




Austroads
Draft Standard

Data Standard for Road Management and Investment in Australia and New Zealand

Roads Australia Presentation

Austroads members

Members

- [Roads and Maritime Services New South Wales](#)
- [Roads Corporation Victoria](#)
- [Department of Transport and Main Roads Queensland](#)
- [Main Roads Western Australia](#)
- [Department of Planning, Transport and Infrastructure South Australia](#)
- [Department of State Growth Tasmania](#)
- [Department of Transport Northern Territory](#)
- [Territory and Municipal Services Directorate Australian Capital Territory](#)
- [Commonwealth Department of Infrastructure and Regional Development](#)
- [Australian Local Government Association](#)
- [New Zealand Transport Agency](#)

Austroads members are collectively responsible for the management of over 900,000 kilometres of roads valued at more than \$200 billion representing the single largest community asset in Australia and New Zealand.

About the Principal - Austroads

- Austroads' purpose is to improve Australian and New Zealand transport outcomes by:
 - providing expert technical input to national road and transport policy development
 - improving the practices and capability of road agencies
 - promoting operational consistency by road agencies.

Project Team

Consultants

- Opus International Consultants
 - Experience in road management and investment consulting and advice

- GISSA International
 - Experience in development of infrastructure metadata specifications and geospatial experts



Mission

‘Identify the data that supports common road management and investment functions’

- **Data to support the AM Functions**
- **Data that enables Analysis**
- **Data for Informed decisions**

Data identified to be able to be shared and or compared between organisations

Why was this initiated ?

*“The **Road Metadata Standard Project** has been initiated in response to requests from stakeholders who increasingly need to share data with other road management agencies but are frustrated by the lack of common data standards.”*

Anticipated Outcomes & Benefits

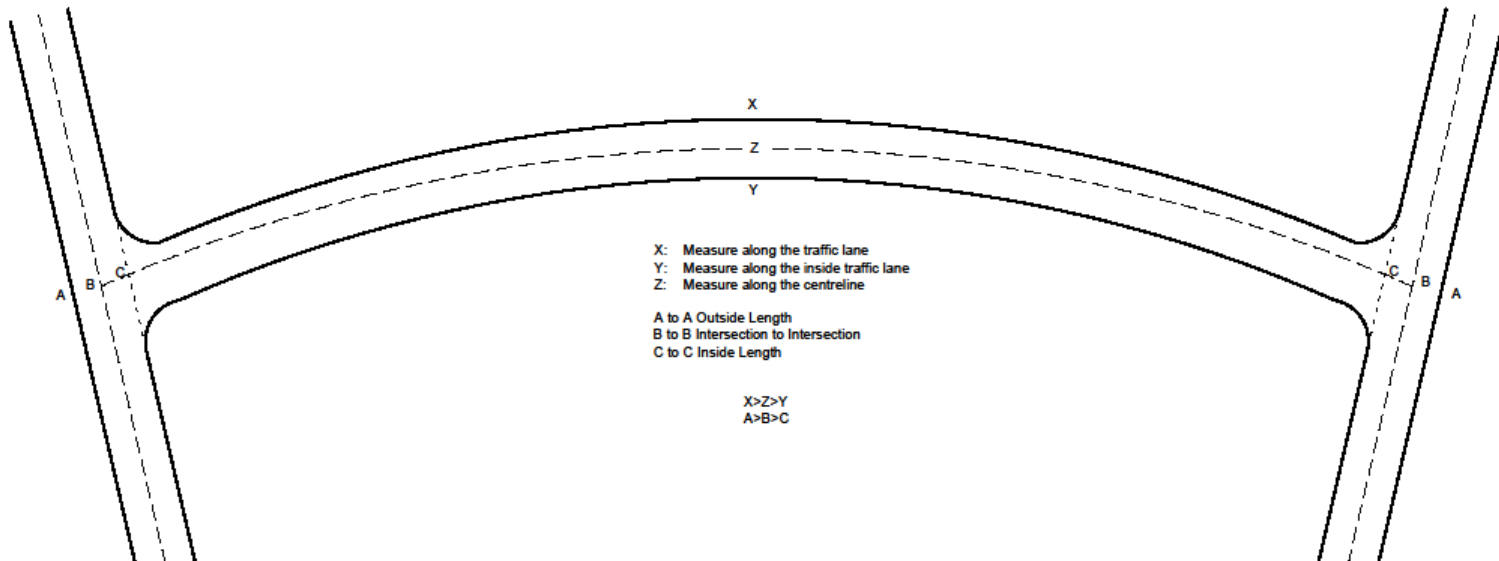
- Better understanding of asset performance – better prioritisation of maintenance tasks and resource allocation
- Consistent and comparable asset data to support strategic decisions at micro and macro levels
- Data independent of technology
- Reduced information management costs – across the sector
- Cost Savings:
 - Data System Integration projects
 - Data Conversion tasks
 - Everyday Data Querying, Processing and Reporting
 - Training

