

Road Asset Management (RAM) Training

10-13 August 2020

3-1: Lifecycle Costing & Funding
3-2: Asset Valuation

Primer for full session

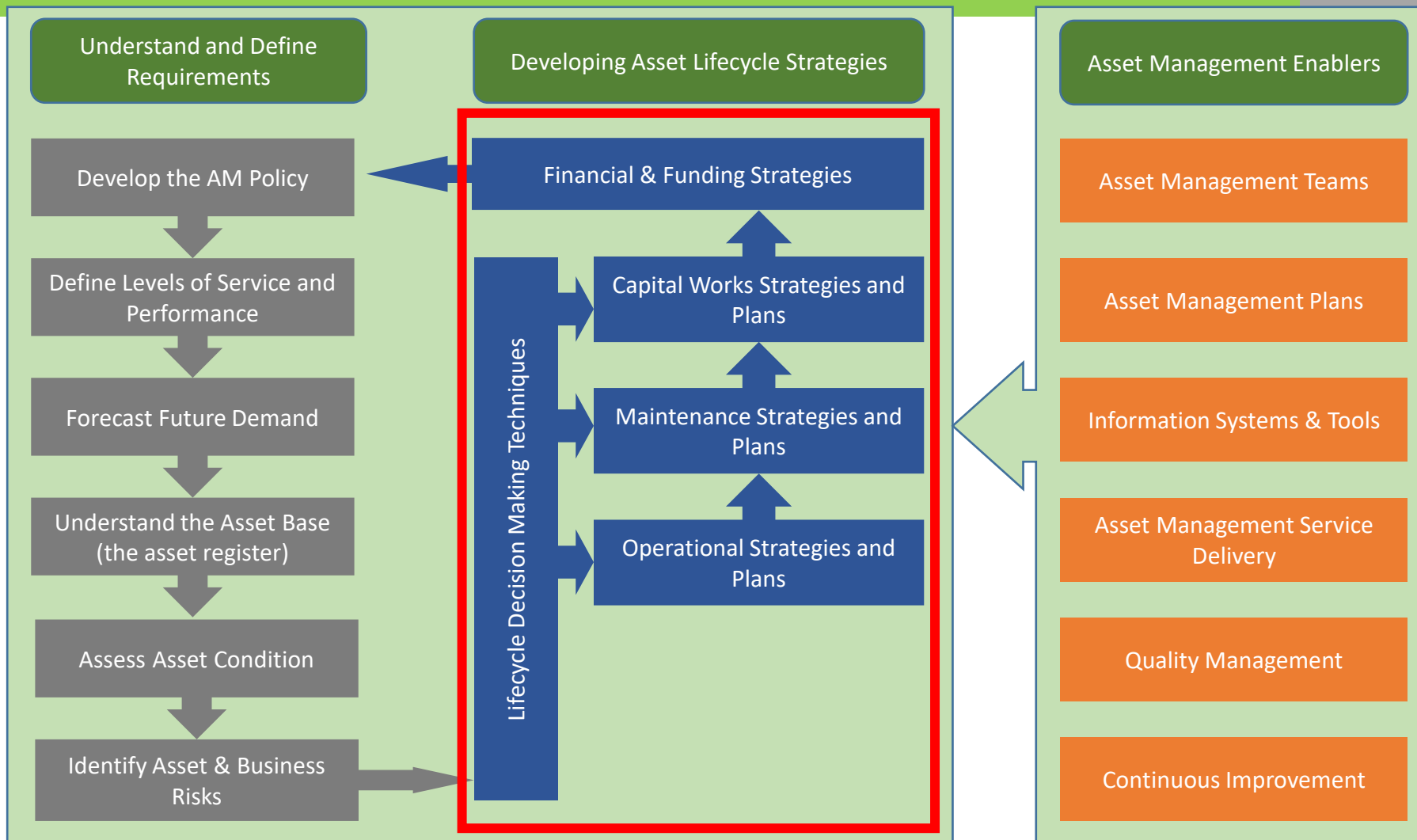
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- Introduction to Road Asset Management
- Overview of the Components of RAM
- Levels of Service and Performance Measures
- Inventory and Condition Data
- Lifecycle Decisions Making and Funding
- Asset Valuation
- Asset Management Plans, Teams and Tools
- Contracting Models and Impact on RAM

