AUSTRALIAN CONSTRUCTION ACHIEVEMENT AWARD

TOOWOOMBA SECOND RANGE CROSSING

Technical Paper

Australian Government
BUILDING OUR FUTURE

nexus infrastructure
A greater connection

nexus delivery
A greater connection

Queensland Government

Contents

ORGANISATION

Organisational profile

The Toowoomba Second Range Crossing (TSRC) project is a Public Private Partnership (PPP) between Queensland Government and Nexus Infrastructure (Nexus). Nexus is a Special Purpose Vehicle (SPV) comprising ACCIONA Concesiones, CINTRA and Plenary. Nexus awarded the design and construction (D&C) contract to Nexus Delivery (ND), a joint venture between ACCIONA Infrastructure Pty Ltd (ACCIONA) and Ferrovial Agroman (Australia) Pty Ltd (Ferrovial) and the operations and maintenance (O&M) contract to Nexus Operations and Maintenance (NOM), who are resourced through Broadspectrum.

The Queensland Department of Transport and Main Roads (TMR) has overall project management responsibility for the TSRC Project.

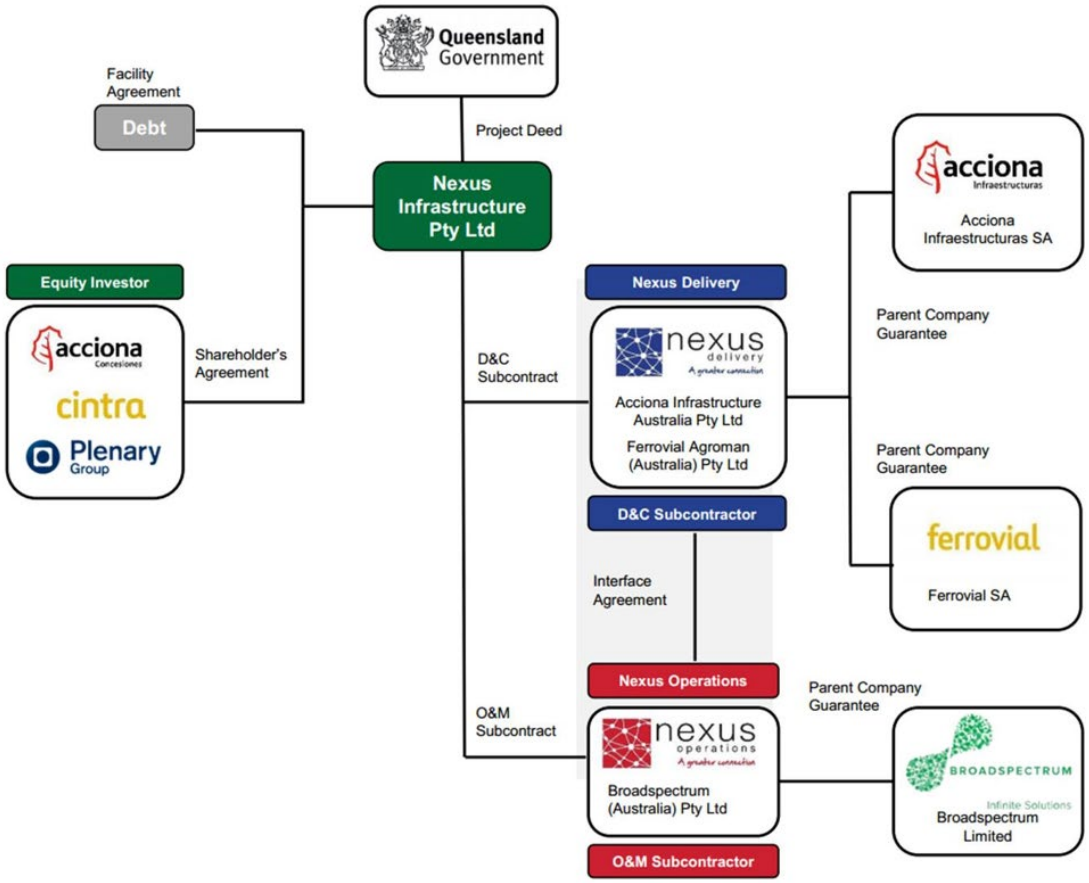

Figure 1: Toowoomba Second Range Crossing Project Structure

From the outset, the TSRC Project's main goal was to construct a world class piece of infrastructure with zero harm to the community, stakeholders and project staff. Demanding benchmarks were set by Nexus which drove key decisions in order to achieve these objectives.

Core elements of the TSRC recruitment guideline were to attract a local experienced workforce, encourage Indigenous participation and offer tailored training and upskilling programs to all Nexus employees.

