

# Sustainability Strategy

September 2015

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# Contents

<b>WestConnex Overview</b> .....	<b>4</b>
Key Benefits .....	5
<b>WestConnex Sustainability Strategy</b> .....	<b>6</b>
Sustainability definitions .....	6
Strategy purpose .....	6
Development of the Strategy .....	6
Sustainability drivers.....	7
WestConnex Environment and Sustainability Policy .....	7
Alignment with Government instruments .....	7
Implementation .....	9
Sustainability objectives and targets .....	11
<b>Management and governance</b> .....	<b>15</b>
Sustainability leadership and continual improvement .....	15
Better Design .....	15
Sustainability rating .....	15
Sustainability reporting and review .....	15
Knowledge sharing.....	15
Future transport needs .....	16
<b>Sustainable procurement</b> .....	<b>16</b>
<b>Climate change adaptation</b> .....	<b>17</b>
<b>Resource Efficiency</b> .....	<b>18</b>
Energy and Carbon.....	18
Water .....	19
Materials .....	19
Waste.....	20
Spoil .....	21
Land.....	21
<b>Protect and enhance the natural environment and local heritage</b> .....	<b>22</b>
Ecology .....	22
Heritage .....	22
<b>Liveable Communities</b> .....	<b>23</b>

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Ease congestion .....	23
Connecting communities, health, wellbeing and safety .....	24
Air Quality .....	24
Urban design.....	25
<b>Skills and Employment .....</b>	<b>26</b>
Shared ownership and delivery .....	27
Aboriginal Participation .....	27
<b>Appendix A – Summary of Government instruments .....</b>	<b>28</b>
Summary of Federal Government instruments.....	28
Summary of NSW Government instruments .....	28

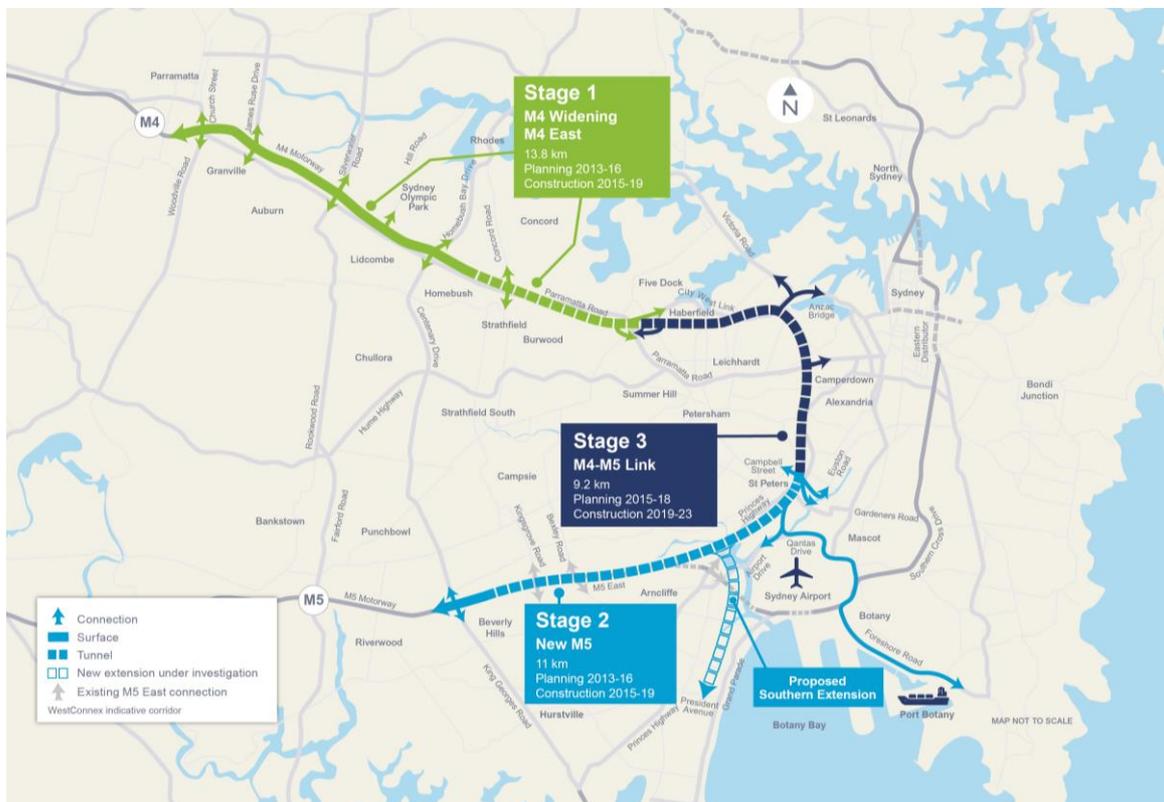
# WestConnex Overview

WestConnex is a crucial part of the NSW Government's integrated transport solution including public transport and road infrastructure to keep Sydney moving.

WestConnex will provide relief to the hundreds of thousands of road users struggling in traffic congestion every day and help return local streets to local residents.

WestConnex will be delivered through a series of projects, in three stages, over 10 years:

- Stage 1: M4 Widening & M4 East – Parramatta to Haberfield
- Stage 2: New M5 – Beverly Hills to St Peters
- Stage 3: M4–M5 Link– Haberfield to St Peters.



**Figure 1: WestConnex motorway and proposed southern and northern extensions.**

Apart from the existing surface sections of the M4 and M5, WestConnex will largely be constructed in an underground tunnel. This minimises the need for property acquisition and disruption to local communities along the route.

Stage 1 is being delivered as two projects, with the M4 Widening due to be completed in 2017 and the M4 East in 2019.

The Stage 2 New M5 has been accelerated as a result of a loan agreement with the Australian Government, and is scheduled for completion in 2019 subject to planning approval.

Stage 3 will join the M4 and M5 from Haberfield to St Peters with two new tunnels, and is currently scheduled for completion in 2023. Stage 3 will be built via Rozelle, providing connections to Victoria

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Road and the ANZAC Bridge. It will also include enabling works for the future Western Harbour Tunnel.

As shown in Figure 1, the Government is assessing and considering a 'Southern Extension' to WestConnex. This Extension from the New M5 would create a new route from Sydney's south on the F6 corridor into WestConnex. The extension was identified as a strategic priority in *Rebuilding NSW: State Infrastructure Strategy 2014*.

## Key Benefits

WestConnex will transform Sydney by making it easier for the movement of people and goods between employment hubs, such as the CBD, airport and Port and the Greater Western Sydney suburbs and growth centres.

Sydneysiders use the NSW road system for more than 90 per cent of their daily transport needs. WestConnex will ensure the city's major roads are better connected and more reliable, and will return local roads to local communities.

### **Better for drivers:**

- cut up to 30 minutes off an average peak hour trip between Liverpool and South Sydney
- save motorists a combined 110,000 hours per day through reduced congestion
- reduced vehicle maintenance costs for motorists
- cut up to 40 minutes off a typical journey from Parramatta to Sydney Airport and bypass up to 52 traffic lights
- tunnels that are wider, taller and less steep than the current M5 East.

### **Better for business:**

- create 10,000 jobs during the construction phase, including 500 apprenticeships/traineeships
- providing a high-quality connection from the Port Botany and Airport precincts to the M4 and M5
- deliver more than \$20 billion in economic benefits to NSW
- efficient distribution of freight, taking heavy vehicles off the local road network
- provide the environment for 25,000 new jobs and 25,000 residences to be created over the next 20 years.

### **Better for local communities:**

- build road tunnels underground to reduce the impact on the surface and communities
- enable dedicated lanes for public transport on Parramatta Road
- facilitate development of new homes and businesses
- reduce local council spending on road maintenance, allowing it to be redirected to other community benefits
- reconnect suburbs on either side of Parramatta Road
- remove trucks from surface roads and put them in underground tunnels returning local streets to local communities.

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# WestConnex Sustainability Strategy

## Sustainability definitions

*Sustainable development* was first defined as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (Brundtland, 1987).