Training Sessions

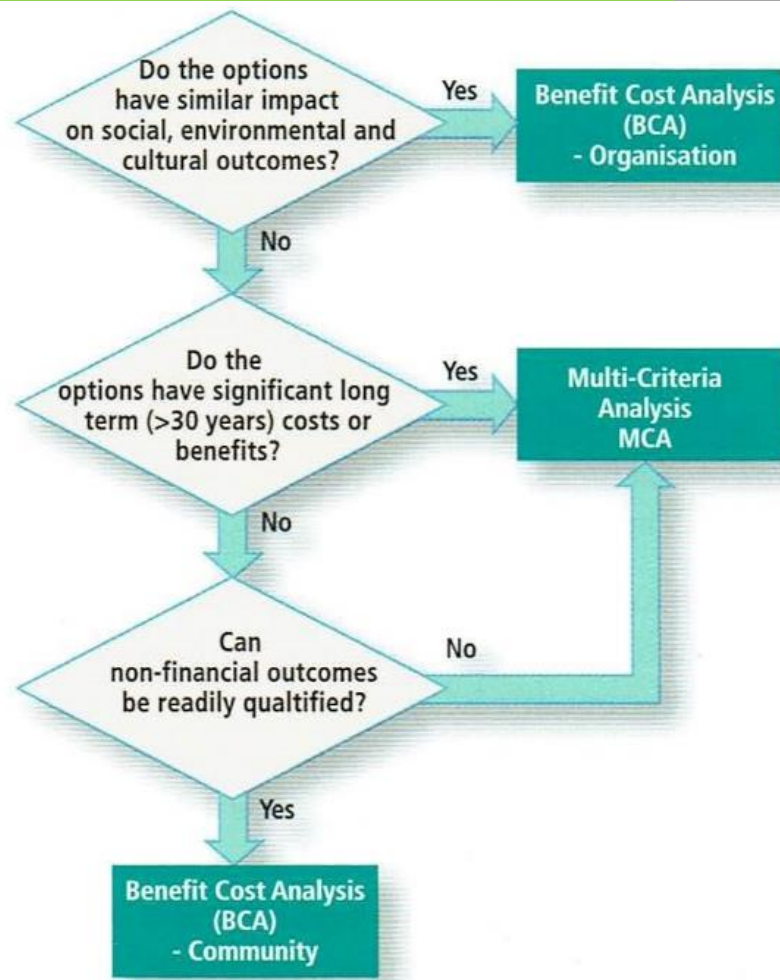
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2. Overview of the Components of RAM
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4. Inventory and Condition Data
- 5. Lifecycle Decisions Making and Funding**
- 6. Asset Valuation**
7. Asset Management Plans, Teams and Tools
8. Contracting Models and Impact on RAM

International Infrastructure Management Manual (IIMM) AM Process



Selecting an Evaluation Framework

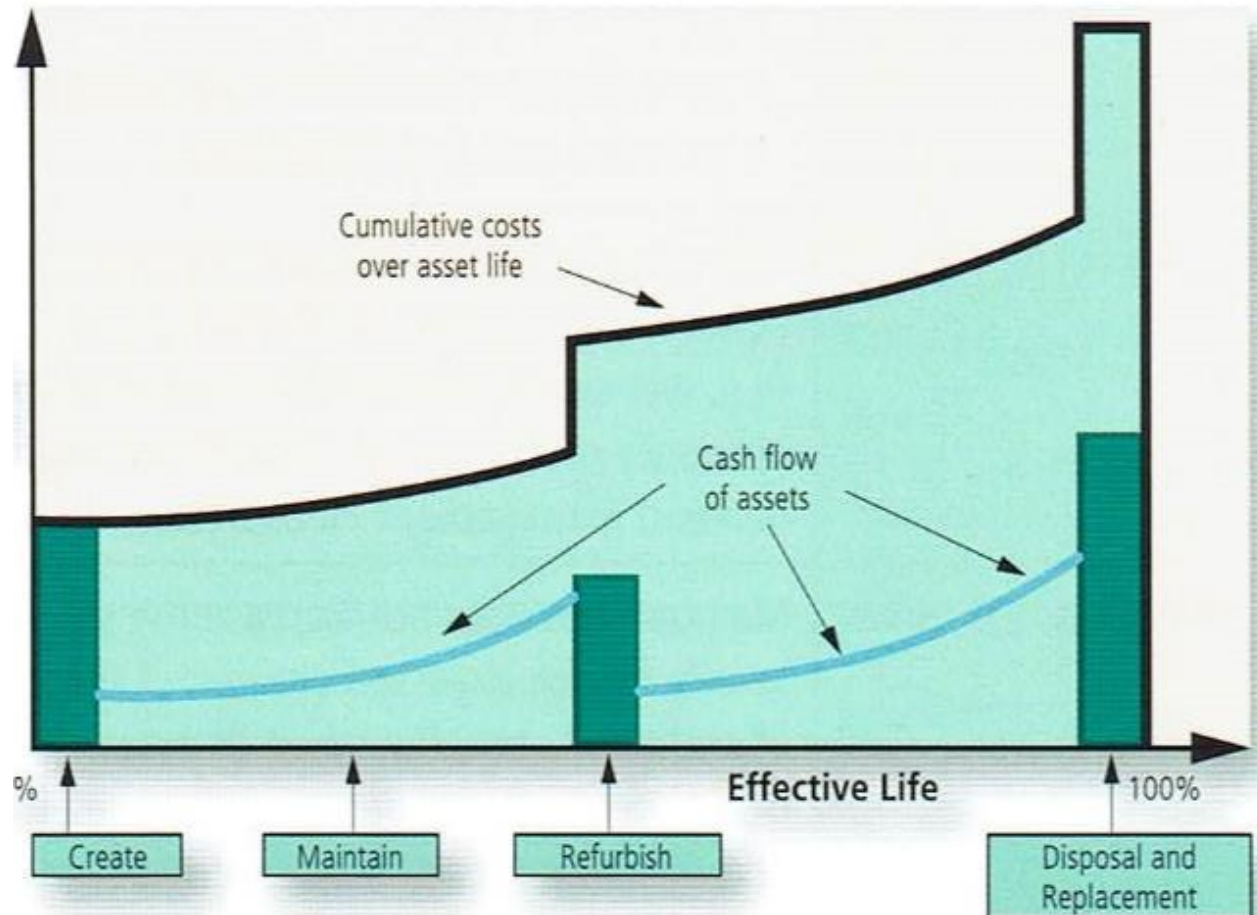
- Different decisions will require different evaluation approaches:
 - Maintenance and renewals often BCA (organisation)
 - Realignment of a road often BCA (community)
 - New route selection often MCA
- Agreement on key parameters
 - Discount rate
 - Analysis period



