

# WELCOME

## **This report, our 92nd Annual Report, communicates our operational, financial and business performance for the financial year ended 30 June 2018.**

It highlights our role, who and where we are, and reports on services we provide and performance in these areas. The report also looks at issues related to our business, explores the year ahead and comments on challenges and exciting opportunities the transport sector faces into the future.

Last year our annual report achieved a Gold Award at the Western Australian Institute of Public Affairs Annual Reporting Lonnie Awards and a Gold Excellence Award from the Australasian Reporting Awards. It was also recognised as a finalist for the Public Sector Online Reports.

We have once again committed to producing an online only annual report, minimising both impact on the environment and costs associated with producing a printed version. We believe enhancing our information through up-to-date online content coupled with information on our achievements over the past 12 months, assists understanding of our activities and achievements.

### **Acknowledgement of Country**

Main Roads Western Australia acknowledges the traditional custodians throughout Western Australia and their continuing connection to the land, water and community. We pay our respects to all members of these Aboriginal communities, their cultures and to Elders both past and present and their leaders into the future.

### **Reporting Frameworks**

In preparing this report, we have continued to move towards greater adoption of the International Integrated Reporting Council (IIRC) Framework. In addition, we have applied the Global Reporting Initiative (GRI) Standards: Core option and operated in line with the *Financial Management Act 2006* (WA) and Treasurer's Instructions and the 2018 Western Australian Public Sector Reporting Framework.

### **Reporting Journey**

We have further considered how to present the value created by our activities, and this year we continue our progress towards incorporating the principles outlined in the IIRC Framework. The aim of integrated reporting is to promote a more cohesive approach to corporate reporting by explaining how we create value over time. Our intention is to show the benefits to all stakeholders including employees, customers, suppliers, business partners, local communities, legislators and policymakers.

With respect to our Global Reporting Initiative (GRI) reporting, we have now moved from GRI G4 to the GRI Standards: Core option and continue to develop our disclosure to 'Comprehensive' level with the inclusion of more reporting against indicators included at this level. This is part of our continuing commitment to GRI, which provides the world's most widely used standard on sustainability reporting and disclosure.

We continue to explore our understanding and adoption of these approaches in relation to our services and performance. We believe these approaches enable better decision-making by businesses, governments, society and our community, and decisions based on information that matters. We also seek external assurance each year on key areas of focus.

### **Comments and Feedback**

Comments or feedback on the approach that we have adopted or any element of the annual report would be most welcome.



**To the Honourable Rita Saffioti, MLA  
Minister for Transport; Planning; Lands**

In accordance with Section 63 of the *Financial Management Act 2006* (WA), I hereby submit for your information and presentation to Parliament, the Annual Report of Main Roads Western Australia for the financial year ended 30 June 2018.

The Annual Report has been prepared in accordance with the provisions of the Financial Management Act and any other relevant written law.

A handwritten signature in black ink, appearing to read 'Peter Woronzow'.

**Peter Woronzow**  
Acting Managing Director  
of Main Roads

28 August 2018

A handwritten signature in black ink, appearing to read 'Richard Sellers'.

**Richard Sellers**  
Commissioner of Main Roads

28 August 2018

## Our Stories

Following are some of the highlights from across the past year. Information on each highlight can be found throughout the report.



### Culturally Significant Matagarup Bridge, a Complex Feat of Engineering

Matagarup is the name given by traditional custodians to the area around Heirisson Island and means 'place where the river is only leg deep, allowing it to be crossed'. The bridge arch assembly and complex lifting process was an impressive feat of engineering, a process not previously undertaken on an infrastructure project in Western Australia.



### Committed to Increasing Aboriginal Employment Initiatives

Main Roads has positioned itself as a State Government leader in providing unprecedented opportunities for Aboriginal employment within our projects and work activities.



### Indian Ocean Drive Safety Review

The Indian Ocean Drive safety review conducted in collaboration with Road Safety Commission and Western Australia Police Force, illustrates the state government's commitment to road safety.



### Community Engagement Critical to Margaret River Perimeter Road Project

Community and stakeholder engagement has been critical to the Margaret River Perimeter Road Project. When completed, the project will improve traffic flow on Bussell Highway, increasing transport efficiency and reducing travel times.



### NorthLink WA - Massive Undertaking Already One-Third Complete

After more than two years of design and construction, the southern section of NorthLink WA was completed while managing 70,000 vehicle movements along Tonkin Highway each day.



### Sustainability the Winner for NorthLink WA

Award-winning results to develop a sustainability culture across the NorthLink WA southern section team have been delivered through our partnership with contractor John Holland.

## OUR STORIES

## CULTURALLY SIGNIFICANT MATAGARUP BRIDGE, A COMPLEX FEAT OF ENGINEERING

Matagarup Bridge enhances patron connectivity between East Perth, Burswood Peninsula and Optus Stadium. The bridge helps move event-day patrons away from residential streets in East Perth and connects them to Perth CBD and car park facilities. It will also provide year-round access for residents and the community to playgrounds, picnic and barbeque areas plus a network of walking and cycling tracks. It is set to become an iconic tourist attraction.

Matagarup Bridge, named in recognition of the cultural significance of the immediate Swan River area to the local Whadjuk community, is a key component of the Optus Stadium integrated transport plan.

Matagarup is the name given by traditional custodians to the area around Heirisson Island and means 'place where the river is only leg deep, allowing it to be crossed'.

The bridge arch assembly and complex lifting process was a feat of engineering, a process not previously undertaken on an infrastructure project in Western Australia.

Matagarup Bridge was delivered by the Swan River Pedestrian Bridge Alliance (SRPBA) comprising Main Roads, York Civil and Rizzani de Eccher.

The central bridge arch, made from two 'wishbone' structures, is approximately 72 metres above the water at its highest point and the steel and concrete deck stretches 370 metres from bank-to-bank with a steel cable-stay span of 160 metres at its centre. Two smaller arches, either side of the central arch, complete the overhead structure.

Only two concrete piers are located in the river, respecting the area's heritage and minimising impact on the Swan River. The bridge deck is at least nine metres wide, wider at pause points, and includes shelter.

The steel bridge components were supplied and fabricated via a sub-alliance between Main Roads, York Civil, Rizzani de Eccher and Western Australian company Civmec. Sub-contractors Fremantle Steel and Adwest provided bridge deck and balustrade works respectively.

To accommodate future plans for a tourism venture, a walkway and lookout has been provided in the large central river arch. To see videos taken during construction, visit our YouTube site.





## OUR STORIES

# COMMITTED TO INCREASING ABORIGINAL EMPLOYMENT INITIATIVES

We actively support the State Government's Aboriginal participation policy through several initiatives that have provided significant opportunities for Aboriginal employment within our projects and work activities.

The Strategic Business Case for Aboriginal Employment Initiatives was developed in consultation with key representatives from Aboriginal communities across the state, government agencies and contractors to identify what initiatives we can implement to improve the livelihood of Aboriginal people.

Championed and led by the Aboriginal Employment Initiatives Taskforce these initiatives include:

- Creation of a Senior Advisor Aboriginal Engagement role dedicated to exploring opportunities and engagement with Aboriginal businesses. This role is currently under recruitment.
- Development of a Program Implementation Plan framework based on the prioritised list of strategies in the business case.
- Incorporation of contract clauses for mandatory requirements for Aboriginal participation, including dedicated Aboriginal trainees and employment targets in our Road Network maintenance contracts; and stretch targets for employment of Aboriginal people and businesses, and incentive payments for major works.
- Formation of an Aboriginal advisory group comprising of external Aboriginal business leaders.

