



ADVANCING SUSTAINABILITY IN INFRASTRUCTURE

EIANZ AND ISCA

27 OCTOBER 2017

Priya Pathmanathan, Sustainability Manager - Melbourne Metro Rail Authority





Western Portal

South Kensington

Arden

Parkville

North Melbourne

CBD North

Melbourne Central

Flagstaff

Parliament

CBD South

Southern Cross

Flinders Street

Richmond

Domain

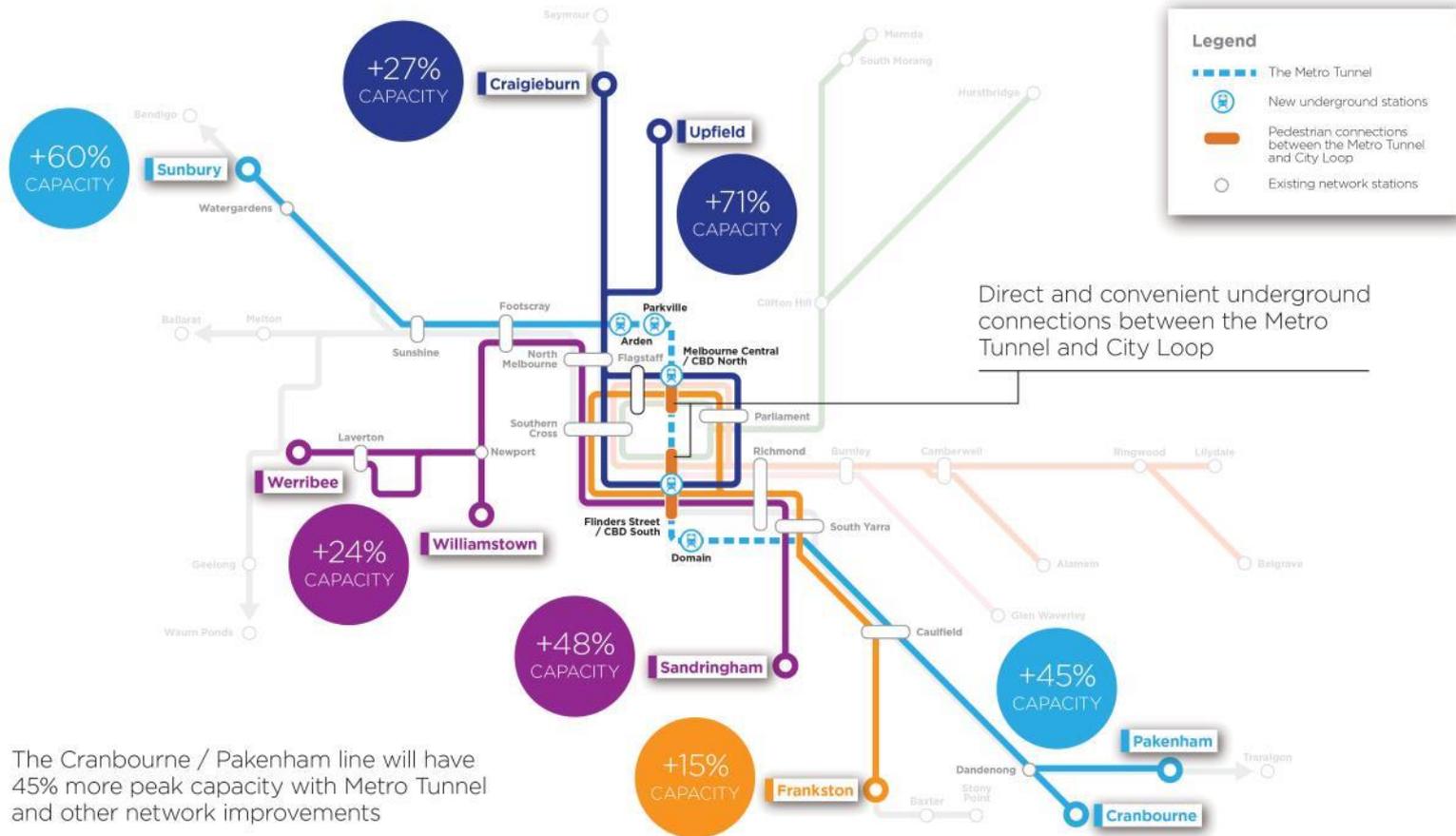
South Yarra

Eastern Portal

Sunbury Line

