Useful Life of Infrastructure Assets
Practice in transport infrastructure

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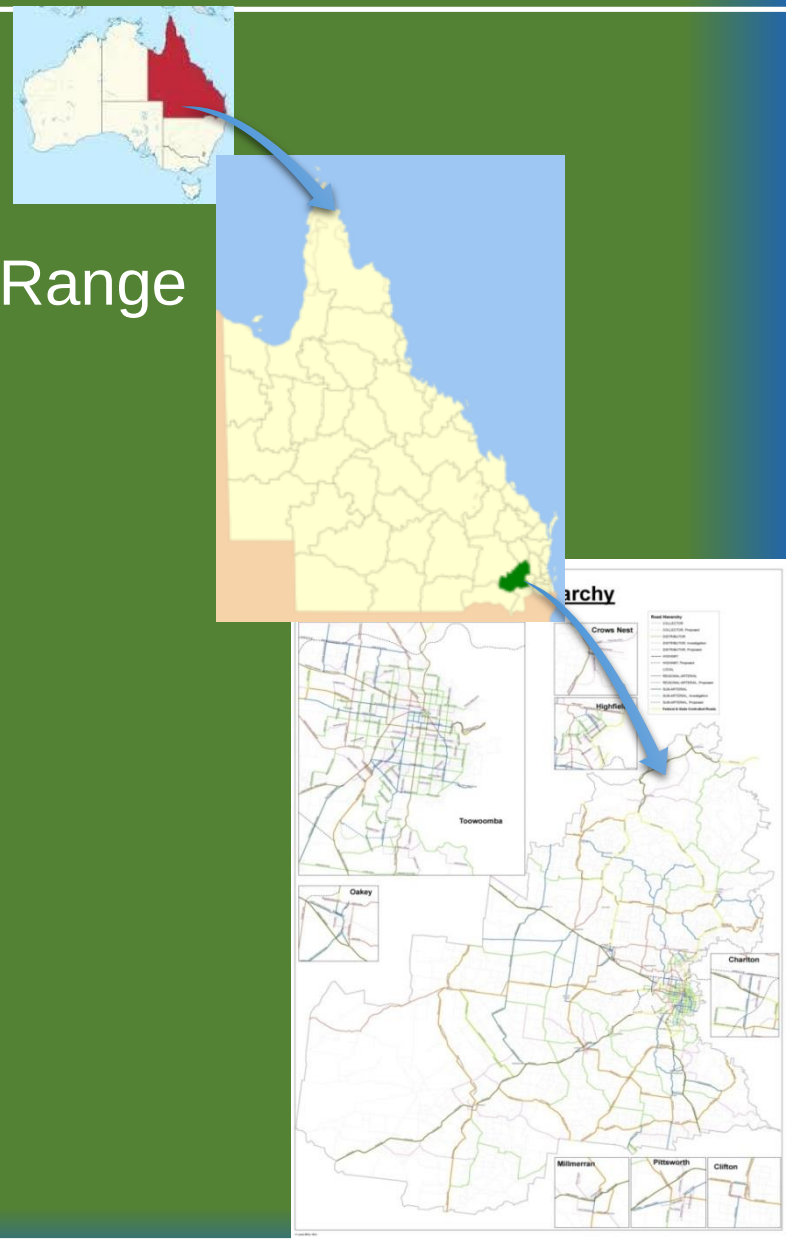
About Toowoomba Region and Road Network

- Population 166,500
- 700m above mean sea level on the top of Great Dividing Range
- Nearly 2mil visitors

- Covers an area of 12,973km^2
- Road network consists of a total of 6,597km of roads, 155 major structures (bridges/major culverts).
- 50% of the TRC road network is sealed.



Background

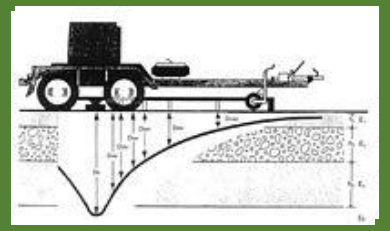
- At any stage of the life cycle the Asset Manager needs to know what the current condition of infrastructure assets is, what is their current value, what is the expected remaining life and what risks exist in the network.

