

Roads and Maritime Services

Environmental Sustainability Strategy 2015-19



Our Commitment



Roads and Maritime will embed sustainability considerations into our business to minimise our environmental footprint and deliver positive economic outcomes for the people of NSW.

Roads and Maritime Services recognises that it plays an important role in the day to day lives of the people of NSW. In particular, the roads and waterways play a crucial role in providing mobility so that we can connect people with each other and with goods and services.

As the NSW population and economy grows and the demands on our services increase, it's important that Roads and Maritime meets the needs of the community in a more sustainable manner by balancing the consideration of environmental, social and economic issues.

Consistent with the Transport for NSW Environment and Sustainability Policy Framework 2013, the main focus of this Strategy is on the conservation and enhancement of air, water, soils, energy, resources and other factors in the environment needed for biodiversity and our communities. We have identified clear strategies in nine sustainability focus areas to help guide and embed sustainability into the delivery of our services.

We recognise that integrating sustainability throughout our organisation will enhance how we do business and deliver better value for the community and our organisation.

By implementing this Strategy we aim to:

- Contribute to a more sustainable transport system in NSW
- Reduce the environmental footprint of our own activities
- Minimise the resources we use in building and maintaining our road and maritime infrastructure
- Reduce the environmental impacts associated with the goods and services we purchase and help improve the sustainability performance of organisations we do business with.

This Strategy will be used by Roads and Maritime staff and contractors to help identify sustainability opportunities and implement specific actions to help us achieve our sustainability objectives. These actions will be collated and reported annually to the community to demonstrate our commitment.

Peter Duncan AM
Chief Executive

Photo on cover (courtesy of Roads and Maritime Services NSW): Maritime Environmental Services removing litter and waste from Sydney Harbour.

Above photo (courtesy of Roads and Maritime Services NSW): Princes Highway Upgrade, Victoria Creek.

Strategic Priorities

The Roads and Maritime Services 2020 Strategy sets the direction for Roads and Maritime for the next five years. Sustainability principles are aligned with our core strategic priorities and will help deliver key organisational outcomes during this time.

Sustainability alignment with corporate strategic priorities

Making safety paramount

We will have safe and healthy networks and workplaces for our customers, industry partners and workers

- Reduce employee and contractor exposure to high risk environments.
- Design roads that improve road safety for all road users.
- Use safer, lower maintenance, durable materials and structures.

Delivering our infrastructure program

We will successfully deliver the largest infrastructure program in our history

- Maximise project benefits by effective stakeholder engagement and integration of sustainability considerations throughout all phases of the project lifecycle.
- Partner with industry groups and businesses to deliver sustainability outcomes that benefit not only our organisation, but also broader society, the environment, and the economy.

Meeting customer and community needs

Our customers will be highly satisfied with the networks and services provided by Roads and Maritime Services

- Deliver on customer desire for sustainable infrastructure that has reduced environmental footprint and can withstand future environmental stresses.
- Assist with delivering key information for customers and road users.
- Meet customer expectations by undertaking activities in an environmentally responsible manner and managing risks to minimise environmental impacts.

An organisation that delivers

We will develop our people and operate in a more efficient and responsive way

- Create research and development opportunities to promote a culture of innovation both within the organisation and industry partners.
- Attract and retain talented staff that are committed and motivated to drive sustainability throughout the organisation.
- Train and improve staff knowledge about our sustainability priorities.

Enhancing economic and social outcomes

The performance of our networks will enhance the economic and social benefits of living in NSW

- Engage with local communities to capture local knowledge to deliver longer term outcomes such as enhanced urban design and better local connectivity.
- Achieve cost savings by efficiently managing our energy, water and wastes.
- Consider whole of life impacts of the goods and services we purchase and select materials that are durable and require less maintenance.
- Share our sustainability expertise with the community, industry and other government agencies to improve sustainability beyond Roads and Maritime.

Our Approach

We are committed to delivering services and infrastructure in a more environmentally sustainable manner, while continuing to consider the economic and social implications of all decisions. Far from being competing objectives, when decisions are made in balanced consideration of whole of life environmental, social and economic factors there is likely to be a better overall outcome for the community and our organisation.