Primary Objectives of the Standard

- A common understanding of the meaning of the data
- Consistency in data definition and format
- A list of typical data fields that support road management and investment functions
- Data guidance supporting different levels of sophistication in asset management practices
- Detail on harmonised data fields to ensure consistent application

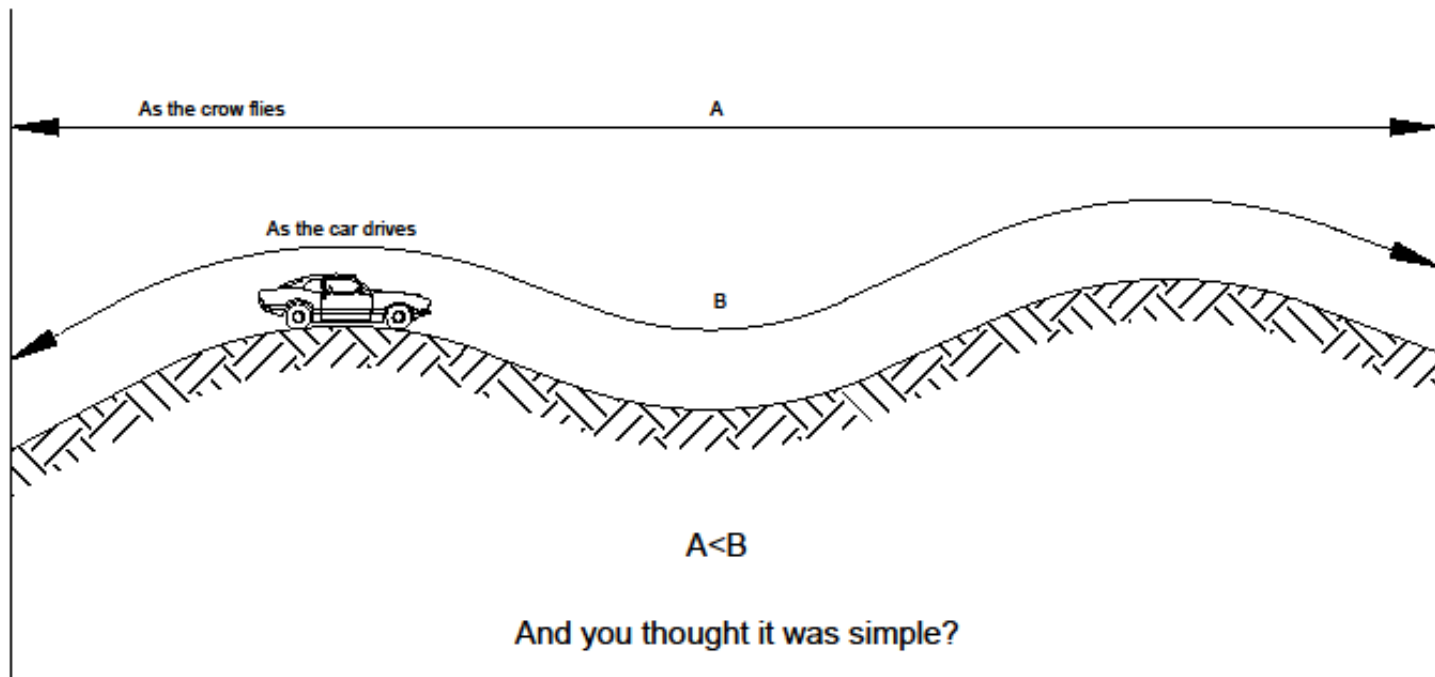
About the problem

HOW TO MEASURE A ROAD



More about the problem

But wait there is more...