- Piloting the mandatory requirement for Aboriginal Participation Plans with weighted criteria and price preferences for other Capital Works tenders as well as the Goods and Services tenders.

All contracts in the Metropolitan Region require a minimum of 10 per cent of the workforce to comprise of Aboriginal people. In addition, a target of 2 per cent of engaged businesses are to be an Aboriginal business registered on the Aboriginal Business or Supply Nation directories.

Regionally, we are not only reaching our targets, but exceeding them. In the Mid West-Gascoyne Region and Wheatbelt Region, currently 37 per cent and 23 per cent of the workforce respectively, comprise of Aboriginal people.

Other major achievements within our projects include 86 per cent Aboriginal employment on site in the first month of construction of the Broome Cape Leveque project, of which 95 per cent were local. For the Wyndham Spur and Maggies Jump Up sections upgrades, more than 45 per cent of total labour hours were undertaken by Aboriginal people. For the Bow River Bridge, 31 per cent of total labour hours were conducted by Aboriginal people.

This is a new era for Main Roads. It is estimated that 170 Aboriginal employment opportunities have been created as a result of our initiatives. These enable a focussed approach to increasing employment of Aboriginal people and businesses across our organisation and ultimately, within the road and bridge construction and maintenance industry.



## OUR STORIES

## INDIAN OCEAN DRIVE SAFETY REVIEW

Core to our 'Safe System' approach is the belief that no person should be killed or seriously injured on our roads. In line with this belief, Main Roads joined experienced staff from the Road Safety Commission and the Western Australia Police Force to conduct a road safety review on Indian Ocean Drive, between Two Rocks and Lancelin. Responding to an increase in serious crashes along this section of road, the review examined road safety risk, road engineering and driver behaviour.

Using a 'Safe System' approach, the team reviewed the issues and released a report in November 2017 that outlined a number of recommendations including:

- immediate reduction in the speed limit as an interim measure to support other short term infrastructure improvements
- interagency communication and education strategy
- increase in police presence, focusing on unsafe road use
- centre and edge line maintenance to enhance visibility and reflectivity
- installation of audible edge and centre-lines
- improved signage
- vegetation clearing to improve sight lines
- design review of intersections between Two Rocks and Lancelin
- assessment and management of roadside
- Wide Centre-Line Treatment.

Support from the state and federal governments was provided in the form of \$7 million funding in 2017-18 for the construction of four overtaking lanes on Indian Ocean Drive, between Two Rocks and Lancelin.

Additionally, the state government committed \$20 million from the 2018-19 budget for seal widening incorporating a Wide Centre-Line Treatment to be applied to the section of road. Relatively new to Western Australia, the treatment provides a one-metre wide centre-line coupled with audible line marking. This creates a greater separation between opposing traffic, allowing for additional reaction time if a driver unintentionally drifts across the centre-line towards oncoming traffic. This treatment is also included in the design of four new overtaking lanes between Seabird and Lancelin, which commenced in April 2018.

The combined effort to undertake a review of this magnitude highlights the State Government's commitment to road safety. We will continue to monitor the safety performance of Indian Ocean Drive and further measures will be recommended on a priority basis as required across the road network.

To see more about the review and the works being done, videos are available on our YouTube Channel.



## OUR STORIES

## PHILLIPS RIVER BRIDGE

During February 2017, more than 60 per cent of the Great Southern Region road network sustained damage due to widespread flooding. The preliminary estimate of damage to State Government assets was \$26.5 million.

The Phillips River Bridge, located on South Coast Highway approximately 23 km west of Ravensthorpe, was one of the most severely impacted sites with the structure completely destroyed by the floods. Connecting local communities east and west of the river, the bridge provided access to a broad range of goods and services and medical facilities. The loss of the bridge, and the approaches to it, left communities isolated and caused significant social and economic challenges.

Temporary restoration works were immediately undertaken using local contractors and innovative contracting arrangements. In March 2017, east and west connectivity was restored with the establishment of a side-track around the site.

In parallel to the side-track construction, designs were drawn and contract arrangements put in place to re-establish this permanent connection.

Working closely with the Shire of Ravensthorpe and local contractors to fast-track its reinstatement, we were able to open the new Phillips River Bridge to all road users in February 2018. The new structure is double the length and 1.5 metres higher than its predecessor. Most importantly, it has been constructed to withstand a one in 100 year flood event, similar to that experienced in 2017.

We have received many compliments about the new bridge and our responsiveness, with thanks from local communities.

## OUR STORIES

## THE NEW MANDURAH TRAFFIC BRIDGE

The new Mandurah Traffic Bridge has increased traffic capacity and provides the community with an iconic structure and improved amenities in the heart of Mandurah.

Replacement of the old bridge, which opened in 1953, was necessary as it had reached the end of its life and no longer had capacity for current volumes of traffic.

We formed a collaborative partnership with the City of Mandurah, working closely with the community and design and construction contractor Georgiou Group to complete the new Bridge.

The stunning, new curved structure was incrementally launched in 13 segments from a specially constructed concrete casting bay on the western foreshore over Mandurah Estuary to the eastern foreshore.

The new bridge's four traffic lanes are divided by a concrete median with a separate five metre-wide pedestrian and cyclist path located on the north-side of the bridge.

The bridge was open to traffic in December and local schoolchildren, who recently wrote about the significance of the Mandurah Traffic Bridge, were among the first to cross on the new structure's extra lanes.

Completing the roadworks before the busy Christmas trading period helped to boost and improve access for the community to the shopping and cafe precincts in Mandurah.

Demolition of the old bridge and work to complete paths, feature boardwalks, fishing platforms and landscaping were completed in March 2018.

A community picnic on Mandurah's eastern foreshore was held in April 2018 to celebrate the official completion of the new bridge. The project has been a great example of collaboration between government agencies and engagement with the community and stakeholders.





## OUR STORIES

## COMMUNITY ENGAGEMENT CRITICAL TO MARGARET RIVER PERIMETER ROAD PROJECT

The seven kilometre Margaret River Perimeter Road extends from Airport Access Road north of Margaret River to the Bussell Highway south of Margaret River. Improvement works are underway to provide an alternative, high standard route for heavy vehicles around the town of Margaret River. This work will also improve traffic flow on Bussell Highway, increasing transport efficiency and reducing travel times for road users.

Construction of Stage Two followed a significant program of community and stakeholder engagement. The aim was to generate support for the project and assure all stakeholders that we would manage and mitigate any potential impacts. This involved extensive liaison with local community groups and the residents who would be affected during construction.

Direct contact with residents prior to work commencing provided everyone with a clear understanding of what was occurring during the project and what to expect in terms of the works being delivered and what that might mean for them.

From 2012, a Community Reference Group consisting of residents, interest groups, environmental stakeholders, cycling and walking groups, business organisations and the local Shire was formed.

The Group had input into the design and was responsible for the inclusion of a pedestrian bridge that will separate pedestrian and cyclists from the traffic bridge ultimately improving safety and increasing community amenity. The bridge links to existing trails from town, Darch Book and through to the 10 Mile Dam.

Community activities, such as site visits prior to construction, were critical to gain an understanding of the road footprint and clearing requirements in such an environmentally sensitive area.

In mid-2017 we conducted road alignment walk throughs providing an opportunity to explain the clearing at the entrance to town, and how we would undertake major landscaping and revegetation to beautify the area. In addition, a Shire-wide briefing ensured all staff were aware of the project by generating an understanding of construction processes and project benefits.

