

Client:
Los Angeles to
Pasadena Metro
Blue Line
Construction
Authority

**Project/
Construction
Cost:**
\$295 million

Project Duration:
September 2000—
July 2003

**Parsons’
Services:**
Design, integration,
and safety
certification of the
project

The Los Angeles County Metropolitan Transportation Authority (LACMTA) will operate the completed line and provide the light rail vehicles and fare collection equipment. Using 26 state-of-the-art trains seating 76 passengers each, trains will operate every 12 minutes during the week and every 20 minutes during the weekend. MTA projects a weekday ridership from 26,000 to 32,000 for the first year.



As lead design engineer, Parsons played an integral part in one of the most anticipated transportation projects in Southern California. After years of legislative, technical, fiscal, construction, and community challenges, the Gold Line opened on July 26, 2003. The Gold Line is an outstanding example of Parsons’ design-build services for project delivery: an estimated 12 months were saved using the design-build approach on this fast-track project. Thus the Gold Line is ready for revenue service a mere 34 months after the notice to proceed was issued.

In January 1999, the California State Legislature created The Los Angeles to Pasadena Metro Blue Line Construction Authority. That agency’s responsibility was to “design, procure, and build a public transportation system between Los Angeles, Pasadena, and the San Gabriel Valley.” Recently renamed the Gold Line, the entire project—as defined by the state—runs along the existing rail right-of-way from Los

Angeles to Claremont (36.2 miles). The Blue Line Construction Authority prepared procurement documents for Phase I of the project and issued them for bid in the summer of 2000. The Authority chose design-build as the method of contracting, and Parsons was instrumental in the successful bid of the joint venture (JV) between Kiewit Pacific and Washington Constructors. The contract consisted of the design, manufacture, supply, construction, installation, and testing/commissioning of the completed project.

Phase I of the project has just been completed and extends 13.7 miles from Union Station in downtown Los Angeles to the eastern border of Pasadena. The Gold Line serves the communities of Los Angeles, Chinatown, Lincoln Heights, Highland Park, South Pasadena, and Pasadena. There are six stations in Los Angeles, one in South Pasadena, and six in Pasadena. The Sierra Madre station terminus will be configured to facilitate the extension of the light rail transit (LRT) line 22 miles to the east where **Phase II** of the project will conclude with termination at Claremont, California.

Parsons, as a subcontractor to the Kiewit-Washington JV, was responsible for the design, integration, design support during construction, and safety certification of the project. The scope of work included utility relocations, civil, structural, mechanical, electrical, trackwork, stations, LRT systems [traction power, overhead contact system (OCS), signals, communications and operations control center], traffic systems, and a maintenance shop. The corridor made extensive use of the right-of-way formerly





Top: Lincoln Heights—A life-size bronze sculpture of a Gabrielino/Tongva Indian woman gathering river water; simulated leaf prints and coyote paw prints are embedded in the station's concrete, the latter a reference to Indian mythology.

Center: Memorial Park—The Holly Street Village Apartments were built alongside and over the Gold Line tracks.

Bottom: Allen station—A 10-foot-tall stainless steel "season marker" on the station platform reflects sunlight onto a designated spot to mark the passage of time.

occupied by the Pasadena Subdivision of the Burlington Northern Santa Fe Railway. By expanding the entire Metro Rail route to 73.1 miles, the opening of the Gold Line connects with other rail lines, namely the Metro Green, Blue, and Red Lines, as well as Amtrak and Metrolink commuter rail. The addition of the Gold Line will link commuters in a five-county area.

The system is primarily at-grade with two cut-and-cover underground sections, one in Old Town Pasadena and one in Los Angeles at Figueroa Street. Except for the Chinatown Aerial Structure, Parsons'

The Parsons team faced and met a number of technical and managerial challenges. One of the first technical challenges was to fit a double-track light rail system, complete with OCS, wayside equipment, and passenger stations, in a right-of-way previously used by a single-track freight railroad. This problem was particularly difficult in the cut-and-cover section under Colorado Boulevard in Pasadena where even inches were scarce and the structure design was close to old building foundations and basements. Project management challenges came in the form of constantly changing



*Left and middle: Construction at Colorado Boulevard
Right: Rendering of Memorial Park station*

design included all civil, structural, and systems elements. The system is elevated in Chinatown on a structure designed and constructed through a separate design-build contract. The northern end of the line operates in the median of the I-210 freeway through Pasadena. The project was divided into 10 construction sections, which include running sections, a maintenance facility, 13 stations, and 2 tunnels. One tunnel is approximately 1,300 feet long and has incorporated complex underpinning construction techniques, as well as the latest fire-life-safety provisions.

Parsons has been recognized for its exceptional sensitivity to environmental issues such as noise abatement and tunnel vibration, as well as integrating urban design with local and cultural landmarks. Parsons' design incorporated features intended to complement the architecture, public spaces, and ethnicity of local communities. Safety features were also of prime concern, particularly in congested surface sections. Parsons played a key role in running the integrated tests and meeting the requirements of a rigorous safety certification process that ended with the successful certification for all systems elements.

schedule demands, multi-agency and multi-city levels of bureaucracy, and a decision midway through the project to change the name from Blue Line to Gold Line.

Parsons continues to meet the challenge of providing its skilled design and project management services to meet the growing demands of transportation problems throughout the world. According to MTA statistics, 20% of the households in the San Gabriel Valley area do not have an automobile, as compared to 10.9% for the rest of Los Angeles county. The Gold Line is sure to become one of the vital links in the Southern California transportation hub and a realistic alternative to the growing traffic gridlock in the Los Angeles area. The Gold Line is a shining example of a design-build model that can be used by urban rail planners to deliver a project on time and within budget.