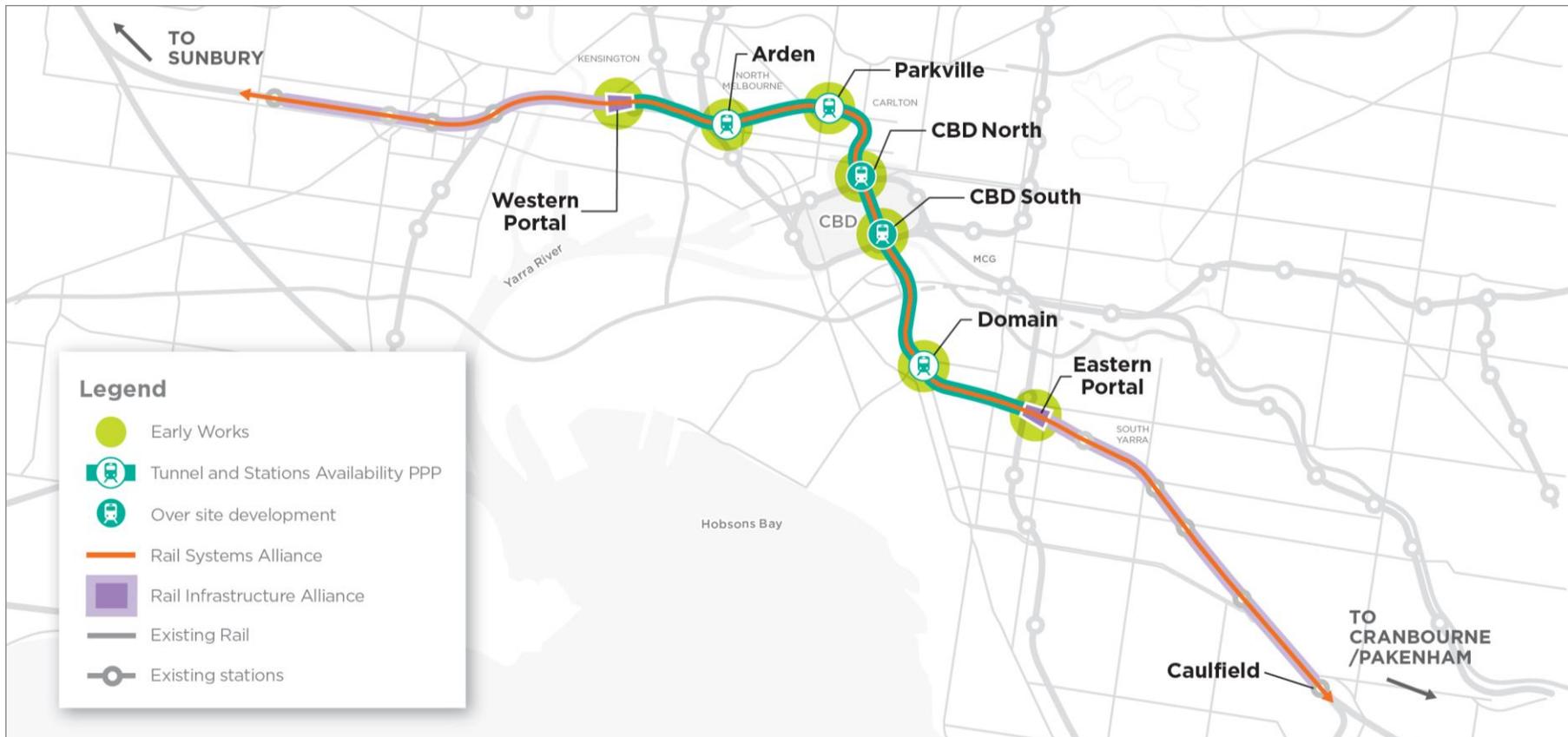
Cranbourne / Pakenham Line

CAPACITY BENEFITS



The Cranbourne / Pakenham line will have 45% more peak capacity with Metro Tunnel and other network improvements

PACKAGING & PROCUREMENT



MTP PACKAGES

Early Works

- Managing Contract
- Contract awarded June 2016 to John Holland

Tunnels and Stations

- Public Private Partnership (PPP)
- Preferred announced October 2016 to City Yarra Partnership (CYP)