In 1992 the Australian Government defined *Ecologically Sustainable Development* as ‘using, conserving and enhancing the community’s resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased’ (Australian Government, 1992).

*Infrastructure sustainability* has been defined by the Infrastructure Sustainability Council of Australia (ISCA) as ‘infrastructure that is designed, constructed and operated to optimise environmental, social and economic outcomes over the long term’ (ISCA, 2012).

## Strategy purpose

The WestConnex Sustainability Strategy (Strategy) describes how sustainability will be integrated into the planning, construction and operation of WestConnex. The Strategy defines WestConnex’s sustainability vision, commitments, guiding principles, objectives and overarching targets across a range of sustainability themes.

The scale of WestConnex requires staged delivery of discrete projects by a variety of planning, design and construction (D&C) teams over many years. This Strategy aims to help ensure that sustainability is consistently applied across all teams and projects.

To facilitate transparency and continual improvement, the Strategy also outlines ongoing sustainability management, knowledge sharing and reporting requirements.

## Development of the Strategy

This strategy has been developed as a live working document. Due to the staged nature of WestConnex, and the various projects within each of the three stages, it is envisioned that WestConnex’s overarching sustainability objectives and targets direct the objectives and targets of each project, which will be progressively set and refined as WestConnex progresses.

The Strategy has been informed by benchmarking studies on how sustainability has been/is being integrated into a number of large infrastructure projects (including: North West Rail Link; CBD and South East Light Rail; Melbourne’s East West Link; London Olympics; Perth Metro Area Express; Gateway WA Perth Airport and Freight Access Project; CrossRail; and NorthConnex) and broader Government sustainability instruments (discussed under *Alignment with Government instruments*).

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# Sustainability drivers

## WestConnex Environment and Sustainability Policy

The WestConnex Environment and Sustainability Policy (next page) articulates the sustainability vision and commitments and describes how these will be met throughout the project's design, construction and operational stages.

To facilitate continual improvement the Policy will be reviewed annually by WestConnex management and updated as required.

## Alignment with Government instruments

WestConnex's sustainability objectives and targets have been developed to align with:

- Federal Government instruments, including:
  - *Australian Jobs Act (2013)*
  - *National Greenhouse and Energy Reporting (NGER) Act (2007)*
- NSW Government instruments, including:
  - *NSW Environmental Planning and Assessment Act (1979) (EP&A Act)*;
  - *NSW 2021: A Plan to Make NSW Number One (2011) (NSW 2021)*;
  - *NSW Long Term Transport Master Plan (2012)*;
  - *NSW Government Resource Efficiency Policy (2014)*;
  - *NSW Waste Avoidance and Resource Recovery Strategy 2014-21(2014)*;
  - *NSW Government Training Management Guidelines (2009)*;
  - *Aboriginal Participation in Construction Guidelines (2007)*;
  - *Aboriginal Participation in Construction Policy (2015)*;
- Transport for NSW's (TfNSW's) instruments, including:
  - *Transport Environment and Sustainability Policy Framework (2013)*;
  - *Sydney's Cycling Future, Cycling for everyday transport (2013)*;
  - *Sydney's Walking Future, Connecting people and places (2013)*
- RMS's instruments, including:
  - *RMS Sustainability Strategy (2015, Draft)*;
  - *RMS Technical Guide: Climate Change Adaptation for the State Road Network (2015, Draft)*;
  - *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (2011)*.

A summary of the NSW Government instruments listed above is provided in Appendix A.

# WestConnex Environment and Sustainability Policy



**Transport**  
WestConnex Delivery  
Authority Board

WestConnex Delivery Authority (WDA) is committed to:

- Sustainability leadership and continual improvement
- Enhancing the environmental, social and economic outcomes of WestConnex now and in the future
- Ensuring balanced consideration of the whole-of-life environmental, social and economic costs and benefits during decision making
- Proactively minimising adverse environmental, social and economic impacts

These commitments will be met by:

#### **Leadership and continual improvement**

- Establishing sustainability objectives and targets
- Embedding sustainability requirements within contracts and procurement criteria
- Encouraging innovation and setting high environmental and sustainability standards for WDA's delivery partners (designers, contractors, sub-contractors and suppliers). Including achieving a Design and As-Built Infrastructure Sustainability (IS) 'Excellent' Rating.
- WDA, together with their delivery partners taking joint responsibility for leading and integrating sustainability within their respective organisations
- Continual improvement:
  - Monitoring and assessing performance against the sustainability objectives and targets
  - Implementing corrective actions where appropriate
  - Publicly reporting on progress, sharing knowledge and building on lessons learnt

#### **Proactive management**

- Providing adequate resources and personnel to deliver the sustainability objectives
- Ongoing assessment and proactive management of the whole-of-life environmental, social and economic risks and opportunities (including those related to future proofing for climate change and long-term growth)
- Using resources (energy, water, materials) efficiently, avoiding and reducing waste and pollution

#### **Connecting communities and promoting liveability**

- Providing a safe and accessible motorway integrated into the urban environment and transport system
- Protecting and promoting cultural heritage, community health and wellbeing
- Establishing positive relationships with the community through ongoing and open engagement

#### **Creating jobs**

- Providing local training, education, apprenticeships and employment opportunities

#### **Partnerships and shared responsibility**

- Partnering with stakeholders (e.g. industry, supply chain, educational institutions) to achieve objectives and enhance the broader industry's environmental and sustainability performance
- All staff involved in delivery of WestConnex having a shared responsibility to actively contribute towards the achievement of this policy

#### Vision

*WestConnex will be a sustainable, high quality and transformational project for the people of Sydney and NSW. Exhibiting innovative design excellence, it will be sensitively integrated into the natural and built environment, help build communities and contribute to the future liveability of Sydney.*

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## Implementation

WestConnex's sustainability framework (Figure 2) shows how sustainability objectives and targets are implemented through the project's contractual requirements, tender evaluation criteria and Sustainability Management Plans. The figure also shows the relationship between WestConnex's sustainability vision, commitments, TfNSW's guiding principles and the broader Government sustainability instruments.

For each project the selected contractor will develop a Sustainability Management Plan detailing the processes and methodologies for implementing sustainability initiatives into their design, procurement and construction processes and achieving the sustainability targets and objectives. Each contractor will regularly their report progress towards achievement of the sustainability objectives and targets to WestConnex. A Sustainability Management Plan will be prepared and implemented by the Operation and Maintenance Contractor.

