

The condition assessment

More than making a list

What is a “Making a List” CA



- There is a condition assessment event where developing a defect or backlog list is prime driver.
- The list is prioritised into “a list” and maintenance backlog works.
- Over subsequent years, this list is modified as works get addressed and new works are added.
- The total amount of works in the list defines the maintenance backlog.

Objectives of Condition Assessment



- Evaluation of the adequacy of existing maintenance and capital funding;
- Analysis of estate and building condition trends;
- Provide a consistent format for reporting of condition within Utas and to the various levels of Government;
- Supports the development of effectively targeted and prioritised maintenance programs;
- Identification of current maintenance liabilities and emerging maintenance issues;
- Assesses the effectiveness of prevailing maintenance strategies;
- Supports the strategic asset planning processes by providing enhanced information on current performance and future liabilities.

- The importance of institutions undertaking effective assessment of condition and the importance of the accuracy of the resultant KPIs has significantly increased.
- The accuracy of the condition KPIs has moved from being self regulated to government regulated.
- Tertiary Education Quality Standards Agency (TEQSA) were created to provide quality assurance that will underpin a sustainable higher education sector.
- TEQSA will register and evaluate the performance of higher education providers against the new Higher Education Standards Framework.

TEQSA Quality Framework

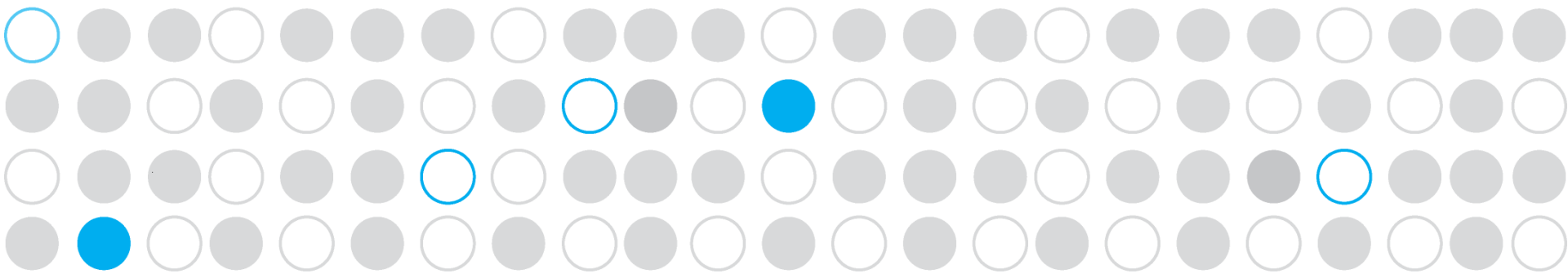


- The Standards Framework comprises five areas:
 - Provider Standards,
 - Qualification Standards,
 - Teaching and Learning Standards,
 - Information Standards; and
 - Research Standards.
- The standards are threshold standards which all Universities must meet in order to enter and remain within Australia's higher education system.
- TEQSA will use the information collected to develop "risk profiles" for each University that assess performance against the threshold standards.
- Two (2) of the 46 indicators in the Regulatory Risk Framework relate directly to the condition of the University facilities portfolios. Those are:
 - **B9 - High proportion of aging or deteriorating building stock**
 - **G5 – High backlog maintenance.**

Source of TEQSA Data



- CAMS to DIISTRE (formerly DEEWR) IPP to TEQSA RRF



TEFMA Condition Assessment Process

Condition Standards



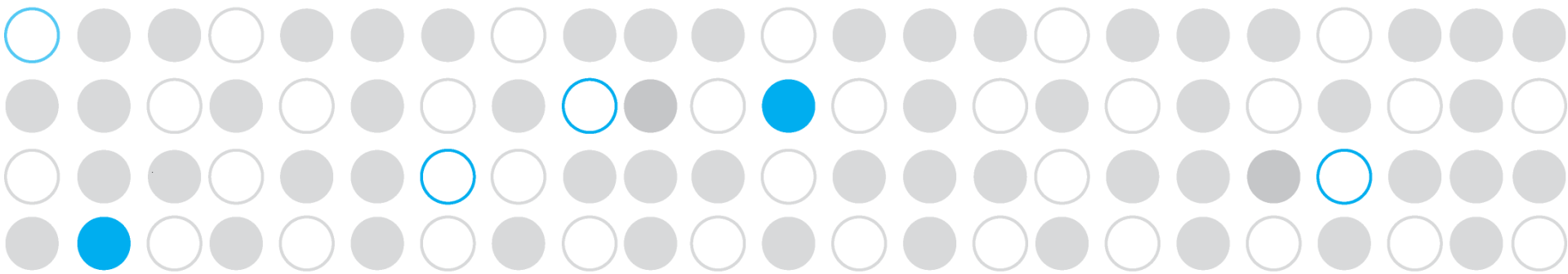
Condition Rating Standards

Condition Performance Standard	Condition Standard	Target Rating
Excellent	Asset has no defects; condition and appearance are as new	5
Good	Asset exhibits superficial wear and tear, minor defects, minor signs of deterioration to surface finishes; does not require major maintenance; no major defects exist.	4
Fair	Asset is in average condition; deteriorated surfaces require attention; services are functional, but require attention; backlog maintenance work exists.	3
Poor	Asset has deteriorated badly; serious structural problems; general appearance is poor with eroded protective coatings; elements are defective, services are frequently failing; and a significant number of major defects exist.	2
Very Poor	Asset has failed; is not operational and is unfit for occupancy or normal use.	1

Definitions

Category	Sub-category	Definition
Planned maintenance	Preventative maintenance	Maintenance performed to retain an item or asset in its operating condition, by providing systematic inspection, detection and prevention of incipient failure.
	Condition-based maintenance (<i>major maintenance</i>)	Maintenance initiated as a result of routine or continuous checking.
	Statutory maintenance	Maintenance that must be carried out to meet statutory requirements.
Unplanned maintenance	Corrective and breakdown maintenance (<i>unscheduled maintenance</i>)	Maintenance performed as a result of failure, to restore an item or asset to its optimal condition.
	Incident maintenance	Restores an asset to an operational or safe condition, following damage caused by storms, fire, forced entry or vandals.
Asset Replacement (<i>Capital Replacement</i>)		The replacement of building elements or major components based on the recognised life of that building component.