## OUR STORIES

## NORTHLINK WA – MASSIVE UNDERTAKING ALREADY ONE-THIRD COMPLETE

After more than two years of design and construction, the southern section of NorthLink WA was completed while managing 70,000 vehicle movements along Tonkin Highway each day.

Now at freeway standard, the free-flowing link with six lanes between Guildford Road and Reid Highway is the first section of this \$1.02 billion State and Federally funded initiative and is already proving it was worth the wait.

Completed by John Holland, the southern section includes around six kilometres of four metre-wide shared path with local connections providing a safe and environmentally friendly way for cyclists and pedestrians to travel.

The Hampton Park Primary School community is now using the new Tonkin Highway underpass, which features artwork created with the school's 2017 final year students.

Further along Tonkin Highway, joint-venture contractor Great Northern Connect has the central section taking shape with the design complete and construction works at the half-way mark.

The four bridges and four underpasses are also taking shape at the Tonkin Highway and Reid Highway interchange. Once complete, this will be the state's largest interchange.

June 2018 saw the majority of noise walls in place, all road bridges started, earthworks more than half-way completed and asphalt works 35 per cent complete.

CPB Contractors began work on the northern section in January 2017 and have now completed the design phase. The majority of clearing is finished and drainage and earthworks have progressed, allowing construction to continue safely through the winter months.

As part of our ongoing commitment to keep the community informed we are doing regular updates about the works on the Project website. Including video footage of the works as they progress.



## OUR STORIES



## SUCCESSFUL TRIAL OF FULL FREEWAY CLOSURES FOR MAINTENANCE WORKS

We began trialling full freeway closures for the completion of routine maintenance in late 2017.

In March 2018, in collaboration with DM Roads, we successfully completed a full closure of the Mitchell Freeway, over five nights, for routine maintenance works.

More than 280 people from nine organisations came together, working under one closure and one set of traffic management, coordinated by DM Roads' Electrical Services team.

The full closure enabled all required maintenance activities on a section of freeway to be completed. This included drainage inspections and verification; vegetation maintenance; replacement of electric light units, lamps and gear trays; barrier repair works; line marking; and litter collection and roadside sweeping.

At the same time, the Public Transport Authority were able to take advantage of the closure to complete essential barrier and vegetation works along the rail corridor.

Completing routine maintenance works during a full closure had significant safety benefits for workers, who otherwise face numerous hazards and near misses when members of the public enter or drive unsafely near worksites. Full closures almost completely remove this risk and ensure workers can concentrate on the task at hand, thereby also improving productivity.

Full closures also significantly reduce the impact on the travelling public. If completed under standard traffic management, these works would have required the freeway to be closed for 38 nights, as opposed to just 5.

In addition, the financial benefit is notable, resulting in savings of almost \$200,000, funds that have been reinvested into the maintenance budget to ensure our roads remain safe, efficient and reliable.

The success of these works has led to plans for full freeway closures to be used as our standard approach for freeway maintenance.



## OUR STORIES

## STRATEGIES FOR ABORIGINAL EMPLOYMENT AND BUSINESS ENGAGEMENT WELCOMED BY LOCALS

We are delivering a project to complete the sealing of the Broome Cape Leveque Road on behalf of the Shire of Broome. The remaining 90 kilometres of road will be sealed improving access to Aboriginal communities and local industry, especially during the wet season when there can be lengthy road closures.

The 205 kilometre local government road under the care of the Shire of Broome provides the main transport link through the Dampier Peninsula. The route enables vehicle access to the estimated 1,425 population including 71 Aboriginal communities, pastoral stations, pearling industries and tourist destinations.

The project was identified as a priority in the Northern Australia Infrastructure Audit as a road requiring upgrade. The audit acknowledged the significant influx of tourists to the region during June to October often resulting in a tripling of the population from 13,000 to around 40,000 people.

Using the State Government's new Aboriginal Procurement Policy and the Australian Government's Framework to maximise indigenous employment and business opportunities in Northern Australia, a Project Procurement Strategy was developed. It set Aboriginal engagement targets and included strategies to maximise Aboriginal employment and business engagement.

These targets include seeking to achieve Aboriginal employment of 45 per cent, of which 80 per cent will be local and Aboriginal business engagement at 20 per cent. To ensure these targets are met, all tender documents contain clauses relating to Aboriginal employment and training. In addition, preferences are applied for local and Aboriginal businesses and employment under an extensive Plant Panel contract.

The project will be delivered over three to four years to ensure the employment outcomes are sustained. While the project is in its early stages, 12 of the 16 contracts awarded to date have been to local Aboriginal businesses. Aboriginal employment on site in the first month of construction was 86 per cent, of which 95 per cent were local people from Broome and the Dampier Peninsula. The project and delivery approach is being embraced by local Aboriginal people.

Minister for Transport, the Honourable Rita Saffioti participated in a traditional smoking ceremony with Aboriginal elders and community members at the site locally known as 'Dinner Camp'. Traditional Custodians from Jabirr Jabirr / Ngumbarl, Bindunbur, Yawuru, Bardi and Jawi also took part in the ceremony and were joined by local contractors Nirrumbuk, Roadline and the Main Roads' project team. As part of the celebrations fifteen Aboriginal Elders spoke about what the project meant to them.





## OUR STORIES

## STADIUM TRAFFIC MANAGEMENT KEEPS OUR COMMUNITY SAFE AND TRAFFIC MOVING

Perth's Optus Stadium is a 60,000-seat, multi-purpose venue capable of hosting a diverse range of events. One of the most significant innovations for this venue has been to achieve a predominantly 'public transport' mindset, successfully catering for over 50,000 people at once, when Perth has an acknowledged 'private vehicle' orientated culture.

The Stadium precinct includes a purpose-built train and bus station to accommodate large crowds attending events at Optus Stadium and surrounding area. All events at Optus Stadium are joint-ticketed, which means the cost of public transport is included in event tickets for three hours either side of the event. The number of public transport ticket users confirms the strategic target of 80 per cent has been regularly met or exceeded since the stadium began operating.

Underpinning the strategic Traffic Access Plan is the Operational Event Plan (OEP), developed by the Transport Portfolio partners, working collaboratively with relevant government and non-government entities. The OEP is the transport, traffic, cycling and pedestrian management solution to suit any type of event. The Plan has been universally adopted to ensure we can achieve positive stadium traffic management outcomes.

Since its opening in January 2018, Optus Stadium has successfully hosted a range of events. The events, closely monitored and managed through the Real-Time Operations Team at the Traffic Operations Centre, more recently the Road Network Operations Centre, in the Stadium Incident Room and by numerous on-ground responders; collectively keep patrons' safe and traffic moving.

The stadium project has far-reaching benefits for the Perth community through new revenue opportunities from provision of food and beverages within the stadium, which attracts international sporting and entertainment events, and where possible increasing business in the neighbouring suburbs. We are proud to be working closely with our Portfolio colleagues and teams associated with events to ensure everyone can quickly, easily and safely get to and from the stadium.

