



THE WESTERN HIGHWAY

MAIN CONSTRUCTION COMPANY : Aecom & John Holland
CLIENT : VIC Roads
PROJECT END VALUE : \$200 Million
LENGTH : 5km
COMPLETION : End 2011
SURVEYOR : Gertzel

GETTING YOU HOME SAFER



The Western Highway-Anthonys Cutting Realignment involved the construction of a new, five kilometer highway connection south of the existing route, from Melton West to east of Bacchus Marsh.

The project, completed on June 27, 2011, was delivered by an Alliance between John Holland, acting as the principal contractor, AECOM, who provided the design and support services and VicRoads, who acted as the client overseeing the project's delivery.

The highway development received its' funding from both the Australian Federal Government and the Victorian State Government, with the Australian Government providing \$160 million as part of the Nation Building Program and the Victorian Government contributing \$40 million.

In addition to the main focus of improving road safety and transport efficiency along the Western Highway, between Melton and Bacchus Marsh, the significant scope of the project also included a range of additional highway redevelopments. Some of these were full

freeway conditions with two lanes each way from Melton West to east of Bacchus Marsh, a local road overpass of the existing Western Freeway through Melton, linking Bulmans and Clarkes Road and a number of freeway bridges spanning Djerriwarrh Creek, Cowans Road and Pyrites Creek.

Given the wealth of industry expertise and highly-skilled personnel of the John Holland and AECOM Alliance, the extensive range of earthwork requirements incorporated into the Western Highway-Anthonys Cutting Realignment, were able to be completed in both a time and cost effective manner. An example is that during this that more than 1.5 million cubic metres of basalt material was moved, in just six months, with the use of a fleet of ten, 60T dump trucks, dozers- from D11 to D8 and eight, 631 scrapers, as well as more than 100 pieces of plant and equipment to cut and cart the material along the new stretch of the highway.

Throughout the construction phases of the highway, the Alliance team also incorporated a range of innovative structures and building

techniques. One of these was the building of the bridge crossing over Djerriwarrh Creek. In order to do this, twin bridges, each 165 metres long and 32 metres high, were constructed to provide both Melbourne and Ballarat bound lanes.

Another unique feature to this bridge was that precast systems were used to build the actual piers. A total of 78 precast matchcast segment blocks were stacked on top of each other and bound, until they reached the completed height of 32 metres. This particular construction method was adopted as it provided a safer work environment and helped to overcome some of the challenges of working on the site's steep terrain.

Whilst working on the redevelopment, the Alliance team, as well as the other contractors, faced a number of onsite challenges. Given the fact the project was constructed within a steep terrain of deep valleys and through a natural flood plain, careful consideration of access approach was necessary to ensure work areas could be safely accessed. In addition, the complex geology of the area called for

extensive site investigations and consideration of access limitations and the surrounding environment.

The Alliance team ensured safety, quality control and risks were embedded into their planning processes and practiced throughout the delivery of the project. A vigilant environmental management team also oversaw the development and implementation of a site environmental plan and a range of initiatives, such as the use of recycled materials where possible, were incorporated into the construction process.

Following the efficient innovations delivered by the hard-working and committed Alliance team, the Western Highway-Anthonys Cutting Realignment now carries more than 30,000 vehicles between Melbourne and Western Victoria, along National Route 8. Not only did the project upgrade road safety in the area, but it also improved the overall design of the road, reduced travel times and demonstrated the effectiveness and consistent success of the Alliance model.

DRIVEN TO SUCCEED

For more than 38 years, Sargent has been providing vehicle rental and maintenance services to the commercial, project and retail markets. With an extensive network of 17 locations strategically placed across Australia, Sargent's coverage and service base is amongst the widest in the industry.

With a wealth of industry expertise and an extensive fleet of more than 3,900 vehicles characterized by two and four wheel drives, trucks, vans and buses, Sargent delivers flexible fleet solutions to a range of projects, regardless of their size or scope.

To ensure vehicles are safe, and meet the requirements for diverse and extreme conditions, Sargent supplies a comprehensive range of project and mine site option fit-outs. These include Roll Over Protection Systems, UHF or VHF communications and 'In Vehicle' Monitoring Systems.

Furthermore, with a highly skilled team of accredited service technicians and mechanics, as well as a fleet of mobile service trucks and workshops, Sargent can efficiently maintain any size fleet and carry out required repairs, anywhere and at anytime across Australia.

Given their enviable track record for providing specialised project fleets and portable on-site maintenance to remote locations, Sargent was recently involved on the \$500 million Western Highway redevelopment in Victoria.