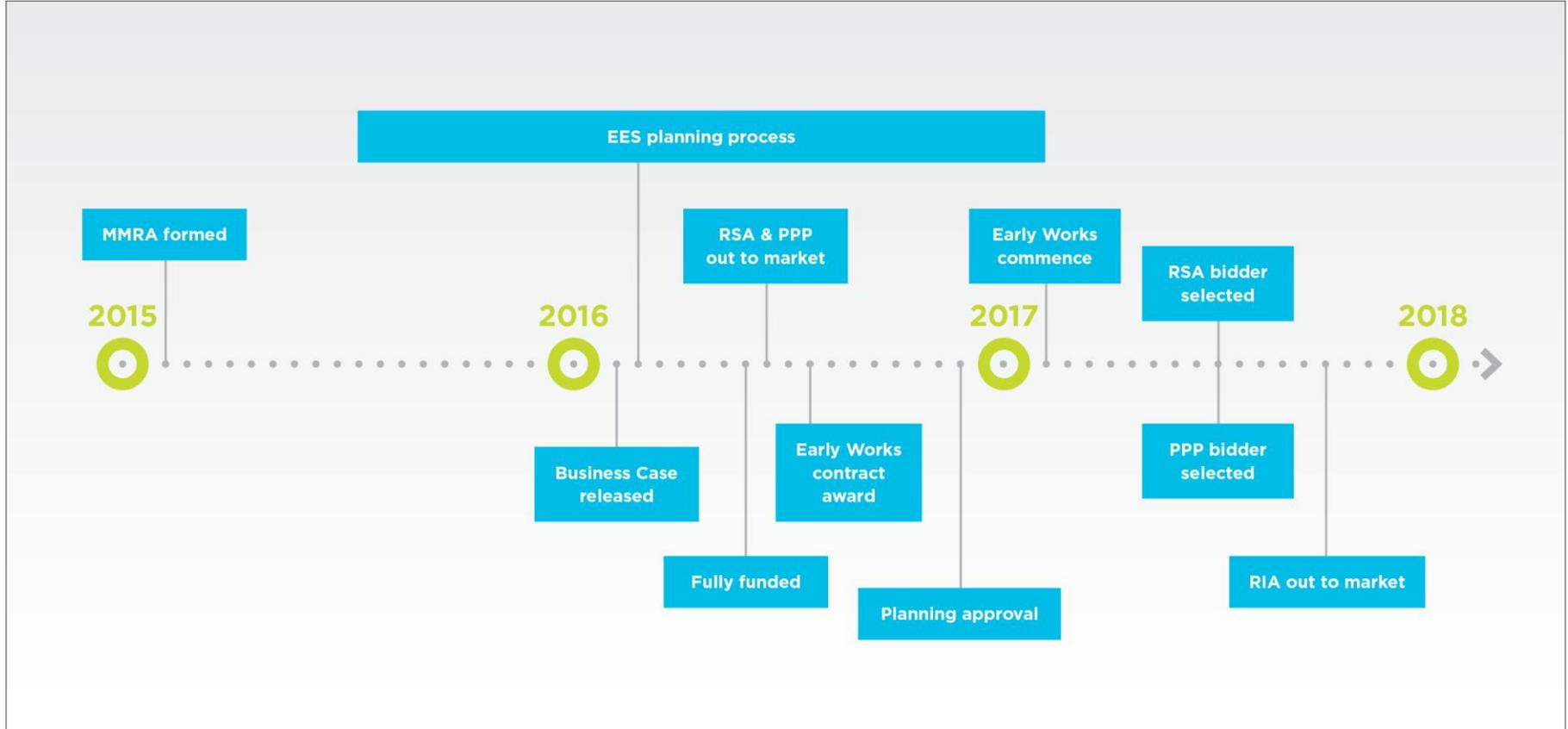
Rail Systems

- Competitive Alliance
- Preferred announced October 2016 to CPB & Bombardier

Rail Infrastructure

- Competitive Alliance
- RFI to be issued to market in November 2017

MILESTONES





ENGAGEMENT WITH ISCA

- MMRA started early engaging with ISCA - Mid 2015
- MMRA became an ISCA member - August 2015
- MMRA Leadership Engagement & Training- Early 2016
- Planning support agreements with ISCA – Dec 2016
- MMRA Development their Sustainability Policy – Dec 2016
