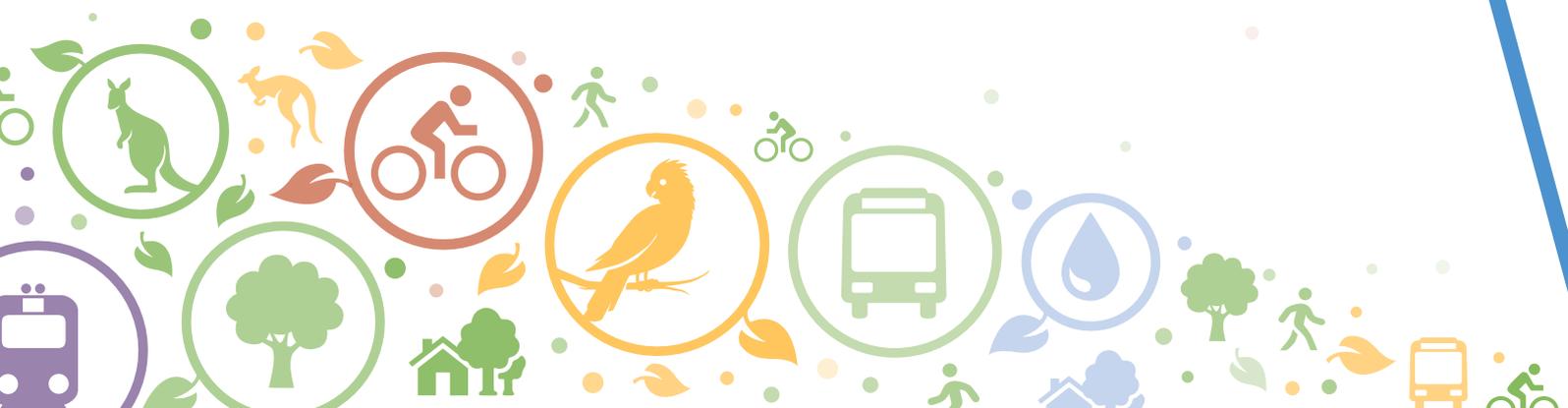




METRONET Sustainability Strategy

October 2019 - 2022

Liveable. Viable. Equitable. Sustainable





Sustainability Commitment Statement

SUPPORTING PERTH'S SUSTAINABLE URBAN FUTURE

METRONET Projects will support:

- Delivery of high quality, place-integrated transport infrastructure
- Development of sustainable station precincts
- Enabling a positive change in how people live, work, and travel across Perth
- Greater use of public transport as a sustainable travel option
- The key sustainability concepts and vision for *Perth and Peel@3.5million*
- Relevant targets set out in 'Our Priorities: Sharing Prosperity'

METRONET as an integrated transport and land use program will develop partnerships to integrate, coordinate and prioritise project planning, engagement and delivery.

METRONET will create the opportunity to transform Perth through an expanded rail network



GOVERNANCE PRINCIPLES

Partnerships | Accountability | Engagement | Transparency

Contents

METRONET OVERVIEW	6
SUSTAINABILITY STRATEGY OVERVIEW	7
DELIVERING METRONET	10
Transport Infrastructure Delivery	10
Station Precincts Delivery	10
METRONET Office and METRONET Lead Agency Roles	11
STRATEGIC ALIGNMENT	12
Planning for Future Perth - <i>Perth and Peel @ 3.5 Million</i>	14
Our Priorities: Sharing Prosperity	15
METRONET SUSTAINABILITY STRATEGY HIERARCHY AND STRUCTURE	16
METRONET SUSTAINABILITY OBJECTIVES	19
METRONET SUSTAINABILITY TARGETS	20
PROGRAM STRATEGIC INITIATIVES	22
TRANSPORT INFRASTRUCTURE STRATEGIC FRAMEWORK	26
Sustainability Action Plans	26
Focus Areas and Target Outcomes	26
Integrated Life Cycle Assessment	28
Sustainable Station Design - Places for People	28
Additional Third-Party Certification for Transport Infrastructure	29
STATION PRECINCT STRATEGIC FRAMEWORK	31
Sustainability Action Plans	31
Considering Resilience for Station Precincts	34
Engagement Needs	35
Demonstration Projects	35
REPORTING FRAMEWORK	37
Annual Sustainability Reporting	37
Quarterly Sustainability Reporting	38
Benefits Realisation	38
STRATEGY EVALUATION AND REVIEW	38
Key Performance Indicators	38
Annual Performance Review	38
REFERENCES	39

METRONET partner agencies

Australian Government
BUILDING OUR FUTURE

GOVERNMENT OF WESTERN AUSTRALIA

Department of Transport

Public Transport Authority

Department of Planning, Lands and Heritage

Government of Western Australia
Department of Communities

DevelopmentWA

Considering sustainability is important to ensure delivery of the overarching METRONET vision and to deliver projects in an economically, socially and environmentally responsible manner.



METRONET Overview

METRONET is the State Government's vision to integrate transport and land use planning and provides a framework to support sustainable growth in Perth over the next 50 to 100 years.

More than just a rail infrastructure program of works, METRONET planning goes beyond the station forecourts to shape and support development of communities within the surrounding walkable catchments. Stage One of METRONET is proposed to deliver approximately 72km of new passenger rail and up to 18 new stations, which represents the single largest investment in public transport in Perth's history.

METRONET will create the opportunity to transform Perth through an expanded rail network that will see urban intensification in more than 5,000 hectares of land within walking distance of the stations, supporting delivery of the State's metropolitan growth strategy *Perth and Peel @3.5 Million*.

The METRONET projects that fall under this Sustainability Strategy include:

- Yanchep Rail Extension;
- Thornlie-Cockburn Link;
- Morley-Ellenbrook Line;
- Byford Rail Extension;
- Karnup Station;
- Lakelands Station;
- Bayswater Station Upgrade;
- Claremont Station Upgrade;
- High Capacity Signalling;
- Railcar procurement;
- Midland Station relocation and Bellevue extension; and
- Level crossing removal on the Armadale and Midland lines.

As the Forrestfield-Airport Link is well into construction with its own established sustainability approach, it is not covered by this Sustainability Strategy.

Considering sustainability is important to ensure delivery of the overarching METRONET vision and to deliver projects in an economically, socially and environmentally responsible manner.

METRONET will create the opportunity to transform Perth through an expanded rail network



- Yanchep Rail Extension**
14.5km extension with stations at Alkimos, Eglinton and Yanchep
- Claremont Station Upgrade**
Upgrades to service the Forrestfield-Airport Link
- Morley-Ellenbrook Line**
21km line with stations at Morley, Noranda, Malaga, Whiteman Park and Ellenbrook
- Midland Station relocation and Bellevue extension**
New station to better integrate and connect the area
- Railcar Procurement**
246 new C-Series railcars
- Level crossing removal on Armadale and Midland lines**
Removing up to eight of Perth's 31 level crossings
- Forrestfield-Airport Link**
8.5km line with stations at Redcliffe, Airport Central and Forrestfield
- Bayswater Station Upgrade**
Major station upgrade
- Byford Rail Extension**
Extending the Armadale Line to Byford
- Thornlie-Cockburn Link**
First cross-line connection with stations at Nicholson and Ranford roads
- High Capacity Signalling**
New system to allow for more trains more often
- Karnup Station**
Future Mandurah Line station
- Lakelands Station**
New Mandurah Line station
- Mandurah Station Multi-Storey Car Park**
Increasing passenger parking



Sustainability Strategy Overview

This METRONET Sustainability Strategy (the Strategy) has been developed by the METRONET Office (MO) to clearly define 'sustainability' in the context of METRONET and articulate the specific commitments of METRONET to achieving sustainable outcomes.

