



Road Asset Management (RAM) Maturity Assessment

Introduction of Assessment Template

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Agenda

- Welcomes/introductions
- About the project
- The timeline
- Your role
- Refresher on RAM
- The template
- Next steps



What the Project is Aiming to Achieve

The main objectives of this activity are:

- to conduct diagnostic assessment of all CAREC countries RAM systems in a Training of Trainer (ToT) mode and to produce a RAM maturity assessment framework (in collaboration with CAREC countries RAM leading experts) appropriate to CAREC countries
- to identify priority gaps for immediate capacity building activities
- to provide a holistic direction for design and delivery of systematic and cascading capacity building interventions based on high priority needs to raise the level of RAM practices across the CAREC region
- to adopt the RAM framework to benchmark RAM practices across the CAREC region



Overall Project Timeline Going Forward

- Training of Trainers
 - Today (10th Feb)
- Follow-up session (1 hr) to resolve any questions
 - 1 week from now (18th Feb)
- Conducting the Maturity Assessment by ToT participants
 - 3 weeks after follow up session
- Ian compiles assessments and produces draft improvement plan, CAREC Institute review then release to ToT participants
 - 2 weeks from receipt of all assessments
- Workshop with wider team to discuss findings
 - 1 week after CAREC Institute review
- All up aiming to complete within 2 months from now



ToT Participants Role

- You are part of the project team, not just participants at a workshop
 - So in the same way you would ask questions in a project meeting, please ask here also.
- Without your inputs the project can't proceed
- You will be the ones interacting with the road authorities in your respective country
 - Our aim is to establish each of you as being the credible “go to” people for conducting maturity assessments in your countries.
- You will help formulate the actions to be taken to address RAM deficiencies at both a CAREC wide and individual country basis
 - We want the end result owned by all of us.



Refresher on RAM



Definitions of Asset Management

- “The combination of management, financial, engineering, economic and other practices applied to physical assets with the objective of providing the required level of service in the most cost effective manner.” (IIMM 2011)
- “A systematic process of operating, maintaining and upgrading transportation assets cost-effectively, by combining engineering practices and analysis with sound business practice and economic theory. Also, the management of the physical infrastructure such as pavements, bridges, and airports, as well as human resources (personnel and knowledge), equipment and materials, and other items of value such as financial capabilities, right-of-way, data, computer systems, methods, technologies, and partners.” (AASHTO)

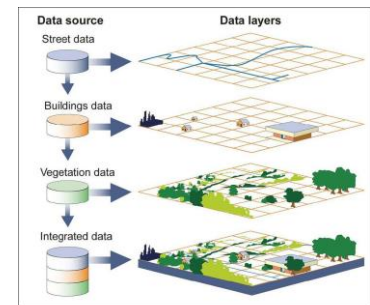


My Simple Definition

All activities required to define and provide the agreed level of service in the most cost-effective manner for the present and future owners of the asset in a transparent and informed manner.

What It Isn't (but these are part of RAM)

- Routine or periodic maintenance
- Disaster recovery or climate resilience
- Software solution Asset Management Information System (AMIS)
- Although these are all parts of asset management, by themselves they are no asset management