This five year upgrade project incorporated the significant Western Highway Duplication Project and the Anthony's Cutting Realignment. The Project involved the construction of a new, five-kilometre connection south of the existing route, from Melton West to east of Bacchus Marsh, with the new freeway alignment designed to avoid steep hills and tight curves through Anthony's Cutting.

As a result of these measures, the highway redevelopment projects not only improve on-road safety and access to roadside amenities, but also reduce travel times and vehicle emissions overall.

Grant Harrison, National Sales & Marketing Manager at Sargent, said that as part of their involvement on this significant highway redevelopment, they were responsible for the supply and ongoing maintenance of a range of vehicles.

"We supplied 45 Four Wheel Drive vehicles, all fitted to meet the required specifications for the Western Highway upgrade project. The vehicles ensured people and equipment could be efficiently and safely moved around the works site," Mr Harrison said.

"To ensure vehicle down-time was kept to an absolute minimum we provided maintenance and repairs services when required, either onsite or at one of the closely located Sargent workshops," he said.

With a commitment to supplying quality project specific vehicles and an extensive range of repair and maintenance services, the professional team from Sargent continues to successfully deliver flexible fleet solutions to a variety of projects and industries within Australia.

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SPECIALISED S.U.E SERVICES

Operating since 1995 Cardno Australian Underground Services has been providing Subsurface Utility Engineering (SUE) services on many of Australia's major construction projects, including major infrastructure improvements, land development, local government and building construction projects. Cardno AUS's ability to provide a broad range of in-house services ranging from utility mapping to vacuum excavation to survey, allows all works to be managed internally without the need to draw on external subcontractors which can offer hinder project progress. This integrated service is a significant reason for Cardno AUS's involvement on the Western Hwy Upgrade from concept through to construction phase.

Concept and preliminary investigation works began in 2008, Cardno AUS was able to assist in the preliminary location of underground utilities to ensure utilities were avoided during investigation works. By 2009 the concept design was being finalised and the alignment of the Anthony's Cutting Bypass was under final review. Whilst determining the alignment of the Bypass significant utilities within the region had to be considered and ideally avoided by the new alignment. Cardno AUS was able to accurately map and verify the utilities along the alignment, particular focus was made on the Western Hwy/ Lerderberg River crossing where a large number of utilities are present including significant gas main, fibre optic and sewer assets. The utility information obtained at this location was a contributing factor in the final outcome that has resulted at this intersection.

Moving into construction phase Cardno AUS has assisted contractors including John Holland and BMD in ensuring that utilities are not



encountered unexpectedly and associated damages do not result. By providing this on call service whereby Cardno AUS' experience, knowledge and advanced equipment could be drawn upon providing a specialised service, whereby utilities were exposed assisting both contractors in minimising risks associated with utilities, and maintaining a safe working environment for project personnel.

Cardno AUS is a member of the Cardno Group, with offices located in Victoria, NSW and Queensland; Cardno AUS pride themselves in being able to assist their clients in reaching project milestones with tailored and specialised services, drawing on a broad range of skills and equipment from around the world to suit the needs of every individual project.

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DELIVERING 'LANDMARK' RESULTS

Specialising in bulk excavation, rehabilitation and landfill cell construction, Landmark Contracting have established a renowned reputation within the Australian Building and Construction industry.

Since their establishment in 2001, Landmark Contracting has worked on a number of high profile projects, including rehabilitation and reclamation for the Australian Defence Industries in Mulwala, Landfill Cell construction for Transpacific Industries, the South Morang Rail Project with Thiess John Holland and recently, the \$500 million Western Highway development.

This five year upgrade project incorporates the significant Western Highway Duplication Project and the Anthony's Cutting Realignment. Both projects will improve safety and access to roadside amenities, as well as a reduction in travel times and vehicle emissions.

Sharron O'Donoghue, Director of Landmark Contracting, said whilst working on the Western Highway they had been responsible for a variety of excavation works.

"We utilised our Hitachi ZX450 and Volvo EC460 Excavators for a range of tasks on site, including the ripping of bulk material which was then sieved to produce clean rock for crushing. This crushed rock was then re-used on site for drainage and paving purposes."

"Although Landmark Contracting was faced with a difficult and rocky terrain, a combination of highly skilled operators in A35 Volvo articulated Dump Trucks meant we were able to overcome this challenge and deliver both time and cost effective results" Mrs. O'Donoghue said.

Landmark's experience in the construction of landfill cells and caps extends into the construction of geosynthetic liners, landfill drainage infrastructure as well as leachate ponds and treatment lagoons. Landmark's on-going work in the waste industry provides us with vast experience in the handling, transportation and disposal procedures of waste material as well as the needs of clients to comply with environmental management requirements, such as minimizing dust, noise and odour throughout the life of the works.