Our approach is to drive sustainability in nine key focus areas that deliver on our core strategic priorities and that are aligned with the Transport for NSW Environment and Sustainability Framework. These areas focus on priority environmental issues that we have the ability to address through our actions.

Focus Area	Objective
Energy and carbon management	Minimise energy use and reduce greenhouse gas emissions without compromising the delivery of services to our customers.
Climate change resilience	Design and construct transport infrastructure to be resilient to climate change impacts.
Air quality	Minimise the air quality impacts of road projects and support initiatives that aim to reduce transport related air emissions.
Resource use and waste management	Minimise the use of non-renewable resources and minimise the quantity of waste disposed to landfill.
Pollution control	Minimise noise, water and land pollution from road and maritime construction, operational and maintenance activities.
Biodiversity	Improve outcomes for biodiversity by avoiding, mitigating or offsetting the potential impacts of road and maritime projects on plants, animals and their environments.
Heritage	Ensure cultural heritage is conserved and managed according to its heritage significance and that it contributes positively to awareness of the past.
Liveable communities	Provide high quality urban design outcomes that contribute to the liveability of communities in NSW.
Sustainable procurement	Procure infrastructure, goods and services that over their lifecycle deliver value for money and contribute to the environmental, social and economic wellbeing of the community.

Delivering Sustainability

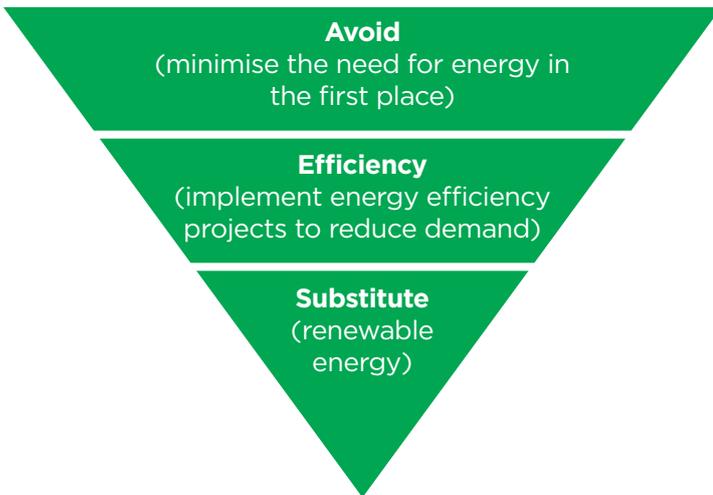
Energy and carbon management

The majority of energy used by Roads and Maritime comes from non-renewable sources such as petrol and coal generated electricity.

To reduce our environmental impact and energy costs we have, and continue to implement energy efficiency measures across the agency including the use of energy efficient lighting and air conditioning systems in our buildings and the installation of LED traffic signals across NSW.

A key target from the NSW Government's Resource Efficiency Policy is that six per cent of the electricity we purchase must come from renewable energy sources which helps to reduce greenhouse gas emissions and encourages greater investment in renewable energy generation across the State.

We assess and implement efficiency opportunities as they arise using the following energy management hierarchy.



Performance measures

- Energy use in offices and operation of the road network
- NABERS energy ratings for office buildings with a net lettable area over 2000m²
- Greenhouse gas emissions
- Renewable energy

Climate change resilience

NSW's highly varied climate combined with the potential impacts of climate change may result in significant variations in temperature and extreme weather patterns across the State. These changes can potentially impact infrastructure that hasn't been appropriately designed.

Our primary strategy is to embed resilience to climate change into the design and construction phase of projects ensuring that infrastructure can withstand future environmental stresses such as increases in rainfall intensity and sea level rise.

To achieve this resilience to climate change we pursue a two-step approach that involves:

- Being prepared for the impacts so they are diminished. We do this by assessment of climate change impacts during project planning and designing infrastructure for the predicted future climate now or that provides for cost effective adaptation in the future.
- Improving our capacity to respond to those events that we cannot prevent. For example, ensuring we have emergency management plans in place for bushfires and extreme events.