For METRONET, having a strategy will also ensure that sustainability is considered and embedded consistently across all the METRONET Projects to:

- Support achievement of the METRONET vision and objectives;
- Maximise the positive environmental, social and economic outcomes;
- Establish a process to measure sustainability performance;
- Ensure METRONET is following a best practice approach for sustainability aligned to broader Government and agency stakeholder expectations (including priorities for a 'strong economy', a 'liveable environment' and 'local WA Jobs'); and
- Demonstrate METRONET's commitment to responsible program delivery to stakeholders.

The Strategy is intended to provide guidance to METRONET projects, delivery agencies and delivery contractors, to set expectations for how sustainability as a concept is transferred into practice across the different phases and components of METRONET.

The Strategy covers planning, procurement, design and construction phases of METRONET. The Strategy provides a framework for sustainability for all METRONET transport infrastructure projects and station precinct planning/developments.

The Strategy will be monitored, reviewed and updated by the MO as METRONET progresses to reflect any changes or evolving delivery needs.

The Strategy is intended to provide guidance to METRONET projects, delivery agencies and delivery Contractors

Delivering METRONET

METRONET is governed by a METRONET Economic Review Committee and Taskforce established by Cabinet to guide the planning, financing and delivery of the METRONET Stage One program. A MO has been established as a fully integrated team of officers drawn from across-Government to plan and design projects up to the investment decision. After this, the projects are delivered by a METRONET Lead Agency (MLA), with the MO monitoring the project's implementation.

Transport Infrastructure Delivery

The majority of the transport infrastructure will be delivered by the Public Transport Authority (PTA).

The transition from Transport Infrastructure planning to project delivery is a clearly defined part of the PTA's business, with the entire process typically being commenced and completed in the short term (i.e. ~5 years). Given the expected timeframes for the first of the Transport Infrastructure projects, the PTA will be the first agency to implement the MLA commitments as outlined in the Strategy.

Station Precincts Delivery

METRONET Station Precincts are broadly defined as the walkable area (around one kilometre) from the new and upgraded stations delivered under METRONET. The process for planning and delivery of these station precincts is less straightforward, with limited development typically expected to occur in the short-term and full build-out only to be achieved in the long-term (20+ years).

Delivery responsibility is shared across multiple Government agencies, local governments and the private sector, which will require a high level of coordination to achieve successful outcomes. Key State agencies that will play lead roles in the detailed planning and delivery of METRONET Station Precincts include the Western Australian Planning Commission (WAPC), Department of Planning, Lands and Heritage (DPLH), LandCorp / Metropolitan Redevelopment Authority (MRA) and Department of Communities.

METRONET station precincts provide a great opportunity to plan for, and deliver, connected, vibrant and resilient communities. These opportunities for best-practice development include:

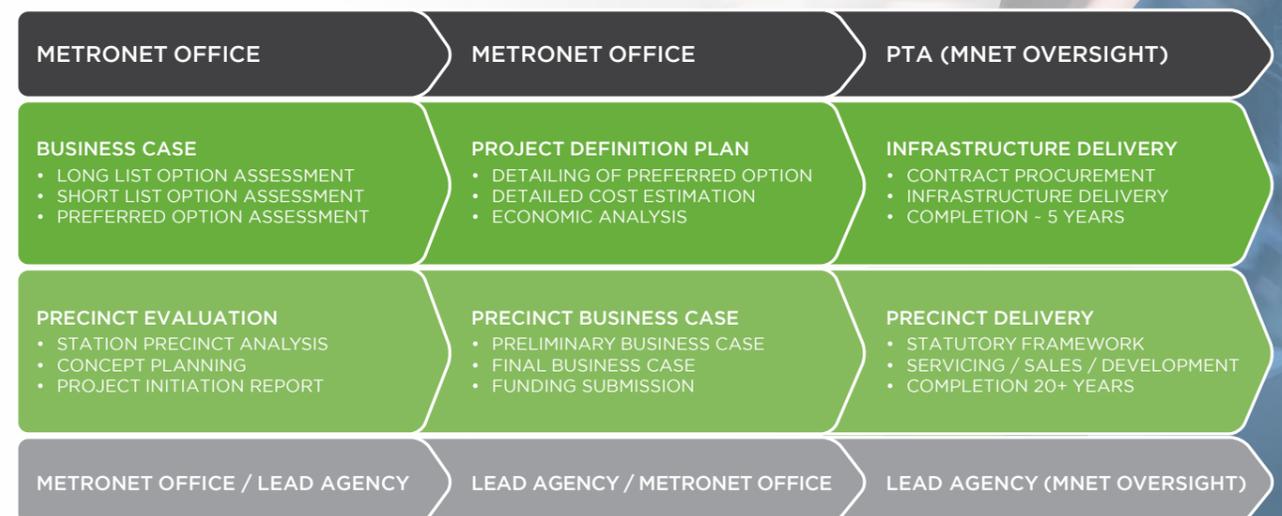
- Considering accessibility, changing/alternative transport modes and active transport;
- Connections to public transport;
- Safe and socially inclusive places;
- Healthy and positive places for people to live;
- Energy efficient and low carbon communities; and
- Consideration of environment and ecosystems in planning/design (i.e. low waste, water sensitivity/efficiency, green networks and infrastructure and biodiversity).

METRONET Office and METRONET Lead Agency Roles

The MO, MLAs and engaged METRONET Project Delivery Contractors (contractors) are required to deliver against commitments, Objectives and Targets outlined in the Strategy.

It is the responsibility of the MO and MLA to both meet internal Strategy requirements. MLAs must also ensure the contractors meet respective Strategy requirements.

Figure 1: METRONET Office and METRONET Lead Agency Roles



Planning for Future Perth - Perth and Peel @ 3.5 Million

The Perth and Peel @ 3.5 Million framework is a Government publication which defines how Perth will accommodate 3.5 million people by 2050. The framework provides guidance to State Government agencies, local government and the development sector for land and infrastructure planning for the next 30 years (DPLH, 2019). Key themes present in the framework can be aligned to the 4 key sustainability pillars identified for METRONET: 'Social (People & Place)', 'Economy', 'Environment' and 'Governance'.

Perth and Peel @ 3.5 Million VISION

"The vision for Perth and Peel is very clear - a great, connected city that is globally competitive and technologically advanced; that is sustainable, resilient and respects its natural assets and heritage; that maximises the use of new and existing infrastructure; that offers a mix of housing and lifestyle choices; and that respects and acknowledges the regions' sensitive natural environments and their respective ecosystems" (WAPC 2018a).