## OUR STORIES

## WILDFLOWER CAPITAL INITIATIVE

The Wildflower Capital Initiative is a cross-agency program that seeks to promote Perth by showcasing the unique local flora as a wildflower theme in the design and character of public open spaces and major infrastructure. It is part of a state-wide initiative (Wildflower Way) with a focus on enhancing the community and tourist experience of WA. The benefits of this initiative include:

- promotes Perth as a 'Wildflower Capital' and a starting point for regional wildflower tourism
- improves the aesthetic of the city for visitors and ties in with various tourism initiatives such as the Kings Park Wildflower festivals
- promotes water wise and native planting practices
- supports the Urban Forrest Strategy
- provides an overarching framework for already existing wildflower planting initiatives
- promotes exposure and understanding of Nyungar culture by floristically demonstrating the six Nyungar Seasons.

We have committed to establish and maintain feature wildflower plantings and urban design treatments at 10 selected locations on major roads in the Perth metropolitan region as our contribution to the initiative.

We have collaborated with Botanic Gardens and Parks Authority, Office of the Government Architect, Burswood Park Board, Department of Planning, City of Perth, and relevant local government authorities to develop a detailed implementation strategy. Three Wildflower Capital Initiative sites were established in the winter of 2017:

- Graham Farmer Freeway at Victoria Park Drive near the stadium
- East Parade
- Causeway East near Victoria Park Bus Transfer Station.

More than 30,000 individual native, iconic Western Australian plants were planted across the three sites, with species selection reflecting the cycle of the six Nyungar seasons. The use of mulch and hardscape treatments was incorporated for visual enhancement of the feature areas. The wildflower theme has also been incorporated into urban design treatments at selected bridges, walls and screens with the restoration of murals and repainting of retaining walls.

The Wildflower Capital Initiative is an extension of our long accepted practice of using local native species in landscaping works and will continue in 2018 and 2019.



## OUR STORIES

## SUSTAINABILITY THE WINNER FOR NORTHLINK WA

The partnership we built with contractor John Holland to develop a sustainability culture across the NorthLink WA southern section team has delivered award-winning results.

Setting and pursuing ambitious targets the team worked together to achieve a 'leading' rating score of 93 – the highest WA score ever and the second highest Infrastructure Sustainability (IS) Council of Australia score in Australia for a transport infrastructure project.

The team also took out two 2017 Sustainability in Infrastructure Awards.

- The IS Impact Award recognises the project that exhibits the most outstanding leadership and greatest contribution to advancing infrastructure sustainability in Australasia.
- The IS Outstanding Achievement Award recognises the IS certified project that has demonstrated the highest overall excellence and sustainability achievements.

Aiming to deliver a genuinely sustainable project, the southern section team embraced the sustainability challenge and used it as a catalyst to promote innovation across all areas of economic, environmental and social responsibility.

The team's commitment to reframing the engineering challenge achieved sustainability initiatives across design, procurement and construction phases.

Lifecycle assessment tools were used to assess the environmental aspects and potential impacts of the project over its design life, enabling the potential impacts to be evaluated and interpreted to better inform decision-makers.

Some of the initiatives include:

- adaptive and dimming lighting
- asphalt treatments that improve and extend the life of pavement as well as optimising recycled product
- design initiatives including a three-pin arch pedestrian underpass
- awareness raising including a supplier sustainability day
- a four metre-wide shared path for pedestrians and cyclists
- a grade-separated roundabout at Morley Drive offering safety benefits for motorists and a reduction of conflict points; this encourages a free-flowing interchange that reduces congestion and associated emissions
- trial of a solar powered permanent Variable Message Sign using wireless communication technology.

We define sustainability as a commitment to 'creating lasting benefits through an integrated consideration of social, environmental and economic aspects in all that we do'. To facilitate this commitment, sustainability has been included across all NorthLink WA project objectives.

## OUR STORIES

## OPEN DATA PORTAL GAINS INDUSTRY RECOGNITION

We established our leading position in relation to the Western Australia Whole-of-Government Open Data Policy by this year releasing more data sets through our 'Open Data, Maps and Apps' portal and gaining industry recognition.

Bringing together 275 existing data sets, Open Data, Maps & Apps provides greater public access to our data in one manageable and easy to use platform.

The data provided through the portal can be used to build innovative apps and tools for WA commuters. It enables developers and data users to access road asset data as well as near real-time, statistical road and transport information via feeds that can be used to develop transport-related products and services for the community.

Our data is already being used by a range of organisations, including Perth Airport and Google, on applications designed to make it easier for road users to plan their journeys and keep up to date with traffic conditions.

Over time, more data sets will be made available and the portal will evolve into a broader public platform for exploring, visualising and downloading open data. With industry engagement the portal will increasingly be used as a platform for more collaboration across the transport industry to provide faster, smarter and more responsive services to the community.

The successful introduction of the platform was recognised by government and industry when we received a Leadership in Government award at the Western Australia OpenGov Forum in December.

In May 2018, the portal was one of four projects shortlisted for the Award for Most Effective Government Solution at WA's INCITE Awards, recognising performance in information, technology and telecommunication. It was also shortlisted for the Institute of Public Administration 2018 Achievement Award for Best Practice in Collaboration between Government and Non-Government Organisations.

The Open Data Portal project is an outcome of our Innovation and Research Program.



## OUR STORIES



## TRAINEE DEDICATION AND DETERMINATION REWARDED

Sharni Bennell joined our South West office as a business services trainee in late 2016. Having grown up in Bunbury, Sharni spent three years in Port Hedland before returning home to complete years 11 and 12 at Manea Senior College.

Sharni's opportunity to work with us as a trainee came through the Nudge Community Engagement and Recruitment Process. Nudge is a for-purpose charity that focuses on getting young people into jobs and training opportunities. It is committed to empowering business through community employment.

Supported by the Nudge team, Sharni quickly demonstrated her drive and determination to become a valued member of the South West Region's Business Services team, undertaking tasks including records management, business and administrative support.

This same dedication and determination was directed towards her Certificate IV in Business Administration studies. Sharni completed her training ahead of time in 2017 and was successful in obtaining a role as a Business Support Officer in the South West Region.

Sharni's achievements were recognised and rewarded at South Regional TAFE's 2017 awards presentation night acknowledging students who had demonstrated outstanding performance and academic excellence. Sharni came away from the night with the South West Zone Trainee of the Year Award and the South Regional TAFE Trainee of the Year Award. She was also awarded a Certificate of Excellence for her studies.





## OUR STORIES

## TALKBACK RADIO SPOT POPULAR

Our Manager Traffic Management Services Jerko Ostojic is a regular guest speaker on 882 6PR radio talkback session with Oliver Peterson. Jerko provides a direct conduit to Main Roads for radio listening members of the public, every second Wednesday from 3.30pm to 4.00pm. Listeners can raise concerns, share knowledge and ask questions about Main Roads' matters.

Through radio, we can share our knowledge of the network, clarify responsibilities and promote our services such as the Customer Information Centre, Real Time Traffic Operations, Incident Response Services, the fault reporting system, live Travel Map, our website and the social media forums we have available.

We benefit greatly from the invaluable insight gained through the talkback sessions, to better understand the issues that matter to members of the community and our road users. Engaging with the public via radio is not new for us and similar radio spots were a regular feature some years ago.

More recently the WA Police, who also provide regular talkback opportunities on 6PR, were receiving numerous questions on road-related matters, in response to the significant public interest, we re-established our regular talkback arrangement.

Jerko has an extensive and broad knowledge of the road network and has cultivated collaborative partnerships with local government, built from a career spanning more than 20 years in Traffic Management Services. He has been a guest speaker on 11 talkback sessions since they commenced in October 2017. From the diverse calls he has fielded, 22 follow-ups were required, relating to traffic signal timing, line-marking and intersection layouts, safety, projects, street lighting and council configuration of traffic signals.

