

Project Profile

Kwinana Freeway Widening and Upgrade

4.5km of busy urban freeway widened from two to three lanes in each direction

PROJECT DESCRIPTION

Extending south from the City of Perth to Bunbury, the Kwinana Freeway is the major north/south spine for all transport to and from the Perth metropolitan area. It routinely handles some 100,000 vehicle movements per day – a figure predicted to rise to 137,000 by 2031.

The main body of works involved increasing the number of lanes from two to three for a total of 4.5km of highway between the critical intersections at Leach Highway and Roe Highway.

The scope also included:

- Construction of a new off-ramp and pedestrian underpass at the South Street exit intersection;
- Reconfiguration of the Public Transport Authority car park at Murdoch Train Station to improve access to the newly constructed Fiona Stanley Hospital;
- Construction of noise walls, retaining walls and screen walls along the length of the project;
- Construction of principal shared paths (PSPs) for pedestrians and cyclists to improve the connectivity of the PSP network; and
- Multiple service relocations.

Significantly for Highway Construction, the award of this contract, in May 2011, marked the company's largest wholly managed design and construct (D&C) contract in its 27 year history.

When it was delivered, the upgraded system increased traffic capacity, reduced congestion, reduced travel time and improved safety for motorists.

KEY COMPONENTS

- 4.5km widening of Kwinana Freeway between the Leach and Roe highways;
- Construction of new intersection arrangements at South Street and Fiona Wood Road for access to the Fiona Stanley Hospital;
- Resurfacing of the full-width of the freeway between Leach and Roe highways;
- Construction of 5km of noise walls and screen walls along property boundaries;
- Retaining walls and road safety barriers;

CONTRACT

51/10, R5/B2, design and construct

CLIENT

Main Roads WA

LEAD DESIGNER

ARUP

LOCATION

Perth WA

TIMEFRAME

June 2011 – March 2013

PROJECT VALUE

\$73 million



- Realignment of shared paths along the freeway;
- Construction and/or modification of all associated drainage;
- New and upgraded freeway lighting and ITS;
- Revegetation and landscaping;
- Construction of a new northbound exit ramp at South Street, including modifications to the shared path;
- 4km of noisewall south of the project from Roe Highway to Berrigan Drive;
- Varying Leach Highway and South Street ramps to accommodate future ramp metering ITS programs;
- Construction of Barry Marshall Parade extension to connect Fiona Stanley Hospital complex to Murdoch Station;
- Upgrade of Murdoch Station car park and access roads; and
- Construction of a pedestrian underpass.

SPECIAL FEATURES AND CHALLENGES

- The existing 4.5km section of freeway was bounded on both sides by dense residential housing, presenting a long and narrow construction site with limited ingress and egress points for machinery and site workers;
- The characteristically live traffic environment posed significant safety issues for the project team, workers, local resident and road users throughout the construction phase;
- Designs needed to match-in with the existing alignment and geometry, despite a significant leap in standards since the construction of the original freeway.
- Complex traffic management was required due to the very highly trafficked area (i.e > 110,000 v.p.d) with very limited working space;
- Noise walls were constructed for traffic noise mitigation along property boundaries where numerous service clashes required careful management;
- A comprehensive community relations management plan was implemented given the high volume of road users and residents adjacent to the works;
- Extensive stakeholder engagement included public utilities providers, Dept. of Health, DEC, PTA and local governments particularly relating to the complexity of services and subsequent relocations necessary for works;
- There was significant contaminated materials management in the form of asbestos and acidic sulphate soils remediation; and
- Management of areas with a high water table during works at Leach Highway interchange.



KEY ACHIEVEMENTS

Highway Construction met these challenges through a mature and collaborative approach, resulting in the delivery of clever design improvements, modifications in the construction approach and expert programming delivered through:

- Close management of the live traffic environment using stringent OHS protocols and proactive Safety in Design workshops;
- Staged use of concrete barriers which not only protected motorists and workers, but also maintained two lanes of traffic flow, which reduced delays for the travelling public;
- Furthering the use of Full-Depth-Asphalt in Western Australia in close collaboration with Main Roads WA's Materials Engineering Branch to include wet weather protocols and the removal of moisture from laid FDA; and
- The development of an Advanced Asbestos Removal Control Plan to deal with the unforeseen health and safety hazard posed by the discovery of asbestos along the entire eastern boundary road reserve.

Awards and Accolades

The project received a Highly Commended from the **Civil Construction Federation (CCF) Earth Awards** for 2013.

PROJECT REFEREES

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