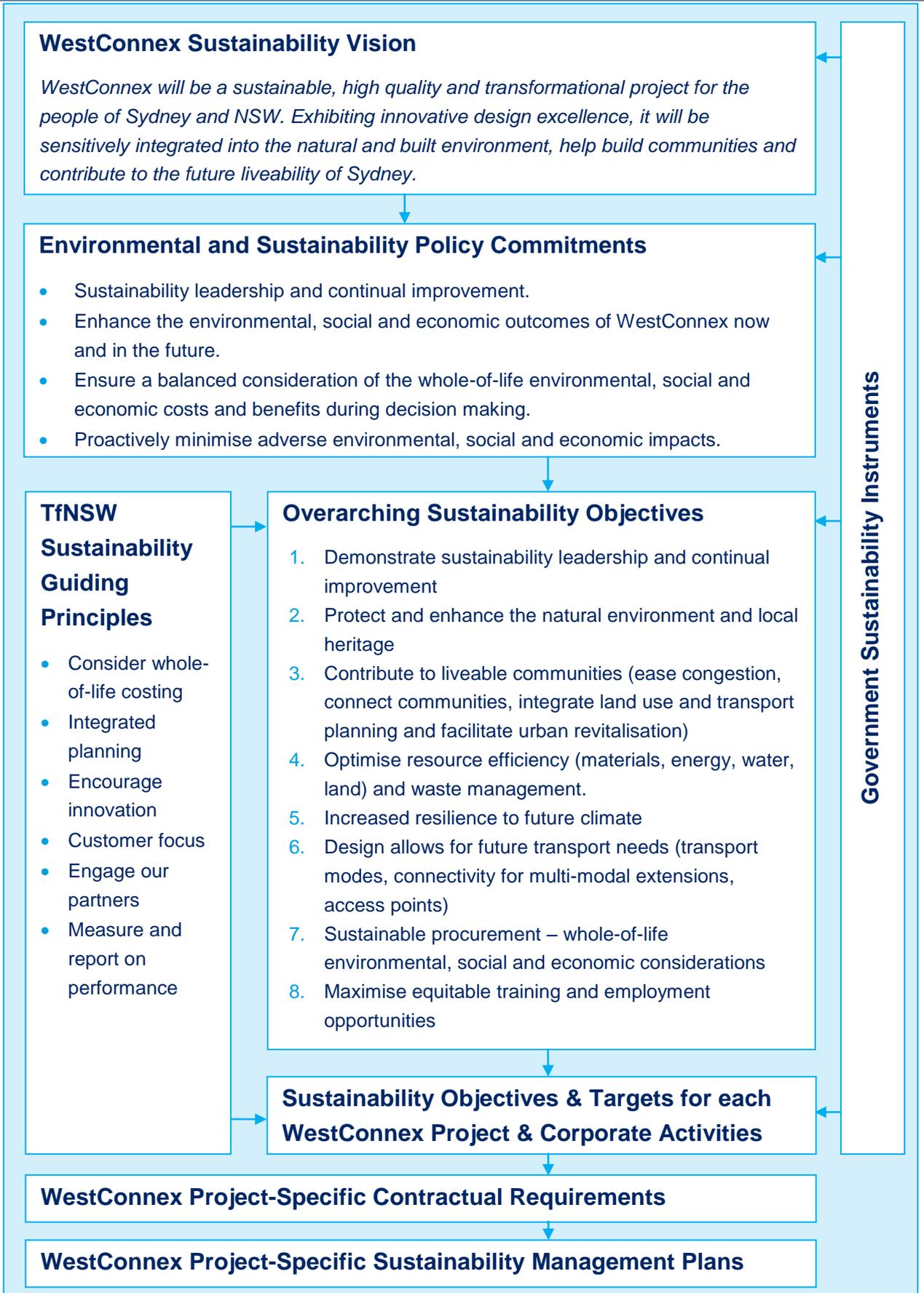


Figure 2: WestConnex’s Sustainability Framework

# Sustainability objectives and targets

The sustainability objectives and targets for WestConnex are shown in the following table. The NSW Government instruments which relate to each target are listed in parenthesis. Operational and maintenance targets will be revised and this section updated as the projects progress.

## WestConnex Sustainability Objectives & Targets: Design & Construction Stage

### Objective 1: Demonstrate sustainability leadership and continual improvement

#### Targets:

- 1.1 Achieve an Infrastructure Sustainability (IS) rating of *Excellent* for the design and construction phases. (*NSW 2021, NSW Long Term Transport Master Plan, RMS Sustainability Strategy*)
- 1.2 Prepare quarterly project progress reports and an annual *WestConnex Sustainability Report*. Annual review of the *WestConnex Sustainability Report* and *WestConnex Environment and Sustainability Policy* by Senior Management. (*Transport Environment and Sustainability Policy Framework*)
- 1.3 Share sustainability knowledge and lessons learnt across the WestConnex projects and stages. Participate in sustainability workshops during design and construction phases and document lessons learnt. (*Transport Environment and Sustainability Policy Framework*)
- 1.4 Appoint a sustainability representative with relevant experience to drive the achievement of sustainability outcomes. (*Transport Environment and Sustainability Policy Framework*)

### Objective 2: Protect and enhance the natural environment and local heritage

#### Targets:

- 2.1 No serious pollution incidents occur during construction. (*NSW 2021, Transport Environment and Sustainability Policy Framework, RMS Sustainability Strategy*)
- 2.2 Proactively manage any impacts to flora and fauna in accordance with the RTA's Biodiversity Guidelines. (*Transport Environment and Sustainability Policy Framework, RMS Sustainability Strategy, Biodiversity Guidelines*)
- 2.3 Heritage items are avoided where possible and proactively managed during construction. (*Transport Environment and Sustainability Policy Framework, RMS Sustainability Strategy*)

### Objective 3: Contribute to liveable communities (ease congestion, connect communities, integrate land use and transport planning and facilitate urban revitalisation)

#### Targets:

- 3.1 Motorway designed to reduce road congestion and travel times. (*NSW 2021, NSW Long Term Transport Master Plan*)
- 3.2 Ensure appropriate air quality outcomes. WestConnex's tunnel ventilation systems will be designed and operated to comply with best-practice criteria for in-tunnel and ambient air quality. (*NSW 2021, RMS Sustainability Strategy*)
- 3.3 Maintain, relocate or improve pedestrian and cycle paths and connections. (*NSW 2021, NSW Long*)

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*Term Transport Master Plan, Sydney's Walking Future, Sydney's Cycling Future)*

3.4 Create/enhance public open space. *(NSW Long Term Transport Master Plan)*

#### **Objective 4: Optimise resource efficiency (materials, energy, water, land) and waste management**

##### **Targets: Materials**

4.1 Identify and implement opportunities to reduce material use and maximize the use of materials with low embodied environmental impact. *(NSW 2021, NSW Long Term Transport Master Plan, Transport Environment and Sustainability Policy Framework, RMS Sustainability Strategy)*

4.2 Maximise the use of timber products from either reused/recycled timber or from sustainably managed forests that have obtained Forest Management Certification. *(NSW 2021, Transport Environment and Sustainability Policy Framework, RMS Sustainability Strategy)*

[Current target: source 100% of all timber from either reused/recycled timber or from sustainably managed forests]

4.3 Optimise the amount of cement replacement material used in concrete. *(NSW 2021, Transport Environment and Sustainability Policy Framework, RMS Sustainability Strategy)*

4.4 Optimise the amount of recycled material used in road base and sub base. *(NSW 2021, Transport Environment and Sustainability Policy Framework, RMS Sustainability Strategy)*

##### **Targets: Energy and carbon**

4.5 Prepare an Energy Efficiency and Greenhouse Gas Emissions Strategy, detailing processes and methods to improve energy efficiency and reduce greenhouse gas emissions. *(NSW Long Term Transport Master Plan, Government Resource Efficiency Policy, Transport Environment and Sustainability Policy Framework, RMS Sustainability Strategy)*

4.6 Percentage of energy sourced from renewable energy generated onsite and/or accredited GreenPower (GreenPower is an Australian government accreditation program). *(NSW Long Term Transport Master Plan, Government Resource Efficiency Policy, Transport Environment and Sustainability Policy Framework, RMS Sustainability Strategy)*

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Current target: minimum of 6% of energy sourced from renewable energy generated onsite and/or accredited GreenPower

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4.7 Optimise the design and operation of the motorway to minimise energy used by vehicles using the motorway. *(RMS Sustainability Strategy)*

##### **Targets: Water**

4.8 Undertake a Water Balance Study and identify opportunities to reduce water use (in particular potable water use) and reuse water (e.g. stormwater, groundwater) during construction and operation. *(Transport Environment and Sustainability Policy Framework, RMS Sustainability Strategy)*

4.9 Reuse, recycle/reclaim water (e.g. stormwater, wastewater, tunnel inflow water) generated/collected. *(Transport Environment and Sustainability Policy Framework, RMS Sustainability Strategy)*

## **Targets: Land**

4.10 Minimise the project's surface land footprint and acquisition of properties.

4.11 Identify contaminated sites within the project's construction footprint and remediate to a standard for post construction use (as applicable).