Project Timeline

1. **Desktop Review** of existing practices and standards [*Dec 2015 – Feb 2016*]

2. **Workshops** with key stakeholders [*Feb – Apr 2016*]

3. **Documentation** and discussion [*Apr – May 2016*]

4. **Consultation and review** of draft document [*July 2016*]

Current Objectives

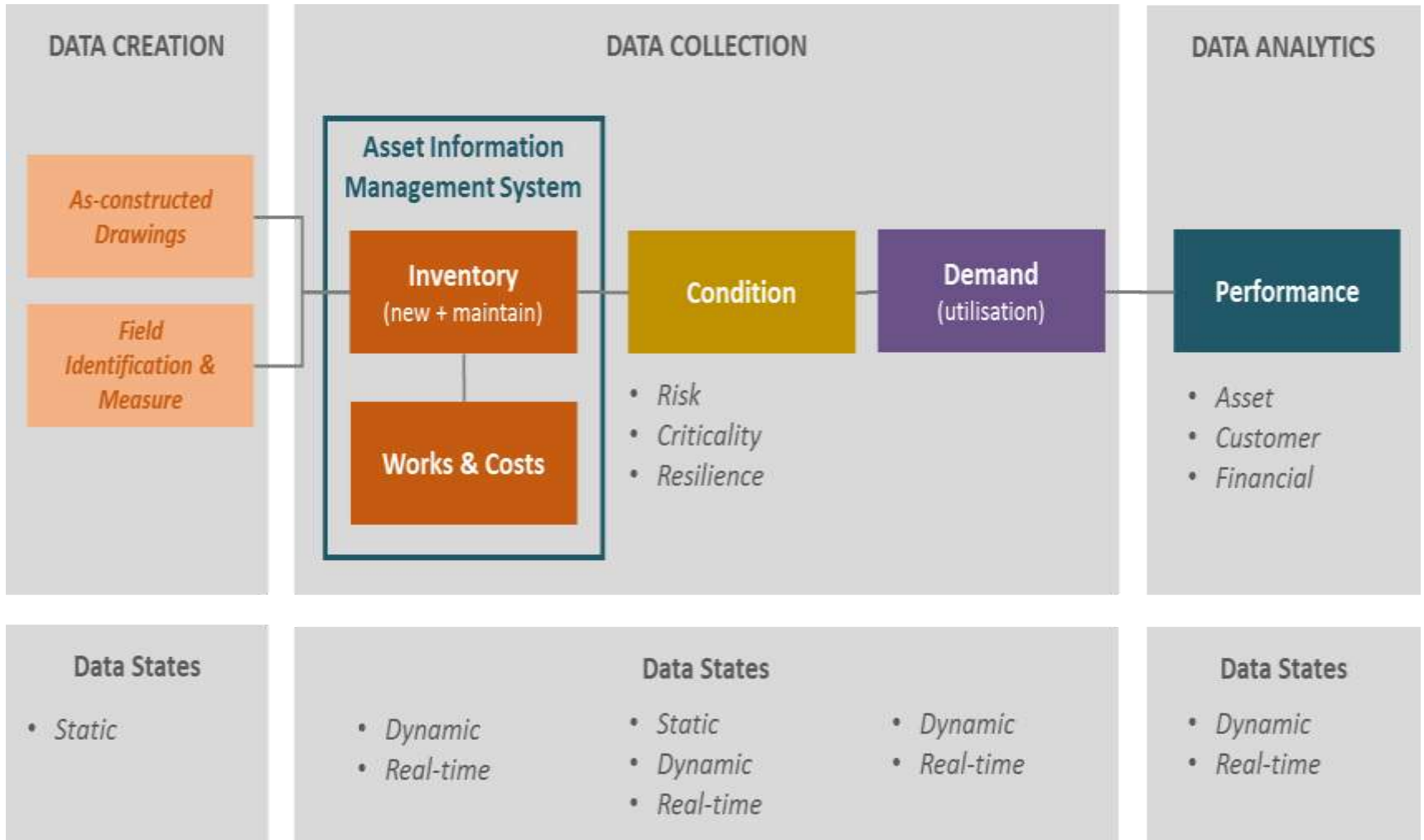
- Provide stakeholders with information about the project
- Gather information to ensure standard meets sector requirements
- Create a community of knowledgeable participants to provide feedback throughout the project