Landmark is highly regarded in the industry for the reliability of their equipment and their capacity to complete projects on time and to budget with a focus on providing efficient and cost effective solutions.

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KEEPING AN EAGLE EYE ON THE WESTERN HIGHWAY



With a wealth of industry experience and a team of highly trained security personnel, Chelmsway Security Melton provides outstanding security solutions to a range of projects, building sites and construction areas within Victoria.

Given the fact they can offer imperative services, such as around-the-clock site surveillance, experienced guards, patrols and a modern fleet of vehicles, Chelmsway Security Melton were also recently involved on the significant Western Highway redevelopment in Victoria.

Completed in June earlier this year, the Western Highway-Anthonys Cutting Realignment, valued at over \$200 million, involved the construction of a new, five kilometer highway connection south of the existing route, from Melton West to east of Bacchus Marsh.

In addition to the main focus of improving road safety and transport efficiency along the Western Highway, the significant scope of the project also included a range of additional highway redevelopments. Some of these were full freeway conditions with two lanes each way from Melton West to east of Bacchus Marsh, a local road overpass of the existing Western Freeway through Melton, linking Bulmans and Clarkes Road and a number of freeway bridges spanning Djerriwarh Creek, Cowans Road and Pyrites Creek.

Given the significant scope of such a high profile redevelopment, Andrew McCormack, Managing Director of Chelmsway Security Melton, said that throughout their involvement, he ensured a security patrol team was always onsite when required.

“With years of industry experience, Chelmsway understands the importance of maintaining the security and surveillance of a construction or building site at all times,” Mr McCormack said.

“Furthermore, given the nature of the Western Highway project and the fact that it required a significant degree of safety at all times, we appointed an adequate number of specifically trained staff to ensure the location and expensive onsite equipment, was under guard at all times,” he said.

Once again, Chelmsway Security Melton delivered outstanding security services to their client, providing a safe and secure environment, 24-hours a day.

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A NAME SYNONYMOUS WITH SUCCESS

Established in 1936, Acrow Formwork & Scaffolding operates from 19 locations across the country, managing over 50,000 tonnes of formwork and scaffolding equipment, as well as maintaining a team of highly experienced engineering and project management professionals.

Committed to delivering innovative formwork and scaffolding solutions to major residential, commercial, civil and industrial clients, Acrow Formwork & Scaffolding has worked on a number of prolific projects, including the Peninsula Link, the South Morang Rail Alignment and more recently, on the extensive Western Highway construction project.

This \$500 million construction is a five-year project incorporating The Western Highway Duplication Project from Ballarat to Stawell and the Anthony’s Cutting Realignment. Both of these projects will increase road safety, reduce travel times and improve access to local facilities and roadside amenities.

Ian Horn, Formwork Branch Manager, said that throughout their involvement, his professional team had provided all of the

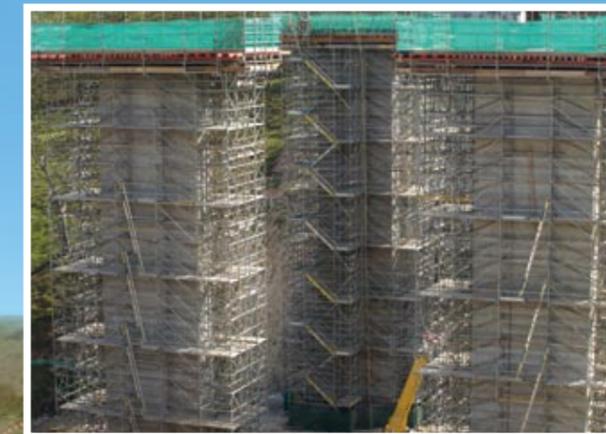
falsework support and technical information for the Anthony’s Cutting Realignment.

“The access scaffolding we provided was initially required to facilitate the installation of the precast piers, however, it was later converted to falsework in order to support the crosshead,” Mr Horn said.

“The final falsework we provided was at a height of 30 metres by eight piers and 15 metres by six piers, at a Leg Load of approximately seven tonnes,” he said.

Although the Acrow Formwork & Scaffolding’s experienced personnel faced a number of challenges onsite, such as time restraints and the height and leg load of the formwork, a combination of their leading Super Cuplok product, with Cantilever frames to reduce the number of legs required, as well as their wealth of industry experience, meant they were able to fulfil their responsibilities in a time and cost efficient manner.

With a range of falsework expertise, a dedication to achieving quality project results, as well as a leading and innovative product range; it is without a doubt Acrow Formwork & Scaffolding will continue to deliver outstanding formwork solutions to the Australian building and construction industry.



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