



Western Express City Relief Line, Sydney NSW

The City Relief Line (CRL) project provides a new track via new tunnels from Eveleigh to new underground platforms at Redfern, Railway Square (near Central), City West (near Town Hall) and Wynyard, with a turnback north of Wynyard Station.

The CRL will eliminate the need for Western trains to merge with suburban tracks before reaching the CBD, also addressing the fundamental capacity 'bottleneck' of Illawarra Junction, which limits the number of extra services which can be run on the North, South and Inner West lines. It will achieve full separation of express, suburban and local lines, and will increase the capacity of trains on each track.

The CRL represents the largest single component of the Western Express Infrastructure Program. It involves a new underground rail alignment through the CBD, from North Eveleigh to Wynyard generally to the west of the existing railway alignment. The new rail alignment will be housed within a new tunnel connecting the existing lines near Illawarra Junction to Wynyard Station through another alignment and a tunnel portal and dive structure at North Eveleigh. This includes new underground stations, each within close proximity to the existing Redfern, Central, Town Hall and Wynyard Stations.

The scope of CRL works includes:

- a tunnel portal and dive structure at North Eveleigh
- an underground running tunnel from North Eveleigh to Wynyard
- underground station box/caverns at Redfern, Central, City West and Wynyard
- turnout enlargements and crossover caverns at locations subject to the developing operations strategy
- provision within the Wynyard station cavern works for underground future tunnels to the north from Wynyard to the region around St Leonards Station, if required beyond 2036
- a turnback cavern and access tunnel at Wynyard
- station shafts from surface level to station cavern base level at Redfern, Railway Square, City West and Wynyard.

Architectural and structural treatment within and adjacent to shafts for vertical access, plant / equipment, station management, station entry, urban design and retail opportunities

- new rail infrastructure, platforms, structures, plant and services within station caverns at Redfern, City West and Railway Square, and at Wynyard with access to the existing station concourse (Redfern and Wynyard only)
- other adits, passages, subways, property modifications and urban treatments to suit operations and passenger management of the CRL rail system
- provision of rail systems including overhead wiring, signalling, train control and communications
- provision of electrical and mechanical (including plumbing) systems.

Evans & Peck's role

On this project, Evans & Peck took on the role of the Identification Phase Cost Planning Manager leading a team of senior cost planners and a construction adviser in the development of a pre-feasibility estimate.

Evans & Peck's initial role was to provide an Order of Cost estimate for the Business Case. This involved a preliminary first principles estimate of the tunnel and cavern works based on roadheader construction.

FACTS AND FIGURES

Client: Transport NSW and NSW Department of Transport

Project value: approx \$5 billion
outturn cost

E&P involvement: 2011 to current

An element-based cost plan model for the cavern and cut and cover stations was developed which considered the volume and built areas for station construction. The role also required a constructability assessment to develop and support the assumptions in the cost plan.

Evans & Peck subsequently provided the following additional services:

- ongoing cost planning advice to the project team
- analysis of additional options
- constructability and construction planning advice as inputs to the business case
- planning and scheduling assistance
- procurement strategy advice and evaluation.

Providing robust, risk based outturn cost estimates at the early planning stage of projects