His 6PR radio broadcasts with Oliver Peterson on Perth LIVE can be heard via podcast or call in to have your question answered.

## OUR STORIES

## PROJECT ACHIEVES FEDERAL SAFETY ACCREDITATION

As we are directly managing the federally funded Broome Cape Leveque Road upgrade project, we needed accreditation from the Office of the Federal Safety Commissioner which works with industry and government on health and safety standards on Australian building and construction projects.

The audit involved an in depth review of our Safety Management Systems in an array of categories. Specific attention was paid to:

- Occupational Health and Safety Management System compliance
- risk management and the integration of design into the risk management process
- high-risk operational activities
- auditing
- the commitment of our senior management implementing Main Roads' operational health and safety systems.

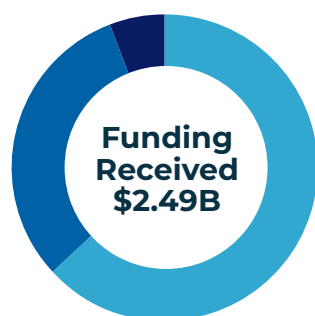
With the hard work of a dedicated project team, we obtained the accreditation with minimal corrective actions.

A six monthly maintenance review will be conducted by the Office of the Federal Safety Commissioner in which the Corporate Safety Team will continue to work with the Regions to ensure health and safety are the foundations on which we deliver direct-managed federally funded projects.

We are taking the opportunity to apply improvements and lessons learnt through this process to improve our existing corporate practices.

## Our Finances

Our financial summary shows key elements of performance with further detailed information in Financial Statements and Notes.



**Funding Sources 2017-18**

- State – \$1.575 billion
- Commonwealth – \$772 million
- Other – \$145 million

### Total assets

	\$ billion
Roads	14.3
Land under roads	23.6
Bridges	3.9
Other infrastructure	2.0
Property and plant	0.4
Amounts receivable	2.5
Other assets	0.7
<b>Total</b>	<b>47.4</b>

### Total expenditure by type

	\$ million
Employee benefits and superannuation	72.0
Supplies and services	519.0
Depreciation expense and amortisation	349.0
Grants and subsidies	271.1
Other expenses	46.1
Capital expenditure	1,065.2
<b>Total expenditure</b>	<b>2,322.4</b>



# Our Workforce

Our workforce profile helps to illustrate who we are. We include more detailed information in the section Our People.

- **Full-time employees** – 1026
- **Gender** – Male 69%, Female 31%

## Regionally Based Workforce

Region	Headcount
Great Southern	30
South West	62
Mid West-Gascoyne	44
Kimberley	29
Wheatbelt	34
Pilbara	33
Goldfields-Esperance	21

## Demographics

Demographics	%
Female employees	31
Male employees	69
Indigenous Australian employees	2
Employees with a disability	3
Employees of culturally diverse background	22

# Our Performance

Around the world, governments and communities are seeking to understand whether services delivered by agencies meet expected goals and outcomes. One way to determine this is through timely, accurate and meaningful performance information. Done well, this assists in improving accountability and transparency and aids in our decision-making. We use performance measurement to gain insight into, and make judgements about, the effectiveness and efficiency of the services we are providing. Communication of our performance is part of our commitment to sustainable reporting and good governance.

The following scorecard provides a summary of how well we are performing on a wide range of issues material to our business and our customers. Whilst this provides a snapshot, more detailed information and other measures are included throughout the report.

## OBJECTIVES



**Movement:** Improve mobility of people and the efficiency of freight



**Customers:** Provide a transport network centred on what our customers need and value



**Safety:** Provide improved safety outcomes for all users of the transport network



**Sustainability:** Develop a sustainable transport network that meets social, economic and environmental needs

## GOVERNMENT GOAL

### Future jobs and skills

Grow and diversify the economy, create jobs and support skills development

Key Outcomes Sought	Results	Target	Actual	Status
<b>State Development</b> Facilitation of economic and regional development	Our target for the average return on which road and bridge construction expenditure will deliver future economic benefits to the community was exceeded and continues to improve	2.6	3.3	✓
	Contracts completed on time came in below target but significantly improved compared to last year	90	75	✗
	Contracts completed on budget exceeded our target showing continued strong performance	90	100	✓
<b>Our People</b> To attract develop and sustain organisational capability through our people	Full-time equivalents (average)	N/A	1026	✓
	We exceeded our target in respect to women in leadership positions at Level 6 and above but more work remains	20	21	✓
	There was a high level of completion of Career Conversations coming in just under our target	100	96	✓

Achieved ✓ More work to do ✗ On track ⚙

















**GOVERNMENT GOAL**  
**Strong Communities**  
 Safe communities and supported families

Key Outcomes Sought	Results	Target	Actual	Status
<b>Road Safety</b> Provision of a safe road environment	Community satisfaction with road safety is performing well coming within our target but slightly lower than last year	90	88	✓
	Contracts completed on time came in within our target and was an improvement on last year	90	89	✓
	Contracts completed on budget exceeded our target showing continued strong performance	90	92	✓
	Black Spot location indicator exceeded our target continuing strong performance	8.26	7.92	✓
<b>Community Access</b> Improved community access and roadside amenity	Community satisfaction with cycleways and pedestrian facilities came within our target and has improved since last year	90	89	✓
	Percentage of the year that 100 per cent of Main Roads State Road Network was available came within our target	95	87	✓
	Contracts completed on budget exceeded our target showing continued strong performance	90	100	✓
	Contracts completed on time was below our target and a drop from last year's result	90	64	✗
<b>Enhancing Safety, Health and Wellbeing</b> Consistently leading safe outcomes	There were no Fatalities last year	0	0	✓
	Our Lost-time injury frequency rate was below target but increased on previous years results	2	1.1	✓
	Our Incident rate was below target	0.6	0.3	✓
	We exceeded our target of helping injured workers returning to work within 13 weeks	90	100	✓
	We exceeded our target of helping injured workers returning to work within 26 weeks	100	100	✓
<b>Improving Customer Experience</b> Providing a transport network centred on what our customers need and value	Community satisfaction with Main Roads came within our target and has decreased slightly since last year	90	88	✓
	The aim to continue to increase the number of calls self-serviced was not achieved this year but did improve compared to last year	Increase %	-3	🔄
	The target for resolving enquires at first point of contact with our customer information centre was not achieved and was lower than last year	80	65	✗

Achieved ✓ More work to do ✗ On track 🔄

**GOVERNMENT GOAL****Better Places**

A quality environment with liveable and affordable communities and vibrant regions

Key Outcomes Sought	Results		Target	Actual	Status	
<b>Road Maintenance</b> A well-maintained road network	Community satisfaction with road maintenance came in below our target with a slight decrease from last year		90	82		
	Preventative and proactive maintenance undertaken on the network came within our target and is consistent with previous year's results		85	84		
	Average \$ cost of network maintenance per lane kilometre of road network was higher than our target due to the impact of natural disasters		7,250	9,129		
<b>Road Efficiency and Road Management</b> Reliable and efficient movement of people and goods	Community satisfaction with Main Roads came within our target however has decreased slightly since last year		90	88		
	Road network permitted for use by heavy vehicles	B-double -- 27.5 m %	96	97		
		Double Road Train -- 27.5 m %	96	97		
		Double Road Train -- 36.5 m %	78	80		
		Triple Road Train -- 53.5 m %	44	45		
	% Network configuration	Roads	90	92		
		Bridges	Strength	91	94	
			Width	96	96	
	Contracts completed on time came in below target but continues to improve compared to last year		90	83		
	Contracts completed on budget exceeded our target showing continued strong performance		90	100		
	Average \$ cost of network management per million vehicle kilometres travelled came in just above our target		5,300	5,388		
<b>Managing the Environment</b> Protecting and enhancing the natural environmental and social values in all our activities	Percentage of state-wide clearing permit audits of compliance completed (CPS 818 and 817) continues to meet our target		100	100		
	Scope 1 and 2 Emissions (t CO <sub>2</sub> ) are lower than expected and come in well under target		29,597	25,886		
	Community satisfaction with our sustainability practices came just below target with a slight increase from last year		90	86		
	Community satisfaction of our intent towards managing our impact on the environment came within our target		90	88		

Achieved  More work to do  On track 



## Commissioner's Foreword



In 2017-18, Main Roads as part of the Transport Portfolio continued to play a key role in connecting people and places, providing linkages between land and sea, moving freight, and providing essential services to the Western Australian community.

