Road Asset Management System (RAMS) Lite

A simplified approach to Road Asset Management
Objective of RAMS

• Initial exposure

• Setup organisational policy

• Accessible / Cost effective RAMS

• Conform to asset management guidelines (TMH 22)
Components

• Road asset register
• Asset condition assessment
• Life cycle analysis
• Reporting
• Visualisation
• Gap analysis
Assets
Asset Register

- Roads links – uniform sections
- RISFSA classification
- Geo-location
- Asset components – Surfacing, base, abutments etc.
Field Assessment

• MOBICAP
  – Geo-reference roads
  – Assess pavement visual condition (TMH9)
Road Condition

• TMH 9 visual assessment
  – Defects
    • Cracking
    • Failures
    • Functional condition
  – Degree / extent rating
RAMS Analysis – MS Excel / VBA

- MS Excel environment
- Basis of analysis – asset visual condition
- Life cycle cost analysis
  - Condition analysis
  - Prioritisation
  - Deterioration / Amelioration
  - User and agency costs
Life Cycle Analysis

Asset Condition

Prioritise

M+R (Agency Costs)

Deteriorate

Next Year

Road User Costs

Budget Constraint

Budget Constraint
Measure Actual

Condition

Time

X

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<th>Condition</th>
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Predict the future

Condition vs. Time

\[ f(\text{load, climate} \ldots) \]
LCA - Modelling of Road Condition

• M+R effects
  – Adjust degree / extent

• Deterioration
  – Sygmoidal model
  – HDM 4 deterioration model
Maintain or Rehabilitate

Time

Condition

Limit
LCA – Maintenance and Rehabilitation

• M+R triggers
  – Defect / degree / extent

• Opex
  – Crack seal
  – Patch

• Capex
  – Overlay
  – In-situ recycle
  – New construction
Deteriorate
Increased User Costs
LCA - Prioritisation

- Road condition (TMH 9)
- RISFSA classification
  - Strategic importance
  - Socio-economic benefit
  - Corridor development
- Traffic type and volume
LCA Output

- Road network condition
  - Distribution based on available budgets
  - Target / Current / Model
LCA Output

• Agency costs
  – Maintenance and rehabilitation
  – Upgrade / new construction

• Road user costs
  – Vehicle operating (Roughness/VCI)
  – Time (Capacity)
Life Cycle Cost Analysis

Agency Costs (M&R)

User Costs (time, vehicle)
LCA Output

• Asset valuation
  – Sum of component values
  – Depreciate based on condition
Visualisation

• Google Earth
• LCA data exported to .kml
Gap Analysis

- Organisation knowledge/ structure
- Model calibration
Conclusion

- Simplified approach to RAMS

- Foundation in basics of roads asset management

- First step to:
  - Asset Register
  - Level III / IV RAMS
  - Integrated Asset Management