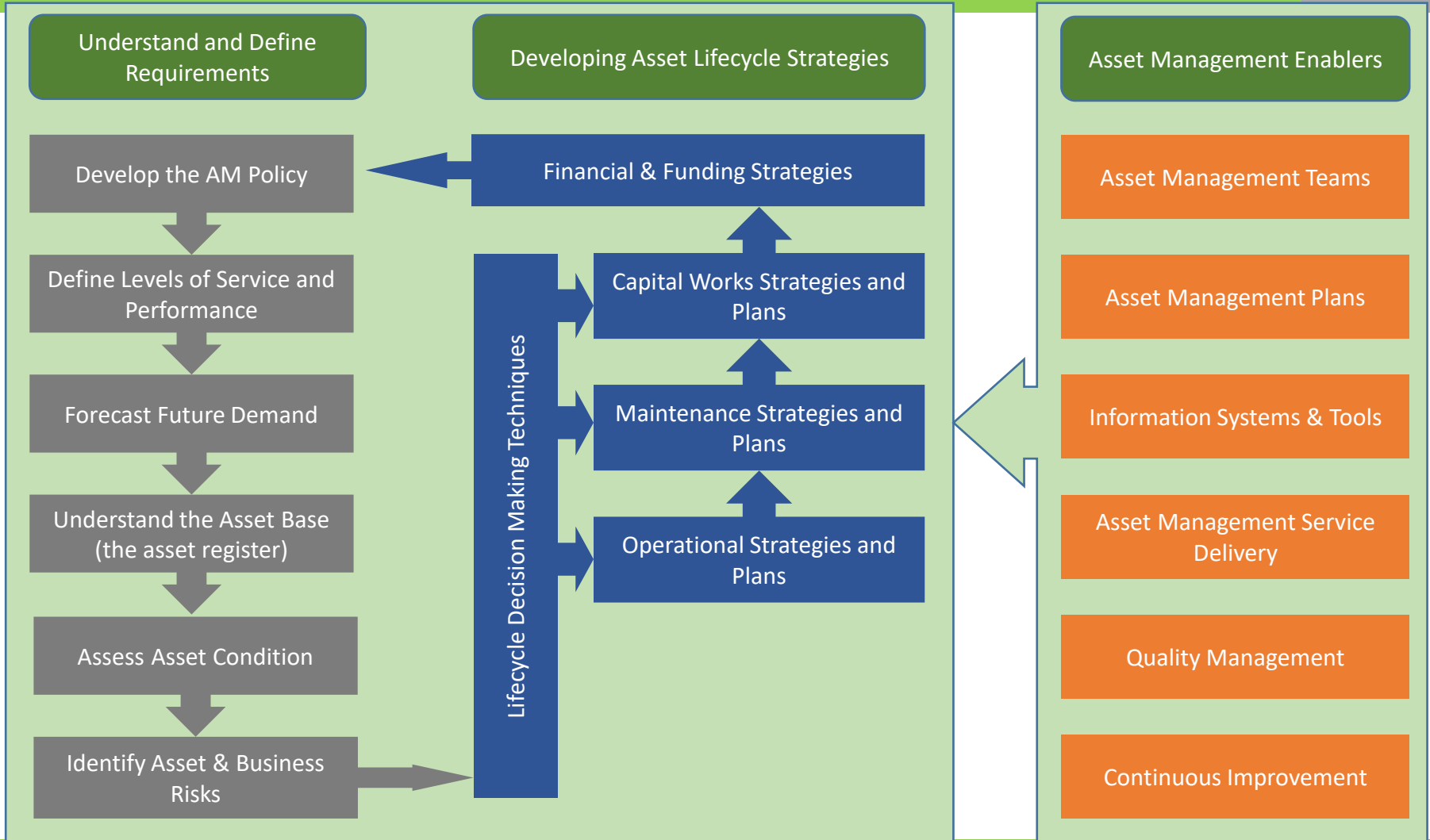


Many Guidance Documents Available

- My personal favourites (cover all asset types)
 - ISO55000
 - Provides the theoretical structure for asset management
 - International Infrastructure Management Manual (IIMM)
 - Provides practical guidance on how to meet the requirements for asset management
- Road specific guidance from:
 - Austroads
 - Guide to Asset Management (GAM)
 - AASHTO
 - AASHTO Transportation Asset Management Guide: A Focus on Implementation



International Infrastructure Management Manual (IIMM) AM Process

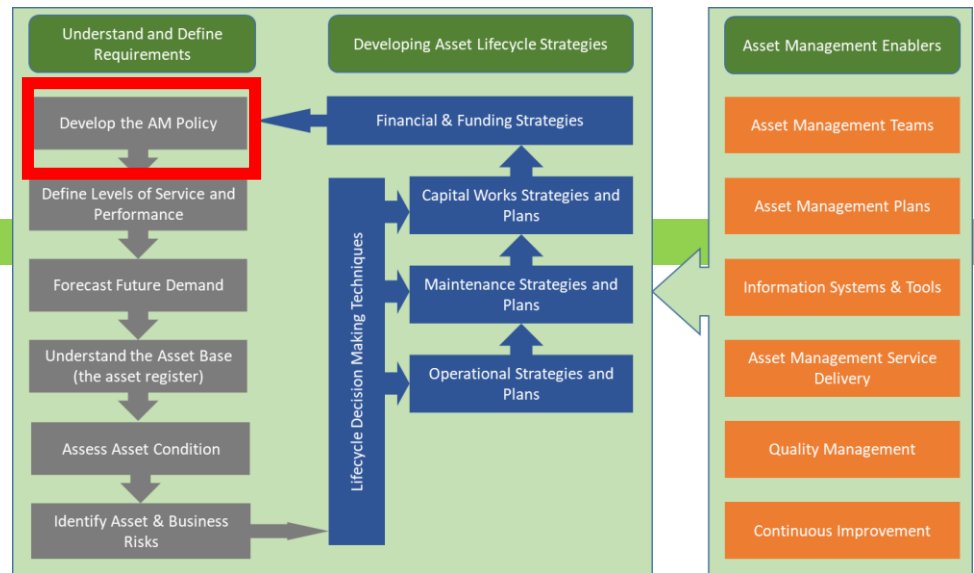




Same Process, Different Focus

- RAM process can be the same across all road hierarchies, and across all of CAREC nations
- It is the level of detail that changes within each step of the process
 - A road network in a mountainous region will naturally have a greater focus on the identification and management of risks than a road network in a stable plains region
 - An urban network with high growth will be more concerned about forecasting future demand, than will a low growth rural network
 - High volume national highways will naturally be managed at a greater level of effort than minor country lanes
- Don't change the process, change the level of depth you go into each step of the process

AM Policy



- The AM Policy provides the governing authority to implement all aspects of the RAM program

- Example from Australia

- https://www.transport.tas.gov.au/_data/assets/pdf_file/0004/114439/Road_Management_Infrastructure_Asset_Management_Policy.pdf