- MMRA Develop the 33 Targets across 9 themes
- MMRA Staff ISAP training – Currently 29 Staff trained

SUSTAINABILITY APPROACH

- 33 Sustainability Targets focus areas covering Nine broad themes
- Early integration and embedment across various disciplines is key
- Appropriate resourcing, leadership and commitment to sustainable procurement
- Drive innovation



SUSTAINABILITY & ISCA RATING

Sustainability Policy



Sustainability Targets



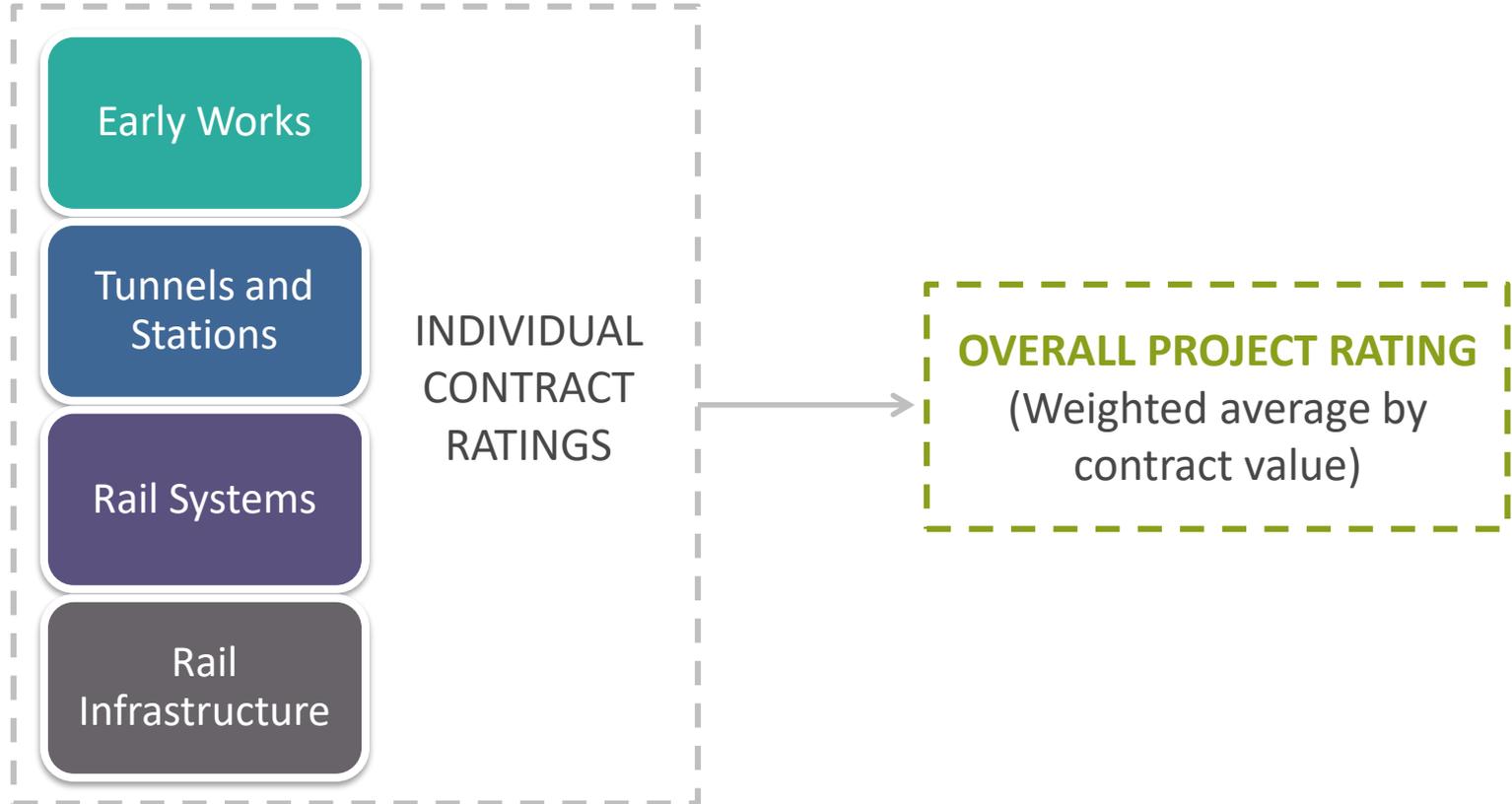
ISCA Rating of min. 70:
- Each works package
- Whole of Project