## **Targets: Waste & Spoil**

4.12 Reuse/recycle usable spoil (uncontaminated surplus excavated material). (*NSW Waste Avoidance and Resource Recovery Strategy 2014-21, Transport Environment and Sustainability Policy Framework*)

Current target: reuse/recycle a minimum of 80% of usable spoil

4.13 Reuse/recycle construction and demolition waste (uncontaminated). (*NSW Waste Avoidance and Resource Recovery Strategy 2014-21, Transport Environment and Sustainability Policy Framework*)

Current target: reuse/recycle a minimum of 80% of construction and demolition waste

4.14 Implement packaging take-back arrangements with suppliers. (*NSW Waste Avoidance and Resource Recovery Strategy 2014-21*)

## **Objective 5: Increased resilience to future climate**

### **Targets:**

5.1 Undertake a climate change risk assessment. (*NSW 2021, NSW Long Term Transport Master Plan, Transport Environment and Sustainability Policy Framework, RMS Sustainability Strategy*)

5.2 Identify and implement adaptation measures to mitigate all high and extreme residual risks. (*NSW 2021, NSW Long Term Transport Master Plan, Transport Environment and Sustainability Policy Framework, RMS Sustainability Strategy*)

## **Objective 6: Design allows for future transport needs (transport modes, connectivity for multi-modal, extensions, access points)**

### **Targets:**

6.1 Preserve opportunities for public transport (for example, light rail and/or rapid bus lanes) along Parramatta Road. (*NSW Long Term Transport Master Plan*)

6.2 Land preserved for future safe pedestrian and cyclist connectivity (as applicable). (*NSW Long Term Transport Master Plan, Sydney's Walking Future, Sydney's Cycling Future*)

6.3 Design allows for future extensions to the road network and access points. (*NSW 2021*)

## **Objective 7: Sustainable procurement – whole-of-life environmental, social and economic considerations**

### **Targets:**

7.1 Incorporate sustainability criteria into project contracts and tender evaluation criteria. (*NSW Long Term Transport Master Plan, Transport Environment and Sustainability Policy Framework, RMS Sustainability Strategy*)

7.2 Prepare and implement an Australian Industry Participation Plan. (*Australian Jobs Act*)

## Objective 8: Maximise equitable training and employment opportunities

### Targets:

8.1 As per the NSW Premier's statement in February 2015, 500 apprentices/trainees will be employed on the WestConnex motorway project as a whole. (*NSW 2021, NSW Long Term Transport Master Plan*)

Current targets: To meet the 500 apprenticeships/traineeships target, the current project specific targets are:

- a) M4 East Project: employ the equivalent of 115 apprentices/trainees for 18 months during D&C
- b) The New M5 Project: employ the equivalent of 155 apprentices/trainees for 18 months during D&C
- c) M4-M5 Link Project: to be confirmed

8.2 Maximise employment and training opportunities for: young people, Aboriginal and Torres Strait Islanders, disadvantaged groups, long-term unemployed and and people who live in Greater Western Sydney and along the project's alignment. (*NSW 2021, NSW Long Term Transport Master Plan*)

8.3 Provide structured training to a percentage of the construction workforce. (*NSW Government Training Management Guidelines*)

Current target: Provide structured training to 20% of the construction workforce

8.4 Provide initiatives to improve Aboriginal and Torres Strait Islander participation in construction and provide opportunities to Aboriginal and Torres Strait Islander enterprises. (*Aboriginal Participation in Construction Guidelines, Aboriginal Participation in Construction Policy*)

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# Management and governance

## Sustainability leadership and continual improvement

### Objective 1: Demonstrate sustainability leadership and continual improvement

#### Better Design

WestConnex is working with the private sector to encourage innovation. The final design of the M4 East, New M5 and M4-M5 Link projects will incorporate the best ideas for meeting the transport objectives while also providing outstanding community and environmental outcomes.

WestConnex will assess the designs proposed by the contractors tendering for each WestConnex project based on a range of criteria including environmental and social impacts/risks, quality, durability, whole of life costs, and program delivery.

#### Sustainability rating

The Infrastructure Sustainability (IS) rating scheme provides a third party assurance review of a project's sustainability performance (environmental, social and economic, impacts and opportunities evaluated).



IS is administered by the Infrastructure Sustainability Council of Australia (ISCA). ISCA is a member-based, not-for-profit industry (public and private) council. The M4 Widening, M4 East, New M5 and M4-M5 Link projects must achieve an Infrastructure Sustainability (IS) rating of **Excellent**.

#### Sustainability reporting and review

WestConnex will prepare an annual *WestConnex Sustainability Report* to communicate progress towards meeting sustainability commitments, objectives and targets. WestConnex will undertake an annual review of the *WestConnex Sustainability Report* and publish the report's executive summary on the WestConnex website. WestConnex will also review and update the *WestConnex Environment and Sustainability Policy* as required.

During D&C, lead contractors are required to provide a quarterly sustainability report (using the *WestConnex Standard Reporting Template*) and an annual sustainability report to WestConnex. These reports will be used by WestConnex to inform the annual WestConnex Sustainability Report.

To drive continuous improvement during D&C, the lead contractor is also required to review sustainability performance regularly and strengthen targets / implement corrective actions (as required).

#### Knowledge sharing

Each WestConnex lead contractor is required to appoint a Sustainability Representative with relevant experience to drive the achievement of sustainability outcomes. The WestConnex Sustainability Representative and the Contractor's Sustainability Representatives would participate in regular

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Sustainability Workshops. The workshops would provide an opportunity to share lessons learnt across the WestConnex projects and identify areas where collaboration may be appropriate. The workshops would be chaired by the WestConnex Sustainability Representative.

In addition it is proposed that knowledge would also be shared with the construction and transport industry more broadly through case studies, articles and presentations.

## Future transport needs

### **Objective 6: Design allows for future transport needs (transport modes, extensions, access points)**

WestConnex has been developed as a result of a comprehensive review of NSW's long-term transport infrastructure needs, encompassing all transport modes, including walking, cycling, light rail, rail, ferries, buses, and roads. Consequently a mandatory requirement for the project is to enable future walking, cycling and public transport infrastructure needs, such as preserving opportunities for public transport (for example, light rail and/or rapid bus lanes) along Parramatta Road. WestConnex will enable significant change to the NSW future transport system by allowing existing road space and transport operations to be reconfigured to improve journeys by all transport modes. WestConnex is also being designed to allow for and link into proposed future transport extensions, such as the northern and southern extensions.

In developing the business case, WestConnex was measured against key transport planning principles including: 'serves key market and customer needs'; and 'future proofs long term growth and change, by allowing for future extensions, connections and access points...'

## Sustainable procurement

### **Objective 7: Sustainable procurement - whole of life environmental, social and economic considerations**

Sustainable procurement is defined as '*a process whereby organisations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organisation, but also to society and the economy, whilst minimising damage to the environment*' (Australasian Procurement and Construction Council (APCC) 2007, Australian and New Zealand Government Framework for Sustainable Procurement).

Due to the scale of the WestConnex project, procurement provides an opportunity for WestConnex to reduce adverse impacts and achieve positive social, environmental and economic outcomes through influencing project contractors, sub-contractors and construction material suppliers.

Figure three provides examples of the key considerations in sustainable procurement decisions.

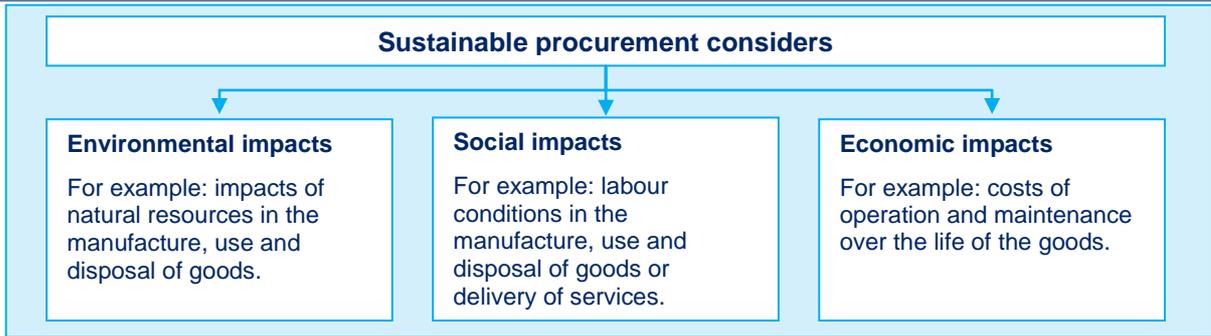


Figure 3: Key considerations in sustainable procurement

Source: Department of Sustainability, Environment, Water, Population and Communities (DSEWPAC), 2013, *Sustainable Procurement Guide for the Australian Government*

An Australian Industry Participation Plan has been prepared and will be implemented for WestConnex (in accordance with the requirements of the *Australian Jobs Act*). The Plan details how Australian entities will have full, fair and reasonable opportunity to bid for the supply of key goods and services (during construction and initial operation).