- Easy to write, easy to approve, challenge is in delivering on the policy

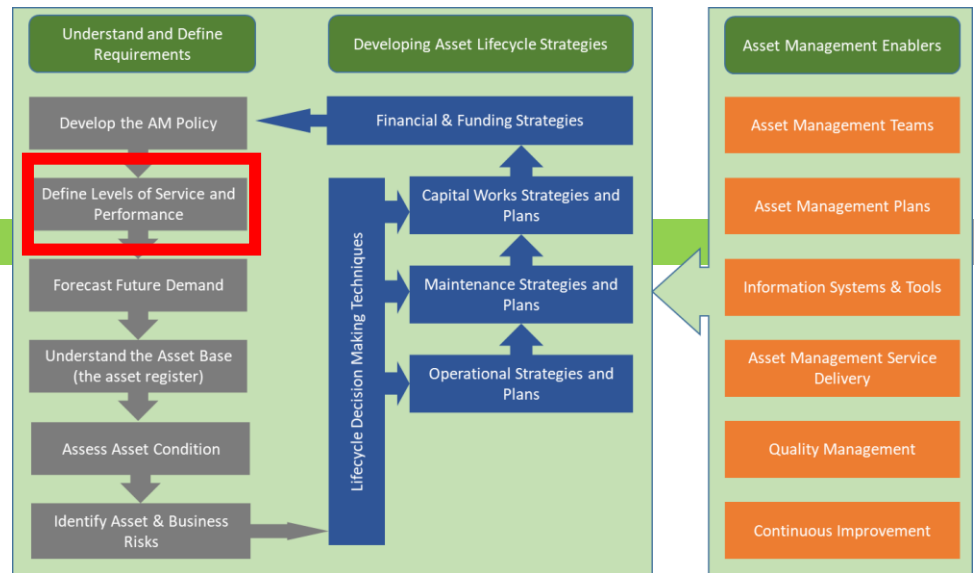


Typical Policy

- Short document – a few pages, or even a single page
- Scope of assets covered
- Commitment to implementing RAM
 - Maybe commitment to achieving ISO55000
- Commitment to life cycle costing principles
- Level of service based
- Management of risks
- Customer focused

- Authorised by highest level of authority – e.g. government minister

Service Levels



- Define what it is that you are trying to deliver, in words that the customer understands
- We don't build roads, rehabilitate roads, or maintain roads for the fun of it, we do that to deliver a service level (whether explicitly stated or not)
- Service levels are about more than just the condition of the road
 - Most authorities mention Efficient, Safe, Informed, Cost-effective in their service level statements

Defining the Level of Service is Critical



One size doesn't fit all – its all about affordability & risk

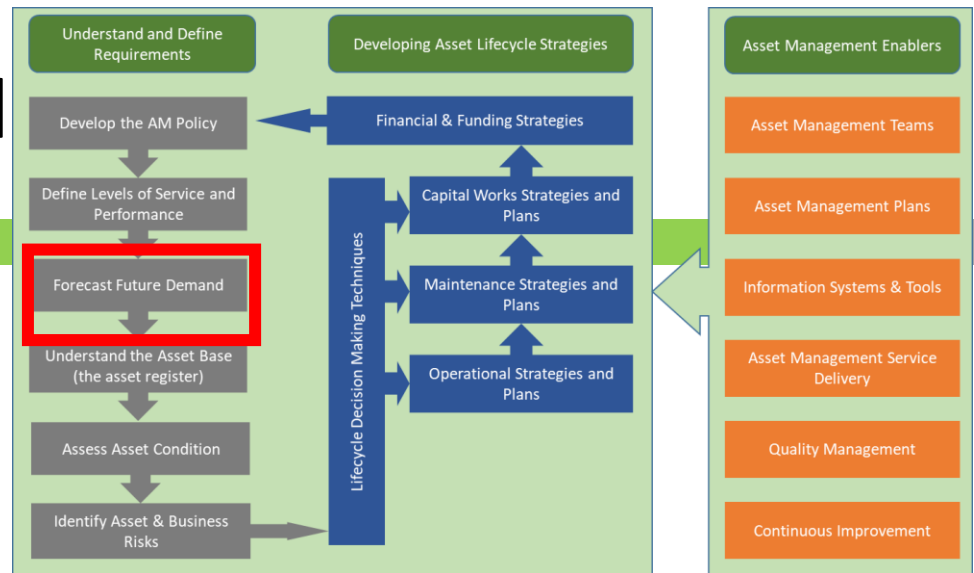




Some key definitions

- **Levels of Service**
 - What the organisation intends to deliver. Levels of service describe one or more attributes of the service from a customer point of view
 - Example: Provide a network that connects communities.
- **Performance Measure (also termed Performance Indicator)**
 - A qualitative or quantitative measure of a service or activity used to indicate how the organisation is doing in relation to delivering levels of service
 - Example: % of communities > 500 habitats serviced by an all weather road.

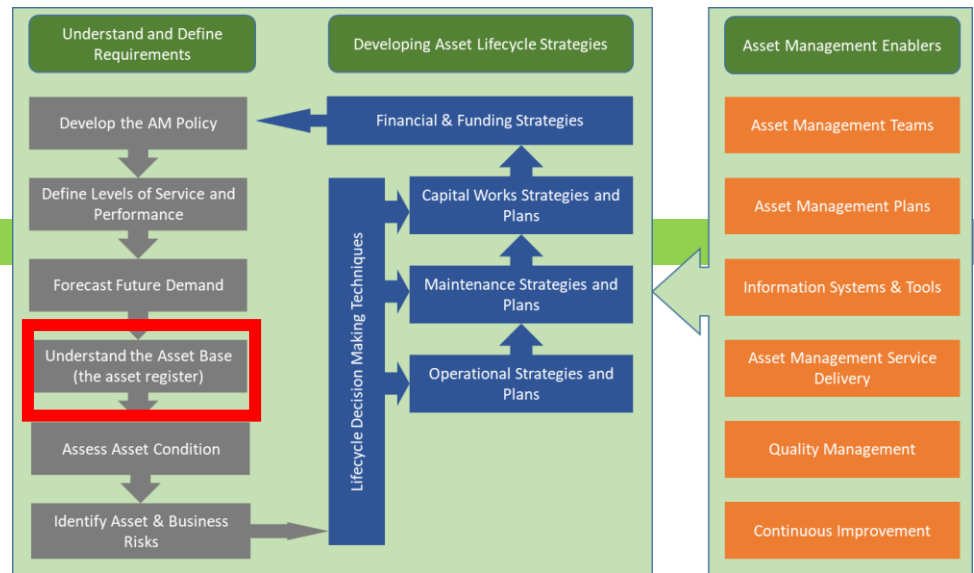
Future Demand



- Helps identify when expansion works will be required, along with future loading on the existing infrastructure.
- For simple networks can be a regression of past growth patterns.
- For complex and congested networks will involve full traffic models, linking land use development to traffic demand.
- Minimum forecast period of:
 - At least 20years for pavement and surfacing decisions
 - 20+ years for expansion projects