Pacific Highway Upgrade - Assessing climate change risks

Roads and Maritime has undertaken climate change assessments for Pacific Highway Upgrade projects between Port Macquarie and Woolgoolga and more recently between Woolgoolga and Ballina.

Flood modelling has been undertaken to determine the future hydrological and flooding risks associated with sea level rise, storm surges, and increases in rainfall intensity. Increased sea levels could result in higher ocean levels at the mouths of coastal rivers and would affect the flood levels for areas of the project located in floodplains.

By understanding climate change risks and options for adaptation, the Pacific Highway can meet its design life of 100 years and maintain a minimum one-in-20 year flood immunity across the major floodplains and one-in-100 years elsewhere.

Air quality

There is a substantial focus by the NSW Government on reducing motor vehicle emissions that contribute significantly to photochemical smog and air pollution, particularly in the Greater Metropolitan Region of Sydney. Non-road diesel exhaust emissions are also an area of concern given they contain pollutants that can harm human health.

Roads and Maritime, as a delivery agency in the Transport cluster with responsibility for overseeing infrastructure delivery and managing the State road and waterway networks, plays an important role in supporting the State Government's programs aimed at reducing emissions from road transport and non-road diesel plant and equipment.

Our strategy to improving air quality includes initiatives to optimise the network, smooth traffic flows, and manage congestion and incorporating emission performance requirements in the procurement of mobile non-road diesel plant and equipment.

Performance measures

- Compliance with air emissions standards for mobile non-road diesel plant and equipment as per the NSW Government Resource Efficiency Policy.

Improving the efficiency of the road network

Roads and Maritime plays a critical role in maximising the efficient use of road space and encouraging greater use of buses.

Together with Transport for NSW, Roads and Maritime is working on 43 strategic bus corridors across the Sydney metropolitan area. Bus priority measures such as continuous bus lanes and bus priority at traffic lights are being implemented on priority corridors.

Improving bus travel times will help the NSW Government to:

- Increase bus use
- Reduce dependency on cars
- Reduce traffic congestion
- Improve air quality.

Resource use and waste

Roads and Maritime purchases and uses large quantities of raw and manufactured materials and non-construction related goods and services, the manufacture and use of which can have an impact upon our environment.

Roads and Maritime proactively pursues an objective of continuous reduction in the quantity of non renewable materials used in construction and maintenance, reduction in waste materials, and reduction in use of supplies across our offices.

In road maintenance and construction, we already achieve high recycling rates and we exceeded the NSW State Government's target recycling rates for construction and demolition waste.

Resource use and waste reduction initiatives include:

- Balancing earthworks in infrastructure design and construction and recovering materials (such as quarry products from our cuttings) for reuse
- Recycling materials (such as concrete and asphalt pavements)
- Reducing our use of resources through appropriate design and operation of our road and maritime assets and buildings
- Removal of waste from our roads and waterways.

Performance measures

- Paper and water use in Roads and Maritime offices
- Office and construction waste recovery rates



Photo (courtesy of Roads and Maritime Service NSW): Bus priority measures include bus lane cameras.

Pollution control

Roads and Maritime recognises the clear need for our construction and maintenance activities to have the smallest possible pollution impact and meet acceptable community standards.

We also play a role in reducing the potential impact of pollution caused by users of the road network and waterways.

We actively pursue initiatives to mitigate a number of potential pollution impacts:

- Noise, vibration and dust impacts from construction and maintenance activities
- Sediment and other pollutants entering waterways during construction and maintenance activities
- Pollution from vehicles that use roads and from vessels using waterways
- Impacts resulting from accidents during the transport of dangerous goods
- Land and water pollution arising from contaminated sites under our ownership or control.

Performance measures

- Number of environmental penalty infringement notices
- Number of non-compliances with environment protection licences

Managing road traffic noise

A key principle of Roads and Maritime's noise policy is that communities should receive reasonable and equitable outcomes in relation to road noise. A further principle is that priority should be given to reducing noise during corridor planning and road design where there may be greater opportunity to provide cost effective and integrated outcomes with better urban design.

