



Cross County MetroLink Extension Project St. Louis Metro Transit

Expert Review Services for Tunnel Leakage assessment:

The Cross County MetroLink Extension Project expanded the St. Louis MetroLink service towards the Clayton, Maplewood and Shrewsbury neighborhoods. The alignment includes three cut and cover tunnels, which are currently experiencing water infiltration contributing to early concrete deterioration and other serviceability issues. Concrete floor and wall segments were cast-in-place against soldier pile and lagging walls with a bentonite-type waterproofing material located in between. Pre-cast arch tops were installed and waterproofed using a separate bentonite waterproofing membrane followed by 5-20 feet (1.5-6 meters) of granular backfill material. Much of the construction occurred during cold and wet conditions, which was considered when assessing the performance of the waterproofing system.

Gall Zeidler Consultants provided expert review services of design and construction documents to assess possible causes of tunnel leakage in the MetroLink Extension tunnels. Currently, GZ is providing design services to address the tunnel leakage. These consist of water diversion measures implemented from within the tunnel.

Location: St. Louis, Missouri

Date: 2010-Present

Structure: Cut and cover light rail transit tunnel

Dimensions: 6,840 feet (2,080 meters) long and 35 feet (10.7 meters) wide with a height of 27 feet (8.3 meters)

Geology: Cheltenham Syncline (fill, loess, and glacial deposits)

Cost: Approximately US \$ 676 million

Client: Williams Venker & Sanders, LLC

Owner: St. Louis Metro Transit



Figure 1:
Waterproofing membrane installation on precast tunnel tops



Figure 2:
Tunnel leakage in construction joints