Works package
contract requirements



ISCA RATING STRUCTURE



SUSTAINABILITY GOVERNANCE



SUSTAINABILITY POLICY

Through the Metro Tunnel project, we're committed to connecting commuters in the healthiest, most sustainable way possible. We'll help to ensure that Melbourne remains the most liveable city in the world, leaving a lasting legacy for present and future generations - environmentally, socially and economically.

To achieve this Sustainability Vision, Melbourne Metro Rail Authority is committed to:

- Optimising the Project's designs to ensure it is delivered to optimal sustainability.
- Managing resources efficiently through embracing energy, water and material saving initiatives. We will also respect sustainability and objectives of the surrounding communities and the local environment.
- Avoiding, minimising and offsetting harm to the environment and the local community.
- Reducing and managing the nature environment and
- Preparing for the challenges presented by climate change.

To give effect to the Policy, our people will:

- Demonstrate leadership in the commitment to a progressive and integrated economic, social and environmental sustainable future.
- Demonstrate commitment to sustainable procurement.
- Prepare and enforce legislation, the functioning of ecosystems and biological diversity.
- Practice openness, integrity and development and provide a resilient social structure.
- Support and enhance social, cultural and community wellbeing.
- Encourage the procurement of resources in sustainable design, product or advocacy that meets the Victorian Government's promise for zero waste and recycling.
- Embed environmental and sustainability outcomes to existing robust sustainability objectives and targets, and
- Report on sustainability performance and be accountable for meeting environmental and social responsibilities.

E. Scott
 Eric Scott
 Chief Executive Officer
 Melbourne Metro Rail Authority
 September 2016



SUSTAINABILITY MANAGEMENT PLAN MELBOURNE METRO RAIL AUTHORITY

September 2016



SUSTAINABILITY TARGETS PROJECT WIDE



INNOVATIONS & INITIATIVES INVESTIGATED

- Living 'Green & Blue' Infrastructure
- Biophilic Design Report and Guidelines
- Direct geothermal heat exchange
- Portland cement reduction Technical Note





METRO TUNNEL LIVING INFRASTRUCTURE PLAN

Vision: Metro Tunnel will demonstrate world leading excellence to create a living infrastructure legacy for a more liveable Victoria.

