Metro Orange Line Extension; Four Years Early and $61Million Under Budget

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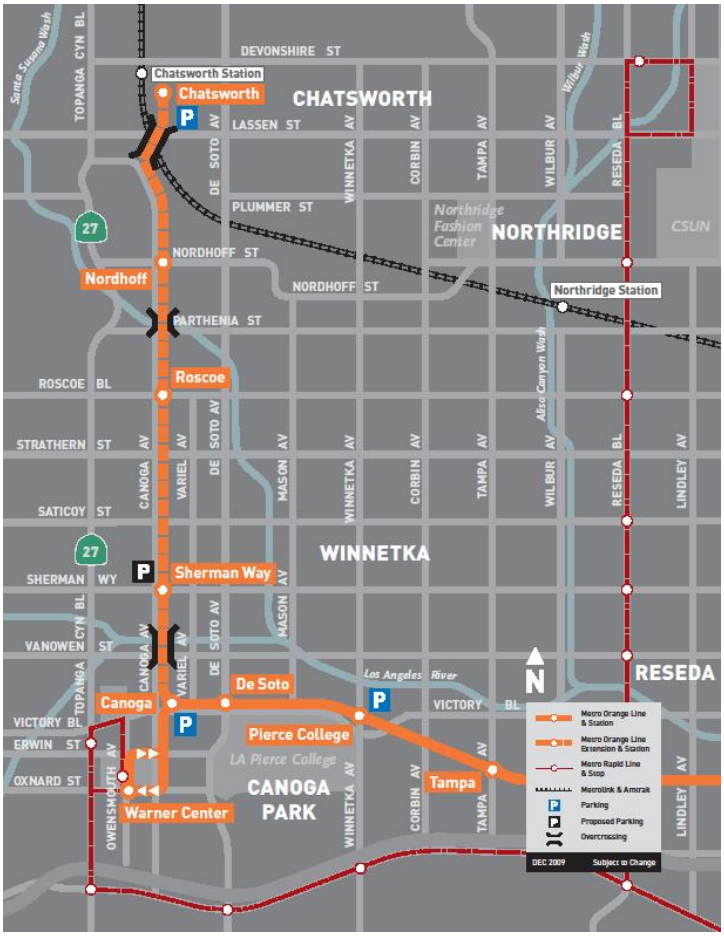
Iteris, Inc. was the prime consultant leading a multi-disciplinary team of engineers, architects and environmental consultants on the Metro Orange Line Extension Project (MOL Extension). The MOL Extension is a four-mile extension of the Metro Orange Line Busway in the San Fernando Valley of Los Angeles. It is an off-street busway with a parallel bikeway and pedestrian pathway. Iteris prepared the planning level Alternatives Analysis, prepared the Environmental Impact Report (EIR), prepared Conceptual and Preliminary Engineering Plans, Design/Build procurement documents and Final Design of several up-front, long lead time elements of the project. This paper focuses on the implementation phase of the MOL Extension, which was completed in record time and for less than budgeted.

Project Background

The Metro Orange Line Busway is a 13-mile east-west busway linking the North Hollywood Metro Red Line Station to Warner Center. It opened in 2000 with 12 stations spaced approximately one mile apart. The stations are designed similar to light rail stations with raised platforms and ticket vending machines to expedite boarding. The entire MOL system is designed to be convertible to light rail operations at some point in the future. The project includes a parallel bikeway and pedestrian pathway and extensive landscaping improvements along its entire length. The MOL has been very successful at attracting riders with over 25,000 daily boardings on a typical weekday.



The MOL Extension is one of several north-south routes in the San Fernando Valley that will interface with the MOL and the Metro Rapid Bus line on Ventura Boulevard at the southern end of the Valley. The right of way stretches north from the Canoga MOL station to the Chatsworth Metrolink Station, where the busway interfaces with the Metrolink Ventura County commuter rail line and Amtrak. The right of way is a former freight rail line and is owned by Metro. It runs parallel to and directly adjacent to Canoga Avenue. Metro had owned the right of way since 1991 and there were 93 leases for businesses along the right of

way when planning began for the MOL Extension. The right of way is typically 100 feet wide although narrows to 65 feet in one location and as wide as 275 feet along several blocks.

Lessons Learned

As planning for the MOL Extension began, a review was conducted of lessons learned from the existing MOL. One of the lessons learned dealt with the analysis of project alternatives. The east-west alignment on which the MOL was built was also an abandoned railroad right of way that had been purchased by Metro. Opponents of the project successfully challenged the EIR on the MOL based on the contention that Metro had not studied a wide enough range of alternatives and had focused too quickly on a project located on the Metro-owned right of way. The court required Metro to update the EIR with a broader range of alternatives. In order to avoid that problem on the MOL Extension, the alternatives analysis studied parallel corridors on Topanga Canyon Boulevard and Desoto Avenue, as well as Canoga Avenue, before narrowing the alternatives for the EIR to an on-street bus lanes alternative that widened Canoga Avenue into the Metro right of way and an off-street busway parallel to Canoga Avenue.