Where noise mitigation is required, our approach is to give preference to reducing noise by using quieter pavements and barriers so that amenity is protected in outdoor areas and most homes can have windows open for natural ventilation without the need for individual treatments to meet criteria.

Roads and Maritime also continues to advocate the introduction of quieter vehicle standards and is working with the National Transport Commission to develop enforcement technology for noisy engine brakes.

Banora Point Upgrade awarded for environmental excellence

The Banora Point Upgrade Alliance was awarded the International Erosion Control Association Australasian Environmental Excellence Award for 2012 for its outstanding erosion and sediment control systems implemented across the project.

The Banora Point Upgrade was constrained by a tight corridor surrounded by sensitive receivers and waterways, high intense rainfall and the requirement to maintain high traffic volume flows both on the Pacific Highway and local roads.

Maritime initiatives

Roads and Maritime improves the marine environment and amenity to the local community and users of our waterways through tasks such as the daily removal of waste and navigation hazards and maintaining the operational readiness of marine sewage pumpout facilities.

Over the last ten years more than 32,500 cubic meters of litter and waste has been collected from Sydney Harbour waters, tributaries, and public beaches and more than 83 million litres of raw sewage has been pumped out of Roads and Maritime funded sewage pumpout facilities.



Photo (courtesy of Roads and Maritime Services NSW): Rubbish removal from public foreshores and beaches.

Biodiversity

Roads and Maritime recognises that it has a key role in protecting biodiversity around our roads and waterways. Road corridors cover about six per cent of the State and the vegetation in these corridors makes an important contribution to habitat connectivity. In many parts of NSW these reserves are the only place where remnant native vegetation and habitat for threatened plants and animals remains.

Roads and Maritime pursues the following strategies to reduce the impacts of its activities on biodiversity:

- Environmental impact assessment of new projects which applies a hierarchy of avoiding and mitigating impacts where possible and offsetting any residual impacts
- Regular environmental inspections of construction sites
- Careful management of road corridors in partnership with other linear reserve managers
- Supporting research and monitoring into impact mitigation measures including measures to maintain landscape connectivity.

Biodiversity on the Hunter Expressway

The upgrade of the Hunter Expressway had the potential to impact a diverse array of landscapes including habitats for threatened fauna and flora species and sensitive vegetation types including Endangered Ecological Communities (EEC) such as the Kurri Sand Swamp Woodland.

During early planning and design, extensive changes were made to the original proposal which reduced the area of native vegetation, including EECs, to be cleared by approximately 11 hectares (about 5%). This was done by modifying routes and where possible using existing cleared land within the alignment.

Other flora and fauna mitigation measures implemented on the project included:

- Delivering 980 hectares of biodiversity offsets that aligned to the habitats that were cleared
- Installing more than 400 nest boxes to provide replacement habitat for native fauna species
- Constructing eight suspended rope crossings for possums, gliders, and other arboreal fauna to allow access to foraging and breeding habitat and 18 fauna bridges and culverts to assist animals to safely cross the road
- Installing fauna exclusion fencing along sections of the Expressway to funnel native wildlife to fauna underpasses and to reduce vehicle strikes
- Undertaking an extensive native seed collection program to support the rehabilitation of 140 hectares of native vegetation including the planting of 300,000 plants
- Restoring riverine habitats near Muswellbrook and Dalwood by placing almost 1000 logs from cleared trees to help direct flows away from eroding banks and provide a substrate for the growth of algae and insects.



Photos (courtesy of Roads and Maritime Services NSW): Twin viaducts over the Sugarloaf Range; nest boxes; fauna exclusion fencing.



Photo (courtesy of Josie Stokes): Koala processing at Bonville.

Heritage

Local culture and heritage assets, particularly in or near small communities, contribute to our social identity and sense of place. Roads and Maritime seeks a balance between our operations and the need to maintain our heritage and cultural legacies.

We pursue a strategy of taking appropriate action in relation to all heritage items that we affect and establishing and maintaining the heritage significance of our assets in accordance with relevant legislation.