The Living Infrastructure Plan will guide the creation of urban landscapes that:

- + are more biodiverse, healthy and climate change resilient
- + successfully provide ecosystem services that improve the urban environment

- + add amenity and enhance local character
- + support liveable, active, healthy and connected communities
- + provide inspiration, opportunities and case studies to support increased uptake of living infrastructure initiatives in future urban planning, design, engagement and management.

Targets

Double tree canopy – Deliver increased biodiversity habitat – Deliver best practice urban water management

Living Infrastructure Measures and Opportunities

Urban Ecosystems

- + Increased habitat links including pollinator pathways.
- + Biophilic design in & around stations.
- + Biodiversity-friendly design for landscapes.
- + Species selection for resilience & diversity.
- + Tree protection.

Urban Soils

- + Best practice soil standards to maximise healthy canopies for urban heat reductions.
- + Soil for sequestration.
- + Soil to maximise soil health and biodiversity.
- + Soil monitoring for climate resilience.

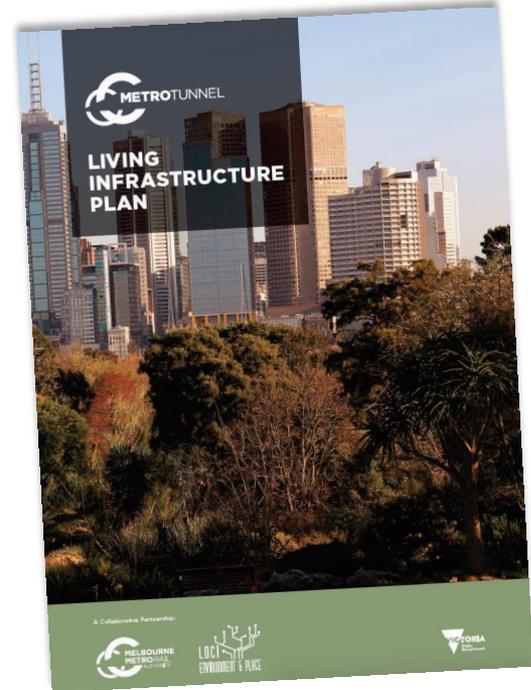
Urban Water

- + Best practice stormwater quality treatment in design.
- + All tree plots to filter stormwater.
- + All vegetation supported by passive irrigation.
- + All drainage and alternate water sources designed for climate resilience.

Engagement, Monitoring and Knowledge Sharing

Draw from, and support, community knowledge on habitat and local link projects

Draw from, and support, applied research projects to grow practitioner knowledge for this and future projects





- MMRA's Climate Change & Adaptation Documentation
 - Sustainability & Climate Change Report
 - Adoption of Climate Change Scenarios and Projections
 - Climate Change Risk Assessment Reference Design Report
 - Design for Climate Change Framework
- Delivery Partners are required to undertake a climate risk assessment and develop and implement a climate change adaptation plan that addresses climate risks to ensure infrastructure, stations and precincts are resilient to the impacts of a changing climate



- Achieve a minimum 15% reduction in materials lifecycle impacts
- Concrete and steel – main GHG contributors
- New materials – Type approvals
- Asphalt – High RAP, Warm, Plastic
- ISCA Calculator – RSA
- Waste Targets – Level 2