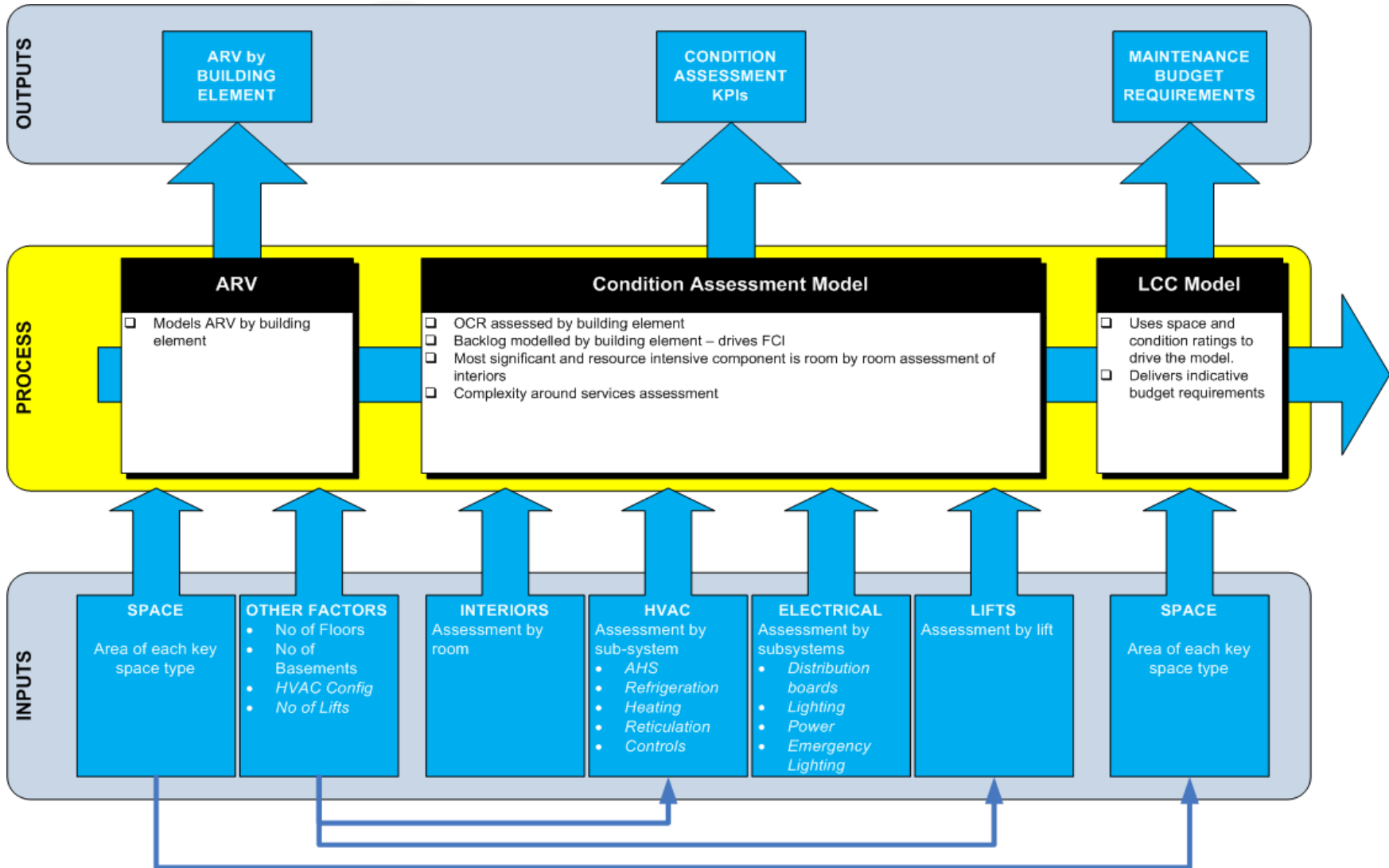
Source: TEFMA SAMP Guideline



Xact Approach

- Surprised by the level of ca adoption in the sector.
- Needed a structured approach that leverages off existing in-house expertise.
- Needed a cost effective methodology
- Needed to achieve all the objectives of a ca.
- Xact desktop condition and functionality assessment methodologies.

Xact Approach



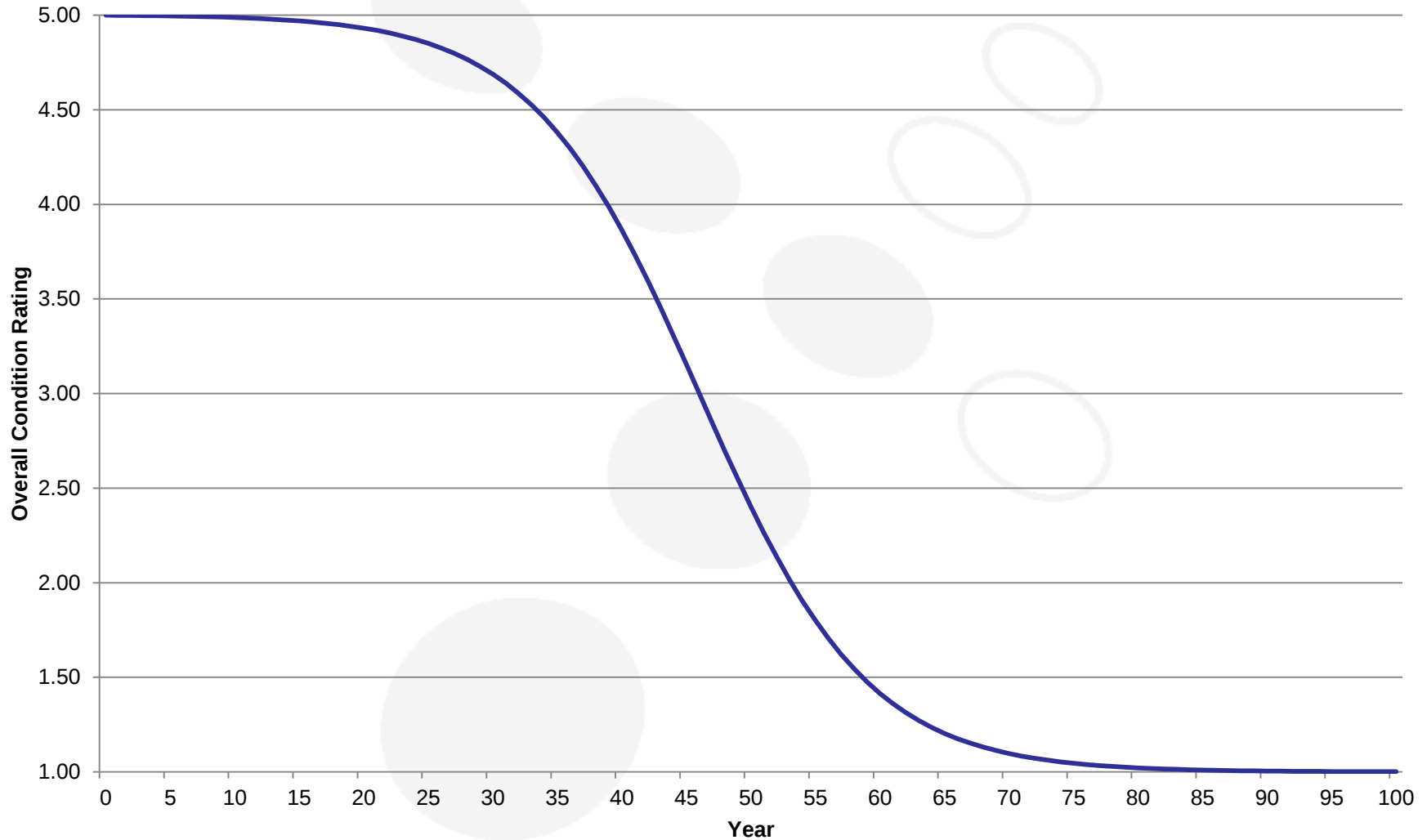
Condition KPIs

Measure	Calculation
Overall Condition Rating (OCR)	$OCR = \Sigma (CR \times RV) / \Sigma RV$
Backlog Maintenance (BM + BAR)	$\Sigma \text{ Deferred Maintenance and Asset Replacement}$
Facility Condition Index (FCI)	$1 - ((BM + BAR) / ARV)$