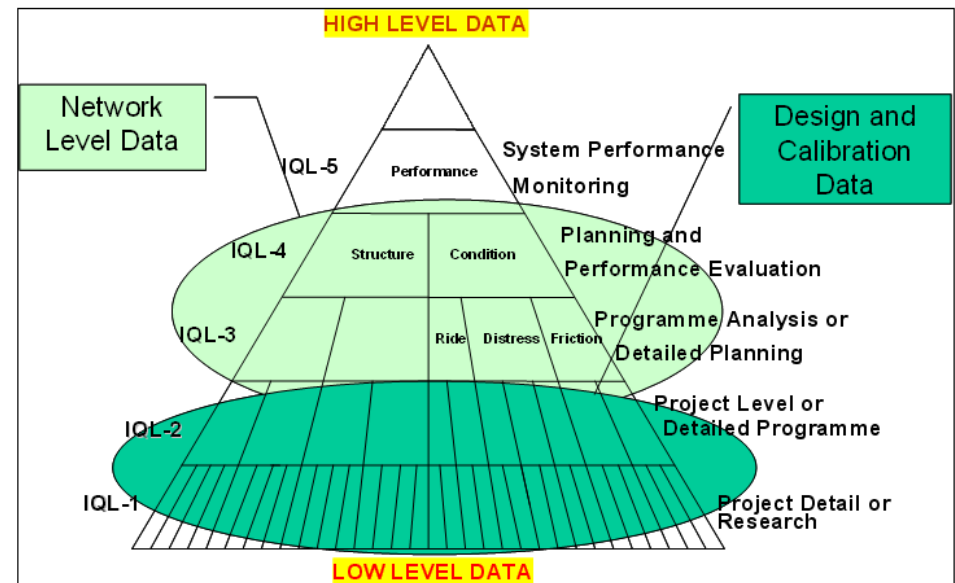
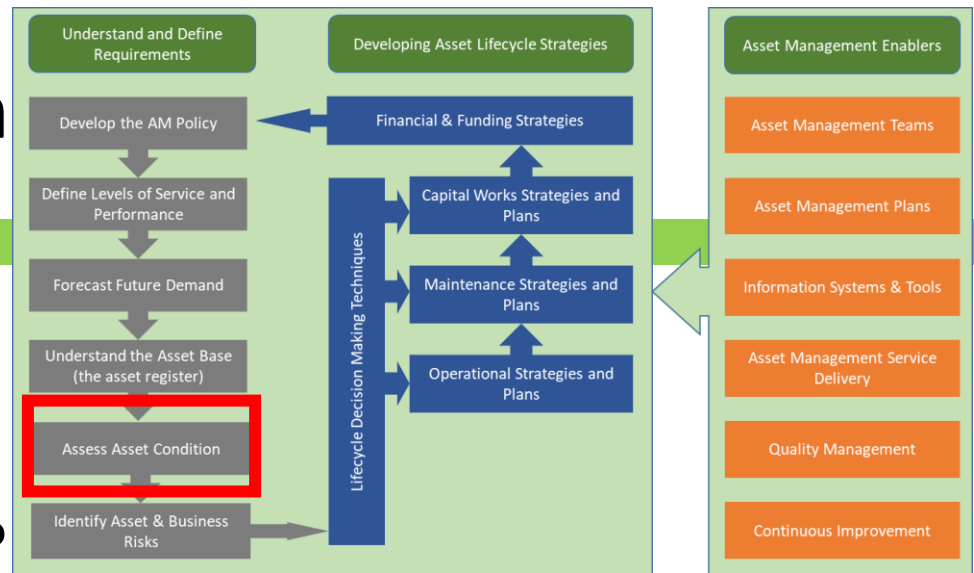
Asset Register

- List of the physical assets you have
- At an appropriate level of detail / componentisation
- May start out being stored in a spreadsheet or simple database, then transition to full Asset Management Information System in the future
- Need a process to keep it up to date