ENERGY





Crossrail



Living or green installations



Art



Light projections



Digital screens



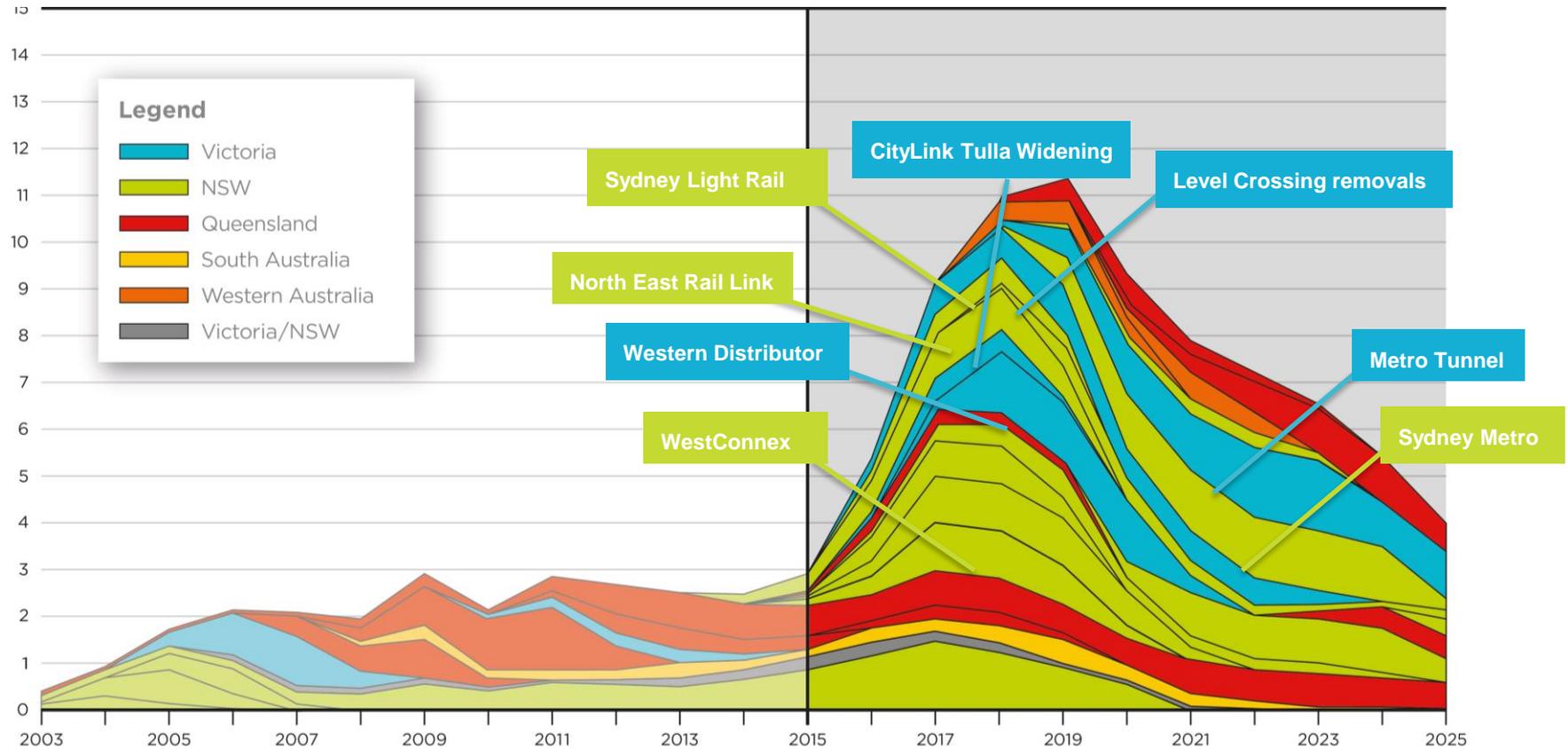
Community activity



TIPS AND LESSONS

- Leadership support and identify a champion
- Set project targets based on identified impacts and match with IS Rating Tool levels
- Identify supporting legislation
- Identify collaboration opportunities

CONSTRUCTION PROJECTS IN AUSTRALIA





metrotunnel.vic.gov.au