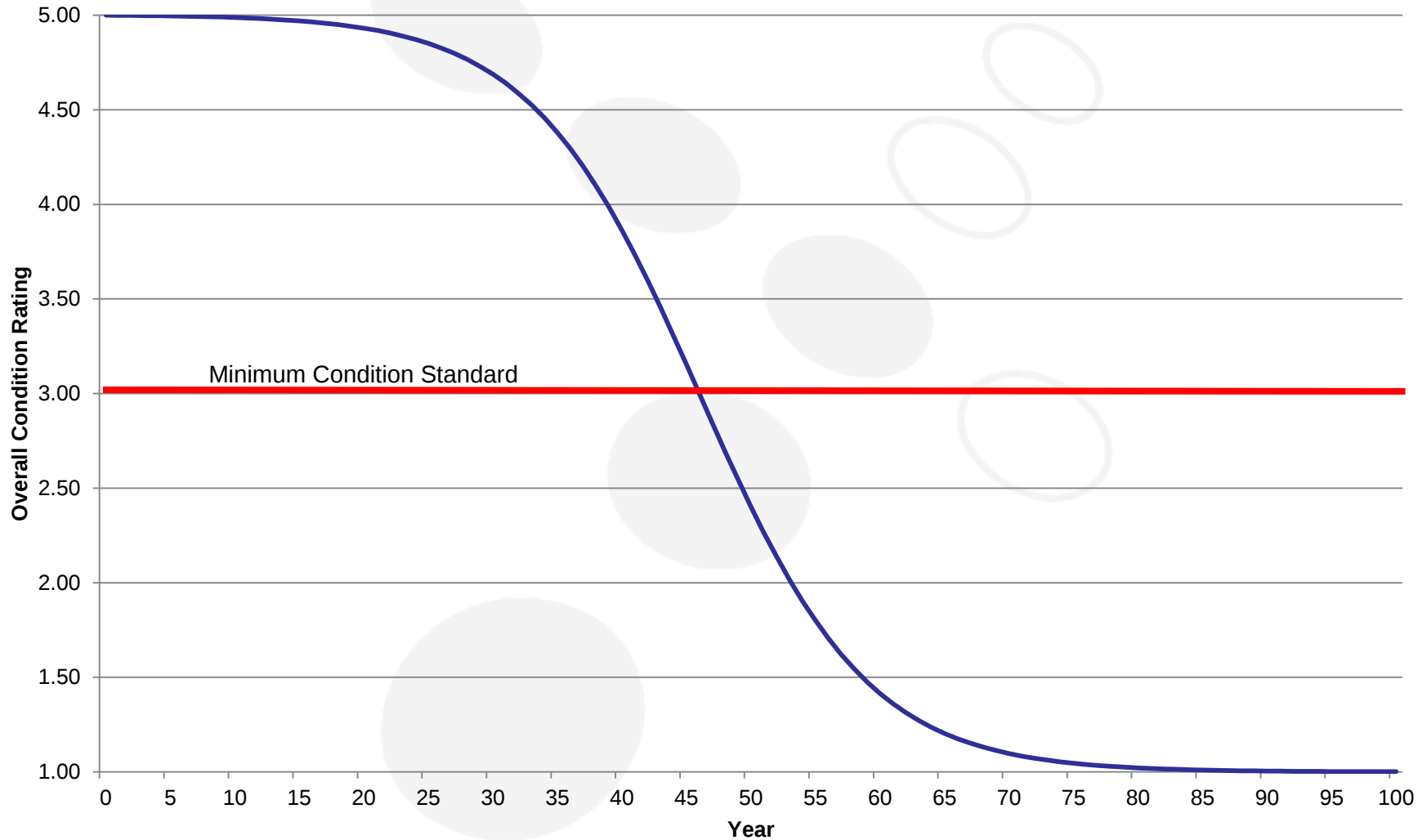
Backlog Calculation

Asset Degradation Curve



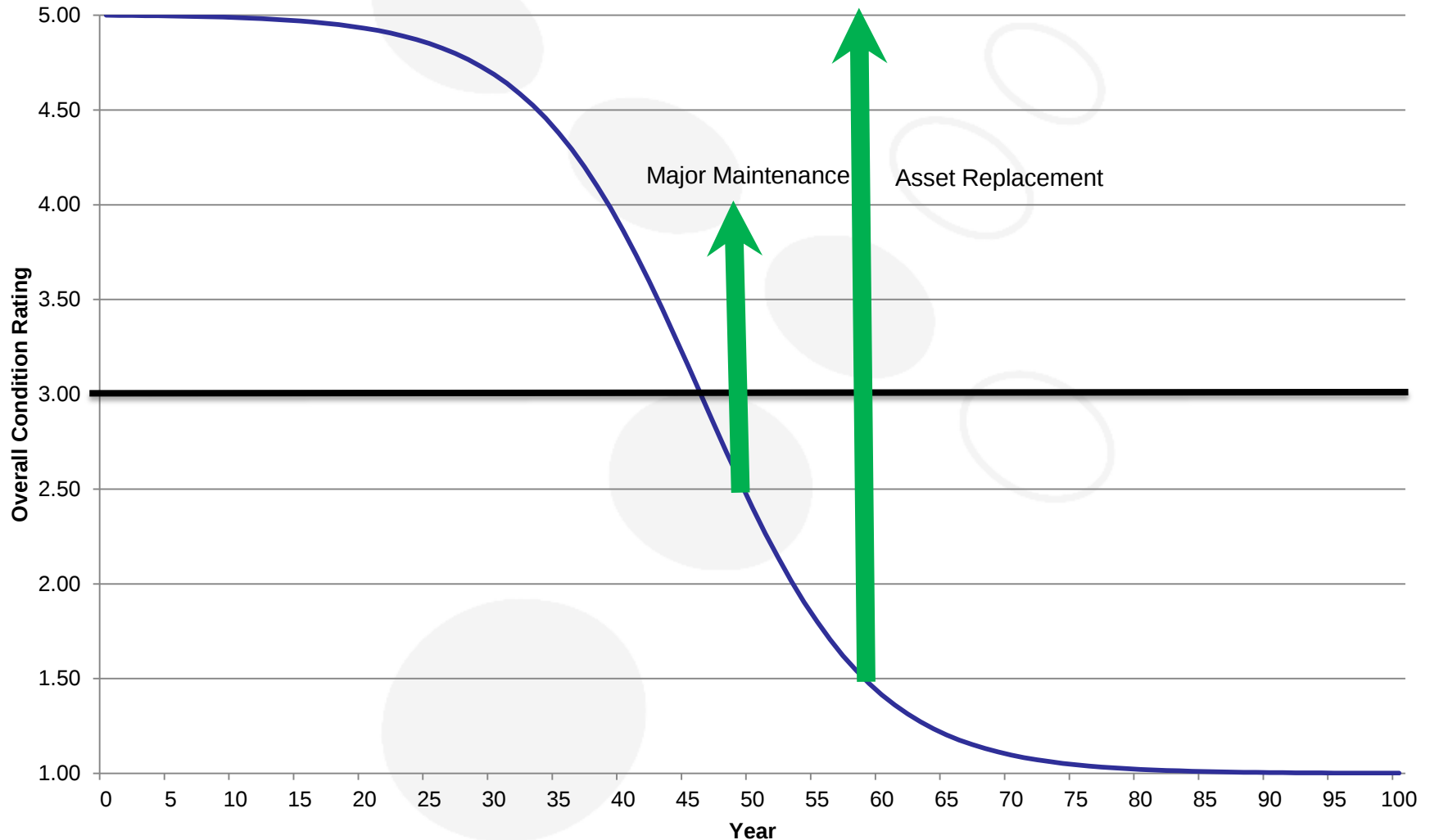
Backlog Calculation

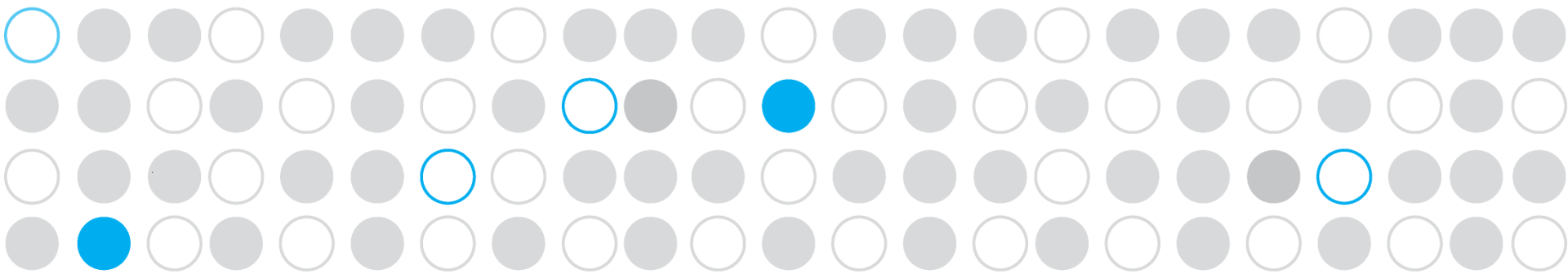
Asset Degradation Curve



Backlog Calculation

Asset Degradation Curve





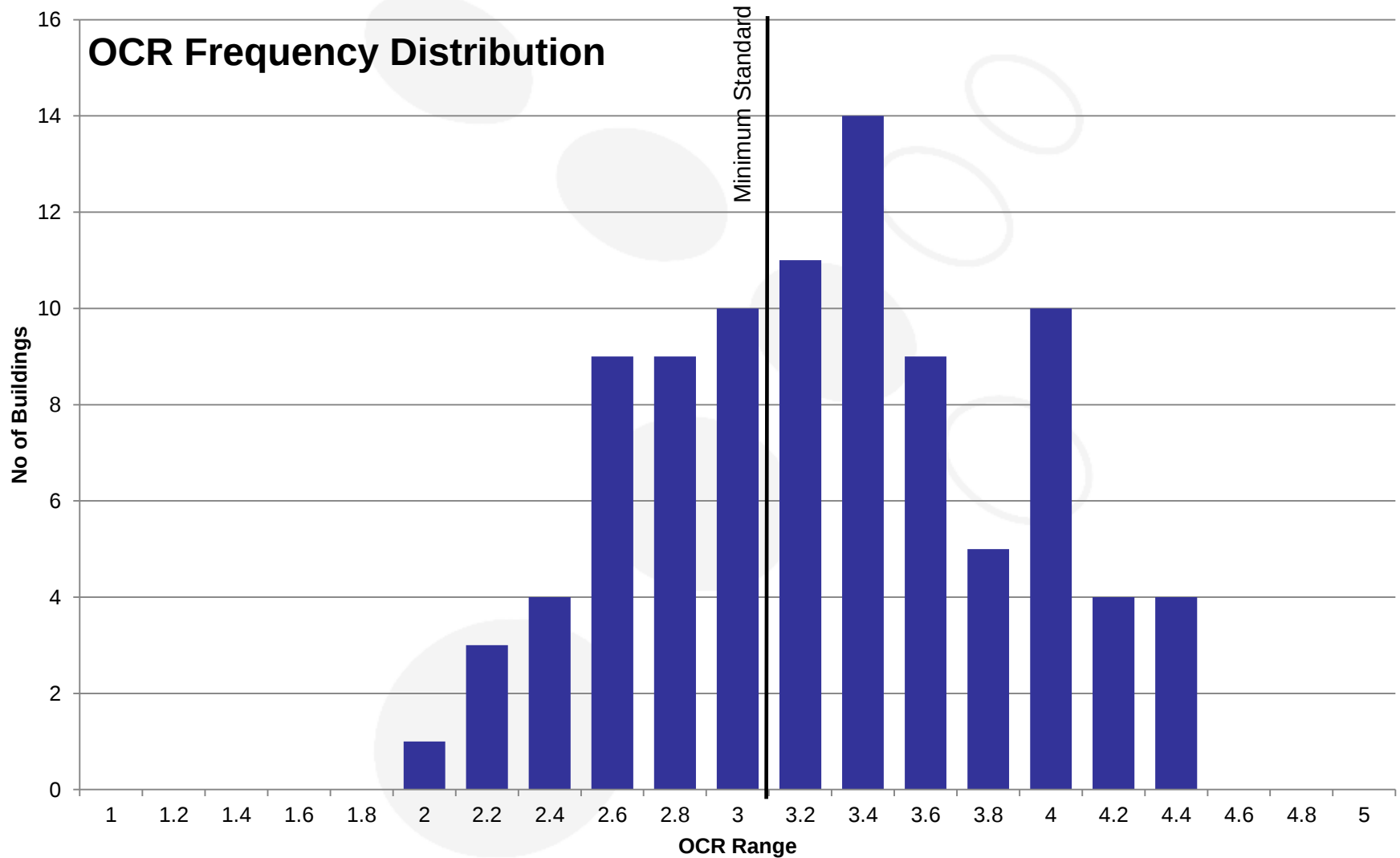
Utas Desktop Assessment

CA OUTCOME – TEFMA KPIs



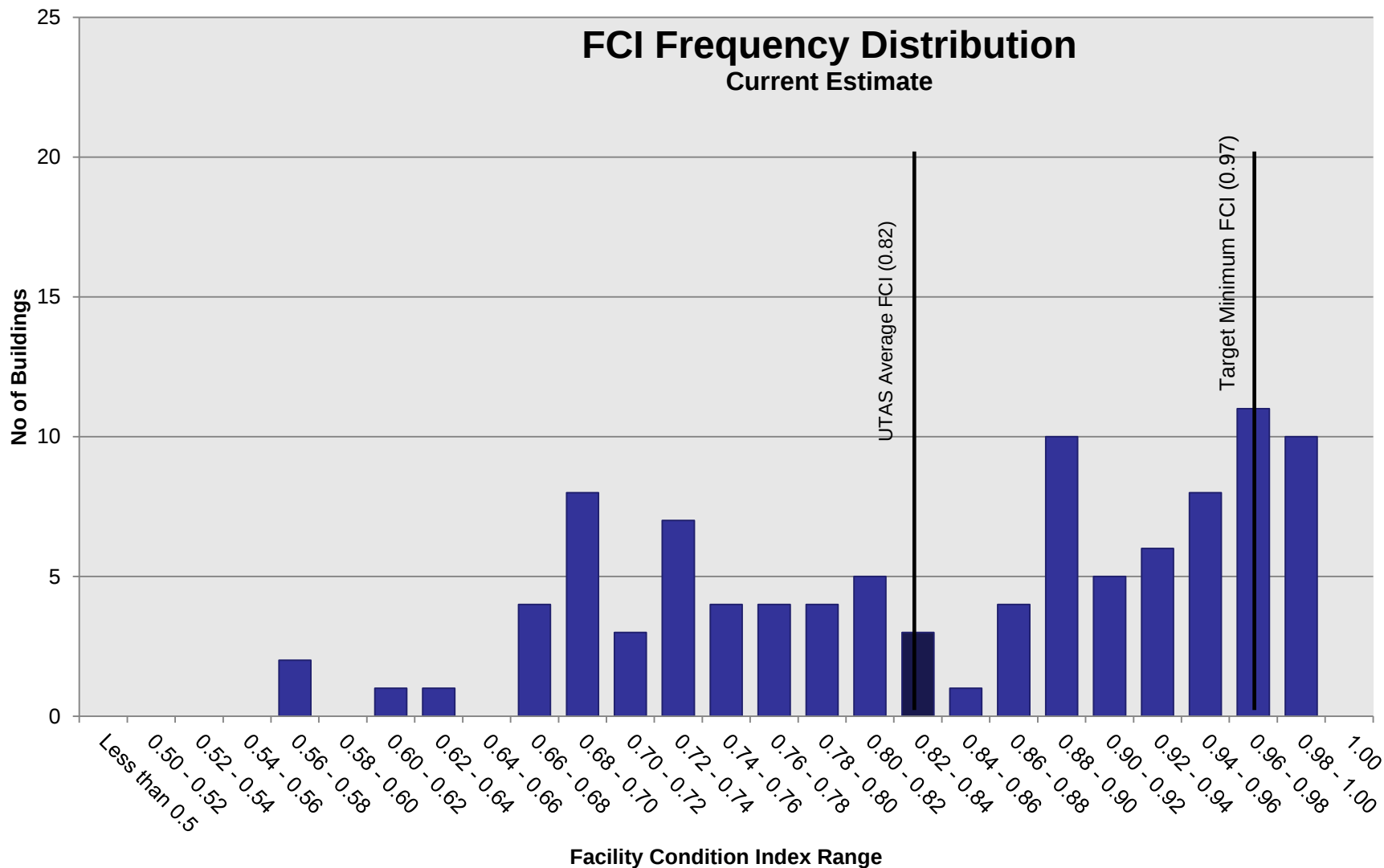
Building Code	Building Name	Campus	Date Built	No of Floors	GFA	Asset Replacement Value (ARV)	Overall Condition Rating (OCR)	Facility Condition Index (FCI)	Maintenance Backlog Current
BP.BP01	Communal Centre	BEAUTY POINT	1/05/1979	1	871	\$2,275,954	3.5	0.97	\$67,060
BP.BP02	Flume Tank And Administration Building	BEAUTY POINT	1/06/1980	2	1,381	\$3,985,056	3.2	0.94	\$232,156
BP.BP03	Admin / Offices /Comp	BEAUTY POINT	1/07/1980	1	512	\$1,522,171	2.8	0.77	\$355,377
BP.BP04	Residence Block A	BEAUTY POINT	1/07/1980	2	890	\$2,120,892	2.6	0.72	\$591,728