A city that is:



Our Priorities: Sharing Prosperity

Delivering Better Outcomes for All Western Australians

Our Priorities: Sharing Prosperity is a set of whole-of-government targets to deliver better outcomes for all Western Australians. The targets were released by the WA State Government in early 2019. The METRONET Program will support the relevant targets set out in the Government's Our Priorities: Sharing Prosperity.

METRONET is expected to deliver the following broad benefits that support the Our Priorities: Sharing Prosperity targets.

A Liveable City



- Reduced road congestion - less cars on the road
- Establish housing choice and economic nodes around station precincts - reduced travel time to work

Environment



- Reduced vehicle emissions (reduced numbers of vehicles and reduced congestion) and improvement to air quality
- Greater urban density - reduced environmental impacts from development
- Reuse or recycling of construction and demolition waste during construction
- Planning for resource conscious and efficient communities (i.e. station precincts)

Economy



- Job creation in METRONET construction and asset operational phases
- Support economic opportunity for local business in delivery
- Promotion of economic nodes and 'activation' around station precincts
- Increased productivity - reduced congestion and better access to jobs

Perth and Peel @ 3.5 Million - KEY THEMES & CONCEPTS

Themes	Key Concepts	METRONET Sustainability Strategy Alignment
People and society	Diversity, Density, Growth	SOCIAL (PEOPLE & PLACE)
Urban environment	Design, Heritage, Infrastructure	
Environment and landscape	Green Space, Biodiversity, Materials and Waste, Water Resources	ENVIRONMENT
Economy	Workforce, Employment, Self-sufficiency	ECONOMY
Collaboration	Collaboration across government, business and community	GOVERNANCE



METRONET Sustainability Strategy Hierarchy and Structure

The METRONET Sustainability Commitment Statement defines what sustainability means for METRONET and articulates a commitment to delivering sustainable outcomes.

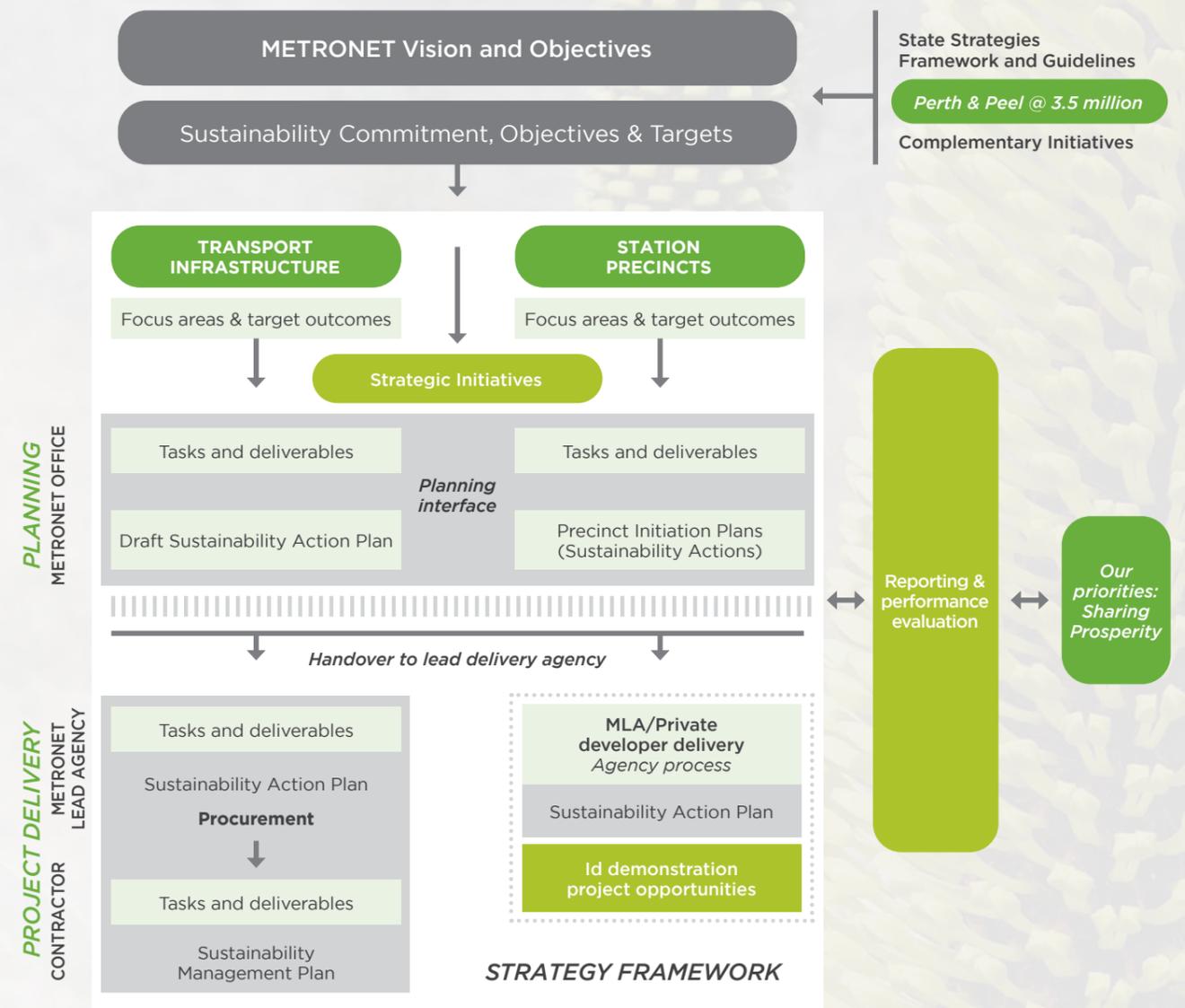
Sustainability, and the METRONET commitment to sustainability, is then further defined in a set of METRONET Sustainability Objectives and high-level targets. These objectives and targets are supported by:

PROGRAM STRATEGIC INITIATIVES - whole-of-program initiatives to support the METRONET projects in delivering against the METRONET Sustainability Objectives

TRANSPORT INFRASTRUCTURE STRATEGIC FRAMEWORK - definition of key focus areas, target outcomes and tasks/deliverables for METRONET transport infrastructure projects to support delivery and development of project action plans

STATION PRECINCT STRATEGIC FRAMEWORK - definition of key focus areas and target outcomes for METRONET station precincts to guide planning and delivery, including supporting action plan development for specified government projects/developments

REPORTING FRAMEWORK - to set a sustainability reporting agenda for METRONET to demonstrate progress towards achieving the METRONET Sustainability Objectives.





METRONET projects create benefits for the communities in which they are built.