In terms of project design elements, there were several lessons learned from the original MOL. The landscape palette that had been used was too intense and included too many decorative flowering plants that were high maintenance. The landscaped plans for the MOL Extension relied much more heavily on native plants and included fewer tees, less bushes along the bikeway/pedestrian path that could be used as hiding places, and larger areas of cobble in retention basins. The MOL busway itself was 24 feet wide plus shoulders. Based on feedback from bus drivers, the roadway on the MOL Extension was widened to 26 feet plus shoulders to avoid the potential for mirrors colliding on passing buses. The amount of concrete paving in advance of stations and cross streets was also lengthened to reduce the wear on asphalt pavement in heavy braking areas.

Construction Contracting

The MOL Extension was initially intended to be constructed using a Design/Build procurement. The preferred design for the project however, included a grade separation over Lassen Street and the Metrolink/Amtrak/UP Railroad tracks near the northern terminus of the extension. The design and approval process for the overcrossing were anticipated to be lengthy efforts, so the project team proposed that the Iteris team develop the final design plans for the overcrossing so that the design/builder could begin work on construction of the overcrossing on day one of the construction contract.

The overcrossing was directly south of the northern terminus of the MOL Extension at the Chatsworth Metrolink Station. The overcrossing descends into the terminus station, which was to be built on an

existing parking lot serving the train station. Fortunately, there was available vacant land on the north side of the station, so Metro also contracted with Iteris to complete final design plans for the north parking lot that would serve as the replacement and expanded parking for the lot that would be displaced on the south side of the station. Metro separately contracted for the construction of the north parking lot before the Design Builder was on board, so the north parking lot expansion was complete prior to the award of the design/build contract. This also facilitated the beginning of construction of the Lassen Street/Railroad overcrossing on day one of the design/build contract, since the south parking lot could immediately be closed and used as the construction staging location for the overcrossing project.

The preparation of the final design plans for the overcrossing required coordination and approval by Metrolink, the UP railroad and the California Public Utilities Commission (PUC). It was a complicated design process because the busway overcrossing crossed the tracks at an angle in a location where the railroad right of way was tight. The placement of the overcrossing support columns, the approach ramps and the at-grade bikeway/pedestrian path required that the railroad tracks be realigned to make room for the busway. The train controls and pedestrian safety devices at the Lassen Street at-grade crossing below the busway overcrossing also had to be brought up to current standards as part of this process. It should also be noted that the overcrossing itself had a unique architectural design that was mandated by the project EIR to mitigate a visual impact that was identified as a project impact.

By preparing the final design plans and obtaining approvals for the plans of the railroad overcrossing prior to the award of the design/build contract for the rest of the MOL Extension project probably saved as much as two years in the project schedule.

Community Outreach

During the planning and environmental clearance phases of the project, an extensive community outreach effort was conducted to involve the community in the design of the project and to identify issues that needed attention. The architectural design of the Lassen Street/Railroad Overcrossing was actually suggested by a member of the community to portray the outline of the nearby Simi Hills that prominent in the western sky.

A major effort was made to work with the many lessees who had established businesses on the right of way for many years. Several of them were allowed to remain and the project was "designed around them", including two concrete batch plants, a self-storage facility and a building supplies business. The two concrete batch plants were important to the construction industry in the San Fernando Valley and would have been difficult to relocate, so the busway plans included reconfiguration of their lease parcels to longer, narrower parcels, but allow them to keep their heavy equipment in place and only reconfigure materials storage bins and truck circulation patterns. The building supply business was also accommodated with a modified site plan and the busway was designed to pass behind the self-storage facility to allow it to continue to function as is. Working with the businesses on the right of way allowed the project to proceed without significant opposition and preserved sources of significant lease revenue for Metro.

There were also three mobile home parks along the project. Although the project EIR did not identify a noise impact at the mobile home parks, it was decided to provide screening walls along each of them as project betterments to enhance their security and avoid any future noise issues.

Conclusion

The Metro Orange Line Extension planning and design efforts took advantage of lessons learned on the original Orange Line by carefully assessing project alternatives and comprehensively addressing environmental issues, working with the adjacent residential communities and businesses along the right of way. Creative packaging of the design/build procurement with several long, lead time items having been fully designed in advance allowed the design/builder to begin construction on day one as the rest of the project was in final design. The result was that the MOL Extension opened in June 2012, approximately four years in advance of its original schedule and $61 Million below its estimated budget. Metro was able to take advantage of a favorable contracting environment during the recession and the project avoided any delays associated with community opposition by having completed the up-front work needed to address all community concerns during the environmental approval process.