By engaging experts in their fields, encouraging collaboration and teamwork and assisting workers to grow in their chosen field, Nexus has provided the local Toowoomba and Lockyer Valley communities with a project they can be personally involved with and proud of.

SCOPE OF WORK

The TSRC is the largest Australian Government funding commitment to a single road project in Queensland's history. It is jointly funded by the Australian and Queensland governments with an Australian Government contribution of $1.137 billion and the balance funded by the Queensland Government.

The $1.6 billion project is a 43 kilometre (km) road bypass route to the north of Toowoomba. It connects the Warrego Highway at Helidon Spa in the east to the Gore Highway at Athol in the west via Charlton.

The route is designed to increase freight efficiency and significantly improve driver safety and community amenity by avoiding 18 sets of traffic lights and removing heavy vehicles from Toowoomba's Central Business District (CBD).

The key features of the TSRC Project include:

- four lanes from the Warrego Highway eastern interchange to the Warrego Highway western interchange
- grade-separated interchanges at Warrego Highway western interchange, Toowoomba-Cecil Plains Road and Gore Highway
- grade-separated connections to Mort Street and Boundary Street
- an approximately 30 metre (m) deep cutting at the top of the Toowoomba Range
- an 800m long viaduct built east from the New England Highway, crossing over the existing Queensland Rail line
- continuity of the New England Highway through a new alignment bridging over the TSRC
- construction of 30 major bridge structures along the TSRC (at 24 locations).

The entire TSRC Project team has worked together to deliver a successful project for the client that creates value for the local community, builds the nation's economy by improving the freight and export network and makes Australian roads a safer place.

