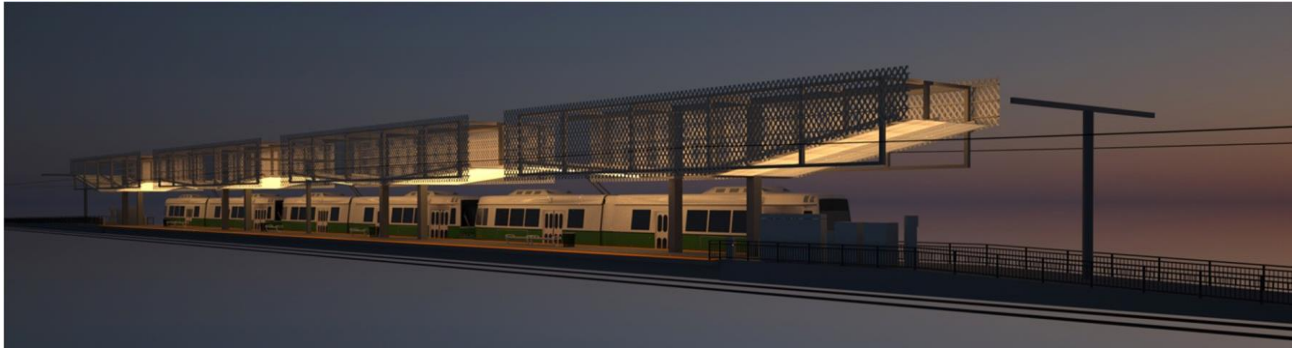


PLANNING – DESIGN – A Design-Build Contract



**CRENSHAW – LAX TRANSIT CORRIDOR ADVANCED
CONCEPTUAL / PRELIMINARY ENGINEERING -
LIGHT RAIL SYSTEM,
LOS ANGELES, CA**

**CLIENT: LOS ANGELES COUNTY METROPOLITAN
TRANSPORTATION AUTHORITY (LACMTA)
ONE GATEWAY PLAZA
LOS ANGELES, CA 90012**

Role: AVA was a primary subconsultant to the Crenshaw – LAX LRT General Engineering Team, responsible for station planning, architectural and engineering design, art coordination, urban design, and landscape architecture. Preliminary engineering drawings and D-B performance requirements were developed for scoping and guidance.

Description: The Crenshaw - LAX Light Rail Transit (LRT) system is an integral part of the Regional Transportation Plan of Los Angeles County. Connectivity and mobility for the diverse Crenshaw communities are key attributes to the success of this project. The EXPO LRT's linkage to the Crenshaw LRT system was a major challenge, as transit passengers from Santa Monica, Culver City and Downtown Los Angeles will transfer southward for Los Angeles International Airport (LAX). Another challenge was to connect the Crenshaw LRT to the existing Green Line LRT and the future LAX Airport People Mover System planned to connect various air terminals at Los Angeles International Airport. Also, the recent Harbor Subdivision Transit Corridor study could provide express commuter rail, DMU or rapid bus system connection between Los Angeles Union Station, LAX, the ports of LA and Long Beach, and ultimately Orange County in the future.

Station Planning and Design: During the early phases, AVA studied several underground configuration concepts for the stations to reduce construction costs: 1) by transferring ticketing and fare collection systems to the ground level; or 2) building underground stations off the roads on private property; or 3) designing side platforms one above the other; or 4.) utilizing a single large bore tunnel. All conditions of construction costs and operations were clearly highlighted for each concept for comparison, so that Metro could evaluate and help AVA finalize a single concept. AVA worked with local stakeholders to gain consensus on architectural concepts for underground, at-grade, and aerial stations through bold architectural statements and opening opportunities for art and lighting. All stations designed were developed to the 65% level (per contract), addressing constructability issues and ease of construction to reduce risk of schedule slippage and to expedite construction.

The project alignment has three (3) underground stations, four (4) at-grade stations, and one (1) aerial multimodal station which will interface with the future Airport People Mover System. We collaborated with Metro and the communities surrounding each station to help develop strong concepts that reinforce each neighborhood's character. AVA presented designs for the stations in a series of community workshops, and successfully advanced the project. Each of the eight (8) station sites were studied for transit oriented development opportunities with connections to stations.

Landscape / Urban Design: AVA was responsible for landscape architectural design for stations, streetscapes, the maintenance facility, and TPSS screening along the LRT corridor. We studied urban design linkages within each community, and how best to integrate each station into individual communities, while maintaining a standard kit of design parts. This allowed for ease of implementation and maintenance. All modes of transportation, circulation patterns, and walkable distances were studied to design each proposed station site. We are guided by sustainability principles with focus on cost effectiveness, longevity, water-use, suitable plants, energy, maintenance, local materials, and site uses. Our team has a thorough knowledge of the latest irrigation technology, an in-depth understanding of planting materials, hardscape methodologies, grading, lighting, accessibility (ADA/Title24/IBC), & low impact development (LID) approaches.

AVA designed the alignment with elements which could be repetitive in nature and could be applied to all underground and at grade stations. AVA also reduced the underground stations ancillary spaces to reduce the price of cut and cover construction. The project alignment has seven or more stations alternatives in at-grade, aerial and/or underground configurations. The final configuration has three (3) underground stations, (5) five at-grade stations and one (1) aerial station which will interface with the proposed Los Angeles International Airport People Mover, the Consolidated Rental Car Facility (CONRAC), and a Transit Center, which are now in construction. Crenshaw Corridor is in operations since 2022.

Cost: \$2.2 Billion **Completion date:** 2012 (65% Design Phase) **Construction Administration Phase:** 2019

Anil Verma Associates, Inc.