# Climate change adaptation

## Objective 5: Increased resilience to future climate

*‘Our transport infrastructure must be able to withstand the predicted impacts of a changing climate’* (NSW Long Term Transport Master Plan, 2012, p310).

Increasing the resilience of WestConnex, a long-term transport asset with a 100 year design life, to the projected future climate is recognised as a key challenge for WestConnex and the NSW Government.

Key climate change parameters identified for consideration in major road projects are rainfall and runoff, flooding, sea level rise, storm surge, wind speed, increased temperatures, heatwaves and bushfires.

A climate change risk assessment is to be prepared for each project (in accordance with the Australian Standard AS 5334-2013 *Climate change adaptation for settlements and infrastructure - A risk based approach* and the *Draft RMS Technical Guide: Climate Change Adaptation for the State Road Network*) to understand the vulnerability of WestConnex to direct (such as flooding) and indirect (such as power outages) climate change risks, so adaptation measures can be identified/implemented. Decisions must be made which balance the capital cost of adaptation measures with longer term ongoing operational costs and benefits, including maintenance/repair/road closure or delays/safety. Operational requirements (such as reliability of service, durability, maintainability and road user safety) would be considered when assessing the costs and benefits of adaptation measures to be implemented.

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# Resource Efficiency

**Objective 2: Protect and enhance the natural environment and local heritage.**  
**Objective 4: Optimise resource efficiency (materials, energy, water, land) and waste management.**

*Resource efficiency: achieving the desired outcome (a safe, reliable, durable and integrated motorway) whilst using fewer resources (construction materials, energy, water, land) and minimising waste and detrimental environmental impacts (including impacts to ecosystems services such as clean air and unpolluted water) over the life of the asset.*

## Energy and Carbon

WestConnex's major energy use and greenhouse gas emission sources include:

- construction stage:
  - tunnel excavation equipment and spoil transport
  - energy and carbon embodied in construction materials
- operational life
  - operation of tunnel ventilation, water management and lighting/signage systems
  - vehicles driving on the motorway

To reduce whole of life energy use and greenhouse gas emissions the M4 East and New M5 project D&C Contractors are required to develop and implement an *Energy Efficiency and Greenhouse Gas Emissions Strategy and Management Plan*. These requirements will be extended to WestConnex Stage 3 and extension projects.

### **Construction**

Opportunities to improve the construction stage energy efficiency include: selecting fuel efficient equipment; avoiding vehicle idling; and minimizing the double handling and travel distance of spoil.

A percentage of energy (the current target is 6 per cent) will be sourced from renewable energy generated onsite and/or accredited GreenPower during WestConnex construction and operation. GreenPower is an Australian government accreditation program that enables energy providers to purchase renewable energy on behalf of customers. By purchasing GreenPower the project can contribute to diversifying the state's energy resources.

### **Operation**

Improving operational energy efficiency and reducing greenhouse gas emissions would reduce WestConnex's ongoing operating costs and environmental impacts.

Greenhouse gas emissions would be generated by customer vehicles using the motorway during its operational life. The motorway design, the road grades and pavement surface material directly influence the fuel used by vehicles on the motorway. The WestConnex tunnel grades have been

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limited to reduce vehicle emissions and maximise fuel efficiency. In addition, reducing congestion and stop-start driving reduces vehicle fuel consumption.

Tunnel ventilation and water management systems represent the largest energy consuming activities for a road tunnel. The WestConnex tunnels have been designed to be wider and taller than other existing tunnels (for example the M5 East tunnel). The increased tunnel cross section reduces the amount of energy required to operate the tunnel ventilation systems over the life of the project. It is noted that in the longer term, as more electric and hybrid vehicles use WestConnex, the need for tunnel ventilation may be reduced.

## Water

Water, especially potable water, is a vital limited resource. As the population increases and climate changes the importance of minimising water use and maximising water reuse will continue to escalate.

To optimise water efficiency the M4 East and New M5 project D&C Contractors are required to undertake a water balance study and must demonstrate that opportunities to reduce water use and reuse water during construction and operation have been identified and analysed. These requirements will be extended to WestConnex Stage 3 and extension projects.

By optimising water efficiency the projects can become more resilient to future water shortages and contribute to securing Sydney's water resources.

During construction groundwater would flow into the excavated tunnels/pits. This water would need to be collected and transported to treatment plants prior to onsite/offsite reuse or stormwater discharge. It is anticipated that water treatment plants would be required to treat groundwater inflows, general construction water and any surface water runoff which flows into the tunnels. Construction water reuse opportunities may include water for dust suppression, material production and road compaction.

The tunnels will be lined to prevent groundwater inflow during operation. However groundwater would still need to be collected and transported to treatment plant/s prior to reuse, discharged to stormwater, or used for groundwater recharge. The treated water quality (for both the construction and operational stages) would be determined in consultation with the NSW Environment Protection Authority.

There are a number of opportunities along the WestConnex project corridor where water could be reused within the urban landscape, for example the irrigation of green-corridors/areas.

## Materials

Large volumes of materials would be used to construct the motorway, including:

- general select fill material (spoil generated onsite may be suitable)
- pavement road base and sub-base (recycled aggregates and spoil may be suitable)
- concrete (recycled aggregate, cement replacement materials and non-potable water may be suitable)
- pre-cast concrete (e.g. pipes, culverts containing recycled materials may be suitable)
- steel reinforcement (containing recycled steel may be suitable)

Wherever possible, local sources of materials should be preferred in order to minimise haulage distances and support local suppliers. WestConnex's Australian Industry Participation Plan describes

how Australian suppliers are provided with full, fair and reasonable opportunity to bid for the supply of key goods and services required during the project's construction and initial operation stages.

Roads and Maritime Services has undertaken detailed in-field testing on the use of recycled materials within road pavements. The revised Roads and Maritime Services road specifications provide confidence that a higher proportion of recycled materials can be used without impacting on the engineered life of road pavements, promoting more efficient resource use and creating a market for the use of recycled road materials. The following table lists the maximum percentage permitted of recycled material in unbound or modified base or sub-base as constituent materials.

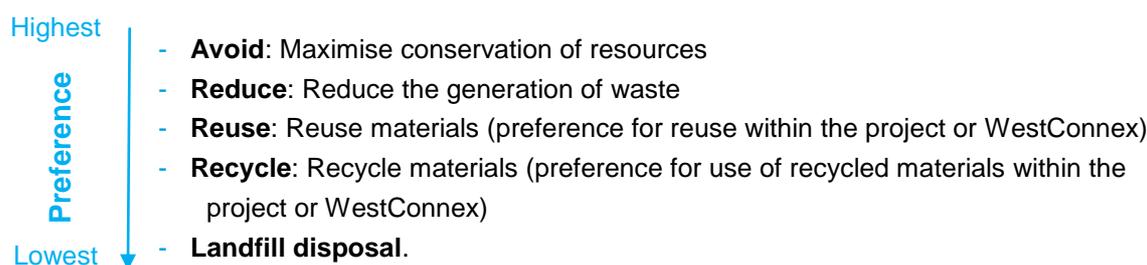
**Table 1: Recycled materials permitted in road base and sub base**

Recycled material	Maximum percentage permitted in unbound or modified base or sub base as constituent materials (Source: Roads and Maritime Material Specification 3051)
Iron Slag	100%
Crushed concrete	100%
Brick	20% (formerly 5%)
Recycled asphalt	40% (formerly 5%)
Power Station ash	10% (formerly zero percent)
Crushed glass fines	10% (formerly 5%)

Recycled materials can also be used in new road elements, such as medium strips, road barriers, noise walls, pedestrian and cycle paths.