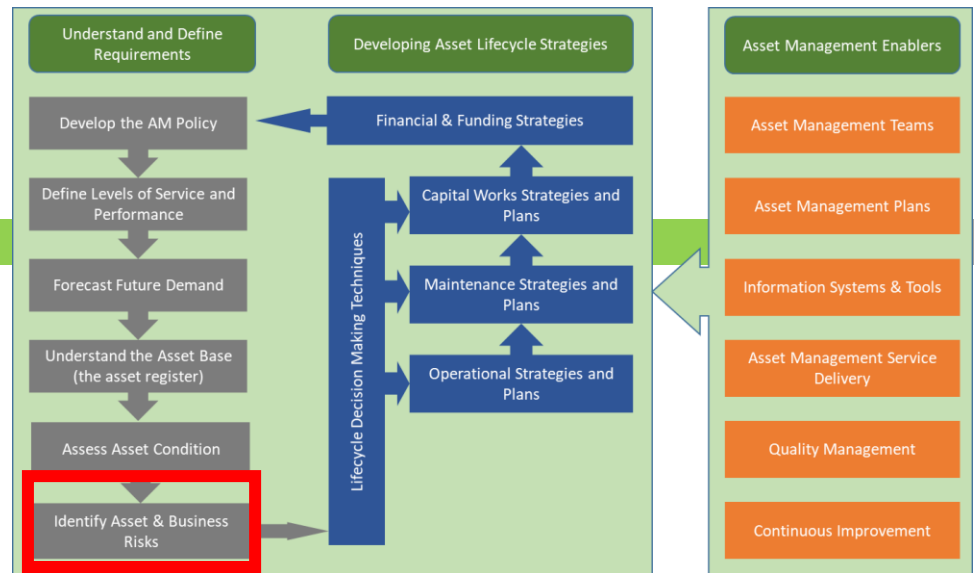


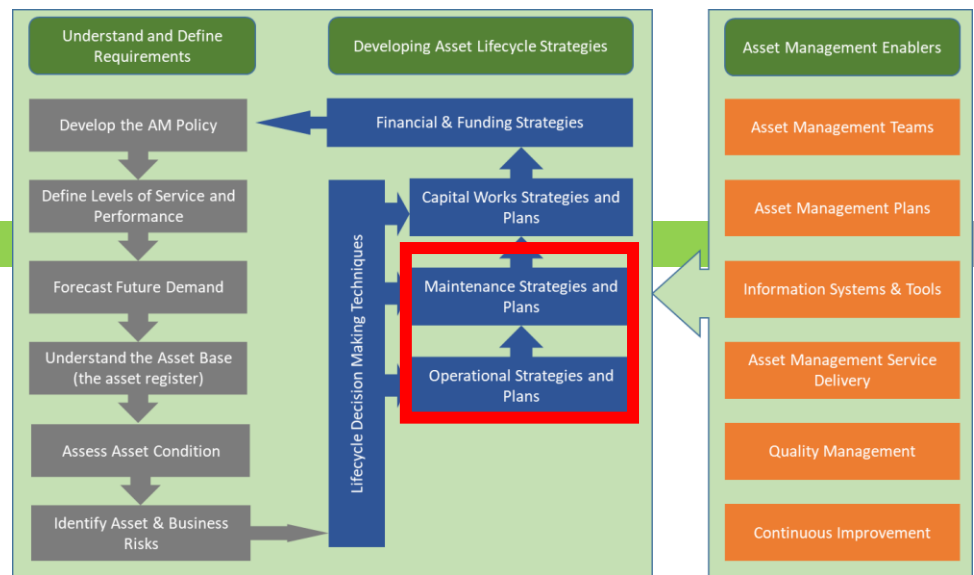
Asset Condition

- Physical measure of the asset condition
- What to measure, how often, and to what level of accuracy?
- Not everything needs to be inspected every year
 - Risk based inspection regimes
- Consider the Information Quality Level (IQL) when designing your data collection program



- Depends heavily on the nature of your road network
- Most authorities have an understanding of the risk, although it may not be in a formal process
- A good guidance document for physical risks is:
 - Road Geohazard Risk Management Handbook
 - <https://www.gfdrr.org/en/road-geohazard-handbook>



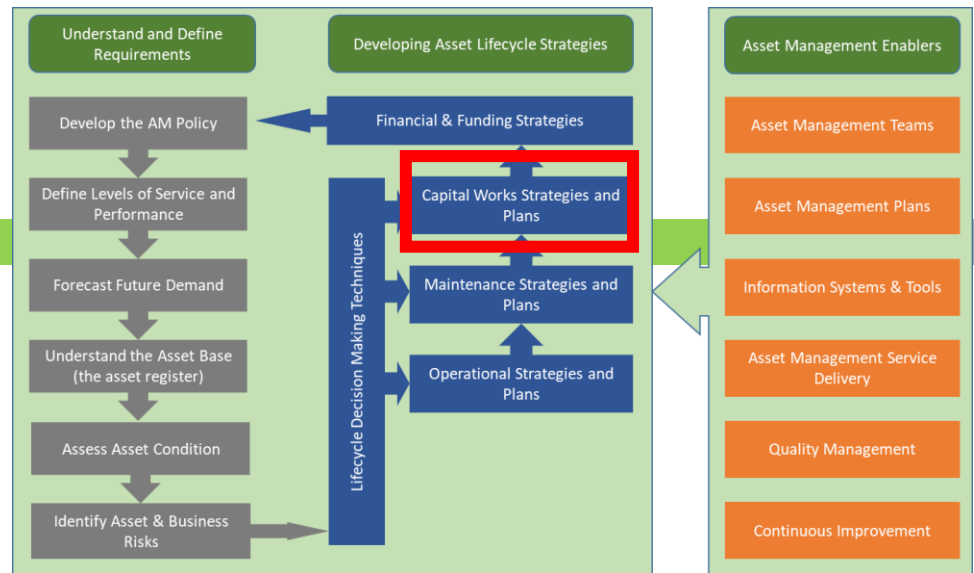


- Operations and Maintenance (O&M) covers the day-to-day activities

- Operations: e.g. Ramp signalling, peak hour pricing
- Maintenance: Filling potholes, cleaning drains, sealing cracks

- O&M is closest to what the road user experiences when travelling around the network
- Maintenance can be reactive or proactive (scheduled)
- Maintenance strategy should link to the overall plan for the road section
 - e.g. Don't do expensive repairs on a road that is due for reconstruction soon