METRONET Sustainability Objectives

	TRANSPORT INFRASTRUCTURE	STATION PRECINCTS	
PEOPLE & PLACE	Supports universal accessibility and active transport connections	Design promotes mode shift to public transport use through prioritisation of active transport and universal accessibility to public transport connections and the development of a transit supportive built form	<i>Delivering adaptable, accessible and connected places for people</i>
	Integrates with and supports planned station precinct outcomes		
	Design responds to the cultural, heritage and environmental context to contribute to 'sense of place'		
	Design provides place appropriate public spaces that balance community use and accessibility with the retention and re-establishment of the tree canopy and of green networks		
	Is designed to support transport user safety, amenity and wellbeing	Designed to support social inclusivity and community connectedness, safety, amenity and wellbeing	
	Is designed for resilience and adaptability	Designed to evolve, adapt and intensify over time, including supporting increased housing diversity, affordability and choice	
ENVIRONMENT	Designed to conserve and protect places of identified environmental and biodiversity and cultural significance		<i>Conserving and protecting natural ecosystems and resources</i>
	Considers opportunities to enhance local ecosystem function and provide net co-benefits for community amenity and well-being		
	Responds to the local water context to support a Waterwise Perth by considering and managing water source availability, drainage, water quality and the appropriate integration of water sensitive urban design		
	Supports the State Waste Strategy to work towards a low waste circular economy	Planned and designed to support the State Waste Strategy and development of resource conscious communities	
	Assesses energy use and greenhouse gas emissions and identify practical initiatives to reduce the carbon footprint across construction and operation		
ECONOMY	Delivery will provide economic opportunities through procurement for local and Aboriginal businesses	Planned to provide a range of opportunities for local and diverse business development and employment	<i>Supporting equitable economic development opportunities</i>
	Supports workforce initiatives to encourage diversity, development and wellbeing	Will develop project staging strategies that identify early investment opportunities to support place activation, amenity and economic development	
	Will evaluate and track resource consumption across the asset life cycle and implement initiatives to improve resource efficiency and value for money in consideration of whole of life costs and benefits	Designed to consider resource efficiency and value for money in consideration of 'whole of life' costs and benefits from planning stage	
GOVERNANCE	Partnerships: collaborate with key agency partners, industry and private stakeholders, supporting best-practice and continual improvement in project delivery		
	Accountability: assess program risks and opportunities		
	Engagement: undertake stakeholder and community informed decision making		
	Transparency: review and report on program performance against the <i>Perth and Peel@3.5million</i> vision		

METRONET Sustainability Targets

PEOPLE & PLACE

CONNECTIVITY

- Station designs are formally reviewed against the broader station precinct vision.
- METRONET station precincts are planned and designed in accordance with the METRONET Station Precinct Design Guide.
- A Wayfinding and Active Transport Strategy is established for each station precinct with State Government led intervention.

AMENITY & LIVEABILITY

- Implement the METRONET Public Art Strategy.
- Opportunities for reflection of cultural and environmental values are identified and implemented.
- Implement initiatives that support user, occupant and community safety, health and wellbeing.
- Develop a Landscape Design Guideline to set specific landscape design objectives and design criteria.

RESILIENCE & ADAPTABILITY

- Undertake a climate change vulnerability and risk assessment to inform identification and implementation of adaptation measures.
- Adaptation measures are implemented to treat high and extreme climate change risks.
- Development/asset design safeguards and future proofs for changing transport modes and technologies.
- Establish a resilience risk assessment framework for station precincts.
- Increase available and affordable housing in METRONET station precincts to support a State Government target of growing the number of transit-oriented homes by 45%.

ENVIRONMENT

ENVIRONMENTAL VALUES & BIODIVERSITY

- Minimise vegetation clearing.
- Use of drought tolerant and local native species in landscape design.
- Landscape designs are environmentally informed.
- Tree canopy and urban forest contribution targets are developed for each project.
- A minimum of 20% of new and reinstated plantings in station precincts consist of diverse multi-storey plantings for biodiversity.
- Biodiversity management objectives are established for each station precinct with State Government led intervention.

WATER

- Opportunities for water sensitive urban design, water efficiency and reduced potable water use are identified and implemented.
- Water sub-metering and monitoring systems are incorporated in station/facility/building designs.
- Develop bespoke water efficiency and potable water reduction targets for each project.
- Potable water is not planned/used for irrigation of landscape areas at METRONET stations.

WASTE

- Opportunities for waste avoidance and recovery to support the *Waste Avoidance and Resource Recovery Strategy 2030* objectives, targets and actions are identified and implemented.

ENERGY & CARBON

- Opportunities for energy use and greenhouse gas (GHG) emissions reduction across Scope 1, Scope 2 and Scope 3 emission sources are identified and implemented.
- Implement all identified energy efficiency initiatives with a payback period of less than 5 years.
- Energy sub-metering and monitoring systems are incorporated in station/facility/building designs.
- Specific energy use and GHG emissions reduction targets to be developed.
- Develop a Carbon Emissions Reduction Strategy for all State Government led station precinct developments.

ECONOMY

PROCUREMENT & SUPPLY CHAINS

- All principal contractors for METRONET projects develop and implement sustainable procurement strategies.
- Refer to the *Western Australian Industry Participation Strategy (WAIPS)* for objectives and targets for local industry procurement.
- A specific target of 50% local content for the manufacturing of new trains under the METRONET Railcar Program.
- Facilitate local procurement by identifying local businesses for participation in the supply chain for METRONET projects.
- Refer to the METRONET Gnarla Biddi Strategy for specific objectives and targets for Aboriginal procurement.

WORKFORCE

- Develop training and workforce development programs through the METRONET Trade Training Centre.
- Refer to the METRONET Gnarla Biddi Strategy for specific objectives and targets for Aboriginal engagement.

VIABLE COMMUNITIES

- Opportunities to support precinct economic activation and local employment are identified and implemented.

RESOURCE EFFICIENCY

- Life cycle assessment (of material costs and environmental footprints) is integrated into design development and decision making for each project.
- Specific strategies are developed for each project to realise whole of life cost improvements and to reduce the environmental footprint of materials used.
- Opportunities for low maintenance design specifications are identified and implemented.

GOVERNANCE

GOVERNANCE & PERFORMANCE

- To report publicly on sustainability performance annually.
- Green Star ratings for identified new METRONET Stations in precincts designated as 'city centre', 'specialised/strategic centre' (5 Star) or 'town centre' (4 Star).
- Environmentally Sustainable Design performance demonstrated for all new METRONET stations and buildings.
- Identified demonstration projects within METRONET station precincts will measure performance with use of a third-party sustainability certification scheme (exact target level/s adopted to suit project scope and context).
- Stakeholder and Community Engagement Plans are established for each project.

Program Strategic Initiatives

To help deliver METRONET's sustainable outcomes, key strategic initiatives have been identified for delivery or coordination by the MO. The outputs of each initiative will be shared across METRONET projects and stakeholders. The initiatives aim to add value by either improving knowledge to help decision making, improving collaboration and/or providing more guidance and definition on technical aspects.



INITIATIVE #1 Leadership – Sustainability Reference Group

Objective and Target Alignment: **Governance**

METRONET will establish a Sustainability Reference Group. This group will be comprised of representatives (approximately 6 members) from across government and industry as identified by the MO, with formalised 'terms of reference' established as part of implementation.

The Group will assess and provide independent advice on METRONET sustainability opportunities and performance. The group will also facilitate industry wide learnings being shared onto METRONET projects and inform consideration of any relevant targets for the Program.