Why a short timeframe?

- The time frame for the project may appear to be *'rushed'*
- Deliberate intent by Austroads to complete the standard as timely as possible
- Supports the view that
 - modification and
 - on going evolution

Will occur as it is adopted and implemented

Asset Management Data



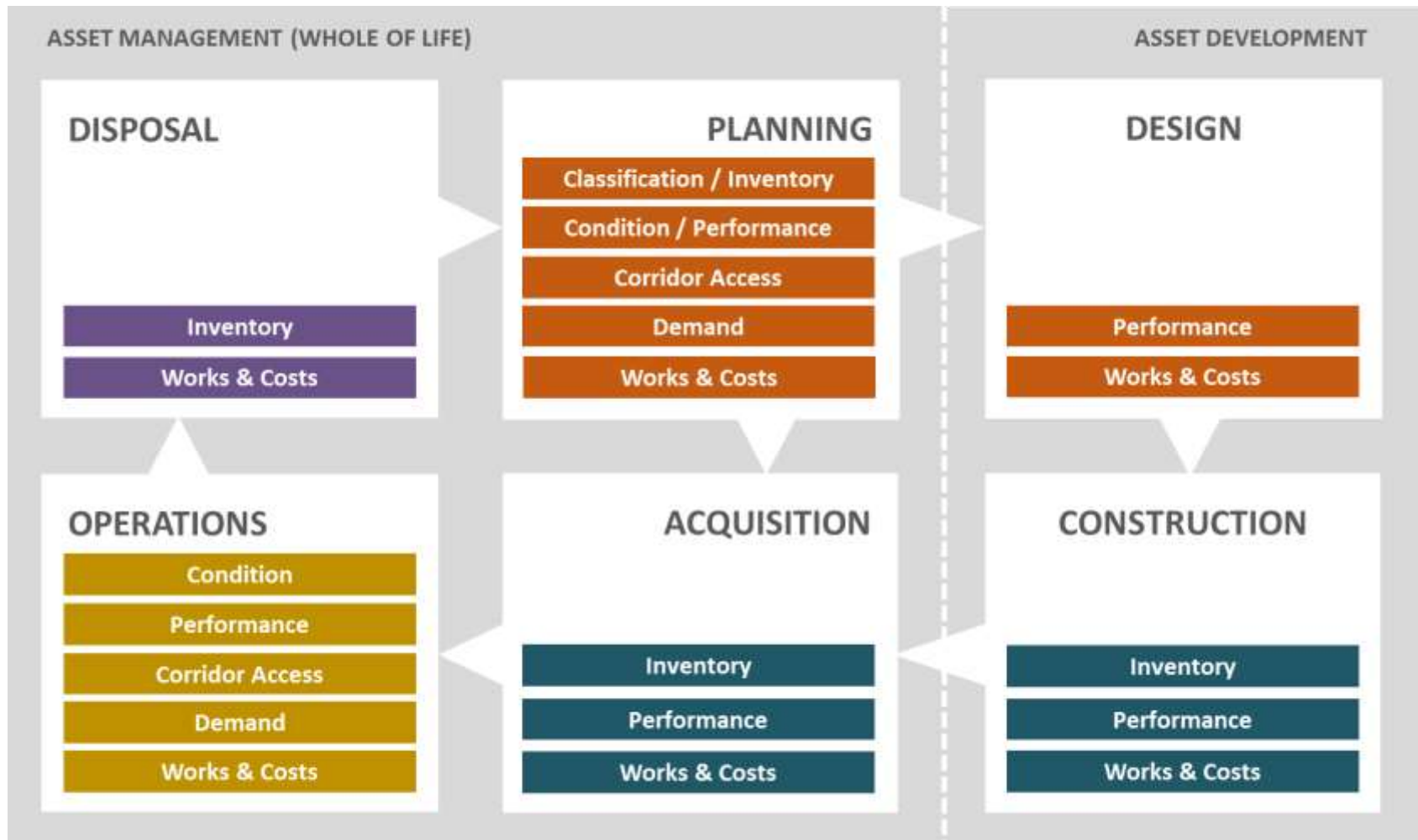
Data Types - Overview

- Classification – Functional priority or Status Level within the Network
- Inventory - Basic information about the asset, location, type and associated attributes
- Condition – Functional performance of an asset in its life cycle. Grading system.
- Performance Asset LOS – Relates condition to levels of service