Figure 2: TSRC construction team under the Dual Arch Bridges

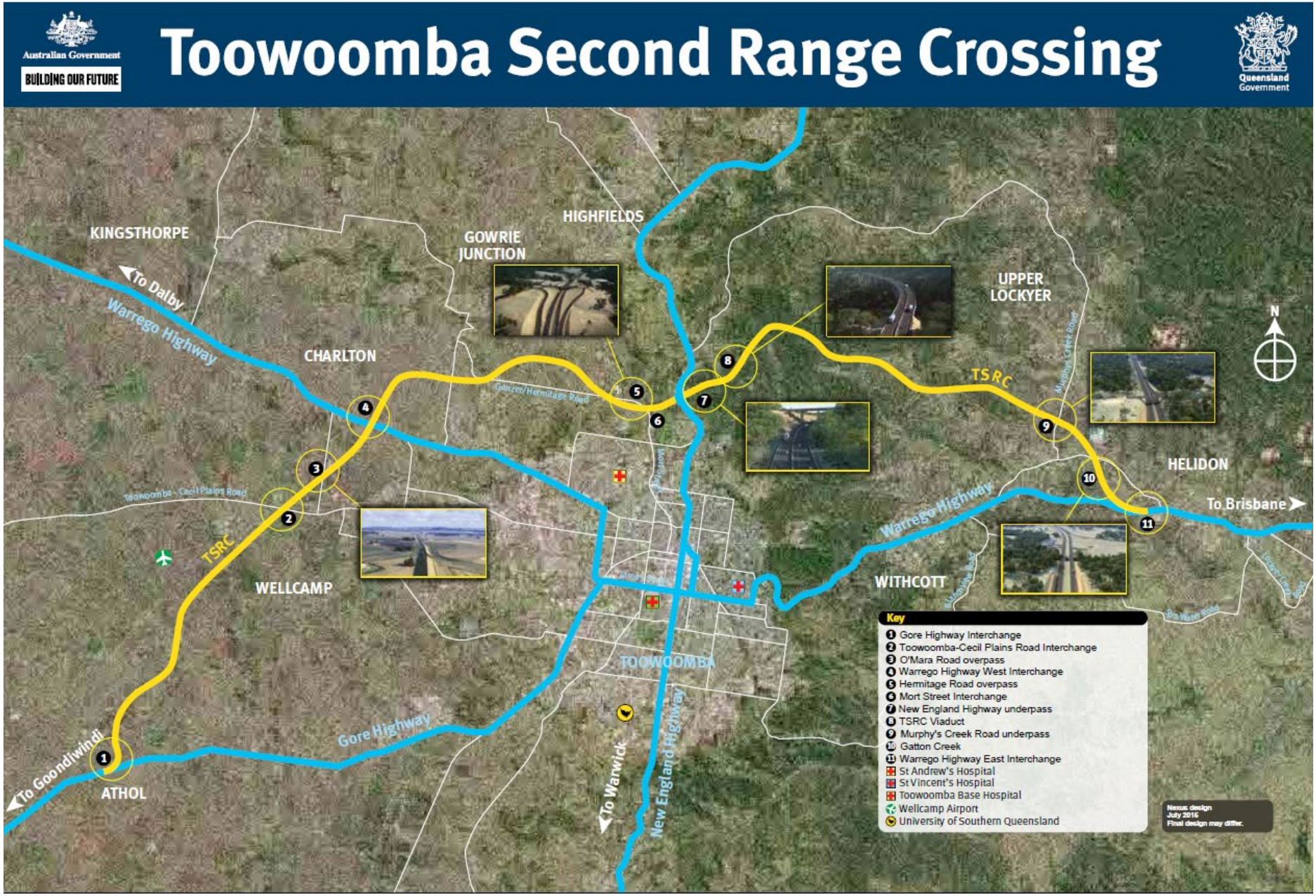

Figure 3: TSRC Project alignment map

OUTCOMES ACHIEVED AGAINST PLANNED TARGETS FOR KEY PROJECT PARAMETERS

The TSRC was designed with improved driver and road safety the primary project objectives. Outcomes to achieve this include reduced travel time across the Toowoomba range by up to 40 minutes for heavy commercial vehicles as part of a national highway network and relieving pressure on local roads by redirecting an expected 80 per cent of trucks away from Toowoomba's CBD.

The key deliverables of the TSRC Project were identified early and extended across a number of areas, with a clear focus on innovation, safety and quality.

In December 2018 an independent reviewer confirmed by way of formal certificate that Nexus had met all of its contractual responsibilities in relation to the completion of the key project works and other required obligations. This confirmation was achieved by the original contract date of completion.

Figure 4: TSRC construction team, Goombungee Road bridge.

COMPLEXITY, DIFFICULTY AND OPTIMISATION OF THE CONSTRUCTION TASK

The TSRC is an extremely complex project and includes many impressive engineering design features with more than 10 million m³ of earth moved in a cut to fill process, 30 bridge structures, more than 2,000 pieces of heavy equipment used and interacting with up to 900 staff on site during peak construction.

With such a significant infrastructure project located in regional Queensland, there were major challenges to address including working in steep terrain and significant complex geological challenges. These challenges consisted of high, steep sided slopes and ancient volcanic activity which created ground instability at depth over weaker sedimentary materials. Across the 43km, the project also dealt with highly erodible and dispersive sandstones and highly reactive black soils. Changes to construction methodology, including building foundations at a deeper level, has mitigated some of these challenges.

The focus of the TSRC Project Team was to ensure the infrastructure had an innovative robust design that overcame the steep terrain and geological challenges which will have longevity for future generations.

Figure 5: NEH bridge, viaduct, Embankment 24

Three standout innovative design and construction solutions implemented were the:

- design and construction of the 800m viaduct
- design and construction of the New England Highway (NEH) dual arch bridges
- redesign and construction of Embankment 24.

The TSRC viaduct

Overview

The viaduct is an 800m long, 60m high concrete girder bridge east of the New England Highway that negotiates the steep terrain of the Great Dividing Range and passes over the Queensland Rail line.

Figure 6: TSRC viaduct

As the main structure of the TSRC Project, the viaduct stands above two deep valleys located east of Mount Kynoch, with a longitudinal grade of 6.5 per cent, that allows the entrance of the highway to Toowoomba and avoids the use of tunnels through the Great Dividing Range.

Early works commenced in May 2016 to clear the viaduct area by removing thick vegetation, establishing access tracks and preparing platforms for the piling works. A mobile concrete batching plant was also set up in the area to produce concrete for the viaduct, capable of producing up to 65m³ an hour.

Design and construction achievements

The viaduct was designed using a semi-integral bridge technique. This form of bridge design and construction encompasses a direct connection of the bridge piers to the superstructure. This produced an efficient bridge design, allowing for greater slenderness of the piers and longer bridge spans. This design also reduced the quantity of bridge bearings and expansion joints required, which will reduce future maintenance costs.

Figure 7: TSRC viaduct

Key design innovations revolved around the removal of a tunnel which was part of the original reference design. This move away from a tunnel design allowed all vehicle classes to utilise the TSRC, removing dangerous goods and over dimensioned vehicles from the Toowoomba city centre. The Nexus design also minimised the size of the cutting at the top of the range to reduce the impact on the existing landscape.

Construction

The viaduct was built using modern construction technologies consisting of a jump form system for the individual bridge piers and a launching truss gantry for the installation of the 242 Super T girder beams that form part of the bridge deck.

The viaduct consists of 22 spans with a typical span length of 38m and has expansion joints in three locations. Construction of the viaduct started at its highest point near the New England Highway with construction progressing downhill towards the Lockyer Valley.