I am especially proud of the increased collaboration and strengthened relationships between Main Roads and its portfolio partners – the Department of Transport and Public Transport Authority. The Portfolio has embraced its role in leading both the delivery of the Government's ambitious METRONET program and development of the Westport Strategy.

Project offices have been established comprising expert teams drawn primarily from our transport agencies. These teams are working in a highly collaborative manner with a range of stakeholders to ensure we deliver the best outcomes for the people of WA.

The Portfolio has overcome challenges, accomplished significant goals and demonstrated an integrated model that acts as a benchmark for other Government agencies. The degree to which we are collaborating effectively was made very clear with the execution of the Optus Stadium transport solution. The high profile and political sensitivity of the stadium, along with the huge public interest and the blockbuster early events, meant there was immense pressure to deliver.

Great experiences are as much about the journey as the destination, and it's clear this is something we've considered when developing the travel options. Whether it's a picturesque walk across the iconic Matagarup Bridge, a bike ride through the lush native gardens surrounding the Stadium, an enjoyable cruise along our beautiful Swan River to Burswood Jetty, or a relaxed trip on the train to the landmark Perth Stadium Station, there are great options for all. Not only are the transport options plentiful, they are also convenient – proof we have achieved our goals and added to the vibrancy of our great city.

The *2017-18 Connecting People and Places* document highlights examples of cross agency collaboration on some of our most significant transport projects. It provides an overview of the Portfolio's operations, achievements and the trends and influences guiding our work in the future.

Main Roads is a key part of this mix and with an annual budget of \$2.32 billion aimed at developing and maintaining a road network of over 18,500 kilometres, the organisation's position is critical to the economic and social wellbeing of the State.

Main Roads is set to be one of the first agencies to meet the Government's requirement for a set percentage of annual contracts to be awarded to registered Aboriginal businesses. Through actively recruiting youth and indigenous people, and playing a role in the continuing development of the communities in which we operate, it's clear the true measure of Main Roads' success is not weighted on construction alone, but on its willingness and ability to give back.

At the core of everything we do at Main Roads and across the wider Transport Portfolio are our customers and travellers who form our community. Together, we will keep the State moving by helping every Western Australian to get where they need to be as safely and efficiently as possible.

With approximately 60 per cent of the Government's election commitments related to transport and the importance the Government has placed on the METRONET and Westport projects, we have certainly been entrusted with great responsibility.

I have every confidence we have the people, systems and most importantly the energy and goodwill to help Government achieve its agenda. I look forward to what I'm sure will be another productive year for transport in Western Australia.

**Richard Sellers**

Commissioner of Main Roads

# Managing Director's Review



Transport plays an essential role in the lives and livelihoods of Western Australians. It connects people, communities and businesses, helps the economy to grow and keeps people safe.

I am proud to be part of an organisation that is integral in

'Keeping WA Moving' and that delivered more than \$2.32 billion of road programs and services to the state this year.

## Our Operational Performance

Our Keeping WA Moving strategy and focus areas of Customers, Movement, Sustainability and Safety emphasise what is and will be central to our business and customers in the years ahead. They continue to guide our future direction, underpinned by our values and guiding principles.

A particular source of pride for me has been the Matagarup Bridge, named for its cultural significance and connection of the Whadjuk Community to the Swan River. We have now completed the highly anticipated connection between East Perth and the Optus Stadium providing an iconic piece of public infrastructure. The decision to return the steel works to local fabricators created more than 200 local jobs and the bridge arch assembly and complex lifting process was a feat of engineering not previously undertaken on an infrastructure project in Western Australia.

The safety of the transport system and minimising any personal harm it may cause is always a significant focus for us. We are committed to forming collaborative relationships with others to ensure we make the transport system safer. Our Road Safety Management System uses a holistic approach seeking to manage the interaction between the road, travel speed, the vehicle and the road user.

Gains in road safety requires a collaborative approach to be taken and a great example of this is our adoption of a Safe System approach to conduct a review on Indian Ocean Drive.

Working closely with the Road Safety Commission and the Western Australia Police Force we examined the road safety risk, road engineering and driver behaviour of this stretch of road. The combined effort to undertake a review of this magnitude highlights the state government's commitment to road safety. We have determined a suite of actions that will make this road safer for the entire community.

We also started trialling full freeway closures for the completion of routine maintenance. This was another example of a collaborative effort with our portfolio colleagues in the Public Transport Authority bringing together nine organisations into a single initiative. This combined approach reduced the impact on commuters and also provided increased safety to our road workers as well as financial benefits that will be reinvested back into our roads.

Work continues on delivering the \$1.02 billion NorthLink WA initiative providing a much needed transport link between Morley and Muchea. We completed the southern section that now sees Tonkin Highway upgraded to a freeway-standard, providing a free-flowing link between Guildford Road and Reid Highway. When completed the NorthLink WA transport link will reduce travel times creating significant productivity benefits to the economy, industry, motorists and the local community.

## Business Activities

Our business activities provide important support services focused around encouraging sustainable practices, improving the entire customer experience, investing in and developing our people and their safety, health and wellbeing.

I am very pleased we lead the way in our commitment to increasing opportunities for Aboriginal employment and engagement.

We continue to support the State and the Australian Government's policies and frameworks to maximise Indigenous employment and business opportunities through the proposals implemented by our Senior Leadership Aboriginal Employment Initiatives Taskforce. An estimated 170 opportunities for Aboriginal employment were created this year, with a significant increase anticipated as projects reach later stages of planning and construction.

Our new road maintenance network contracts have been a key factor in establishing these opportunities. A few of the major achievements include our Mid West-Gascoyne Region workforce currently has a 37 per cent Aboriginal participation rate, the Broome Cape Leveque project had 86 per cent Aboriginal employment on site, in the first month of construction and for the Wyndham Spur and Maggies Jump Up sections upgrades, more than 45 per cent of total labour hours were undertaken by Aboriginal people.

We remain committed to protecting and enhancing the natural environmental and social values in all our activities. Our NorthLink WA Southern Section project was recognised at the national Infrastructure Sustainability Awards – winning two awards and achieving the highest score for a 'design and construct project' in Australia. A clear testament to the great work we are doing in sustainability.

Providing a transport network centred on what our customers need and value is integral to our strategic direction. The Perth Area Travel Household Survey (PATHS) launched in May 2018 will see information collected from a total of approximately 7000 households over four years. The function of the survey is to collect information about how individuals travel so we can use the data to better inform land use planning and our transport infrastructure investment decision-making.