## Waste

WestConnex is committed to minimising waste generation and following a waste hierarchy (below).



The M4 East and New M5 D&C Contractors are required to reduce waste generation by implementing packaging take-back arrangements with suppliers and maximising the reuse/recycling of uncontaminated construction and demolition waste (the current target is to reuse/recycle 80% of uncontaminated construction and demolition waste). These requirements will be extended to WestConnex Stage 3 and extension projects.

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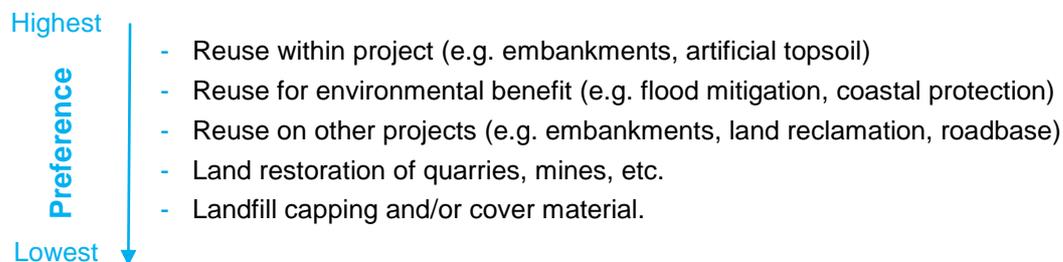
## Spoil

Large quantities of spoil material will be generated as a result of the WestConnex project tunnelling and from a number of other projects being constructed at the same time.

WestConnex is committed to the beneficial reuse of usable (i.e. not contaminated) spoil whilst minimising the community and environmental impacts associated with spoil transport. The M4 East and New M5 D&C Contractors are required to maximise the reuse/recycling of uncontaminated spoil (the current target is to reuse/recycle 80% of uncontaminated spoil). These requirements will be extended to WestConnex Stage 3 and extension projects.

The *WestConnex Spoil Strategy* provides further information on spoil removal options and beneficial reuse opportunities for the WestConnex motorway.

The following diagram illustrates the beneficial spoil reuse hierarchy which should be used to influence spoil management decisions for the project.



## Land

Land in the WestConnex corridor has high environmental, social and economic value. Apart from the existing surface sections of the M4 and M5, WestConnex will be constructed in underground tunnels. This minimises the need for property acquisition and disruption to communities along the route.

WestConnex and the contractors selected to deliver (design and construct) the projects will find innovative ways to reduce the impact on the surface when preparing project designs. In addition the scale and location of the project presents opportunities to remediate contaminated land and provide green space for the community.

### Alexandria Landfill Remediation

The St Peters Interchange will be located on the Alexandria Landfill site in an industrial area. Most of the site is a former brick pit, and is currently used as a landfill and waste transfer facility. By constructing the interchange in an existing industrial area, the impact on both local traffic and existing residential areas will be minimised. In addition, WestConnex will stabilise and remediate parts of the old landfill site, leaving a positive legacy for the community.

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# Protect and enhance the natural environment and local heritage

## Objective 2: Protect and enhance the natural environment and local heritage.

The environmental assessment for each WestConnex motorway project will detail the existing environment and potential impacts expected to occur during the construction and operation stages. WestConnex and its contractors will employ a range of measures to protect the natural environment and local heritage and mitigate/offset potential impacts. These measures will be detailed within each WestConnex project's Environmental Impact Statement which will be made publicly available via the NSW Government Department of Planning and Environment's website (<http://majorprojects.planning.nsw.gov.au/>) as they are released. The community is invited to provide feedback on each EIS.

## Ecology

Flora and fauna species listed as threatened under the Commonwealth *Environment Protection and Biodiversity Conservation Act (EPBC Act)* and/or the NSW *Threatened Species Conservation Act 1995 (TSC Act)* may be impacted by WestConnex.

As part of the environmental approvals process, assessments of the terrestrial and aquatic ecology directly and indirectly impacted by the project would be undertaken. Appropriate measures to mitigate and manage detrimental impacts would be developed and implemented to protect and encourage the recovery of threatened species, populations and communities listed under the TSC Act and EPBC Act.

Biodiversity impacts associated with the construction of the motorway will be offset in accordance with the *Biodiversity Guidelines* and the Biodiversity Management Hierarchy (*RTA Biodiversity Guidelines, 2011*) would be followed, which aims to:

1. avoid and minimise impacts first
2. mitigate impacts where avoidance is not possible. Examples of options for mitigation are provided in the RTA's *Biodiversity Guidelines*
3. offset where residual impacts cannot be avoided.

## Heritage

During the design stage a number of significant heritage items have been avoided where possible, such as the State heritage significant Yasmarr Reserve site on Parramatta Road, Haberfield. Any direct or indirect impacts to heritage items (Indigenous and European) will be identified and assessed through the environmental assessment process. Measures will be proposed and implemented to avoid or mitigate impacts. WestConnex may present opportunities to educate and increase awareness about indigenous and European heritage values. The projects may also present opportunities to conserve, enhance and interpret the significance of heritage listed items.

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# Liveable Communities

**Objective 3: Contribute to liveable communities (ease congestion, connect communities, integrate land use and transport planning and facilitate urban revitalisation).**

## Ease congestion

The motorway has been designed to reduce road congestion and travel times. WestConnex will transform Sydney by making it easier for the movement of people and goods between employment hubs, such as the CBD, airport and port and the Greater Western Sydney suburbs and growth centres that house millions of people.

Sydneysiders use our road system for more than 90 per cent of their daily transport needs. WestConnex will ensure the city's major road arteries are better connected and more reliable and return local roads to local communities.

The following provides some of the key benefits for drivers, businesses and the local community associated with reduced congestion:

### **Better for drivers:**

- cut up to 30 minutes off an average peak hour trip between Liverpool and South Sydney
- save motorists a combined 110,000 hours per day through reduced congestion
- reduced vehicle maintenance costs for motorists
- cut up to 40 minutes off a typical journey from Parramatta to Sydney Airport and bypass up to 52 traffic lights
- tunnels that are wider, taller and less steep than the current M5 East

### **Better for business:**

- providing a high-quality connection from the Port Botany and Airport precincts to the M4 and M5.
- efficient distribution of freight, taking heavy vehicles off the local road network

### **Better for local communities:**

- enable dedicated lanes for public transport on Parramatta Road
- remove trucks from surface roads and put them in underground tunnels returning local streets to local communities.

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## Connecting communities, health, wellbeing and safety

WestConnex will provide long term benefits to community health and wellbeing by connecting communities and easing congestion via reduced travel times and improved access to social infrastructure (e.g. health, recreational).

Legacy initiatives may be implemented which target specific community needs, for example enhancing public open space, cycle paths, walkways, etc.

### **WestConnex Cycling Strategy**

A safe and connected network of bicycle paths is an important part of Sydney's integrated transport system. WestConnex are collaborating with cycling planning representatives from Roads and Maritime Services, Transport for New South Wales, City of Botany Bay, City of Sydney and Marrickville councils to consider and discuss cycle path and access opportunities. WestConnex has prepared the WestConnex Cycling Strategy in line with the NSW Government's bicycle strategy, Sydney's Cycling Future, and Roads and Maritime Services' NSW bicycle guidelines.

WestConnex tunnels are being designed to maintain driver concentration and enhance the in-tunnel driver experience and include features such as public art and lighting. .

## Air Quality

WestConnex is committed to ensuring appropriate air quality outcomes. WestConnex's tunnel ventilation systems will be designed and operated to comply with best-practice criteria for in-tunnel and ambient air quality.

Air quality modelling will be undertaken to assess the impacts of the construction and operation of the motorway as part of the EIS process. In addition WestConnex has been proactively consulting with the NSW Department of Health, Department of Planning and Environment, NSW Environmental Protection Authority and international air quality specialists to understand issues and ensure the tunnel ventilation system is designed and operated to comply with best-practice criteria for in-tunnel and ambient air quality.