Retaining heritage assets can deliver sustainable outcomes by reducing construction costs and the consumption of new materials. Where feasible, we increase maintenance, or introduce new materials to bring older assets up to modern operational standards so they can be retained. For example, we have strengthened century old timber bridges so that they can safely deal with modern road freight.



Photo (courtesy of Roads and Maritime Services NSW): Dunmore Bridge over Paterson River.

Koala Management

Roads and Maritime has implemented a number of measures to reduce the impact on koalas across the length of the Pacific Highway upgrade. These measures include modification to the initial proposed Bonville upgrade alignment to reduce impacts on high quality koala habitat, developing new designs for roadside concrete barriers for work sites near known koala populations to minimise injuries or chance of strike and messaging on targeted electronic signs between Port Macquarie and the Queensland border to help raise driver awareness of koala movements during the breeding season. We are currently engaging experts to undertake and peer review a population viability analysis as part of the Ballina Koala Plan for the Pacific Highway Woolgoolga to Ballina project.

Timber Truss Bridges

From the mid-19th to early 20th centuries more than 420 timber truss bridges were built throughout NSW. Designed to take a load of about 15 tonnes, many of these bridges were later replaced because they could no longer carry the loads expected of them.

The Roads and Maritime Timber Truss Bridge Conservation Strategy, endorsed by the NSW Heritage Council in 2012, identified a core sample of bridges that captured the diversity of the original bridge population which were feasible to retain into the future as part of the operational road network.

Roads and Maritime has developed strengthening techniques that allow the timber truss bridges to safely meet the general access limit of 42.5 tonnes so that they can remain in service for longer whilst retaining their look, feel, and heritage significance.



Photo (courtesy of Roads and Maritime Services NSW):
New design for Douglass Square, Lawson.

Liveable communities

A key objective of the NSW Long Term Transport Master Plan is to improve liveability by shaping our cities and major centres, improving connectivity, providing services that support jobs growth in centres close to where people live, and facilitating ease of movement in our major cities and activity centres.

Roads and Maritime promotes liveable communities through a number of strategies including:

- Policy development for urban design.
- Consideration for users in developing and refurbishing infrastructure.
- Better connecting areas, towns and communities through the roads network.

Sustainable procurement

Sustainability in procurement is a key pillar of our overall sustainability plan given Roads and Maritime's position as a significant purchaser of a wide range of goods and services.

To drive sustainable procurement we have adopted a number of policies into our procurement processes for tenders, and set minimum standards for the sustainable design, construction and delivery of transport infrastructure and services.

Additionally, we have the opportunity to drive our sustainability principles and strategies through our supply chain to suppliers, ensuring that they follow sustainable practices and mitigate against environmental risks associated with the goods and services we purchase.

With respect to small businesses and as part of the NSW Government's Small and Medium Enterprises Policy Framework, we actively support opportunities

Great Western Highway Upgrade, Lawson

Over a decade of planning and design went into delivering a quality solution for the Great Western Highway upgrade through Lawson. Early options for the project included a full town bypass, however after extensive consultation with the community, council, land owners and local stakeholders, a solution was found allowing the continuation of retail along the highway frontage, preservation of several heritage buildings and culturally important sites, while minimising impacts on the local residents.

A true mark of the project success is evident in the careful integration with the township fabric and preservation of key characteristics of Lawson. A new design for Douglass Square at Honour Avenue was prepared in consultation with council complementing the War Memorial and the site's sense of history. Remnants of Thomas Mitchell's roadwork uncovered during construction were faithfully reconstructed and placed on permanent display within Douglass Square.

Improvements to local road access and enhancement of the pedestrian and cycle network are additional highlights of this project that has been well received by the community.

for small to medium enterprises to work with Roads and Maritime thus ensuring we support local communities and businesses.

As a key employer, we support the NSW State Plan to reduce the gap in employment outcomes between Aboriginal and non-Aboriginal people. We do this by employing Aboriginal people within the public sector and using the purchase power of the NSW government to create more job opportunities for Aboriginal people.

Performance measures

- Incorporation of sustainability requirements in procurement
- Indigenous employment rate

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