- By conducting regular condition, performance, undertaking risk assessments of the infrastructure assets and estimating remaining useful lives, these risks can be effectively managed.

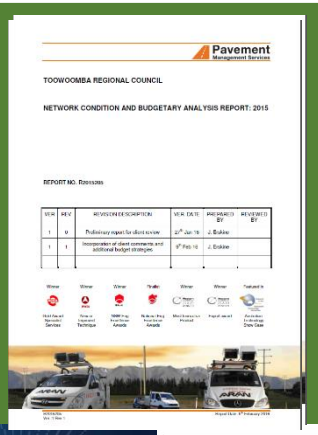
- The ability of an asset to be able to provide a level of service at a point in time is dependent on its condition.

Background

Decision Support Process

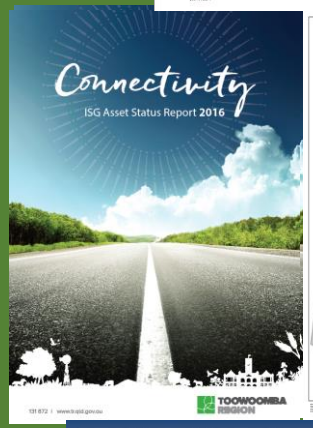


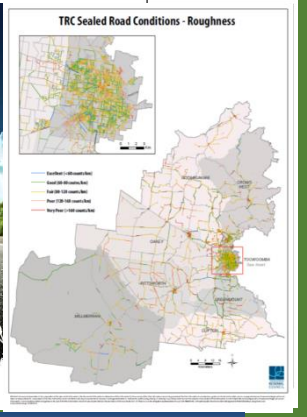
Analysis
Optimisation and prioritisation


Pavement Management Services

TOOWOOMBA REGIONAL COUNCIL

NETWORK CONDITION AND BUDGETARY ANALYSIS REPORT: 2015


Connectivity
ISG Asset Status Report 2016


TRC Sealed Road Conditions - Roughness


Business Intelligence Menu

Information & knowledge

Informed Decisions

financial and economic, social and environmental viability

Background (cont.)

- Strategic Asset Management methodologies based on predictive modelling to determine remaining useful life are appropriate for the sealed road network and have been used by TRC for many years.

- Estimates of useful life used for financial management purposes need to comply with the requirements of the Australian Accounting standards and may vary from estimates used for strategic asset management purposes.

What is Life?


WHAT DO YOU CARE WHAT THE MEANING OF LIFE IS?
..IT'S ALL AN ILLUSION!!
5/20
TOM WALLACE

Useful Life in practice

- Useful life and remaining useful life estimates are some of the most critical inputs for renewal planning and asset valuation.
- For infrastructure assets, useful life is defined in terms of the asset's expected utility to the entity.
- It is normally the point at which some form of intervention is required.
- This intervention may range from complete replacement through to erecting a sign which says "Road Closed".
- The estimation of the useful life of the asset is a matter of judgement based on the experience of the entity with similar assets.

Other consideration/principals to estimate Useful Life

- expected usage of the asset (what types of vehicles are or could be using the roads)
- technical or commercial obsolescence (new work methods and materials
- legal or similar limits on the use of the asset (load limits, parking and traffic restrictions)
- expected physical wear and tear (condition)