BP.BP05	Residence Block B	BEAUTY POINT	1/07/1981	2	759	\$1,788,926	2.7	0.71	\$512,539
BP.BP06	Residence Block C	BEAUTY POINT	1/07/1982	2	907	\$2,157,009	2.9	0.81	\$410,799
BP.BP07	Recreational Centre	BEAUTY POINT	1/04/1985	2	1,710	\$4,294,227	3.1	0.89	\$451,188
BP.BP11	Seamanship Centre	BEAUTY POINT	1/04/1935	2	2,658	\$7,207,941	2.1	0.63	\$2,678,146
BP.BP12	Seamanship Centre Workshops	BEAUTY POINT	1/11/1935	2	826				
IR.IR01	Stone Building-Inveresk	LAUNCESTON	1/02/1923	3	7,721	\$23,013,479	3.9	0.95	\$1,100,439
IR.IR02	Theatre Annexe Building-Inveresk	LAUNCESTON	1/02/1923	2	2,355	\$6,282,653	4.0	0.97	\$189,593
NH.AG30	Cavitation Tunnel	LAUNCESTON	1/02/1990	0	0				
NH.AG33	Residence Block 8	LAUNCESTON	1/04/1988	2	790	\$1,928,352	3.3	0.90	\$194,399
NH.AG34	Residence Block 9	LAUNCESTON	1/04/1988	2	789	\$1,928,105	3.3	0.90	\$194,352
NH.AH36	Residence Block 10	LAUNCESTON	1/04/1988	2	1,096	\$2,660,586	3.2	0.90	\$258,063
NH.AI31	Model Test Basin	LAUNCESTON	1/03/1990	1	696	\$2,461,383	3.6	0.98	\$54,327