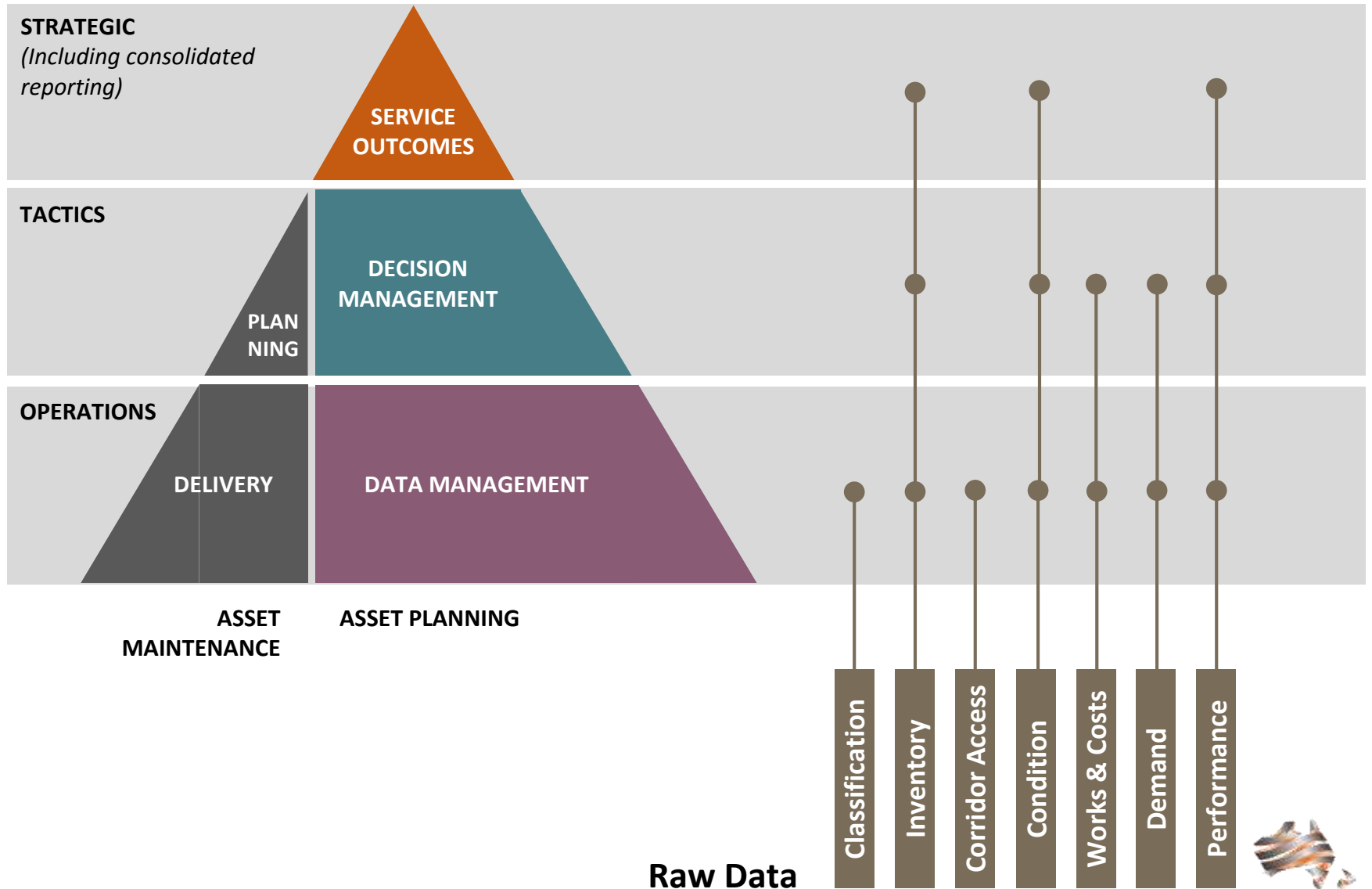
Data Types - Overview

- Performance Customer – Performance of a route or assets mobility, safety, amenity etc from end user
- Corridor Access – Factors that affect or limit travel use or behaviour by road users
- Demand – Measurement of current usage, traffic information
- Works and Costs – Physical work effort applied to a network and its cost.

Data Requirements supporting Asset Management



End Use of the Data



What is included

- Standard
- Data Schema
- Business Case
- Impact Statements
- Consultation

TALKING POINTS

General feedback

“This is a no brainer. It’s about time everyone started using my standard.”

Support for the concept is strong.

A lot of detail to be worked out.

Business impacts are not fully understood.

Governance?

“Great that Austroads is doing this. Gee it’s going to be hard for you!”

Who is responsible?

Who has the head of power?

Is this conformist or voluntary?

Is it a guideline, a standard or a specification?

Different levels of sophistication

“We’re a small shire and can’t support a complex system.”

“Your standard is too simple for what our City needs. It’s a waste of time.”

Different users have different needs and different capabilities.

How do we respect user needs and capabilities.

Sophistication example 1

Inventory Data

- Basic, optimal, optional

LOCATION AND INVENTORY DATA		
L1	L2	L3