INITIATIVE #2 Climate Change Network Vulnerability and Risk Assessment

Objective and Target Alignment: **People & Place – Resilience and Adaptability**

The MO will coordinate via the PTA a rail transport network level vulnerability assessment to natural hazards and climate change. Areas of key vulnerability will be further assessed to understand key risks, existing controls and potential further controls required (i.e. adaptation options). The assessment will also recommend any suitable targets for METRONET in relation to climate change adaptation.

The assessment will be provided to METRONET projects and precinct planners to support project decision making and feedback into design development.



INITIATIVE #3 Community Engagement

Objective and Target Alignment: **Governance**

As one of the State's largest public infrastructure projects, METRONET is in a fantastic position to share exciting project knowledge with the community. There are a range of talented personnel involved in delivery of METRONET across engineering, science and other technical disciplines.

As such METRONET will investigate a community outreach program to support student engagement in science, technology, engineering and mathematics (STEM) education.

The STEM engagement program will be developed and managed by the MO Stakeholder and Community Engagement team. The initiative will also support the government priority set out in *Our Priorities: Sharing Prosperity* to increase student participation in STEM courses.



INITIATIVE #4 Waste & Materials

Objective and Target Alignment: **Environment - Waste**

In order to support implementation of the *Waste Avoidance and Resource Recovery Strategy 2030* for METRONET projects, the MO will coordinate a review to assess:

- Projected waste streams and expected magnitude of quantities across the program
- Available waste derived materials, alternatives to basic raw materials and recycled products available in the Western Australian market
- Product schemes and market incentives available in the WA market to support use of waste derived and recycled materials
- Material specifications (in particular for the PTA) to identify potential opportunities for the use of construction and demolition (C&D) waste and recycled products
- International examples of successful use and performance of C&D wastes and recycled products on infrastructure projects (in particular rail projects)
- Methods to encourage good waste management through procurement and supply chain management
- Practical targets for METRONET to support the use of C&D waste and recycled products.

The MO, in collaboration with key stakeholders across PTA and other relevant government agencies, will prepare a Resource Recovery Opportunities Review that will be shared across METRONET projects.



INITIATIVE #5 Workforce Evaluation

Objective and Target Alignment: **Economy - Workforce**

To support workforce management and engagement across METRONET, the MO will assess specific opportunities to:

- Improve workforce skills and capacity and delivery of workforce training
- Increase workforce diversity
- Support workforce health and wellbeing.

As part of assessing further workforce opportunities, the MO will review the interface with existing METRONET and Government policies and initiatives (i.e. METRONET Trade Training Centre, Government Building Training Policy, WAIPS). The MO will also liaise with the Department of Jobs, Tourism, Science and Innovation (JTSI) to explore opportunities to be involved in existing meetings/forums that will support identification of workforce initiatives.



INITIATIVE #6 Station Precinct Resilience Assessment Framework

Objective and Target Alignment: **People & Place - Resilience and Adaptability**

A framework will be established through the MO for precinct focused resilience risk assessments. The assessment framework will draw on the 100 Resilient Cities 'City Resilience Framework' (100 Resilient Cities, 2019). The framework will identify the key short-term shocks and long-term stresses considered significant for METRONET station precincts. The framework will provide the first assessment steps and a review process for MLAs, Local Government Authorities (LGAs) or private developers undertaking precinct resilience risk assessments as part of precinct delivery.

A specific review of suitable WSUD treatments for station and associated public realm areas will be coordinated by the MO in collaboration with the PTA.



INITIATIVE #7 Landscape Design Guideline

Objective and Target Alignment: Environment - **Environmental Values & Biodiversity**



Objective and Target Alignment: **People & Place - Amenity & Liveability**

Landscape design has been identified as an area of METRONET where co-benefit can be achieved across several social and environmental areas, including place making, amenity, urban ecology and biodiversity and water sensitive urban design (WSUD).

To support consistent outcomes across METRONET projects and precincts, a Landscape Design Guide will be developed to highlight specific landscape design objectives and design criteria. The intent is for the guide to provide a point of reference and a starting point for projects, to help with interpretation of available environmental baseline data and design development and approval. As part of developing the guide, specific consideration will be given to:

- What are suitable objectives and criteria for landscape design?
- What are the variable opportunities and constraints for different elements of METRONET (i.e. station buildings/surrounds, station precinct developments, rail corridor)
- Operational/maintenance requirements, including safety and security
- A review of existing MLA environmental policies and design specifications to ascertain suitability in meeting METRONET landscape design objectives
- Variable requirements and priorities that exist across local government areas, including urban forest strategies
- Available environmental guidance for biodiversity and natural areas, with environmental/ecological input on how to maximise benefit.

Broadly, the guide will consider opportunities for:

- Tree canopy cover, including urban heat island benefits
- Biodiversity values (i.e. local and native species, habitat connectivity)
- Fire risk management
- Alignment to the Wildflower Capital Initiative and Wildflower Way
- Green infrastructure and blue infrastructure opportunities (including WSUD)
- Quality and Waterwise public space
- Synergies with wayfinding, public art and environmental and cultural values
- Adoption of whole-of-program targets to support objectives/design criteria.



INITIATIVE #8 Water Sensitive Urban Design Review

Objective and Target Alignment: **Environment - Water**

A specific review of suitable WSUD treatments for station and associated public realm areas will be coordinated by the MO in collaboration with the PTA. This review will consider:

- WSUD treatments available for station and public realm areas
- Geographical considerations that influence water balance across the rail network
- Key operational/maintenance considerations and constraints
- Key design standard/specification requirements.

The review will assess the viability and practicality of WSUD initiatives, including providing a set of decision criteria to guide selection of suitable initiatives for design implementation.

Transport Infrastructure Strategic Framework

Sustainability Action Plans

Under the Strategy, each Project will develop a Sustainability Action Plan (SAP) to specifically articulate how the Strategy will be implemented. Development of the SAP will include identifying project-specific opportunities to support the METRONET Sustainability Objectives/Targets.

Focus Areas and Target Outcomes

To support delivering on the METRONET Sustainability Objectives/Targets, key focus areas and associated target outcomes have been further defined to be applied to the transport infrastructure projects.

Transport Infrastructure Focus Areas and Target Outcomes

FOCUS AREAS (Objective & Target Alignment)	TARGET OUTCOMES
PEOPLE & PLACE	Connectivity <ul style="list-style-type: none"> Active transport mode (e.g. walking and cycling) access and facilities are incorporated into station, bus interchange and public realm design Present and future infrastructure needs are considered in design, including for station/bus access and car parking areas to support changing transport mode options and technology (i.e. electric vehicles, autonomous vehicles, e-scooters and / or car-sharing modes) Station, bus interchange and public realm design alignment to the associated station precinct vision is formally reviewed and assessed in design development.
	Amenity & Liveability <ul style="list-style-type: none"> Environmentally sustainable design (ESD) is applied and incorporated for all new METRONET stations and buildings Wayfinding and Crime Prevention through Environmental Design (CPTED) Principles are applied to station and facility design/s to promote a safe and accessible environment for users Station and/or facility design incorporates heritage and cultural context of the project site Design of new facilities incorporates initiatives to promote the health and wellbeing of future occupants/users.
	Resilience & Adaptability <ul style="list-style-type: none"> Projects will assess climate change vulnerability and understand key risks to inform the asset design development and any required adaptation/response, with a focus on mitigating all extreme and high risks.
ENVIRONMENT	Energy & Carbon <ul style="list-style-type: none"> Greenhouse gas emissions are assessed for transport infrastructure projects, commencing in business case development and ongoing throughout design Suitable initiatives to improve greenhouse gas emissions are identified and implemented, including as part of business case valuation.
	Environmental Values & Biodiversity <ul style="list-style-type: none"> Projects will consider LGA and DPLH guidance regarding urban forest strategies and implement complementary initiatives to reduce tree loss, and where possible contribute to a net-benefit (increase) in tree canopy cover in station and public realm areas A landscape architect/designer is involved early at reference design stage for projects to support realisation of good landscape design and opportunities for community amenity, lower maintenance costs, environmental values, green infrastructure and WSUD.