What Is Life Cycle Costing (LCC)?

- Consideration of the costs over the full life of the asset
 - Financial rules may require evaluation of more than 50 years for some investment types
 - The cost for a road authority to maintain and renew a length of road over 50 years is often 3 times the initial construction cost for building a new road!
- Avoids short term gain that has long term pain
 - Allows for evaluation of the benefits of a high cost concrete pavement that has lower maintenance costs, against a short life flexible pavement with higher maintenance costs

Funding is Related to the Life of the Asset



- Look to get the maximum benefit out of the asset, without the need to physically invest into the asset via maintenance or renewal:
 - Travel demand management
 - Peak hour pricing
 - Moveable median barriers
 - Peak time shoulder running
 - Emergency / disaster management
- Over-dimension routes
- New vehicle load limits



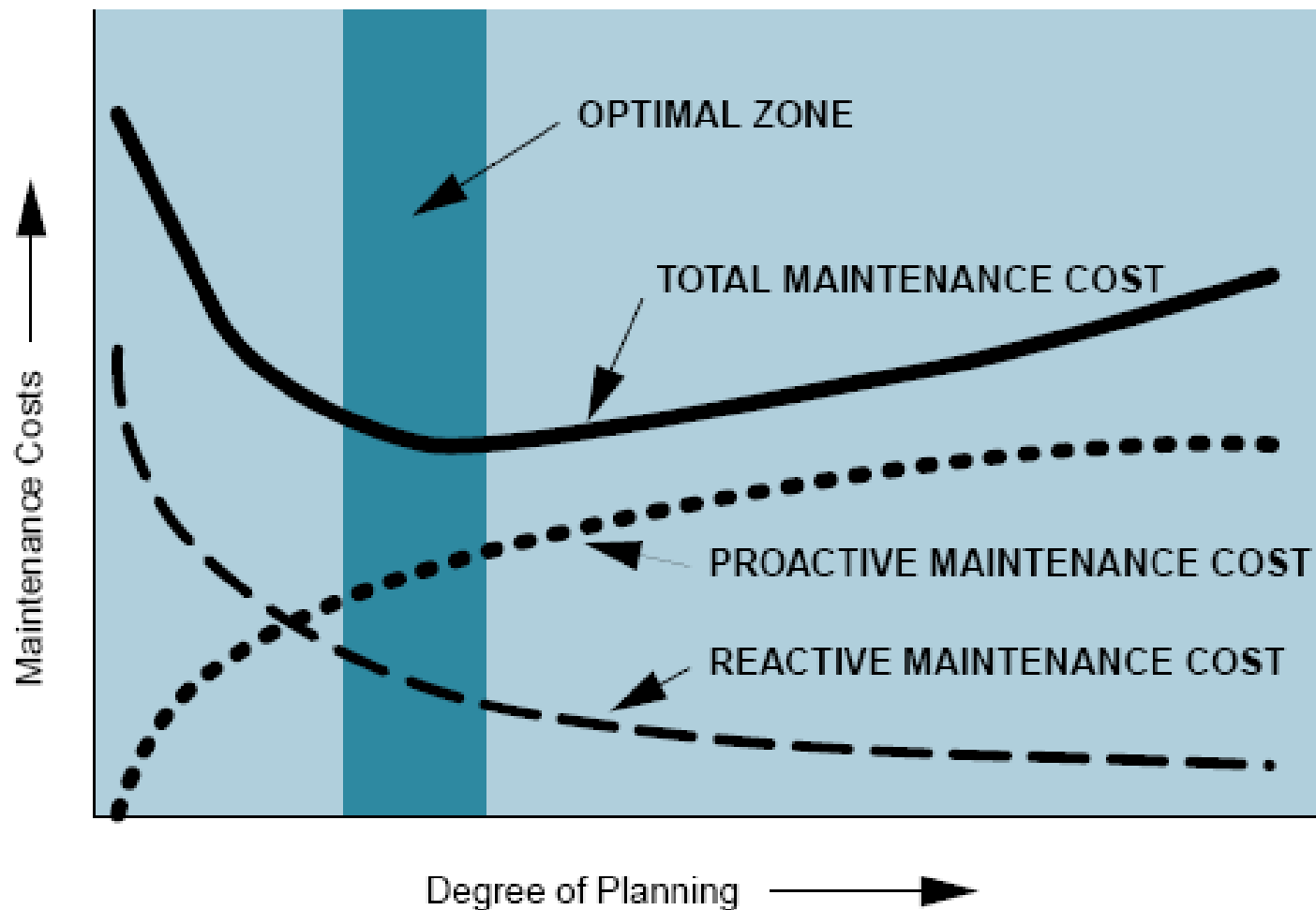
Emergency Plans outline:

- How the organisation will respond
 - Following a warning
 - Immediately after the event – impact assessment
 - Prioritising immediate restoration of services
 - Longer term recover
- Roles and responsibilities
- Escalation points for activating of incident / emergency response teams
- Interaction with other key agencies.

Maintenance

- Maintenance defects are closely aligned to the road user experience
- How do the maintenance standards align with the LOS objectives in your road authority?
 - Do the maintenance standards vary by road hierarchy?
 - If there isn't sufficient funding, then what is not undertaken?
- Economic return for routine maintenance is often 10-20 times greater than any investment in new (capital expansion) works
 - Yet operational & maintenance budgets get cut to enable lower economic return projects to go ahead
- There is generally no greater economic benefit to a road authority, than that of looking after what you have already built
 - Never underfund routine maintenance or renewals

Optimal Zone of LCC



- Typically two aspects:
 - 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
- Will typically impact on different LOS outcomes
 - Budgets generally split at a higher level, such that renewals are funded as a 'bucket of money' that can be further optimised within the funding cycle, while expansion works are funded on a per-project basis.

- Important that financial and asset management teams are aligned:
 - Asset classifications and hierarchies
 - Can the information for AM purposes be rolled up for financial reporting requirements?
 - Expenditure and capitalisation rules
 - At what stage is a large repair a small rehabilitation?
 - Asset valuation and depreciation calculations
 - Is depreciation an operational expense?
 - Lifecycle costing methodologies and key parameters
 - What discount rate, analysis period and similar are to be used?
 - Risk management and insurances
 - If risks materialise, how will they be funded?
 - Whole of government contingency funding, Road authority contingency budget, contingent projects, insurance?

Link to Asset Valuation

- Some countries legislate the requirement to treat depreciation as an operational expense
- For example:
 - If I have \$30Million worth of road pavement base (the cost for me to replace the entire network today)
 - And if the average pavement base will need to be replaced every 30 years
 - Each year, an operational expense of \$1Million is funded
 - Either physically in the network or set aside in the budget
 - This ensures there is sufficient funding for replacement of network as required
- More in Session 3-2

“It is implicit that any Asset Management regime should have as a starting point a valuation of the asset involved ... some approximate quantification of highway network value will be important to identify the relative scale of the different authority assets potentially competing for the Single Capital Pot.”

UK Code of Practice for Maintenance Management

“asset valuation is not an end in itself. It is a means to ensure better asset management, better accountability to stakeholders and, of course, better decision making by those who manage those assets.”

NZ Infrastructure Asset Valuation Guidelines

Reasons for Knowing the Value

- Infrastructure becomes recognised as economic asset with ongoing value
 - not just as a sunk cost
- Government bodies find it harder to deny requests for maintenance/renewals
- Consequential loss in value when maintenance is denied is often politically unacceptable

Note: With long life assets, the associated incremental drop in service level is often harder to quantify

Rate of Depreciation

- To ensure equitable cost recovery (pricing of services) the profile should reflect the use or pattern of benefits consumed, the rate of depreciation should not follow the rate of deterioration
- Concept is similar to a toll, wherein all users pay the same toll, not higher tolls as the asset wears out.