<p>Non Graphical Asset Register</p> <ul style="list-style-type: none">• <i>Asset location referenced to known locations.</i>• <i>Basic asset description.</i>	<p>2D Digital and Graphical Representation</p> <ul style="list-style-type: none">• <i>Network centreline spatially located.</i>• <i>Assets referenced to network centreline.</i>• <i>Detailed asset description and performance data.</i>• <i>Parent/child asset component relationships defined.</i>	<p>3D Digital and Graphical Representation</p> <ul style="list-style-type: none">• <i>Asset Spatial location referenced to network and assets.</i>• <i>Detailed asset description and performance data attributes linked to shape files.</i>• <i>Parent/child asset component relationships defined.</i>

Sophistication example 2

Asset planning

- Reactive + condition + outcomes

ASSET PLANNING		
P1	P2	P3
<p>No Asset Planning (Reactive Routine/Periodic Maintenance)</p> <ul style="list-style-type: none">• <i>Defect identification and repair.</i>• <i>No planned asset preservation works.</i>	<p>Condition Based Asset Planning (Reactive Routine Maintenance + Proactive Periodic Works Planning)</p> <ul style="list-style-type: none">• <i>Defect identification and repair.</i>• <i>Asset condition assessments.</i>• <i>Asset performance analysis.</i>• <i>Planned asset preservation works.</i>	<p>Outcome Based Asset Planning (Reactive Routine Maintenance + Proactive Periodic Works Planning)</p> <ul style="list-style-type: none">• <i>Defect identification and repair.</i>• <i>Asset condition/performance analysis.</i>• <i>Asset output Level of Service defined.</i>• <i>Asset demand analysis.</i>• <i>Planned asset preservation works + new assets – disposed assets.</i>