ENVIRONMENT cont.	Water
	<ul style="list-style-type: none"> WSUD opportunities for stations/facilities and public realm areas are identified and evaluated as part of developing the reference design for projects (or ideally as part of early concept design) A WSUD response is incorporated into the project reference design to the appropriate level of detail, which is further developed and refined to detailed design for construction delivery The water management system/s and design response/s for transport infrastructure (including station, bus interchanges, facilities and public realm) incorporates: <ul style="list-style-type: none"> Appropriate protection from flooding and inundation Consideration of safety, amenity and serviceability Minimisation of any adverse impacts to the surrounding environment and water resources.
	Waste <ul style="list-style-type: none"> Support the implementation of practicable initiatives to achieve a waste recovery target for C&D waste of 77% by 2025 supporting the <i>Waste Avoidance and Resource Recovery Strategy 2030</i> Waste quantities and landfill diversion are accurately captured, tracked and reported during the construction phase for projects Assess project opportunities for: <ul style="list-style-type: none"> The use of recycled products and alternatives to basic raw materials Operational waste initiatives influenced by asset design.
ECONOMY	Resource Efficiency (Integrated Life Cycle Assessment) <ul style="list-style-type: none"> A life cycle assessment (LCA) method considering energy, water and materials use is integrated with the design process for projects. The process is commenced during project planning and reviewed at key design milestones to inform good decision making Key design decisions impacting on the LCA and the resource footprint (energy, water and materials use) of projects are captured in a project design decision register.
	Resource Efficiency (Whole of Life Costs & Benefits) <ul style="list-style-type: none"> Whole of life cost savings for operations and maintenance are prioritised Energy efficiency opportunities are assessed by transport projects and viable reduction initiatives (payback less than 5 years) implemented in both design response and construction practice/methodology Feasible renewable energy technologies (payback period less than 5 years) are incorporated in station/facility design Water efficient fixtures and opportunities to integrate with water sensitive urban design response are considered and incorporated in station design where practical Energy and water metering/sub-metering and monitoring systems are implemented in station/facility design.
	Procurement & Supply Chains <ul style="list-style-type: none"> Contractors will develop and implement a Sustainable Procurement Strategy to manage their sub-contractors and suppliers, considering opportunities to improve sustainability outcomes through high impact suppliers and materials.
GOVERNANCE	Accountability (Opportunities Assessment & Management) <ul style="list-style-type: none"> Environmental, social and economic opportunities for the METRONET program are formally captured and tracked across delivery phases.
	Engagement <ul style="list-style-type: none"> Opportunities for community and stakeholder involvement in design development are identified during the project planning phase and engagement activities planned as part of delivery in the Community and Stakeholder Engagement Management Plan.



Integrated Life Cycle Assessment

A key component of the transport infrastructure strategic framework set in the Strategy will be the implementation of an integrated LCA approach. LCA modelling will be integrated with design to consider the energy, water and materials impacts of projects.

LCA modelling will occur for projects during project planning, and be progressively reviewed and revisited as the design develops at different delivery stages. This will support design decision making against a clear understanding of energy, water and materials impacts/benefits and whole of life cost implications.

Sustainable Station Design – Places for People

The METRONET stations will be a key point of community interaction. The stations are also going to be the first piece of new infrastructure in the evolving METRONET station precincts. A sustainably designed station will be more pleasant, safe and accessible for the transport users with environmental and health benefits. The stations also provide a great opportunity to demonstrate an early indicator of sustainable precinct development and set benchmark expectations for further precinct developments.

Consideration of ESD for stations will ideally commence in planning phase as part of preparing Project Definition Plans (PDPs). Driving sustainable design solutions for stations will also result in a more efficient asset with whole of life cost savings (i.e. operational savings).

Green Star is an independent sustainability certification scheme offered by the Green Building Council of Australia (GBCA). The Green Star scheme (Green Star - Railway Stations rating tool) will be used by METRONET transport infrastructure projects to support sustainable station outcomes across design and construction phases. ESD will be considered for all METRONET Stations, however the application of the third-party Green Star certification framework will be focused on the more significant station and ultimate precinct developments.

METRONET Station ESD Model

	METRONET Assessed Precinct Typology		
	City Centre; Strategic Centre; Specialised Centre	Town Centre	Neighbourhood Centre; Transit Node
Green Star Rating Level	5 Star (formal)	4 Star (formal)	No formal rating
Deliverable – Reference Design	Preliminary Station Sustainability Assessment Report	Preliminary Station Sustainability Assessment Report	Preliminary Station Sustainability Assessment Report
Deliverable – Detailed Design	Green Star 'Design' certification from GBCA	Green Star 'Design' certification from GBCA	Sustainability Performance Report
Deliverable – Practical Completion	Green Star 'As Built' certification from GBCA	Green Star 'As Built' certification from GBCA	Sustainability Performance Report

The adoption of a third-party certification scheme for stations is aimed at:

- Ensuring sustainable station design does not get overlooked in the broader context of the infrastructure delivery
- Focusing effort on an asset that provides a key point of community engagement and interaction
- Supporting evolution of the METRONET station precincts, setting sustainable development standards and supporting precinct activation.

Other facilities outside of stations will be considered on a case by case basis as to the adoption of ESD requirements and any formal independent certification.