As part of the EIS process an assessment of human health impacts will be undertaken for the M4 East, M4-M5 Link and New M5 projects as well as the cumulative WestConnex tunnel projects. The Advisory Committee on Tunnel Air Quality found in its Initial Report on Tunnel Air Quality (July 2014, available on the website of the NSW Chief Scientist and Engineer <http://www.chiefscientist.nsw.gov.au/reports>) that:

- cleaner fuels and cleaner vehicles are predicted to continue to reduce total emissions from the vehicle fleet in the Greater Metropolitan Region of NSW
- well-designed stacks have no discernable impact on local air quality

Each tunnel project (M4 East, New M5, Stage 3 and extension projects) will be required to develop an Air Quality Management Plan as a condition of approval. The management plans will detail

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WestConnex's approach to ensuring operation of the project will comply with best practice criteria for in-tunnel and ambient air quality. All Sydney road tunnels have management plans which involve 24 hour a day tunnel air quality monitoring and compliance with independent pre-determined guidelines for in-tunnel air quality. The Air Quality Management Plans will be influenced by factors such as the final design of the route, the length of each section of tunnel and the location of ventilation outlets.

## Urban design

An overarching *WestConnex Urban Design Framework (framework)* has been developed by Roads and Maritime Services' Centre for Urban Design. The framework follows Roads and Maritime Services' urban design policy as set out in *Beyond the Pavement*.

The framework has been developed to create a project that best benefits both the road users and the community:

- leading edge environmental responsiveness
- connectivity and legibility
- place making
- livability and urban renewal
- memorable identity and a safe, pleasant experience
- a new quality benchmark.

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# Skills and Employment

## Objective 8: Maximise equitable training and employment opportunities

As the largest transport project in Australia, WestConnex will create up to 10,000 direct and indirect jobs and provide training, education and employment opportunities (including hundreds of apprenticeships/traineeships). This will equip thousands of employees with transferable knowledge, skills and experience that contributes to sustainable employment.

WestConnex has developed a skills and employment framework which focuses on creating skills and employment opportunities for priority groups including young people, Aboriginal and Torres Strait Islanders, disadvantaged groups, the long-term unemployed and people who live in Greater Western Sydney and along WestConnex's alignment.

WestConnex has proposed a number of skills and employment priorities for WestConnex including:

- maximising employment and training opportunities for:
  - young people
  - Aboriginal and Torres Strait Islanders
  - disadvantaged groups
  - long-term unemployed
  - locals and residents of Western Sydney
- delivering a NSW skills legacy through up-skilling and re-skilling
- promoting Australian, local, indigenous and small and medium enterprise suppliers.

WestConnex and the NSW Government are committed to ensuring WestConnex construction projects leave a positive skills and employment legacy for NSW.

To achieve this WestConnex and the NSW Government will:

- maximise the employment of apprentices/trainees. As per the NSW Premier's statement in February 2015, 500 apprenticeships/traineeships will be employed on the WestConnex Motorway
- set minimum contractual requirements for apprenticeships/traineeships on a project-by-project basis
- provide WestConnex construction workers with transferable skills for their future, by ensuring the construction contractors provide structured training to at least 20 per cent of the workforce
- encourage contractors to provide skills and employment opportunities to young people, Aboriginal and Torres Strait Islanders, disadvantaged groups, the long-term unemployed and people who live in Greater Western Sydney and along the project's alignment
- encourage D&C contractors to engage Australian, local, indigenous and small and medium enterprise suppliers.

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## Shared ownership and delivery

There are many existing apprenticeship initiatives, support services, programs and funding opportunities provided by NSW Government (e.g. State Training Services within the Department of Education and Communities), NGOs and registered training providers (e.g. TAFE NSW).

It is proposed that WestConnex and WestConnex project contractors partner with existing Government and not-for-profit stakeholders to share the ownership and delivery of WestConnex skills and employment legacy. It is proposed that WestConnex drive this process and that initiatives are provided under a WestConnex banner but delivered by the most appropriate existing stakeholder/s.

## Aboriginal Participation

WestConnex support and encourage employment and business opportunities for Aboriginal and Torres Strait Islander people and enterprises on all WestConnex projects.

The Aboriginal Participation in Construction Policy (2015) commenced in May 2015 and will replace the Aboriginal Participation in Construction Guidelines (2007).

The M4 Widening, M4 East and New M5 projects are required to comply with the Aboriginal Participation in Construction Guidelines (applicable policy at the time of project procurement). In accordance with the Guidelines, each construction contractor for the M4 Widening, M4 East and New M5 projects will prepare and implement an Aboriginal Participation Plan (Plan) for construction. Participation targets and Key Performance Indicators will be set by the Contractor and included within the Plan. Once construction is complete a Contractor Performance Report will be prepared to provide information on how the Plan was implemented.

The Stage 3 and extension projects (and all WestConnex construction projects with tenders issued on/after 1 January 2015) will comply with the Aboriginal Participation in Construction Policy. Under the Policy a percentage of the total estimated value of the contract (termed *targeted project spend*) must be directed to Aboriginal related employment and education activities, procurement of goods or services from recognised Aboriginal businesses or other programs. The targeted project spend is currently 1.5 per cent of the total estimated value of the contract. This target becomes mandatory for projects signed on/after 1 July 2016. In accordance with the Policy, the project Aboriginal Participation Plan and Progress Report (to be completed by the Contractor) will be published on the internet by the NSW Procurement Board.

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# Appendix A – Summary of Government instruments

## Summary of Federal Government instruments

The following provides a summary of the Federal Government instruments.

### **Australian Jobs Act**

Under the *Australian Jobs Act (2013)*, WestConnex is required to prepare and implement an Australian Industry Participation Plan. The Plan outlines how the project will provide full, fair and reasonable opportunity to Australian Industry to supply goods and services to the project.

### **National Greenhouse and Energy Reporting (NGER) Act**

The NGER Act (2007) is the national framework for reporting and publishing company information about greenhouse gas emissions, energy production, energy consumption and other information specified under NGER legislation. The Act aims to: inform policy-making and the Australian public; help meet Australia's international reporting obligations; avoid duplication of similar reporting requirements in the states and territories.

## Summary of NSW Government instruments

The following provides a summary of the NSW Government instruments.

### **NSW Environmental Planning and Assessment Act**

The EP&A Act (1979) requires consideration of Ecological Sustainable Development and 'requires the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs' – the precautionary principle, inter-generational equity, conservation of biological diversity and ecological integrity, and improved valuation, pricing and incentive mechanisms.

### **NSW 2021: A Plan to Make NSW Number One**

NSW 2021: A Plan to Make NSW Number One (NSW 2021) is the NSW Government's 10 year strategic business plan. It emphasises delivery of an efficient and effective transport system including road infrastructure to relieve congestion, reduce travel times, improve road safety and enhance and expand capacity on key road corridors. These outcomes will contribute to both the national and state economies as well as reducing the costs of doing business for many large and small businesses and services. WestConnex will help achieve the following goals identified in NSW 2021:

- Goal 1 – Improve the performance of the NSW economy
- Goal 4 – Increase the competitiveness of doing business in NSW
- Goal 5 – Place downward pressure on the cost of living

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- Goal 7 – Reduce travel times
  - Goal 10 – Improve road safety
  - Goal 19 – Invest in critical infrastructure.

In addition, the implementation of this Strategy and environmental management measures will help WestConnex contribute to the achievement of the following NSW 2021 goals:

- Goal 6 – Strengthen the NSW skill base
- Goal 22 – Protect the natural environment
- Goal 28 – Ensure NSW is ready to deal with major emergencies and natural disasters.

## **NSW Long Term Transport Master Plan**

The NSW Long Term Transport Master Plan (2012) (Plan) is the guiding transport planning and policy document supporting NSW 2021. The Plan provides a framework for delivering an integrated, modern transport system by identifying NSW's transport actions and investment priorities for the next 20 years.