Australian Accounting Standards

- Sections of AASB 116
- Sections of AASB 136

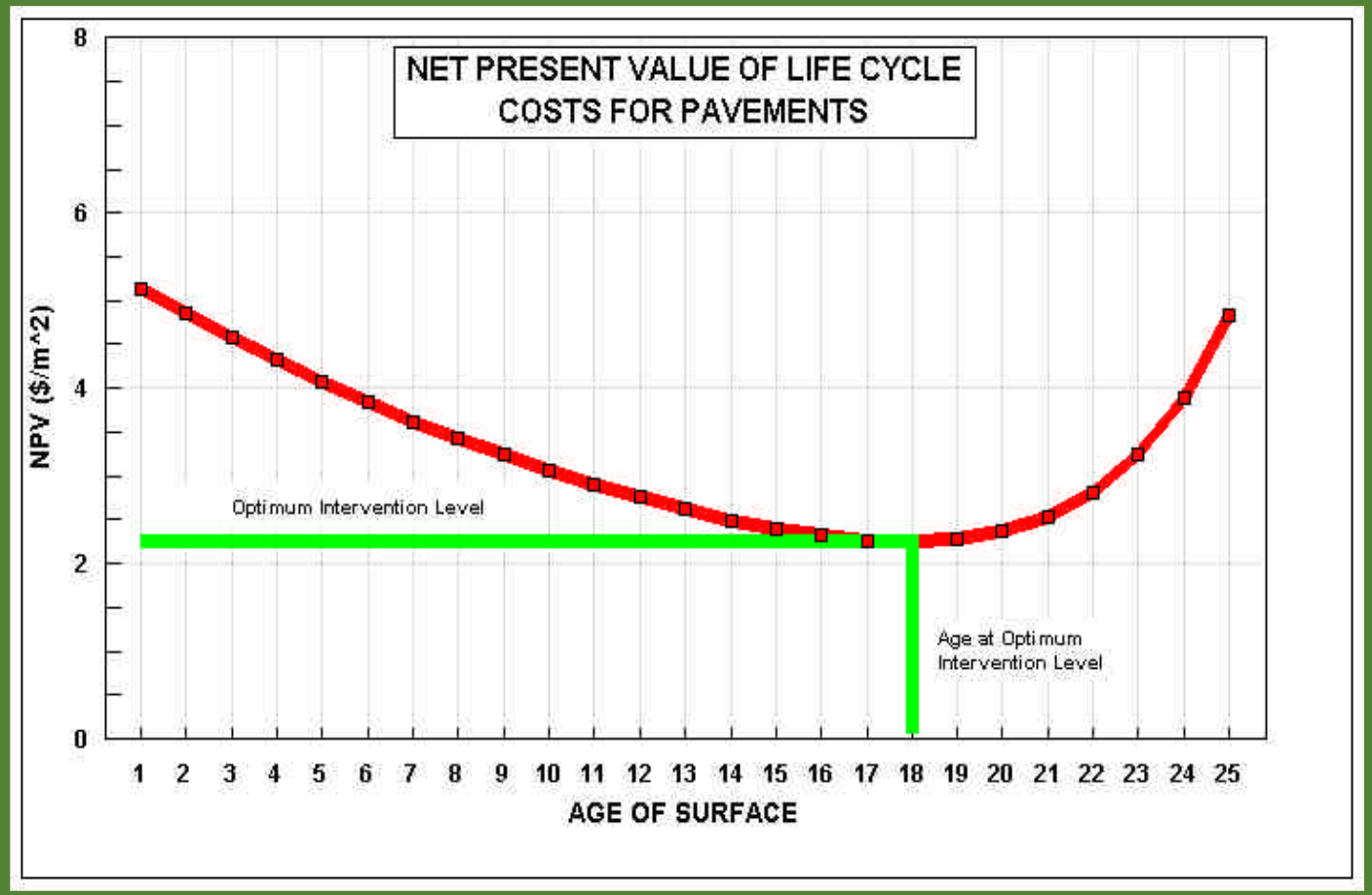
Queensland Treasury NCAP 5

Types of Life

Useful Life	Definition
Optimum useful life.	• estimated intervention interval which provides the lowest whole of life cost for the provision of the service
Target physical life.	• estimated time until the asset has failed to the extent that it can no longer provide the service
Design Life.	• estimated time that the asset is expected to be able to provide the service based on the predicted demand
Service level life.	• estimated time until adopted service targets are exceeded
Service capacity life.	• estimated time until demand exceeds capacity
Technological life.	• estimated time until the asset is expected to be obsolete and a new asset can provide the service at a lower cost than the current asset
Legal life.	• estimated time until the asset has failed to the extent that it is unsafe for users and/or workers • the time allowed for changes to the asset to comply with legislation