Piling

Piling for the foundations of the piers of the viaduct was completed in January 2017. This consisted of drilling deep holes into the ground, which were then reinforced with permanent steel cased reinforced bored piles and concrete. The 120 piles (six piles per footing) are between six and 20m deep, depending on the section of the viaduct they are supporting. The piles are capped with concrete and the piers, or bridge support structures, are built on top of the piles.

Pier construction

Pier construction commenced in October 2016. The piers were constructed in 4.5m lifts with a jump form technique that climbed up as each section was poured to a maximum height of 51m.

Figure 8: Building of the TSRC viaduct piers

The piers are hollow structures with 300mm thick walls. These internal walls were prefabricated and lifted into place.

Headstocks

Headstock construction commenced in December 2016. Headstocks were built on top of the piers to carry and support the bridge deck.

Each headstock contains 20 tonne of steel reinforcement and 100m³ of concrete.

Bridge deck

The final stage to complete the viaduct was the construction of the bridge deck. This included the installation of large precast Super T concrete girders and a number of large concrete pours. Each standard deck consists of eleven Super T girders followed by 55 tonnes of reinforcement and 320m³ of concrete for the deck surface.

Figure 9: Building the TSRC viaduct deck

Super T girders

The 242 girders used in the construction of the viaduct are known as Super T girders, developed in Australia in the early 1990s for bridge construction. Precast bridge girders used across the TSRC are up to 38m long and weigh around 90 tonnes each, with 33 m³ of concrete used to make each girder.

Girders were installed in four span sections, with eleven girders used for each span. These girders were installed in cycles, with each four span cycle taking an average of twenty-one days.

Figure 10: Overnight girder delivery

Precast beams (deck units and girders) were manufactured offsite to minimise disruption to nearby residents and transported via preapproved haulage routes.

Due to their size, the Super T girders were transported from Wacol in Brisbane at 9pm, arriving at Withcott along the Warrego Highway at 12am.

Launching truss gantry

The Super T girders were installed using a launching truss gantry, which picks up the girders with a winch and positions them at the back of the gantry ready to be fed through to the back of the gantry for 'launching'. The three central girders were launched first followed by edge girders which were lowered on to the headstock and then moved to their final position.

Figure 11: Launching truss gantry

The gantry was designed to support a span while it is being constructed and then to be moved forward to the next position once the span was completed. The gantry rested on six steel columns with rail frame and rollers to move it over the piers for the installation of the girders. To launch the gantry over the span the gantry used anchorage systems for movement of the girder. Six launching gantry supports were then placed on top of the following piers to allow the installation of further spans. As the launching gantry progressed to the next pier the concreting works of the deck began.

Challenges
The main challenges with building the viaduct were:

- working with the steep terrain and challenging local geology
- working at heights – the viaduct piers are up to 51m
- the 6.5 per cent grade and horizontal curve
- tight deadlines - the delivery, weather and gantry technical issues created pressure on set deadlines
- the close proximity of a high-pressure gas main
- working over Queensland Rail railway line with limited shutdown periods which required careful management well in advance to achieve dates
- exposed geographical location – the high wind speeds posed a challenge to the installation of the Super T girders as the launching gantry can only operate in winds up to 40km per hour
- periodic requirement to install Super T girders simultaneously with the steel reinforcements on decks - potential interaction between overhead plant and staff required significant management to ensure safety and minimal work delays
- the delivery of Super T girders. The girders were transported in convoys. The longer Super T girders required two prime movers to travel up the existing Toowoomba Range overnight from Brisbane and required intermittent closures of the westbound up lanes of the Warrego Highway. This was a major logistical operation requiring coordinated communication with the entire national freight network.

Design innovation
Choosing the viaduct option over a tunnel greatly reduced the environmental footprint on the range escarpment (reduced earthworks and clearing). It provides a safer haulage route as oversize loads and dangerous goods vehicles kept out of Toowoomba.

By using the most modern and innovative technology, the construction methodology allowed maintaining the construction schedule of the TSRC within the agreed time constraints, assuring a safe process for one of the most challenging sections of the project.

The TSRC viaduct was completed in November 2018.

New England Highway dual arch bridges


Figure 12: NEH dual arch bridges

As part of constructing the TSRC Project, the New England Highway (NEH) at Mount Kynoch was permanently realigned. The New England Highway through Mount Kynoch is a busy stretch of road, with an estimated daily vehicle usage of more than 20,000. For this reason, methods were developed to ensure disruptions to the highway were kept to a minimum. Nexus worked closely with TMR and executed a communications plan to ensure road users understood and were well informed of any traffic changes due to construction.