Sophistication example 3

Basic	Intermediate	Advanced
The road is lit at night	Street light <ul style="list-style-type: none">• Asset ID• Location• Type• Date constructed	Each Component part (pole, foundation, fitting, luminaire, etc) <ul style="list-style-type: none">• Asset ID• Location• Service standard• Type• Age• Inspection data• Value• Condition• etc

Need for continuous improvement

“The sector is dynamically evolving and what we need is going to change.”

Beginning of the journey

Need for continuous improvement

Need for a community of knowledge

Technology agnostic?

“Are we going to have to buy new hardware and software?”

“We’re going to need to rewrite our software!”

Any hardware

Any software system

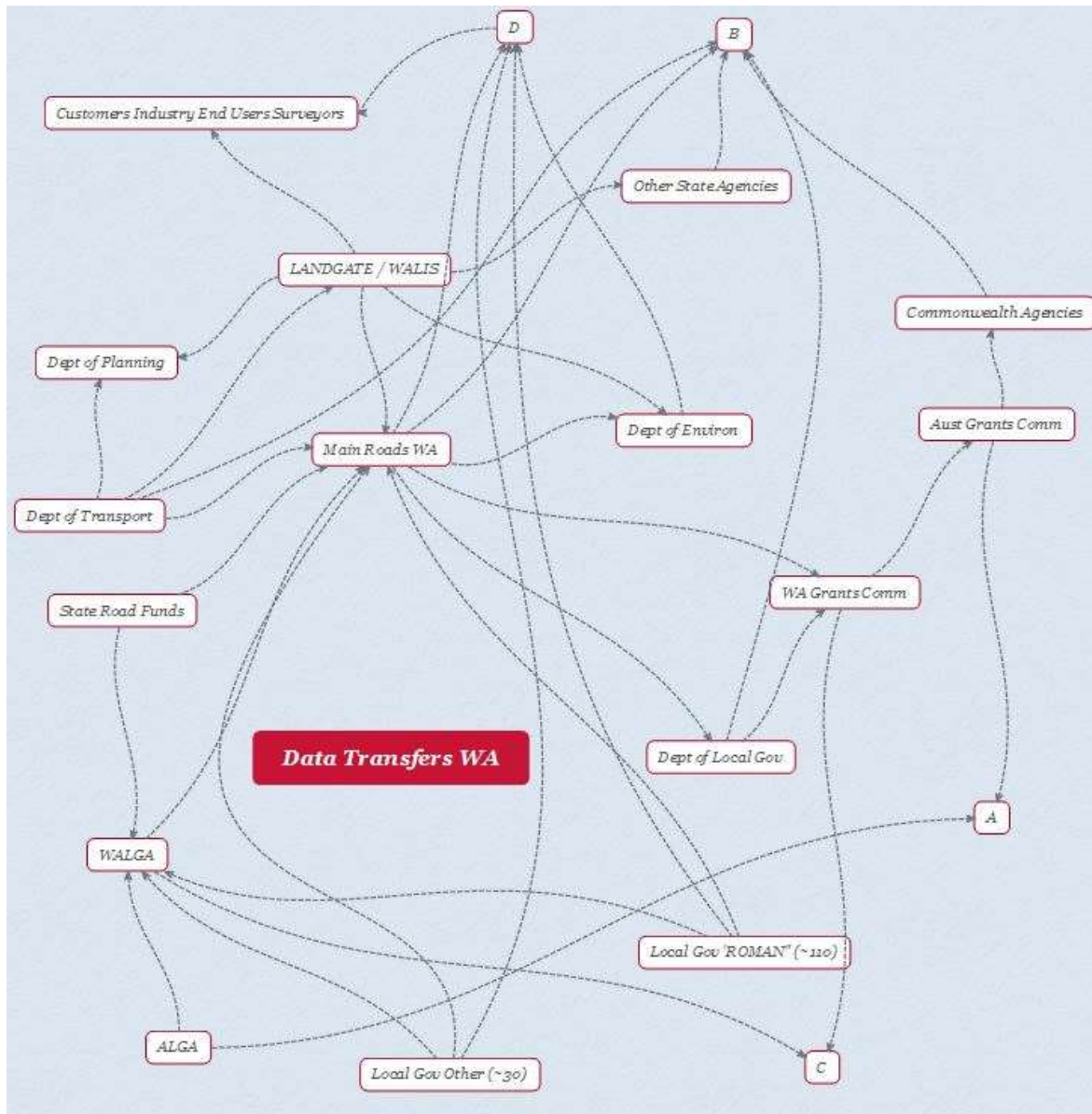
Universally available - Open source?