Estimates of Useful Life

Optimum Useful Life

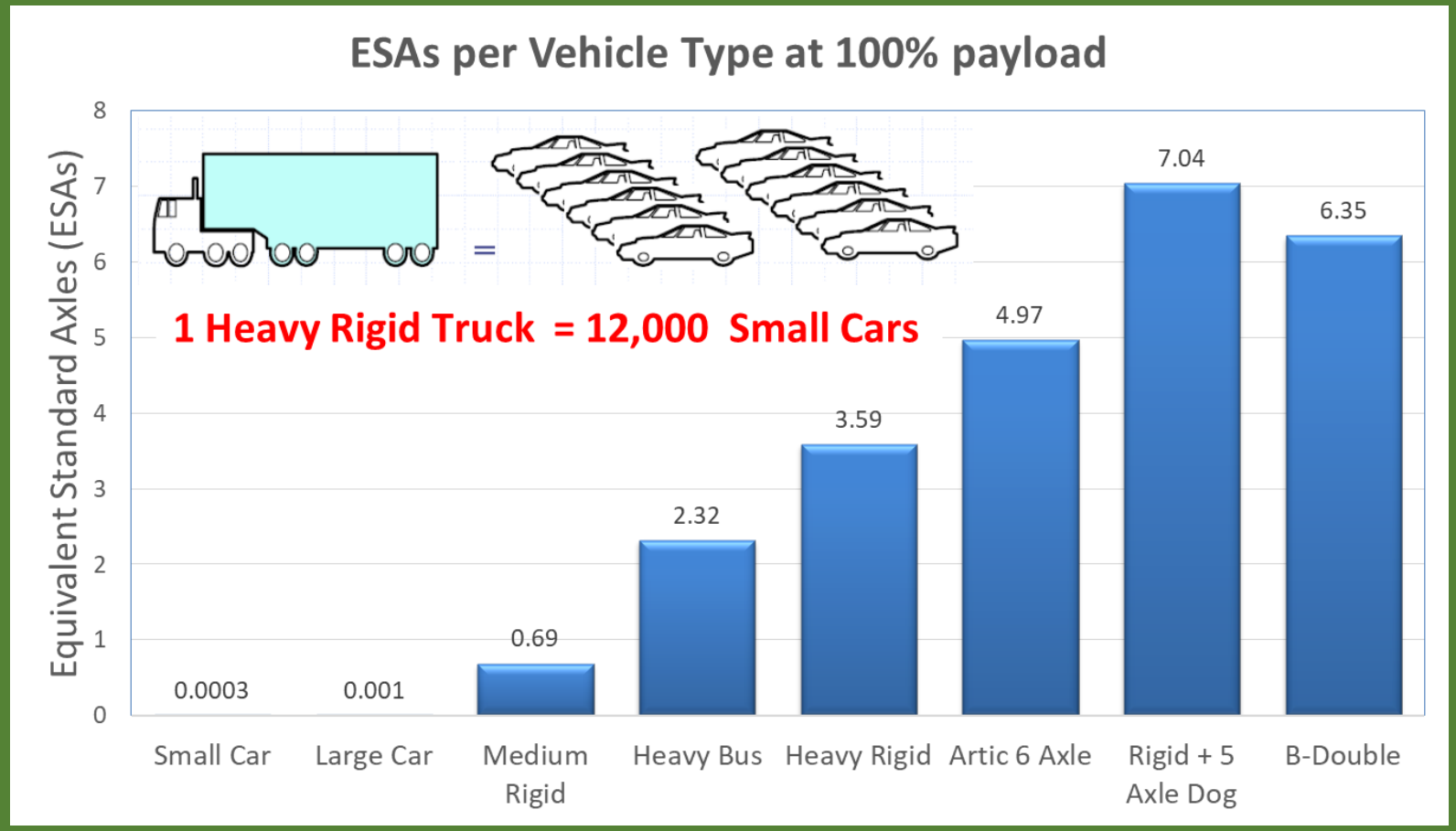


Estimates of Useful Life

Target Useful Life

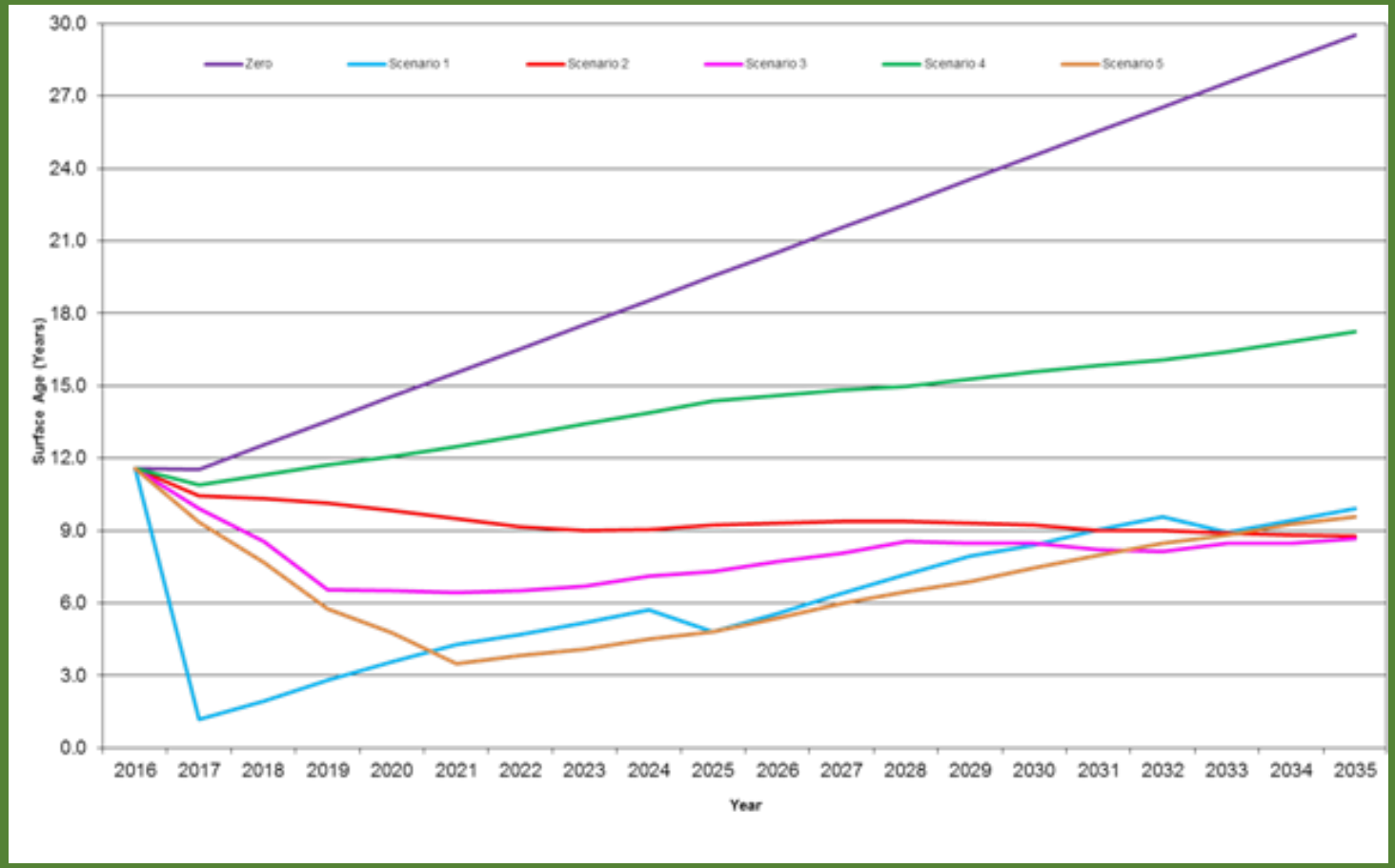
Estimates of Useful Life

Design Life



Estimates of Useful Life

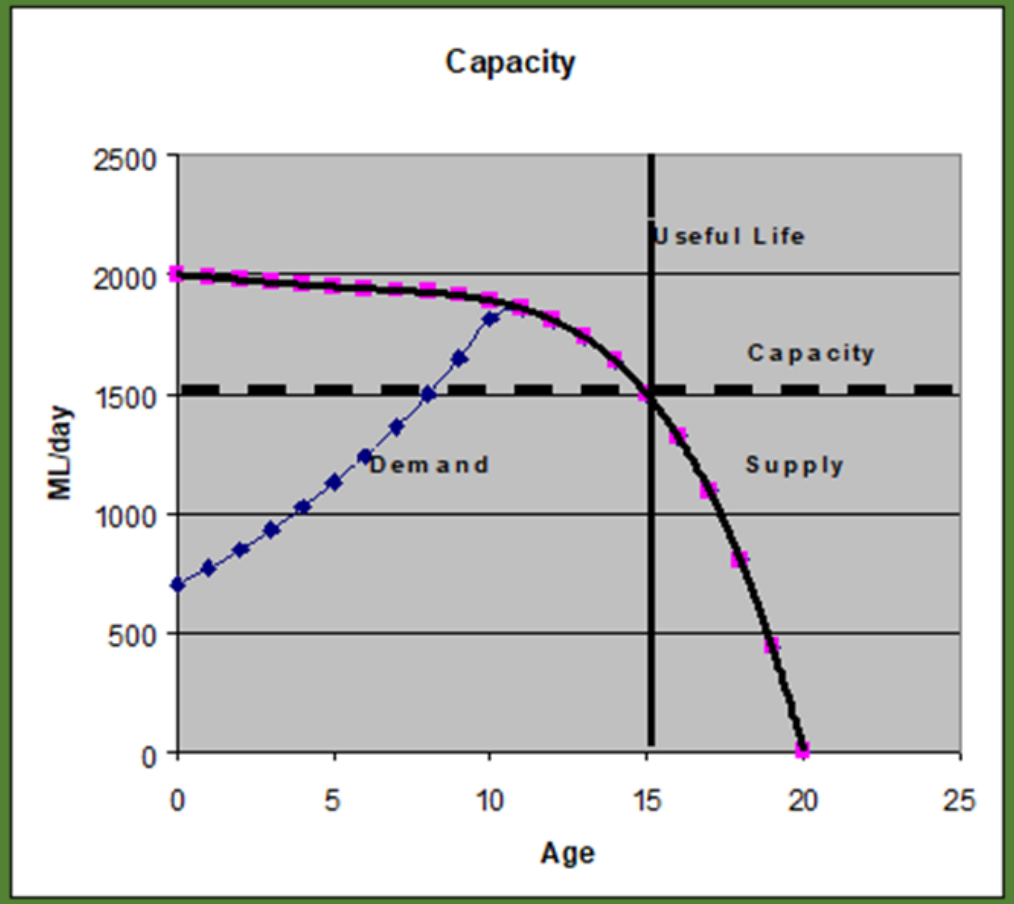
Service Level Life



Impact of Different Funding levels on Seal Age

Estimates of Useful Life

Service Capacity Life



Estimates of Useful Life

Technological Life

Which Life to Use

- The useful life adopted is dependent on the purpose of the analysis.
- Projecting estimates of forward renewal funding for long term asset management plans and financial models, optimum useful lives are appropriate as these represent the optimum investment strategy required.
- For valuation purposes, target useful lives are appropriate as these represent what is currently being achieved with available funding and the physical limit of the asset.
- Legal useful life life needs to be considered as a minimum for duty of care