Design

The NEH Dual Arch bridges were built using a top down approach, meaning the road bridges was built before the earth underneath was removed. It consists of two parallel bridges (one for Northbound traffic, the other for southbound). Each bridge has two arches consisting of seven segments. Six of these segments are 7.5m long with the middle segment (keystone) 6.55m long.

Figure 13: Switching traffic on NEH

During early earthworks, various excavation methods were used depending on ground material. However, for hard or high-strength rock, controlled blasting was required once other excavation methods were exhausted.

Toowoomba's main water source is transported from the North of Toowoomba alongside the New England Highway via the city's watermain. This watermain required relocating to build the Dual Arch bridges without disrupting resident's access to water.

Construction

About 15m of earth was excavated from either side of the highway and shaped to form a mould for the bridge formwork.

The cutting under the New England Highway is a key component in connecting the 800m viaduct across the Toowoomba Range escarpment to the Toowoomba interchange. The process was relatively unusual but enabled traffic to flow while work continued below the current road level.

Construction works to complete the New England Highway dual arch bridges involved the:

- permanent realignment of 1km (dual-carriageway) of the New England Highway. The realigned New England Highway has improved road safety for motorists with a wider central median and by increasing drivers' line of vision
- construction of the dual arch bridges enables the TSRC to pass 30m below the highway. The new bridges carry two lanes of traffic (two lanes northbound and two lanes southbound) on the New England Highway.
- construction two protected U-turn areas.

Timing

Earthworks were carried out to form the earth mounds for the bridge work between 2016 and mid-2017. Arch beams and bridge deck units were installed for the dual northbound and southbound bridges over the TSRC during late 2017. Works to connect the arch bridges with the existing New England Highway.

Main challenges

Earthworks to remove the existing lanes of the New England Highway required controlled blasting.

Figure 14: Construction of the dual arch bridges

This was the first and only time TSRC project works significantly impacted the New England Highway users and a successful multi-disciplinary approach to communication was delivered and proved vital in paving the way for all future high-impact works on the project.

Moving Toowoomba's primary watermain from alongside the New England Highway without incident required a considered and collaborative approach. Nexus worked with the Toowoomba Regional Council and successfully moved the watermain without impacting the city's water supply.

Embankment 24

Overview

The overall earthworks volume for the TSRC Project is in excess of 10 million m³, which involved the excavation of 42 cuts and the construction of 40 earthwork embankments. The largest of these embankments, Embankment 24, is almost 80m in height and located near the top of the Toowoomba Range at Ballard. During construction of the TSRC, Embankment 24 experienced a complex deep-seated movement due to the re-activation of an ancient shear plane.

Figure 15: Works progress prior to June 2017 movement

Challenge

Ground monitoring systems were installed along the length of the TSRC which consisted of geotechnical instrumentation, such as inclinometers, surface survey stations and monthly high resolution aerial lidar surveys (undertaken by drones). In June 2017, ground monitoring systems identified movement at Embankment 24.

The TSRC Project Team undertook a highly detailed geotechnical investigation, consisting of over 50 boreholes, up to 85m in depth in this localised area. Geotechnical and Geological experts on large scale ground movements were engaged from Australia, New Zealand and the United States to help the project team thoroughly understand the extent and mechanism of the issue.

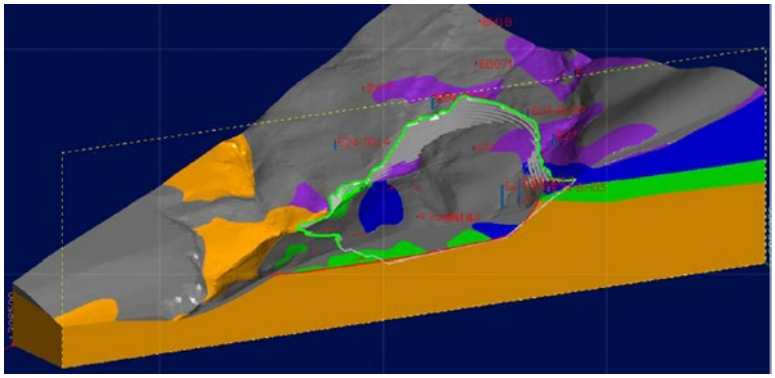

Figure 16: 3D Geological Modelling using Leapfrog

It was identified this ancient shear plane was located 30m below natural ground level, covered an area of approximately six hectares and occurred more than 25 million years ago.

Work commenced to design a solution to work with this ancient failure plane. The redesign of Embankment 24 included a highway geometry realignment to reduce the effective loading impact on the identified ancient failure plane.

The design utilised the latest modelling techniques, including 3D geological interpretation tools and highly sophisticated 3D geotechnical analysis.

