Completing the jigsaw – system and safety assurance, and asset management

Richard Adams, Manager Safety & Risk Assurance
Asset Standards Authority
Presentation scope

• Introduction to ASA
  – Organisation, purpose and tasks
  – ASA assurance provision to Transport for NSW
  – Industry engagement

• Completing the jigsaw - system and safety assurance, and asset management
  – Transport network context
  – ASA role, products, functions and objectives

• ‘Whole of TfNSW’ customer outcomes and asset management approach
  – Assurance framework
  – Systems engineering
  – Configuration management
  – Standards
  – Authorised Engineering Organisation (AEO) Model

• Asset stewardship outcomes and where we are on the journey
ASA within TfNSW

**Transport for NSW**

- Tim Reardon, A/Secretary
- Gladys Berejiklian, Minister for Transport
- Duncan Gay, Minister for Roads and Freight

**Asset Standards Authority**

- Jim Modrouvanos, Director
- Tim Reardon, A/Secretary

**NSW Government**

- Tony Braxton-Smith, DDG, Customer Experience
- Anissa Levy, DDG, Planning & Programs
- Chris Lock, DDG, Transport Projects
- Rachel Johnson, DDG, Freight & Regional Development
- Howard Glenn, A/DDG, Policy & Regulation
- Fergus Gammie, DDG, Transport Services
ASA purpose and tasks

• **Making it clearer and simpler**
  – For Transport cluster
  – For supply chain

• **Supporting TfNSW to be informed and efficient asset owner**
  – Whole of life assurance
  – Asset management
  – Standards
  – Risk-based decision making

• Facilitate increased private sector participation and capability

• Transport for NSW values and customer focus
ASA’s organisational function – all modes
ASA - providing TfNSW with assurance

- Enabling O&M efficiencies and effectiveness
- Engineering decisions
- Obligations to the owner
- Industry service providers
- Deployment of TfNSW protocols
Industry engagement - sharing and listening

**Industry briefings**
- Updates, guidance, thought leadership and awareness
- Two to four per year to 150+

**Industry round tables**
- Discuss and dissect key topics from industry briefings
- Two to four per year to approx 60+

**Industry seminars**
- Large technical audiences
- Detailed and application-specific technical learnings and contemporary subject matter

**Technical forums**
- Capture and share knowledge and experience
- 20-30 participants tailored to subject matter
Completing the jigsaw – system and safety assurance and asset management
Transport network – assurance and asset management

- Transport network – a complex system of assets
- Asset management
  - Managing entire life cycle
  - Maintaining desired level of service
  - Cost effective assets through life
  - Effective and efficient maintenance

Value – alignment – leadership - assurance
An assured transport network

Through whole of life, transport assets/system must be assured as:

• Reliable
• Safe
• Operable
• Maintainable
• Sustainable
• Optimised whole of life cost
• Fit for purpose
A new procurement paradigm

Transport for NSW
- Asset Standards Authority
  - Principles and Guidelines
- Transport Projects
  - Contract Terms and Conditions
- Transport Services
  - Contract

Contractors
- Construction/Maintenance
- Contractor (AEO)
  - Engineering Management Plan (EMP)
  - Engineer
  - Supplier
- External Supplier

Operator / Maintainer

Operator / Maintainer

Regulator

Accreditation

Authorisation

Organisation Boundary

Contractual Interface

Engineering Governance

Consultation
Asset Standards Authority role and products

- TfNSW is asset owner/custodian
- Operations and maintenance contracted out
- ASA works on behalf of the asset owner/custodian
- Authority defined under ASA Charter
Charter objectives include:

- ‘...support TfNSW and supply chain in creating realisation of benefits across asset life cycle…’
- ‘Improve processes for engineering assurance, design approval and commissioning…’
- ‘Facilitate smooth integration of new or altered assets into existing transport networks’
- ‘Assure system safety and network integrity.’
TfNSW divisions – asset life cycle roles
Assurance - set of structured and planned activities conducted through asset life cycle providing progressive justified confidence that objectives are being achieved and that asset is or will be fit for purpose.
Systems engineering

- Supports sound engineering of complex systems
- Through life cycle view and approach links to asset management
- Supports asset assurance
  - Risk management
  - Quality management
  - RAM engineering
  - Requirements definition
  - Verification and validation
- Facilitates integration which is key to introduction of new or altered assets
- Network architecture
Configuration Management Gates

Asset Life Cycle

- Plan
- Acquire
- Operate / Maintain
- Dispose

CCBs
Gates managed through CCBs
CCBs

Configuration Management and Asset Assurance Committee
System safety assurance

- Provided by AEOs
- Feeds into Configuration Management Gates
- Most effective under a systems engineering framework
- Required by legislation
- Scalable assurance process
- Human factors
- Progressive assurance
- Independent safety assessment
Assured standards

- Scalable assurance process
- Risk controls from standard linked to network risk
- SFAIRP justification for standards
- Assurance argument for novel or high risk content
  - risks consider asset management issues
- Standards span engineering, assurance, human factors, asset management, systems engineering
- Industry consultation
Authorised Engineering Organisation

Requirements include:

• Asset management
• Systems engineering
• RAM assurance
• System safety assurance
• Configuration management
• Competence management
Type approval

• Key role in asset management
  – Sub-systems/components on network
  – Maintenance and support arrangements

• Assurance building block
  – Optimises assurance for complex systems
  – Facilitates cross-acceptance
Asset Stewardship

- Monitoring of asset performance and integrity in operation
- Early life cycle assurance
- Specifying the right assets
- Asset management advice and guidance
  - Supply chain
  - TfNSW
How do we build the jigsaw?
The complete picture – a work in progress…