

**Burns Engineering, Inc. (Burns)** provided a full range of electrification design and construction support services for the Eastside extension of the Metro Gold Line LRT in Los Angeles, CA. The Eastside design-build project provides an additional six miles of two-track LRT in extending the existing Gold Line from Union Station to Pomona, linking the communities of East L.A. and Little Tokyo with Downtown Los Angeles, Long Beach, Hollywood and the San Fernando Valley. Eight new station stops were added, including two underground locations. Burns provided design and construction support for:

- Development of Overhead Contact System (OCS) assembly load determinations and design
- Completion of a full complement of OCS Layout Plans and Allocation documents
- Completion of a fully-integrated set of OCS assembly and component drawings developed with ease of maintenance during operations in mind
- Completion of a fully-integrated Traction Power (TP) system design

The OCS design comprised the development of technical and installation details for all cantilevers, head-spans, pull-offs, terminations, section insulators, jumpers and hangers for the entire extension. This also included special arrangements for providing “low-profile” OCS through various areas of the corridor, as well as in parts of the 2-mile-long twin tunnel under Boyle Heights.

The traction power design consisted of developing technical and installation details for four new 1.5 MW mainline pre-fabricated substations and two 1.5 MW substations provided by the MTA from those purchased for the Pasadena Line and a double-ended switchgear for the 1<sup>st</sup> and Boyle underground station.



The TP design included:

- Development of substation one-line diagrams, protection schemes, wiring diagrams and Remote Terminal Unit (RTU) interface
- Development of substation foundation drawings and ground mats
- Development of substation equipment layouts and “footprint” arrangements
- Coordination with local utilities to obtain all primary feeds and assure proper connection to the available 34.5 kV or 16 kV power grid
- Development of an efficient sectionalization scheme for the extension
- Design support for the substation test certification program

During the Final Design process, the TP team visited site locations to verify the correctness of engineering criteria provided as part of the drawing development process. This included close scrutiny at all locations where the new extension will connect to the existing line’s negative/positive feeders, utility connections, and OCS overlap terminations.