Capital Works



- Typically two aspects:

- Renewals
- Expansion works

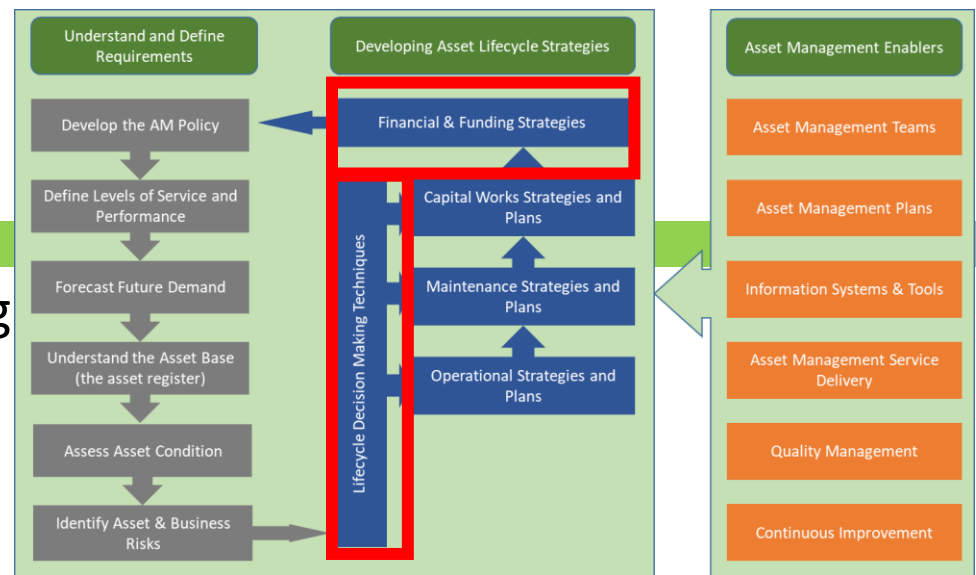
- Renewals

- Quantity estimated through a combination of predictive modelling (HDM-4), historic records, and asset valuation parameters
- While impacting on the long term durability of the network, many renewals (especially resurfacings) do not impact significantly on the road users experience

- Expansion works

- From traffic modelling, road safety investigations or similar

Lifecycle Decision Making & Funding

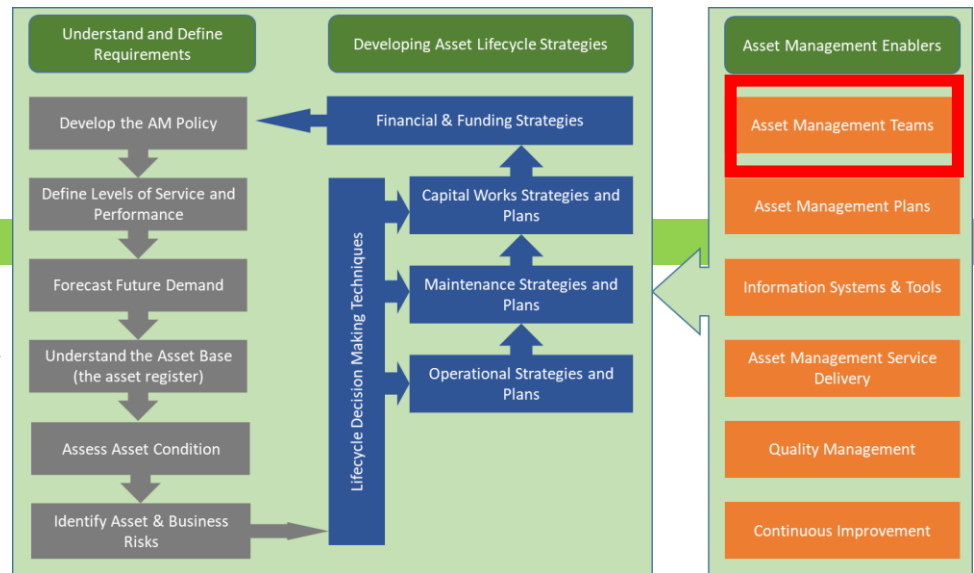


- Need an agreed decision making framework

- Net Present Value (NPV)
- Benefit Cost Ratio (BCR)
- Multi-Criteria Analysis (MCA)

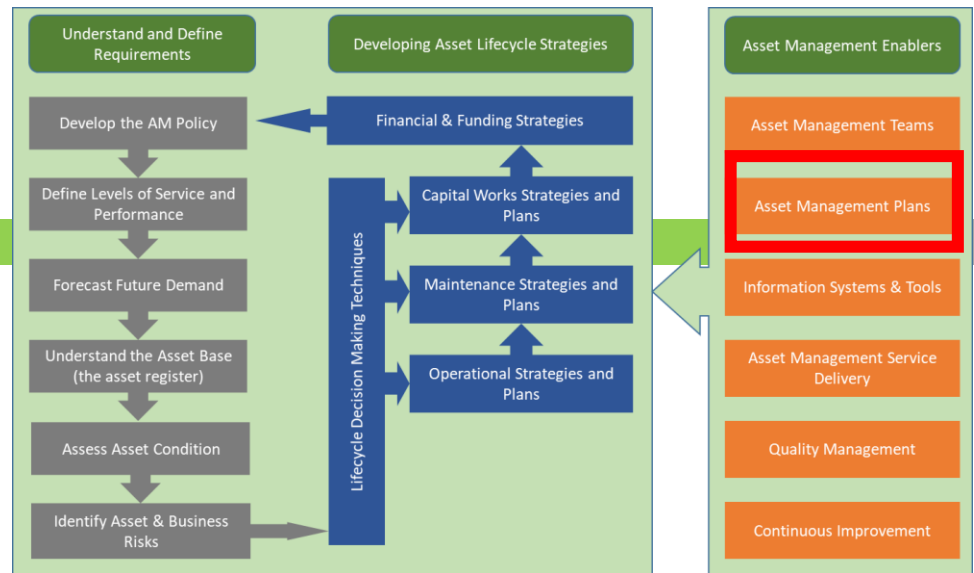
- What is the optimal balance of investment between operations, maintenance and capital works to deliver the agreed levels of service?
- How should that cost be funded?
- If not affordable, then where will the budget constraints do the least harm?
- HDM-4 and similar decision support tools often used at this stage.