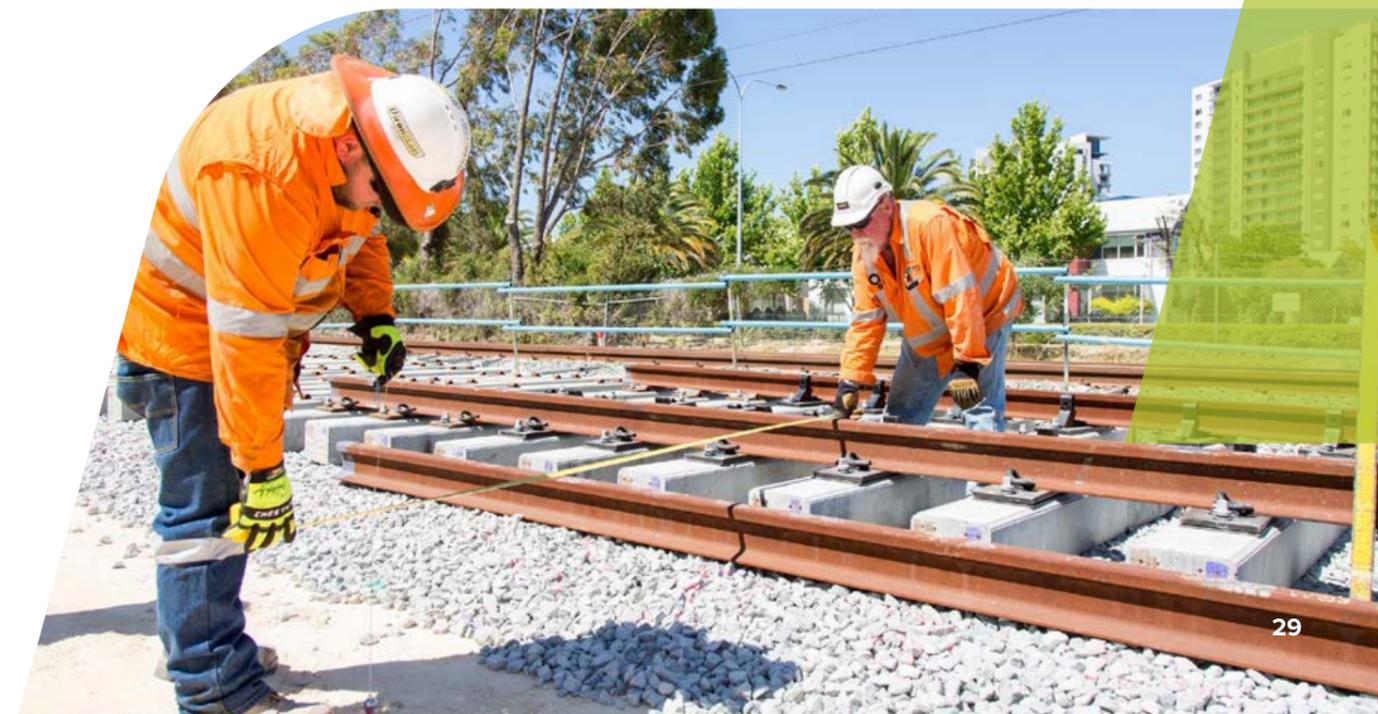
Additional Third-Party Certification for Transport Infrastructure

The Strategy provides for a bespoke and targeted approach for infrastructure priorities with respect to sustainability. The Strategy has established a foundation framework for transport infrastructure projects, to support delivery of specific sustainable outcomes against the overarching METRONET Sustainability Objectives.

As outlined above, the use of a third-party certification scheme to support delivery of METRONET stations (i.e. Green Star) has been set under the Strategy. This is to further support sustainable development of high community use areas and to set a precedent and expectation for METRONET station precinct developments.

For METRONET transport infrastructure, any further use of third-party sustainability accreditation schemes has not been holistically mandated/prescribed. Further application will be considered for each METRONET project on a case by case basis if required. A decision to use any additional certification schemes will be determined by:

- Project size / scale
- Stakeholder interest and priorities
- Delivery timeframes
- Significant issues and/or opportunities
- Any additional priorities above and beyond those set in the METRONET Sustainability Objectives.



Focus Areas and Target Outcomes

To support delivering on the METRONET Sustainability Objectives/Targets, key focus areas and associated target outcomes have been further defined to be applied to station precincts.

Station Precinct Focus Areas and Target Outcomes

FOCUS AREAS (Objective & Target Alignment)	TARGET OUTCOMES
PEOPLE & PLACE	<p>Resilience & Adaptability</p> <p>Housing:</p> <ul style="list-style-type: none"> Increase homes in close proximity to public transport through increased housing development and availability around METRONET transport infrastructure. Deliver a variety of housing types and affordability within METRONET station precincts. <p>Resilience assessment:</p> <ul style="list-style-type: none"> Resilience is formally evaluated for station precincts, to assess and understand key short-term shocks and long-term stresses that may impact on precinct success and the delivery of strong and connected communities. Climate and natural hazard vulnerability is assessed for precinct areas, to inform infrastructure planning, resilience assessment and any climate change adaptation response required through delivery. <p>Infrastructure:</p> <ul style="list-style-type: none"> Precinct planning identifies the local infrastructure context and a formal engineering assessment is undertaken in early design to identify opportunities for electric, automated and shared vehicle infrastructure.
Amenity & Liveability	<p>Place making:</p> <ul style="list-style-type: none"> Cultural and environmental context is identified and applied in design of public realm infrastructure, buildings and public art within a precinct. <p>Safety and wellbeing:</p> <ul style="list-style-type: none"> CPTED Principles are applied to precinct design. Tree canopy cover is planned to maximise community amenity and wellbeing and minimise urban heat island effects. <p>Public space:</p> <ul style="list-style-type: none"> Management of environmental values across the precinct will be aligned to opportunities for community amenity and well-being and provision of public open space. <p>Infrastructure:</p> <ul style="list-style-type: none"> Social infrastructure needs are identified, understood and factored into precinct delivery.
Connectivity	<p>Movement network:</p> <ul style="list-style-type: none"> Assess and audit the local movement network in precinct planning/design to understand development potential and limitations for both connectivity and amenity. Identify and implement opportunities to improve the walking and cycling network connection to public transport (i.e. walk score). Provide facilities and amenity for users of the movement network, in particular active transport users. <p>Wayfinding:</p> <ul style="list-style-type: none"> Incorporate strong wayfinding across the movement network within the precinct, including opportunities to use environmental features and public art. <p>Accessibility:</p> <ul style="list-style-type: none"> Design of precinct infrastructure, buildings and public spaces incorporates universal accessibility requirements.

ENVIRONMENT

Environmental Values & Biodiversity

Biodiversity values:

- Biodiversity values are identified and assessed as part of precinct planning to inform sustainable decision making for precinct design and delivery.

Tree canopy:

- Target a net increase within the precinct for urban tree canopy cover, working in with applicable LGA urban forest strategies and DPLH guidance for urban forest planning.

Biodiversity enhancement:

- Specific precinct biodiversity management objectives will be developed in early design/delivery phases, including establishing a target for enhancement to biodiversity values.
- Initiatives to enhance local biodiversity are factored into precinct design and delivery.

Infrastructure:

- Projects identify and incorporate green infrastructure elements into design to support biodiversity and community amenity objectives.

Water

Planning and management strategy:

- Options for a precinct local water management strategy are assessed in early planning.
- Opportunities for water sensitive urban design are assessed in early planning, including in alignment with biodiversity and local water management objectives.
- A precinct local water management strategy is formalised and is refined throughout delivery and supports the objectives of the DWER's Waterwise Perth Action Plan.

Infrastructure:

- Precinct planning identifies the local infrastructure context and a formal engineering assessment is undertaken in early design to identify opportunities for water efficiency, including rain water capture and recycling/re-use systems.
- Infrastructure to support water efficiency is incorporated into precinct design at whole of precinct scale and/or individual buildings.
- The water management system/s and design response/s for station precinct developments incorporates:
 - Appropriate protection from flooding and inundation.
 - Consideration of safety, amenity and serviceability.
 - Minimisation of any adverse impacts to the surrounding environment and water resources.