OCR OUTCOME - Distribution

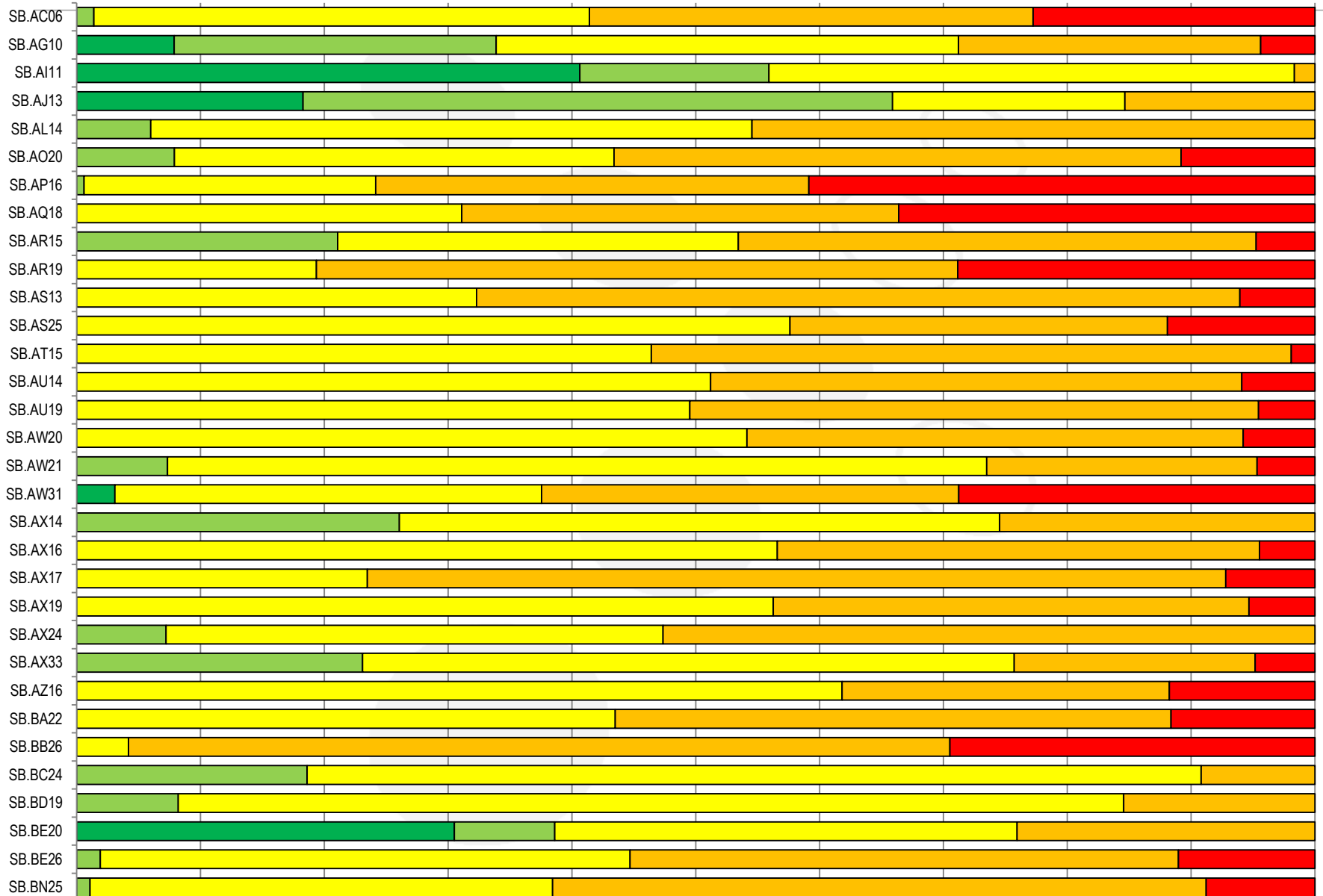


FCI Frequency Distribution

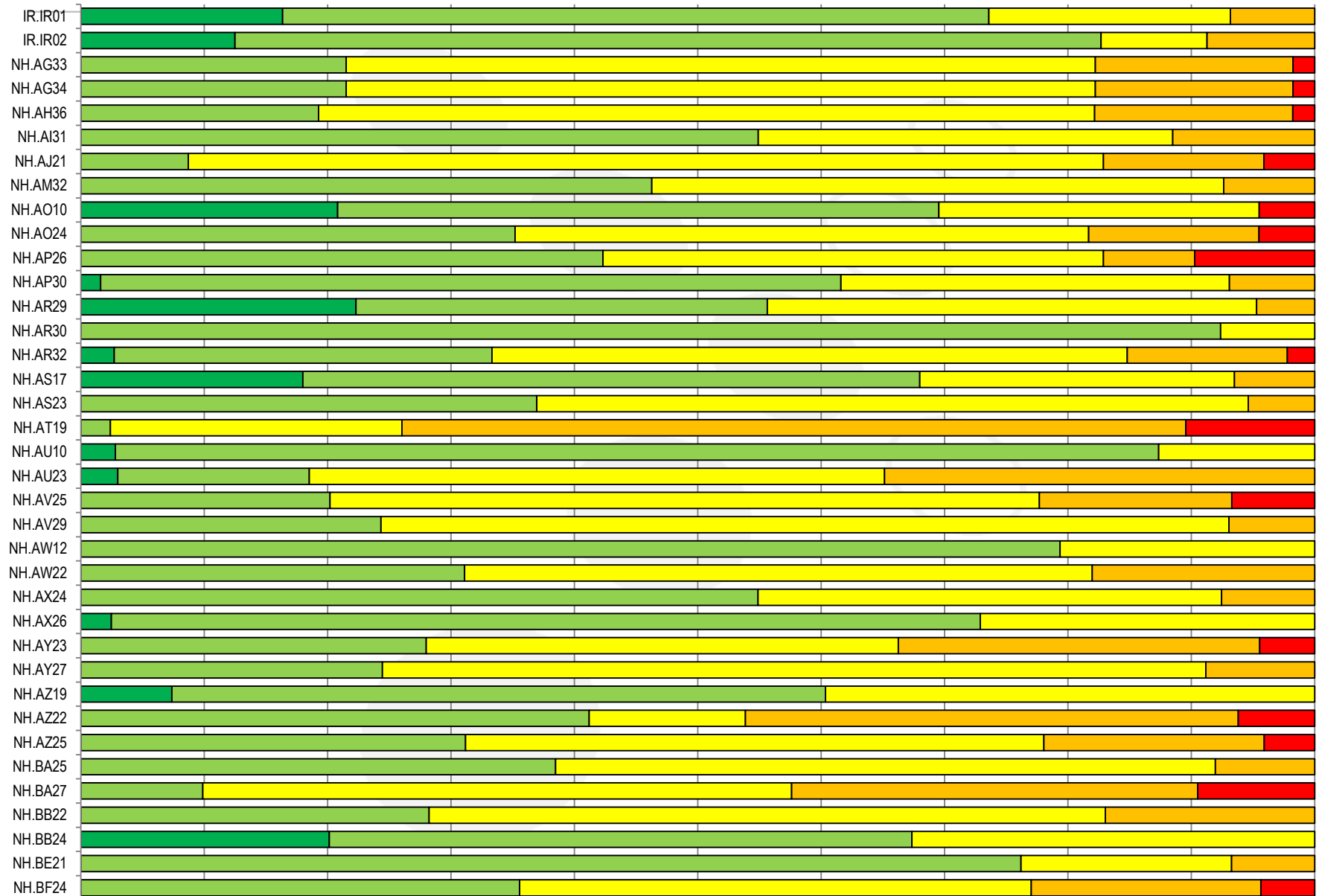
Current Estimate



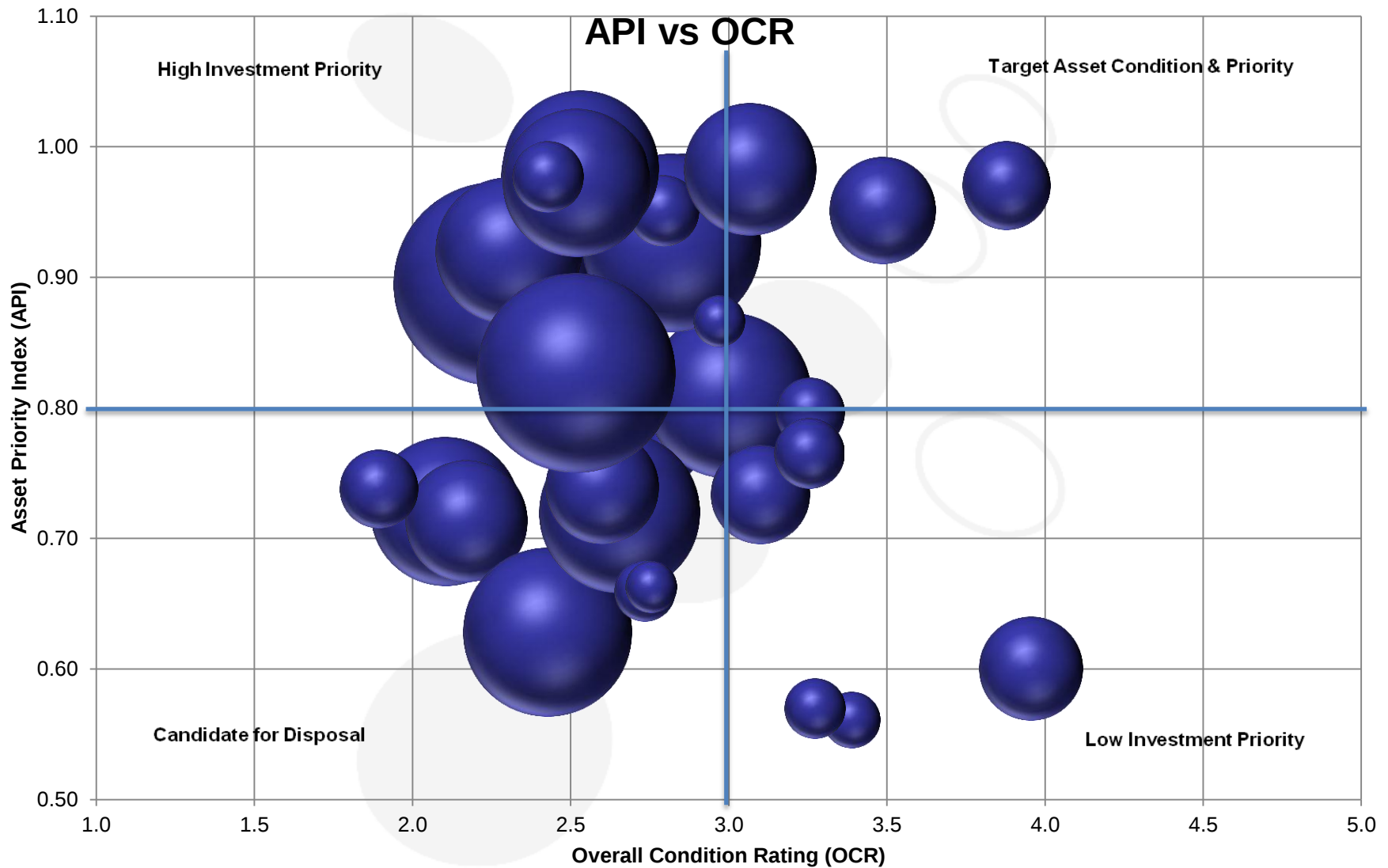
Sandy Bay