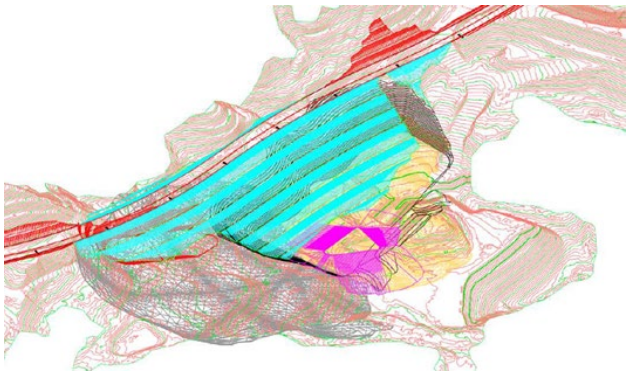

Figure 17: 3D geotechnical stability analysis

The geological interpretation of the existing ground and features was critical and essential for accurate stability analysis. Significant effort was placed on producing a highly accurate base geological model, from onsite geological mapping, topographical feature studies, geotechnical investigation interpretation and 3D geological interpretation modelling tools, such as Leapfrog.

Utilising accurate geological ground model interpretation, the stability analysis and design commenced, consisting of traditional 2D slope analysis and, additionally, 3D analysis to provide a high degree of accuracy. The 3D stability analysis model produced was an Australian first in terms of ground modelling sophistication.

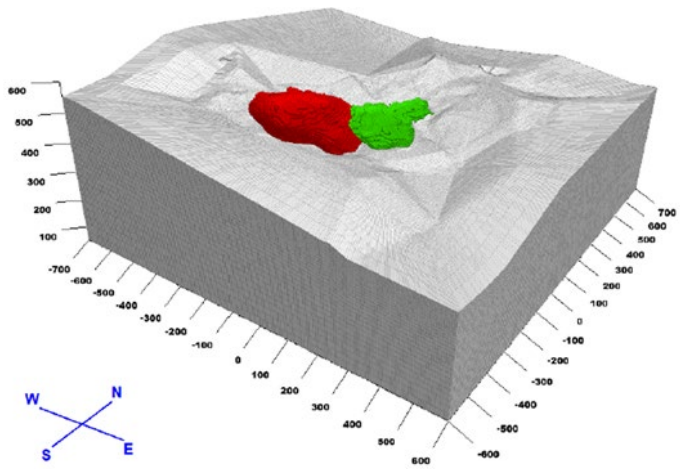

Figure 18: 3D geotechnical stability analysis model, Flac 3D

This model consisted of more than 10 million elements. Each model run lasted one week and required the use of joint computer servers from the United States and Spain. This modelling work undertook detailed analysis of the construction staging as well as the final design solution.

During the re-build works of Embankment 24, a detailed network of survey and geotechnical measuring instrumentation was installed to provide information on the ongoing stability of the embankment through all stages of the reconstruction. A highly experienced geotechnical engineer and geologist were engaged to inspect the works site each day, to ensure the ongoing safety and ensure a successful final works solution.

EXCELLENCE AND LEADERSHIP

Upholding Nexus Core Values

The Nexus core values of Collaboration, Accountability, Commitment, Respect and Trust are exemplified in the entire workforce and mirrored in the community. The following information shows how the Nexus workforce has upheld these core values and led the greater Toowoomba and Lockyer Valley communities through the TSRC journey.

Figure 198: Nexus core values

Encouraging an inclusive workforce

The Nexus Management Team led a culturally inclusive work environment. A number of Nexus subcontractors were from non-English Speaking Backgrounds, due to specific knowledge and expertise being contracted to the TSRC Project from the two parent companies Ferrovial and ACCIONA. To address cultural and language barriers, Nexus Delivery offered both Spanish and English lessons to all staff. This created a culture of acceptance, inclusiveness and greater communication between workers over the length of the TSRC Project.

In addition, the Nexus Delivery Management Team provided Family Day events where staff celebrated successes with family friendly activities and enjoyed time together outside of the TSRC construction project. Group activities outside of work hours, such as participation in community events, were implemented and well attended. These leadership initiatives resulted in an empowered workforce who were encouraged to have a voice and set the overall inclusive culture of the TSRC Project - positioning Nexus Delivery and the TSRC project as an employer of choice.

Figure 209: Nexus 'Ride the Range' cycling team made up of staff from TMR, Nexus and community Partner LifeFlight

Sustainability and environmental protection

The city of Toowoomba, commonly known as The Garden City, is home to more than 150 public parks and green spaces, extensive native landscaping and attracts locals and visitors to the Carnival of Flowers every September. It is the lifeblood and a source of biodiversity for the region that its residents are keen to preserve.