The success of any organisation is determined by the capability of its people. During the year we released TEAM (Training Engaging Accountable Managers) a management skills development program. The training is designed to empower supervisors and people managers to perform their role more effectively in key areas including resource management, conflict resolution and mental health in the workplace. It aims to equip our leaders with the skills needed to ensure their teams are productive and motivated to perform at their highest levels every day.

Our workforce planning cycle has been reinvigorated as we focus on identifying and addressing key capability risks and gaps in core areas. Particular subjects we are focusing on include succession planning, building capability and resourcing. These are a couple of high priority initiatives, resulting from previous staff engagement surveys, aiming to further strengthen a positive, collaborative and engaged workplace culture.

We have a proactive approach to safety, health and wellbeing as we continue to offer support to our people with an annual health and wellbeing program that includes flu vaccinations, skin screenings and workstation ergonomic reviews. We also encourage participation in the City to Surf fun run and the HBF Run for a Reason. Our annual Highway to Health Challenge offers a fun and interactive, friendly competition amongst staff.

This year saw a combined total of close to 42 million steps taken as well as a range of health and exercise challenges completed by participants.

### **Future View**

Integrating technology with physical infrastructure offers a great opportunity to innovate. To ensure that Western Australia is in a position to benefit from these emerging transport technologies we will develop existing systems further, such as our industry recognised Open Data, Maps and Apps Portal, and continue to explore new and innovative opportunities including the practical use of drones and video analytics.

In the year ahead we will continue our work to reduce congestion, improve safety and create more WA jobs. This includes progressing road infrastructure such as construction of the new Bridge and duplication on Armadale Road; widening Kwinana Freeway northbound; and upgrades to Mitchell Freeway. Regional works on roads where there is a high risk of run-off road accidents include widening a section of Indian Ocean Drive; upgrades on the Great Northern Highway from Muchea to Wubin; continued construction of unsealed sections of the Broome to Cape Leveque Road; and progressing plans for the next stage of the Albany Ring Road.



Delivering a transport system that meets the needs and expectations of our communities is not something we can achieve on our own. This year we continued to work closely with our Transport Portfolio partners, Department of Transport and Public Transport Authority, so the entire integrated transport system supports, shapes and enables our thriving state.

I'd like to sincerely thank all our people who through a culture of hard work, dedication and teamwork have contributed to the positive progress we continue to make. It is their commitment, enthusiasm and professionalism that keeps us at the forefront of State Government agencies. I look forward to the next year and the exciting opportunities ahead.

A handwritten signature in black ink, appearing to read 'Peter Woronzow', with a stylized flourish extending to the left.

**Peter Woronzow**

Acting Managing Director of Main Roads

# Linking Strategy, Futures, Innovation and Research

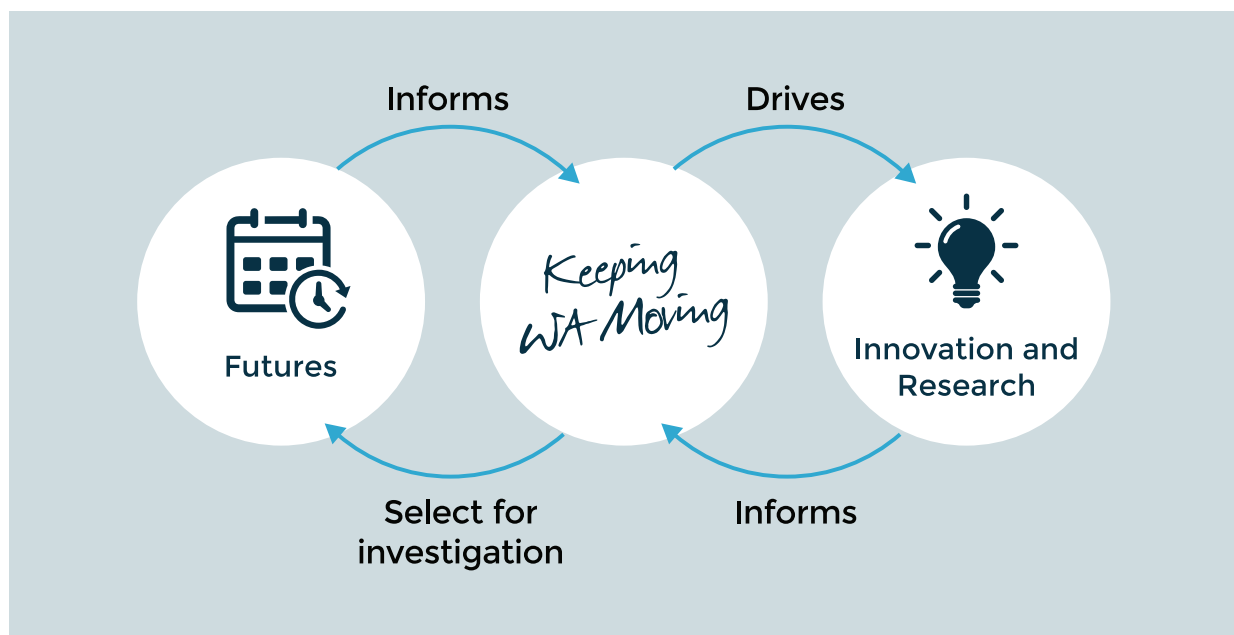
Keeping WA Moving, our strategic direction, clearly outlines our areas of focus as Customers, Movement, Sustainability and Safety. These areas underpin what we do and help us concentrate on delivering what's important as well as continuing to improve as an organisation.

We also scan the external environment to prepare ourselves for the future. Over the past decade, the future of transport has been re-imagined. **McKinsey recently reported that US\$111 billion of investments** in new mobility technologies have been disclosed since 2010.

Much of this investment has come from technology companies and start-ups, new players in the transport sector. Many newer technologies are being discussed as potential solutions to existing transport problems, technologies such as:

- Electric Vehicles
- self-driving cars
- flying cars
- delivery drones
- mobility as a service
- Hyperloop high speed transit system
- machine learning / artificial intelligence
- blockchain technology.

Given the level of investment and potential new technologies, the transport industry is expecting significant disruption in coming years and we need to adapt to take advantage of opportunities and to minimise risks. These technologies give rise to many potential futures for transport and we use this understanding to inform our strategy, innovation and research activities.



During the year, potential futures were incorporated into our update of Keeping WA Moving. The areas shown in colour on the diagram are new technologies and innovations that are changing the nature of our vision of a possible transport future.