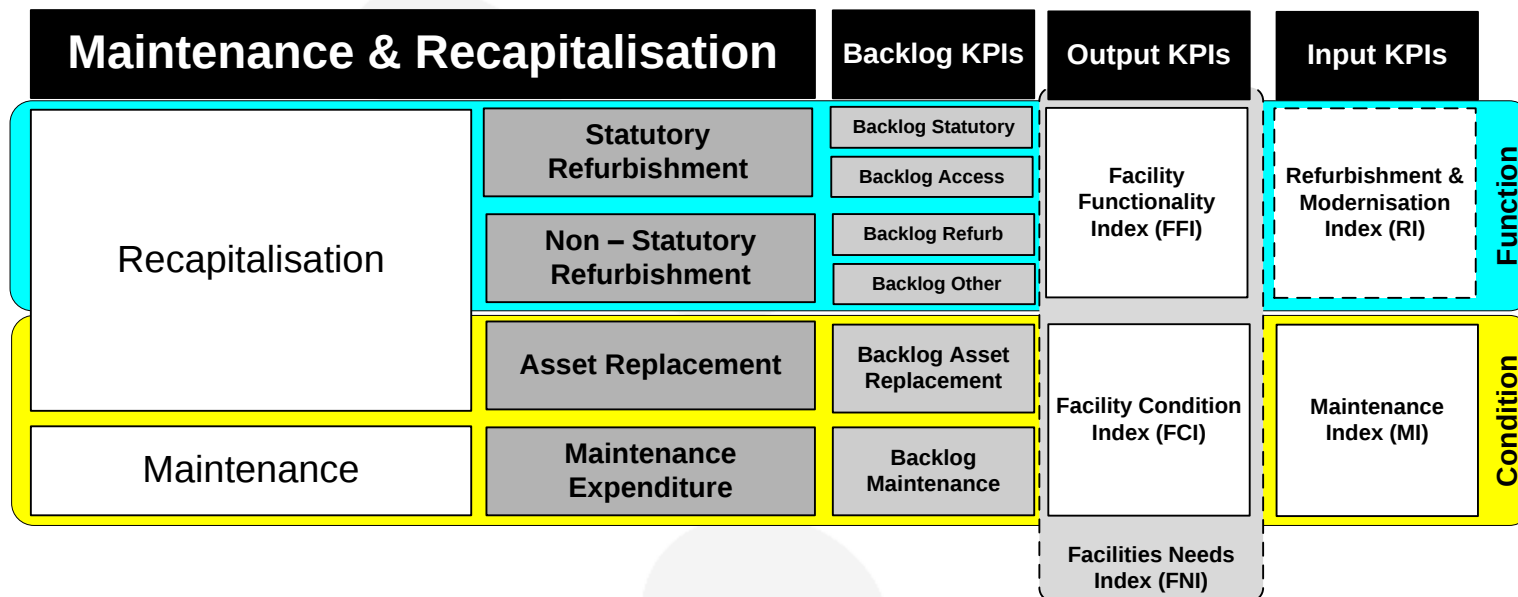
Launceston



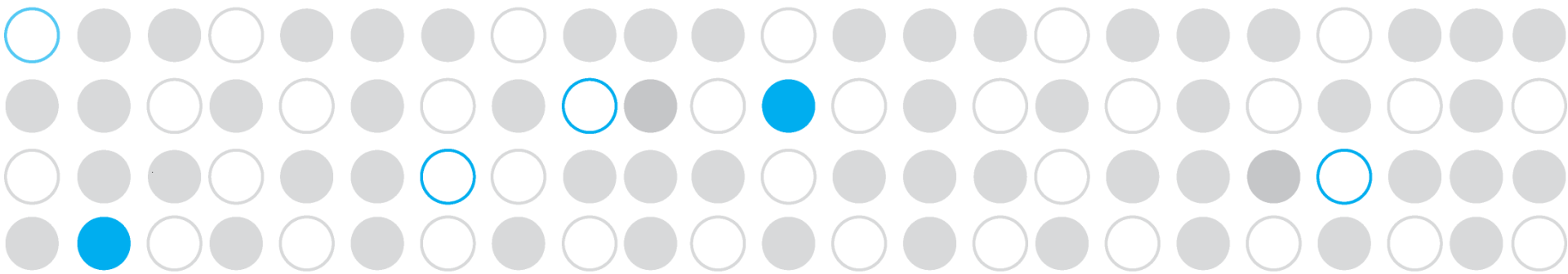
CA OUTCOME – API vs OCR



Maintenance & Refurbishment Investment KPIs



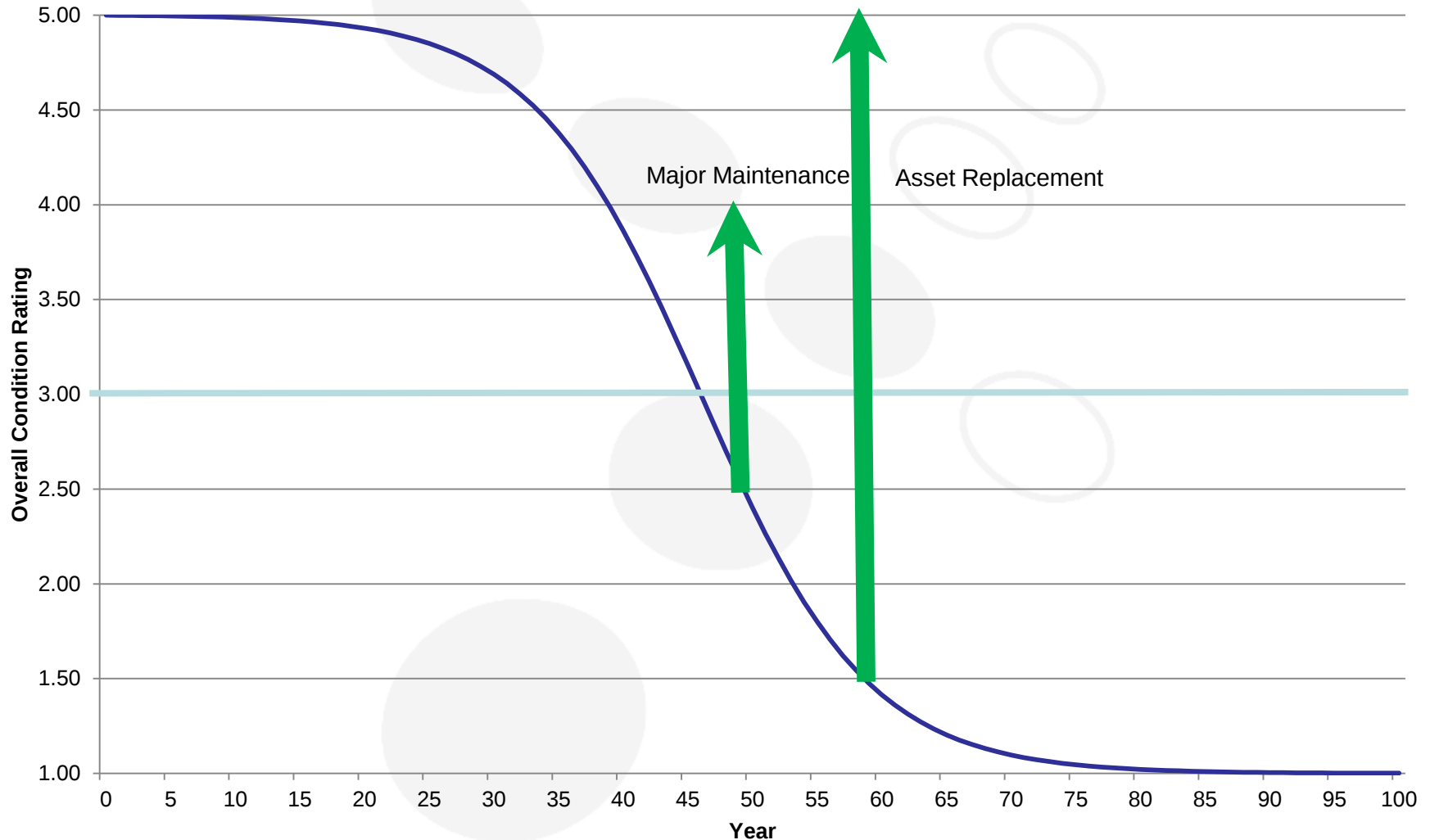
Key Performance Indices		Expenditure Area	Projected Target % ARV	
Maintenance Index (MI)	Maintenance		0.87%	2.21%
	Asset Replacement		1.41%	
Refurbishment Index (RI)	Statutory Refurbishment		0.3%	2.7%
	Non-Statutory Refurbishment		2.4%	