Adaptable to circumstance

Who is going to resource and pay for it?



The issue is more than just a data.



Example from
"Somewhere"

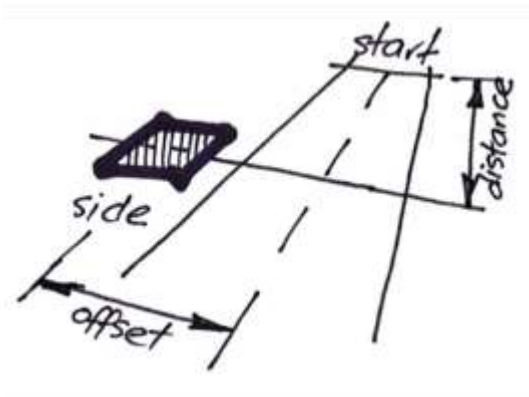
Technical issues

Location Referencing

- 1D, 2D, 3D (enable BIM)

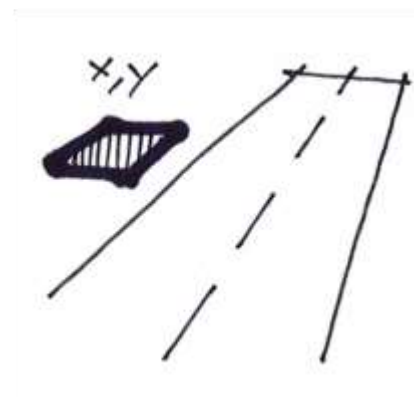
LINEAR/OFFSET

Linear distance along a road
+
Side of road
+
Lateral offset to road centreline



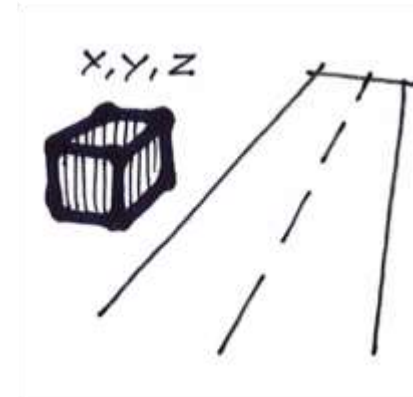
2D SPATIAL

$X + Y$
Points, Polylines, Polygons



3D SPATIAL

$X + Y + Z$
Points, Polylines, Polygons



Calculated versus raw data fields

“Can we get that information from other sources.”

“Should we specify calculated fields.”

Focus on the raw data requirements.

Calculated fields are designed for business needs

Road Classification

“I can’t change my classification system because....reasons.”

“If we focus on the raw data necessary then people can analyse and classify as required.”

“We still need a common language and to be able to compare like for like and classify roads to be able to talk about them together.”

Data quality and currency

“My biggest problem is the data I get is incomplete, inconsistent, of unknown quality, unknown timestamp. It’s not reliable.”

Need to be able to know data quality and currency

Use data respectfully

WHERE TO

Where to from here?

Fundamental first steps

- Common understanding
- Common language
- Stakeholder support

“Perfection is the enemy of good”

Contact details

Website

Copies of the draft standard and feedback form can be downloaded from

- <https://apps.opus.co.nz/austroads/>

Contact

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