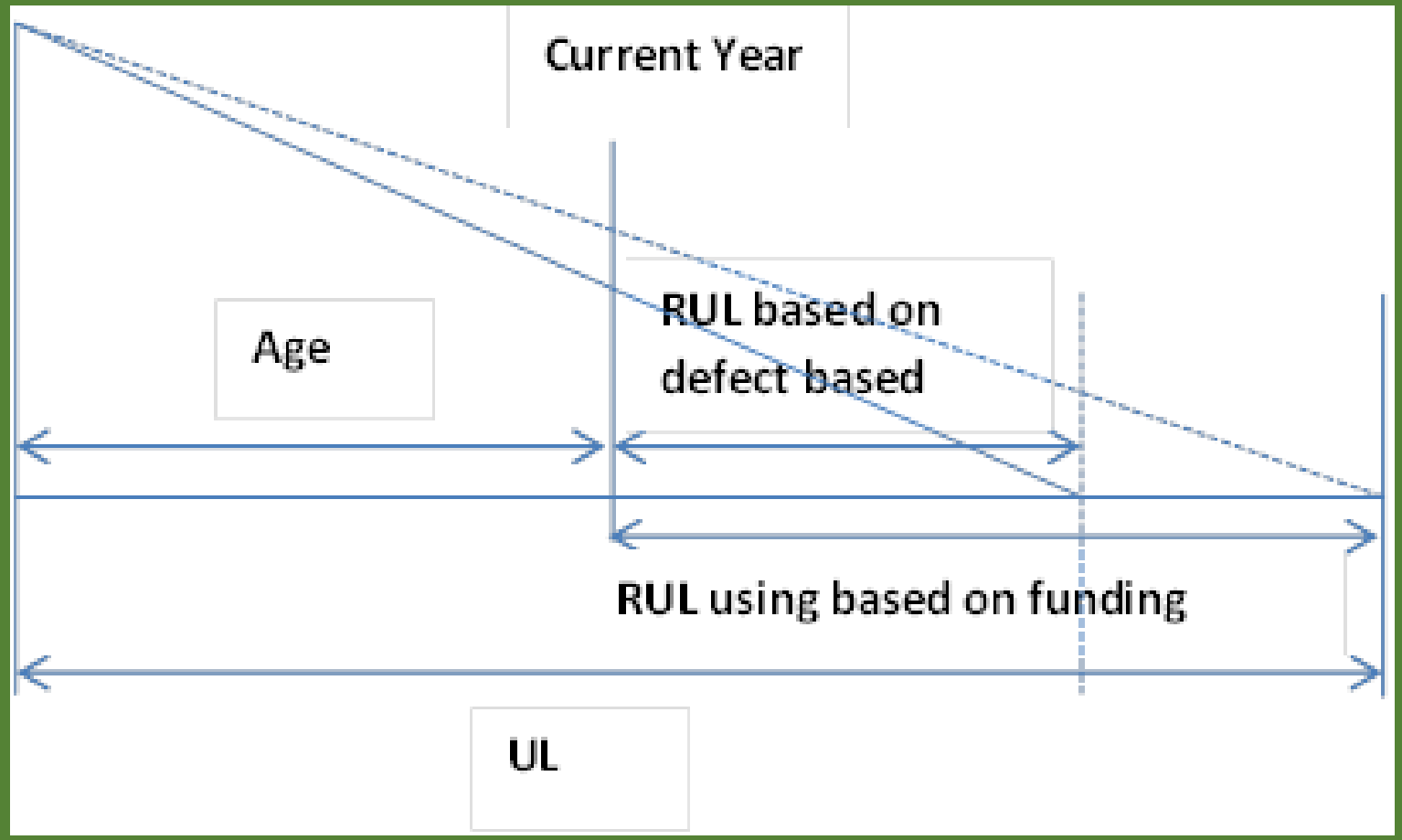
Useful Life for Valuation

The factors that a valuer needs to consider in assessing useful and remaining useful life, include:

Expected changes in regulatory and or environmental requirements;

- Expected changes in technology;
- Expected changes in demand for the services; and/or
- Expected changes in operating conditions

Impact of Available Funding



"We need to value what is happening not what should be happening"

Influencing factors

Example

- The earthworks component of a sealed road is generally considered to have an indefinite life; however, the life of earthworks component of a gravelled road is contingent on the paved surface retaining its integrity.
- The pavement of a gravelled road has a much shorter life than a sealed pavement.
- The earthworks component of formed roads, only have limited lives.
- So in effect the inability to be able to resurface a sealed road or gravel road before physical failure has consequently impacts on the life of the pavement and earthworks components.

Concluding Remarks

- The research evidence available shows that extending useful lives indefinitely solely on funding constraints is clearly unrealistic as the assets do have finite lives.
- A balanced approach is recommended which adopts useful lives based on a realistic assessment of when the asset will “no longer be available for use”.
- Target useful lives will typically be greater than the optimal targets used for renewal planning but would be guided by historical performance records and the available research evidence on what lives can be realistically expected before the condition of the asset makes it unusable.
- Assets beyond the nominated target life should be further assessed for impairment.

TOOWOOMBA REGION
Rich traditions. Bold ambitions.

Thank You