The Lockyer Valley straddles the Warrego Highway, covers an area of approximately 2200km² and is a rich agricultural area known as the salad bowl of the south east Queensland.

The TSRC was designed taking the environment into account and the sustainability of the materials used. For example, a series of technologies were used on the TSRC Project to reduce the maintenance required for the bridge infrastructures, and an enhanced solution has been incorporated for the road surface based on warm mixes with foamed bitumen, which diminishes the replacement and maintenance frequency, as well as reducing noise.

All of this has been combined with numerous actions to preserve the cultural legacy of the area, its heritage, the flora and fauna of the region, and the quality of life of its residents in general. Relationships have been built with the local community and all TSRC Project stakeholders including landowners, community groups, governments, councillors from two regions, wider stakeholders and organisations to add value to the community through regular meetings and the use of specific communication channels.

Figure 20: Water monitoring along the TSRC

These actions are designed around a single purpose – to give the Toowoomba and Lockyer Valley areas a new transport infrastructure that will bring it to the forefront and ensure more efficient freight mobility in the region in the future, without having a detrimental impact on the city's residents and their existing quality of life.

Work Safe – Play Safe – Home Safe
At the commencement of the TSRC project, the Project Management Team worked together to formulate a robust Workplace Health and Safety (WHS) plan, in addition to a Workplace Management Plan and Project Risk Register, and worked closely with WHSQ throughout the TSRC Project to manage incidents and respond to Prohibition and Improvement Notices.

To ensure ongoing safety on the TSRC Project, Nexus introduced a new Safety Leadership Team in March 2018 to guide its safety, operations assessment, training and compliance and improve its safety management supervision from Nexus Delivery, Nexus Infrastructure and TMR. This resulted in a lowering of safety incidents and greater worksite understanding of safety procedures.

Figure 211: TSRC safety poster, December 2018

Global focus, local benefit

The TSRC has had a direct impact on the greater Toowoomba and Lockyer Valley regions, not only in terms of increasing driver safety and mobility but also boosting the local economy.

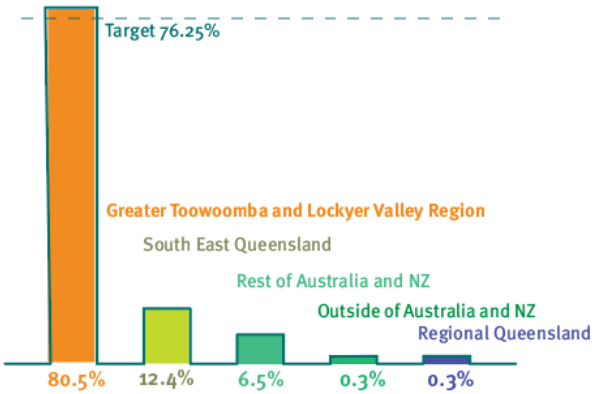

Figure 232: TSRC spend

In addition to the 1800 direct and indirect jobs during the design and construction, the TSRC Project is expected to contribute an extra $2.4 billion in economic activity to the region over 30 years. Opportunities for the supply chain, local hiring, the training and education of new specialist profiles and knowledge transfer are just some of the benefits that are also directly linked to the TSRC Project.

Protecting Toowoomba and Lockyer Valley's rich history

- **Local Indigenous cultural heritage**

A total of three Cultural Heritage Groups have been involved on the TSRC Project - the Western Wakka Wakka Aboriginal Party, Jagera Daran Aboriginal Party and the Yuggera Ugarapul Aboriginal Party.

The project worked closely with the three groups throughout the planning, clearing and earthworks phase of the project to undertake surface and sub-surface investigations and monitoring works. A prevalent collection of artefacts and culturally significant items were identified and recovered to minimise the impacts on the area's rich cultural heritage during the construction of TSRC Project.

Local Indigenous workers have also learnt skills in construction, leading to further training and job opportunities on the TSRC Project, while also finding connection to country and adding invaluable historical information to Australian records.

The TSRC demonstrated environmental best practice management in minimising impacts on Indigenous cultural heritage and shows compliance with Legislative requirements.

The main benefits that have been recognised in the successful management of Indigenous cultural heritage are:

- compliance with State legislation
- setting an industry benchmark as being the largest and possibly one of the first Infrastructure project in Australia dealing with two or more Indigenous groups
- minimising the impacts on cultural heritage finds
- protection of cultural heritage objects
- no delay in project completion due to potential media or compliance issues
- demonstrating the successful implementation of corrective actions and site-wide alerts
- providing a pathway for further research into Australia's Indigenous history.