Under the Plan, WestConnex is identified as a critical link in Sydney's motorway network and an immediate priority for the NSW Government.

The Plan states that 'promoting sustainability and protecting the environment in our transport planning, decisions and projects' is a state wide challenge that must be addressed. The Plan focuses on achieving the following environmental and sustainability objectives:

- enhancing environmental and sustainability outcomes
- minimising damage to our environment
- adapting our transport infrastructure to be resilient (to climate change and natural disasters)
- maintaining Sydney's air quality
- reducing emissions and managing energy use.

In addition the Plan includes the following relevant specific environmental and sustainability 'actions':

- develop and promote Transport Infrastructure Sustainable Design Guidance (includes trialing the IS rating tool)
- incorporate sustainability principles in procurement policy
- consider the air quality impacts of transport projects
- assess transport climate resilience
- mitigate noise from road projects.

## **NSW Government Resource Efficiency Policy**

The NSW Government Resource Efficiency Policy (2014) (Policy) aims to drive resource efficiency, with a focus on energy, water and waste, and reducing harmful air emissions. The Policy aims to ensure NSW Government agencies:

- meet the challenge of rising costs for energy, water, clean air and waste management
- use purchasing power to drive down the cost of resource-efficient technologies and services
- show leadership by incorporating resource efficiency in decision-making.

The policy includes specific measures, targets and minimum standards to drive resource efficiency.

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## **NSW Waste Avoidance and Resource Recovery Strategy 2014-21**

The NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (2014) (Strategy) provides a framework for waste management and aligns with the NSW Government's waste reforms in NSW 2021. The Strategy includes the following six key result areas: avoid and reduce waste generation, increase recycling, divert more waste from landfill, manage problem wastes better (including asbestos), reduce litter, and reduce illegal dumping.

## **NSW Government Training Management Guidelines**

The NSW Training Management Guidelines (2009) aim to facilitate the achievement of improved training management on government construction projects, and make training and skills development a part of the culture of enterprises in the construction industry. Under the Guidelines the following training and apprentice requirements must be met by government construction contractors:

- at least 20 per cent of the total project workforce is participating in structured training.
- apprentices are employed to undertake 20 per cent of the trade work involved in the contract. Covers apprentices and trainees registered under the NSW Apprenticeship and Traineeship Act 2001.

## **Aboriginal Participation in Construction Guidelines**

The Aboriginal Participation in Construction Guidelines (2007) (Guidelines) are 'aimed at supporting and encouraging more employment and business opportunities for Aboriginal people on government construction projects'. Under the Guidelines project specific Aboriginal participation targets and KPIs are set by Contractors. A plan must be prepared and progress monitored and reported on.

## **Aboriginal Participation in Construction Policy**

The Aboriginal Participation in Construction Policy (2015) (Policy) commenced 1 May 2015 and will replace the Aboriginal Participation in Construction Guidelines. The Policy aims to 'increase the employment and education opportunities for Aboriginal people within the construction industry'.

Under the Policy a percentage of the total estimated value of the contract (termed 'targeted project spend') must be directed to Aboriginal related employment and education activities, procurement of goods or services from recognised Aboriginal businesses or other programs. An Aboriginal Participation Plan must be prepared and published shortly after contract award. A Participation Report must be prepared and published (once construction is 90 per cent complete) describing how the Plan was implemented.

## **Transport Environment and Sustainability Policy Framework**

The *TfNSW Environment and Sustainability Policy Framework* (TfNSW Framework) was developed to establish a collective and coordinated approach to deliver the NSW Government's environmental and sustainability agenda across the transport sector. The TfNSW Framework includes objectives, targets,

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measures and action plans to deliver positive environmental outcomes. The TfNSW Framework has been developed to align with the State Plan 2021 and Transport Master Plan.

The TfNSW sustainability aspiration is 'to provide a world class sustainable transport system that meets customer expectations and optimises economic development for NSW' (TfNSW Framework, 2013). The WestConnex sustainability vision is consistent with this aspiration.

The TfNSW sustainability guiding principles (listed in the following section) were used to guide the development of the WestConnex sustainability strategy.

## Guiding principles

TfNSW has developed the following six sustainability principles to guide and support decision making during the delivery of transport infrastructure within NSW:

- **Consider whole of life costing**

When comparing investment decisions, Transport will consider the potential future costs such as operating costs, environmental and social costs as well as the initial capital expenditure in the assessment of the best option. This will ensure the true cost of the asset over its life time is fully considered.

- **Integrated planning**

Transport will work with its partners to develop integrated transport services and infrastructure that meet the existing and future requirements of its customers

- **Encourage innovation**

Transport will work with its partners to drive continual improvement in the environmental performance of transport infrastructure and services during the planning, design, building and operating. This will help to ensure we maintain best practice and deliver value for money.

- **Customer focus**

Transport will consider the needs and expectations of its customers in the planning, design, building and operation of transport services and infrastructure. The customer is at the centre of our decision making.

- **Engage our partners**

The successful delivery of transport services and infrastructure is dependent on the performance of Transport's partners. Transport aims to develop strong and trusted relationships with its partners to ensure transport services and infrastructure meets the expectations of its stakeholders – value for money, innovation and environmental performance.

- **Measure and report on performance**

To drive continual improve in transport services and infrastructure, Transport will measure and report its progress against the sustainability indicators and targets. It will report internally to its Executive bi-annually and to its external stakeholders on a regular basis.

## Sydney's Cycling Future, Cycling for everyday transport

*Sydney's Cycling Future, Cycling for everyday transport* (2013) outlines how the NSW Government will 'improve the bicycle network and make sure that the needs of bike riders are built into the planning of new transport and infrastructure projects.'

Sydney's Cycling Future provides the strategic and policy context, articulating:

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- '[ensuring] that the needs of bike riders are built into the planning of new transport and infrastructure projects
  - Deliver bicycle infrastructure through major transport and development projects.'

To this end, WestConnex aims to:

- investigate new cycling opportunities within and adjacent to the infrastructure footprint (where new infrastructure is being constructed)
- investigate opportunities for enhanced cycling facilities (where there is a substantial reduction in traffic as a result of the new infrastructure)
- relocate the cycling to provide long-term enhancement (where existing cycling facilities, or access to them, are directly affected during- or post-construction).

## **Sydney's Walking Future, Connecting people and places**

The goal of *Sydney's Walking Future, Connecting people and places* (2013) is to 'get people in Sydney walking more through actions that make it a more convenient, better connected and safer mode of transport.' Sydney's Walking Future states 'When designing WestConnex, we will focus on enabling safe access across Parramatta Road to connect communities on either side. We will also look at creating attractive walking spaces next to Parramatta Road as part of our work there, to encourage urban renewal in the area.'

## **Roads and Maritime Services Sustainability Strategy (2015, Draft)**

The Roads and Maritime Services Sustainability Strategy (Draft as at September 2015) has been developed to align with the State Plan 2021, Master Plan and TfNSW Framework. The Roads and Maritime Sustainability Strategy aims to:

- 'contribute to a more sustainable transport system in NSW
- reduce the environmental footprint of Roads and Maritime's 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 the RTA purchases'.

## **Roads and Maritime Services Technical Guide: Climate Change Adaptation for the State Road Network (2015, Draft)**

The Roads and Maritime Services Technical Guide: Climate Change Adaptation for the State Road Network is to be used during the planning and design of State Road Infrastructure to address adaptation to the potential impacts of climate change.

## **Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects**

The *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (2011) describe best practice biodiversity management measures to help minimise impacts on biodiversity during construction projects and maintenance works. The Guidelines aim to: improve biodiversity outcomes

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by minimising potential impacts on flora, fauna and habitats; and assist projects to meet statutory obligations under NSW and Commonwealth environmental legislation and policies.

The Guidelines were developed in consultation with the NSW Office of Environment and Heritage (OEH), NSW Department of Primary Industries (DPI) (Fisheries), biodiversity specialists and RTA (now RMS) staff.