RAM Team



- Who is in charge of making sure compliance with the RAM Policy is occurring?
- While RAM requires an organisational wide approach, it takes a small team to oversee it
- To be effective the RAM Team needs to be able to influence the budget allocation process
 - Otherwise necessary change will not occur
- Various models for the RAM Team exist
 - Important to have a direct to the senior decision makers in the road authority

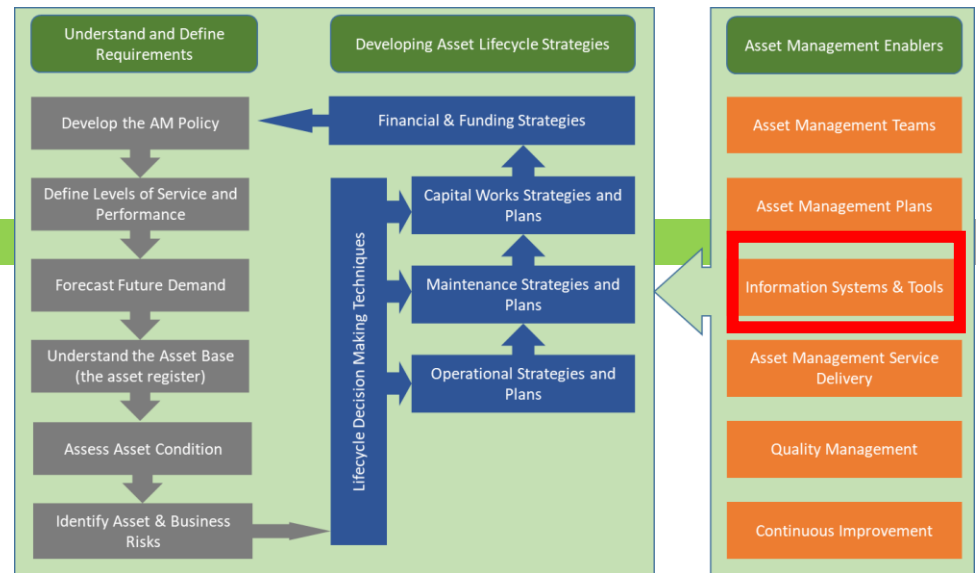
AM Plan



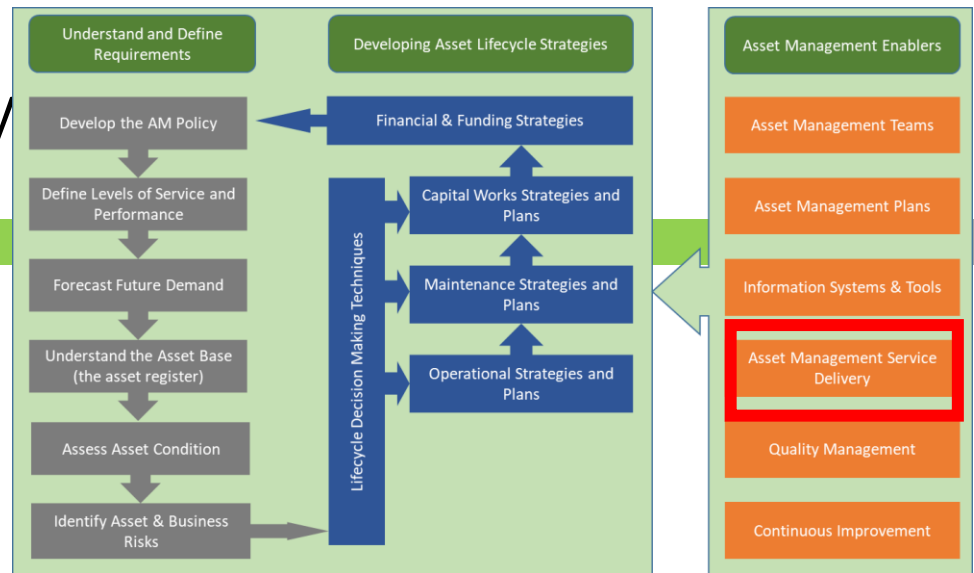
- The AMP is a document that records past achievements and identifies future activities both in relation to investment in the assets, but also in the way they are managed
- Should provide summary information on each step of the process
- Ideally written in non-technical language
 - The AMP should be the easy read justification for the level of investment you are asking for
- Covers at least a 10 year forward projection of condition, funding needs, service level achievements etc.