Energy & Carbon

Infrastructure:

- Precinct planning identifies the local infrastructure context and a formal engineering assessment is undertaken in early design to identify opportunities for energy efficiency and carbon reduction, considering renewables and local scale generation and storage technologies as part of developments.
- Infrastructure to support energy efficiency is incorporated into precinct design at whole of precinct scale and/or individual buildings.

Waste

Operational strategy:

- Operational waste management across the precinct integrates with LGA operations to support sustainable waste management set out in the *Waste Avoidance and Resource Recovery Strategy 2030*.

Infrastructure:

- Precinct planning identifies the local infrastructure context and a formal engineering assessment is undertaken in early design to identify opportunities for waste management and recycling services, aligned to LGA operations, including community-scale organic waste composting.



Viable Communities**Economic risk and opportunity assessment:**

- Economic considerations and profile are assessed in precinct planning to facilitate economic risk assessment.
- Key risks and opportunities for precinct economic activation are considered in resilience assessments, with key actions assigned to delivery stakeholders for implementation.

Activation strategy:

- Precinct scale strategies are developed to bring in a range of business and services and to support local employment.

Stakeholder and Community Engagement

- Stakeholder and community priorities are understood early, with a Stakeholder and Community Engagement Plan developed in planning and implemented across delivery.
- The Stakeholder and Community Engagement Plan identifies opportunities for community involvement in further precinct planning and design.
- The community is consulted on their values and priorities for a precinct area, with values factored in precinct design and delivery decisions.

Considering Resilience for Station Precincts

The 100 Resilient Cities (100RC) initiative that has been pioneered by the Rockefeller Foundation is aimed at helping cities become more resilient to physical, social and economic challenges. The 100RC defines urban resilience as:

“the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience” (100 Resilient Cities, 2019).

The concept is aimed at considering a city as a system, improving both development opportunity and community well-being by improving and strengthening the underlying fabric. Stresses are those slower moving occurrences that can impact functionality such as high unemployment or inefficient transport systems. Shocks are sudden events that have an impact such as bushfire, floods or disease outbreak (100 Resilient Cities, 2019).

Considering resilience requires considering the range of shocks and stresses of relevance to a particular place, including the interface between them.

The METRONET station precincts will develop over time (30+ years) to provide desirable places for housing investment, jobs and services. Development responsibility will be shared across multiple government agencies. Considering resilience for station precincts from early planning is a perfect opportunity to support the successful development within precinct areas and to provide for good community connectedness, health and well-being.

Mechanisms for encouraging consideration of resilience, across economic, social and environmental areas, have been factored into the station precinct strategic framework in this Strategy. A resilience assessment guide for precincts will also be developed as part of the identified Program Strategic Initiatives.

Engagement Needs

Development responsibility for precincts will be shared across multiple state government agencies, local governments and the private sector. This will require a high level of coordination to achieve successful outcomes.

A Stakeholder and Community Engagement Plan will be developed for each station precinct during the planning phase. This will identify the key collaboration needs across government departments and levels and with the private sector. The plan will also identify needs and opportunities for the involvement and engagement with other stakeholders and the community.

Demonstration Projects

The MO will identify suitable developments / projects to be developed as ‘demonstration projects’. These projects will be delivered as an example of best practice precinct planning and delivery for sustainable precinct outcomes. The demonstration projects will be identified based on the ability to influence delivery outcomes (i.e. government delivery agency with high intervention) and an acceptable timeframe for delivery of local infrastructure and developments.

These precincts will be benchmarked through a third-party sustainability accreditation scheme such as:

- Infrastructure Sustainability Council of Australia (ISCA) IS Rating (‘Planning’ and/or ‘Design and As Built’)
- Green Star Communities, EnviroDevelopment or One Planet Living
- Green Star (‘Design and As Built’) or WELL Certification (for buildings).

The MO will identify suitable developments / projects to be developed as ‘demonstration projects’.

METRONET will establish a sustainability reporting framework, to demonstrate sustainable program outcomes and progress against the METRONET Sustainability Objectives.

Reporting Framework

METRONET will establish a sustainability reporting framework, to demonstrate sustainable program outcomes and progress against the METRONET Sustainability Objectives. All METRONET projects will be required to report on sustainability performance across delivery phases.

The METRONET Sustainability Reporting Framework will be developed to demonstrate progress towards:

- The METRONET Sustainability Objectives/Targets
- The sustainability vision and themes set out in *Perth and Peel@3.5 Million*
- Relevant targets set out in *Our Priorities: Sharing Prosperity*
- The United Nations Sustainable Development Goals, highlighting the contribution of the Program to addressing global challenges.

The Global Reporting Initiative (GRI) Standards will also be used as a guide for the development of reporting templates and requirements for METRONET. In establishing the reporting framework, METRONET will decide whether to fully align to the requirements of the GRI Standards.

METRONET will undertake regular sustainability reporting to demonstrate progress against the METRONET Sustainability Strategy and Sustainability Objectives.

Annual Sustainability Reporting

METRONET projects will be required to provide inputs for METRONET annual sustainability reporting. The responsibility for the report inputs will depend on the project delivery phase. The MO will aggregate the project reporting into the whole-of-program METRONET Annual Sustainability Report.





Quarterly Sustainability Reporting

METRONET projects will also be required to report quarterly on defined sustainability metrics. As a minimum these metrics will include:

- Significant design decisions, highlighting associated environmental, social and economic benefits or disadvantage
- Identified sustainability opportunities and the status of any progressed sustainability initiatives
- Construction resource consumption and management practices for:
 - Energy use/efficiency and carbon emissions
 - Water use/efficiency and quality
 - Materials quantities
 - Generated waste quantities and types, and waste recovery percentages.

Benefits Realisation

Benefits realisation reporting is aligned to the requirements of Infrastructure Australia assessment framework and benefits attributed in project business cases. Benefits realisation measures are focused on the longer-term post delivery benefits from projects.

The METRONET sustainability reporting framework will support and integrate in with benefits realisation reporting where relevant.

Strategy Evaluation and Review

Key Performance Indicators

Aligned to the METRONET Sustainability Objectives/Targets and the focus areas set under the Strategy, key performance indicators will be defined and tracked by the MO. The key performance indicators will be defined for:

- Transport infrastructure projects across each delivery phase of planning, procurement, design and construction
- Station precincts – short term delivery indicators
- Station precincts – long term benefit indicators.

The tracking of key performance indicators will support performance evaluation and review of the Strategy.

Annual Performance Review

The MO will coordinate an annual review of program sustainability performance against the Strategy. Annual performance reviews will specifically assess:

- Progress against the METRONET Sustainability Objectives/Targets
- The suitability of the Sustainability Objectives, focus areas and tasks/deliverables set under the Strategy
- Adoption of any new/further specific targets against the Sustainability Objectives for METRONET
- Key lessons learnt and areas for improvement.

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MORE INFORMATION

✉ info@metronet.wa.gov.au

☎ 9326 3666

🌐 metronet.wa.gov.au