- **Toowoomba's European heritage**

Nexus made an unexpected connection with Toowoomba's European heritage during the construction of the TSRC. A rare collection of coins was unearthed along the TSRC which could be one of the largest reported coin hoards in Australia.

More than 5,600 coins spanning from 1882 to 1940 were collected in an area along the TSRC. The coin collection ranged from a small number of Halfpennies and Pennies to a considerable number of silver Florins.

Investigations, led by Nexus, took many months to unearth the coins and accurately record the extent and importance of the find.

Figure 243: Coins unearthed during construction

Leading the local community

The following are examples of how Nexus has led the Toowoomba and Lockyer Valley communities.

- **Nexus Together sponsorship program**

Through the Nexus Together sponsorship program, Nexus helped community organisations focus on projects that reinforce community health, safety, education and the environment. These are all factors the Nexus team consider each day as they built the TSRC. One off grants of up to $4,000 were available quarterly for projects, events or initiatives that played a role in enhancing the liveability of the region.

- **Lights on the Hill**

Across the Queensland Queen's Birthday long weekend each year, Lights on the Hill (Gatton) hold a memorial trucking convoy and fundraising event in support of the trucking industry and in particular, those who have lost their lives in service to the industry. In support of this event Nexus provided its Roches Road compound as a lay down and rally area for the trucks prior to the event, provided financial support and donated prizes for Lights on the Hill fundraising events.

- **Corporate volunteering:**

As part of Nexus' commitment to the local community, Nexus initiated a corporate volunteering program in 2017. As part of this program, staff volunteered to work in a local soup kitchen run by Base Services Toowoomba. 'The Basement' soup kitchen is run for those in need of a free nutritious lunch and access to outreach support services. Nexus employees prepared, cooked and served a meal to more than 100 at risk members of the community.

- **Winter Drive**

Across July and August 2017, Nexus ran a successful winter goods drive to support the work of Base Services. Two ute loads of food and clothing items, in excess of $1,000 in value, were delivered to the Base and consequently distributed to the homeless living within the Toowoomba community. As part of the winter drive, Nexus also supported the launch of the '2nd Shot coffee van', a social enterprise that provides practical hospitality training to their clients as a pathway out of homelessness and into employment.

- **Science and Engineering Challenge**

During 2016 to 2018, Nexus was a major sponsor of The Darling Downs Science and Engineering Challenge, held over four days at the University of Southern Queensland (USQ) each year. The challenge allowed students to engage in a set of fun and competitive activities involving principles of science, engineering and technology. At the end of the four days, the school team with the most points received a trophy and went on to compete at the State Final 'Super Challenge'. Nexus supported this event with financial assistance and by contributing staff to oversee and assist in the running of the various engineering challenges assigned to students. Senior Nexus members were on hand to present the trophies and awards.

- **Basketball – community out-reach program**

Nexus supported the Toowoomba Basketball Association and Armstrong Auto Group Positive Choice through Basketball School Clinics through Toowoomba Mountaineers player sponsorship between 2016 to 2018. School-based basketball clinics are designed to give local school students the opportunity to learn new skills in an environment that promotes good life choices, teamwork and an active lifestyle. Approximately 4,000 students attended clinics across the Darling Downs in 2016, with similar numbers in 2017. Nexus also gave each student who participated in a clinic a free family pass to a home game of their choice to support the Toowoomba Mountaineers.

- **Community presentations**

Regular site tours and presentations were conducted throughout the TSRC Project to a diverse range of local, national and international community groups, schools and organisations. Topics included TSRC Project progress, aspects of geological and other challenges, while three African delegation visited to find out more about the financial set up of the TSRC Project, and a delegation from the University of Stuttgart visited to find out more about the legal aspects of the project

Further site visits for engineers and staff working with TMR, Toowoomba Regional Council and Lockyer Valley Regional Council, peak industry bodies and media have been conducted in conjunction with the Queensland Government.

- **RACQ Lifeflight Rescue partnership**

Nexus understands the importance of road safety education for young drivers. With this in mind, a three-year corporate sponsorship between Nexus and RACQ Lifeflight Rescue (aeromedical care) was developed. This partnership offered an opportunity for both organisations to develop and strengthen close relationships with the Toowoomba, Lockyer Valley and surrounding regional and rural communities by supporting and participating in the award-winning the Rotary Youth Driver Awareness program (RYDA) education program, promotion of activities and attendance at fundraising events.

This commitment to safer roads in the region is more than just building safer roads. It also educates next generation road users on driver behaviour in anticipation that LifeFlight responds to less road accidents.

Figure 254: Nexus team members with RACQ Lifeflight

Figure 265: A local workforce

IMAGES