AMIS & Tools

- RAM involves a lot of data, so need an appropriate Asset Management Information System (AMIS)
- Most modern AMIS
 - GIS interface
 - Web based
 - Multi-asset (pavement, bridges, signs etc)
 - Modular
- Also need some form of Decision Support Tool (DST)
 - Can be simple decision tree that does prioritisation
 - Or complex optimisation tool such as HDM-4



Service Delivery

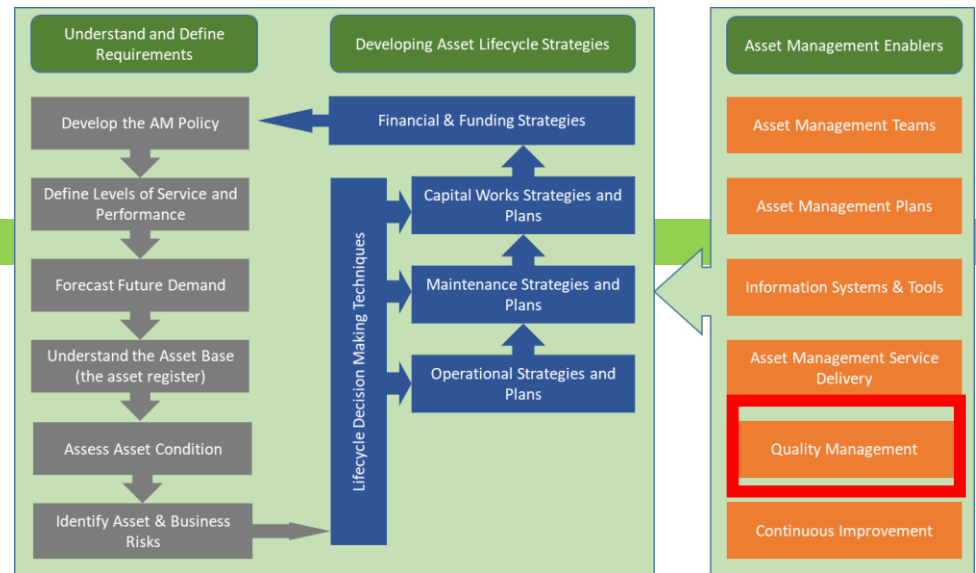


- How will you deliver the asset management and physical works?
 - In-house, or external?
- Strategic activities should be kept in-house, while lower level activities can benefit from full or partial outsourcing.
- Some contractual models (e.g. performance based maintenance contracts) have been shown to drive RAM initiatives.

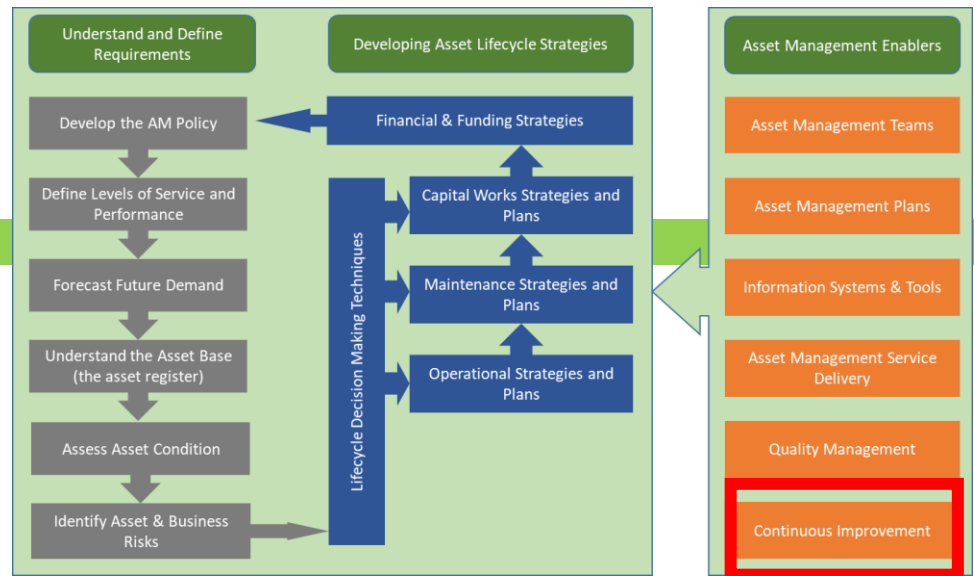


Quality Management

- As with any other aspects of activity, a quality management oversight is required to ensure compliance with the RAM processes
- One of the biggest causes for failure of RAM is where sound processes are bypassed for budget allocation and works program generation
 - Results in an undermining of all aspects of RAM



Improvement Plans



- Start simple, with the data you have, then improve
 - 5-10 years to become competent at RAM
- Don't delay starting RAM owing to any deficiencies in data or systems
 - Start and bring those improvements into the RAM processes
 - Use Maturity Assessments to help identify gaps
- Improvement actions should be prioritised and funded, and managed as a program in its own right
 - Assigned to the AM Team to deliver, but often using resources from across the road authority



The Excel Template



Next Steps



Next Steps

- Arrange a time to interview (in person or via web) road authority staff:
 - Suggest logical groupings such as Head Office, Regional Office, Maintenance Division etc.
 - Typically find 3 or 4 in a group is a good number
 - It will take around 2-3 hours to go through the assessment, including noting reference documents as evidence
 - Encourage them to review the Day 1 materials from the earlier training session to understand the topics in more detail.
- Complete the maturity assessment
 - Any questions I am available to assist on a one-to-one basis
- Deliver the completed assessment back to me
- You are welcome (encouraged) to do both your national road authority and also a provincial/state road authority to provide comparison
 - Use a different copy of the template for each road authority