## Keeping WA Moving

To provide world class **outcomes** for the customer through a *safe, reliable and sustainable* road-based transport system

### Our Areas of Focus

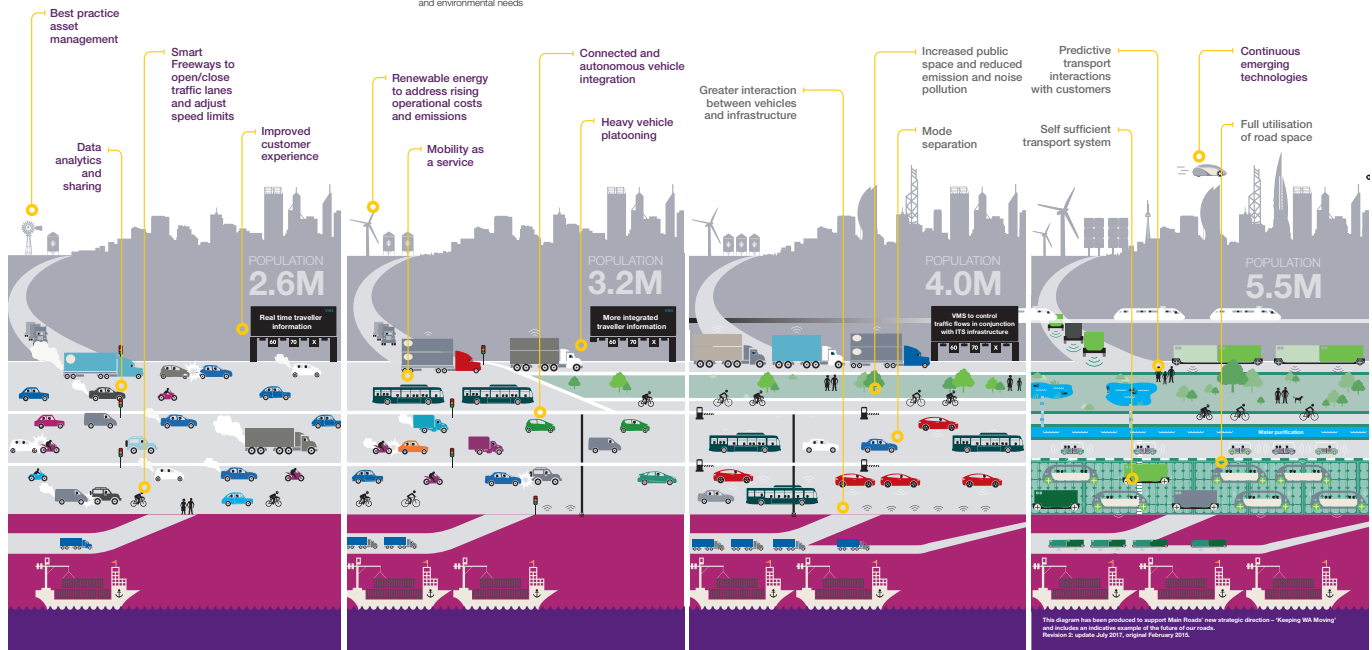
To achieve our aspiration, these four areas are about creating a focus on delivering value, which is more than just improving the status-quo.

- Customers**  
Provide a transport network centred on what our customers need and value
- Movement**  
Improve mobility of people and the efficiency of freight
- Sustainability**  
Develop a sustainable transport network that meets social, economic and environmental needs
- Safety**  
Provide improved safety outcomes for all users of the transport network

### Our Guiding Principles

These are the principles that reflect our values and underpin the delivery of Keeping WA Moving. They are about how we operate as we set our future direction.

- We will strive to improve **sustainability** and **community amenity**
- We will put the **customer** and their experience at the **centre** of everything we do
- We will continue to **build and maintain** strong relationships with the Transport portfolio to achieve **better transport outcomes**
- We will be an **agile** and **responsive** organisation that can prosper in a rapidly changing environment
- We will develop and invest in **leaders** that will **challenge the status-quo** in a real and authentic way
- We will **recognise and cultivate innovation** to take up challenges and stay ahead



## Transport in a Decade

Imagine this. It's 2028 and you are travelling to the Olympics in Los Angeles. You catch your non-stop flight from Perth to LA. Arriving at the airport, you decide to splash out on a flying car to speed up your trip to the hotel. It's a bit more expensive than other forms of transport, but you're tired after a long flight.

LA's loop system is a cheap and convenient way to get around the city and when it doesn't go exactly where you need, you book a self-driving car to meet you at a stop and continue. Travelling around a city is easy now you can handle all your bookings through one app.

After the Olympics, you fly down to Orlando to visit Disneyland, before taking the 30-minute Hyperloop trip to Miami for some beach time.

The point isn't to accurately predict the future; some of these ideas may not eventuate. However, thinking about a longer term future can help lift ourselves away from the immediate challenges to re-focus on what's important.



## What Do These Potential Futures Mean for Main Roads Now?

These technologies fit, generally, into one of three areas:

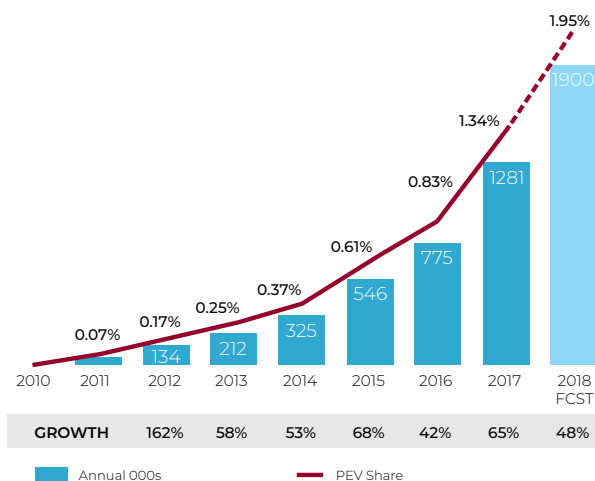
- watch
- prepare
- investigate and / or deploy.

### Watch

These technologies are in early development, so we can simply watch their progress over coming years with interest. Flying cars and hyperloops are current examples of things we are 'watching' the development of.

### Prepare

Other technologies are nearing commercialisation, so we need to initiate new areas of work to prepare for and be a catalyst for the future. For example, global sales of electric vehicles are growing exponentially, although from a small market share. Newer models generally have better range and are cheaper than their predecessors, meaning the market is expanding rapidly. Although uptake in Australia is slow, we need to start thinking about a future where electric vehicle sales are much larger.



**Global Plug-in hybrid vehicle (PHEV) and Battery Electric Vehicle (BEV) sales**  
(source: EVvolumes.com)

To prepare for this future, we are currently participating in the Western Australian Government working group to support collaboration on electric vehicles (EV). As a result, we have initiated a research project with the University of Western Australia (UWA), in partnership with other stakeholders to take a coordinated and strategic approach to planning for charging infrastructure for EVs.

Self-driving cars also continue to develop rapidly. Both Waymo and Cruise, owned respectively by Google's owner and General Motors, are rapidly expanding their fleet and have announced they will begin commercial services in 2018 and 2019 respectively.

To understand how these vehicles might impact the WA transport network, we have led the development of a research project in partnership with the Planning and Transport Research Centre (PATREC) and iMove CRC. This project will use a combination of scenario planning, modelling and sensitivity analysis to show how automated vehicles might impact transport in differing potential futures.

We also contribute to federal and state government initiatives by being a member or working on:

- Austroads' Connected and Automated Vehicles Steering Committee, Industry Reference Group and research projects
- National Transport Committee Automated Vehicle Regulatory Advisory Group
- Australian Driverless Vehicle Initiative Scientific and Research Group
- Connected and Automated Vehicle Advisory Committee within Western Australia.

### Investigate and / or deploy

A good example of a technology we are investigating is 'machine learning'. It has the potential to:

- provide new data from existing assets
- simplify and reduce the cost of acquiring existing data
- provide additional insights from data

We use our innovation and research activities to investigate newer technologies. An example for machine learning includes the project with PATREC and iMove CRC to predict outcomes on the road network, based on data from previous days. Another example is a project with the UWA extracting data from video footage.

### Machine learning - identifying objects

One of our Innovation and Research Program projects this year looked at detecting objects from existing cameras. This then allows us to derive a host of useful information like counting objects, classifying them and detecting their status.