Significant Issues

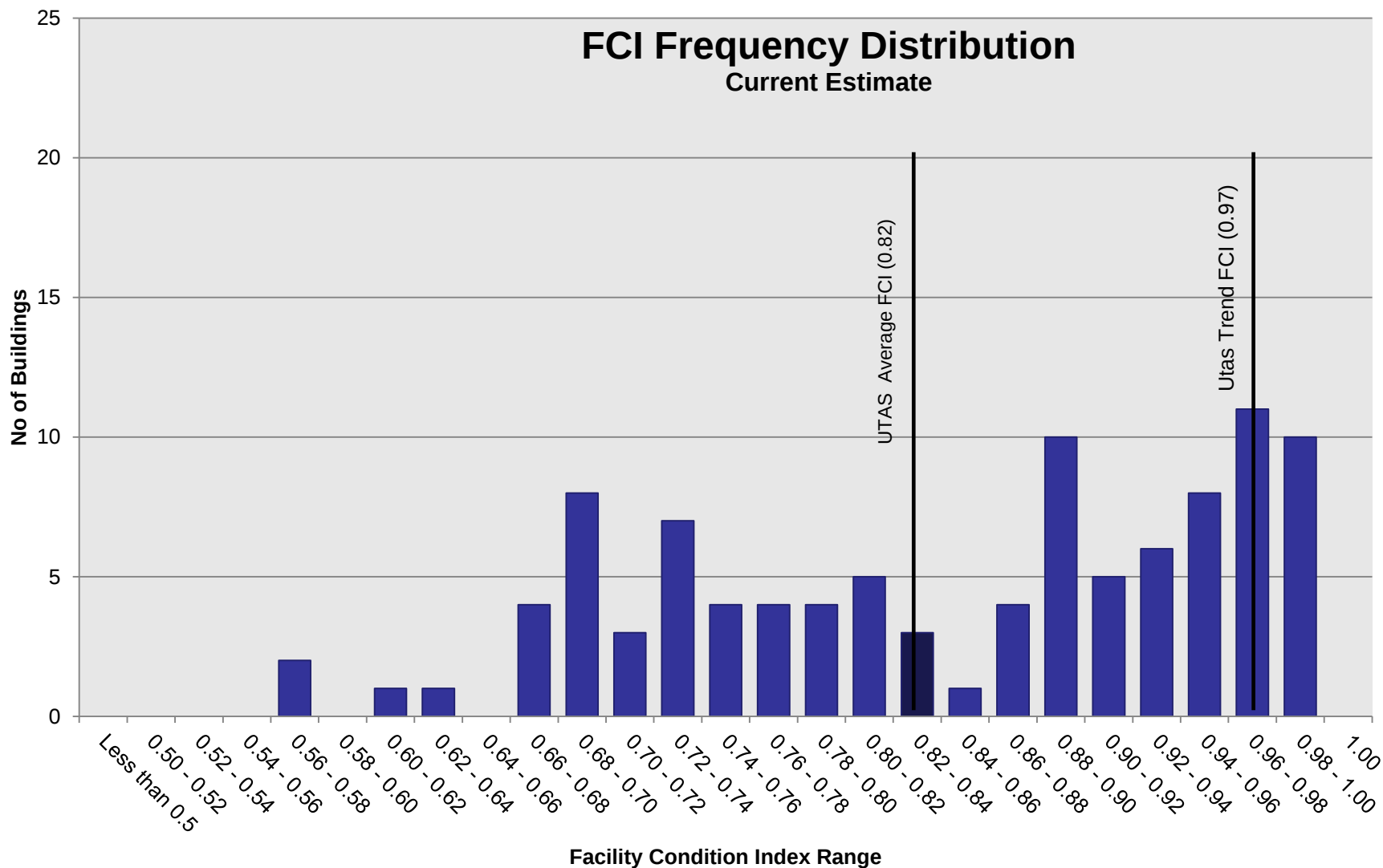
Backlog Calculation

Asset Degradation Curve

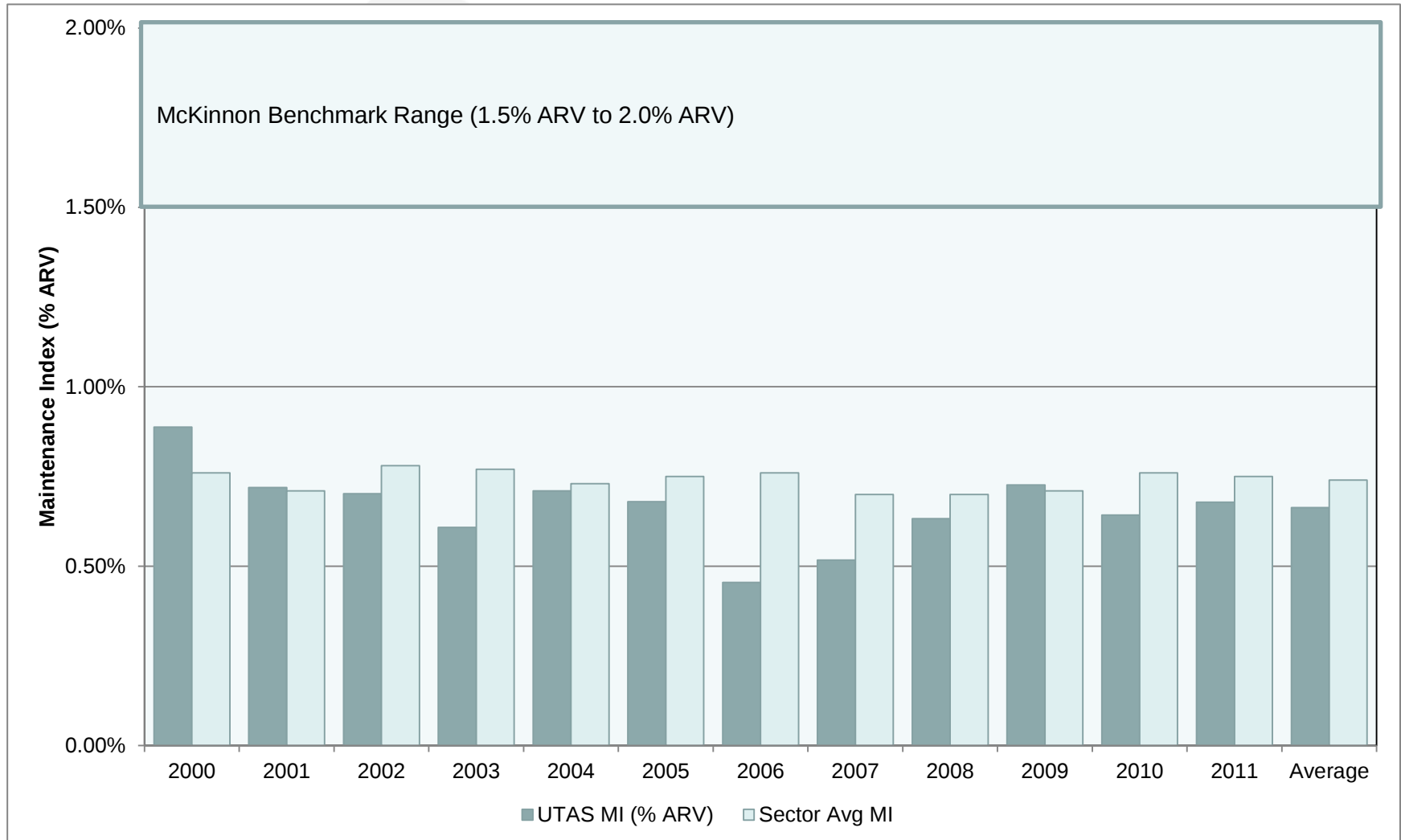


FCI Frequency Distribution

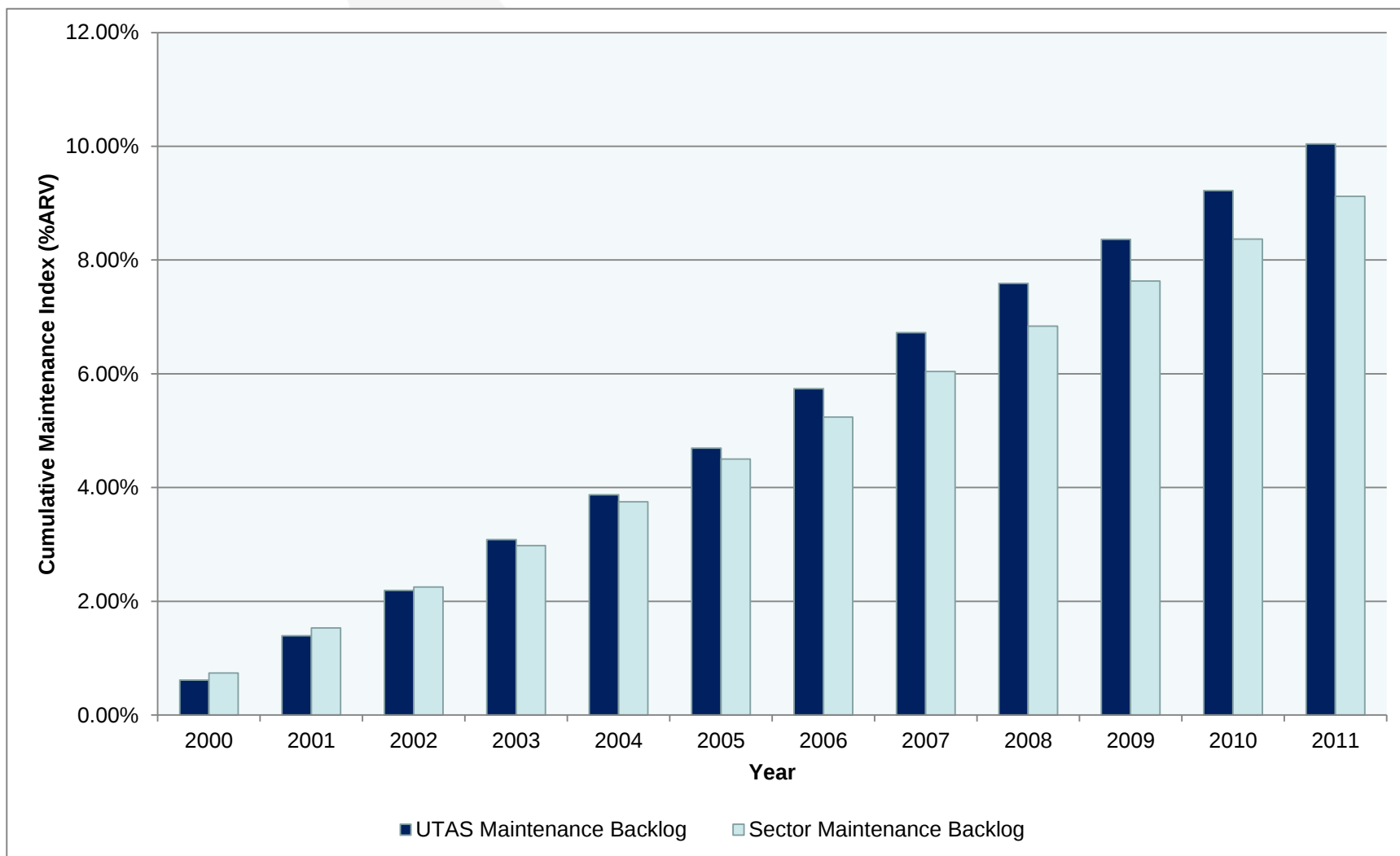
Current Estimate



Utas Maintenance Index (2000 to 2011)

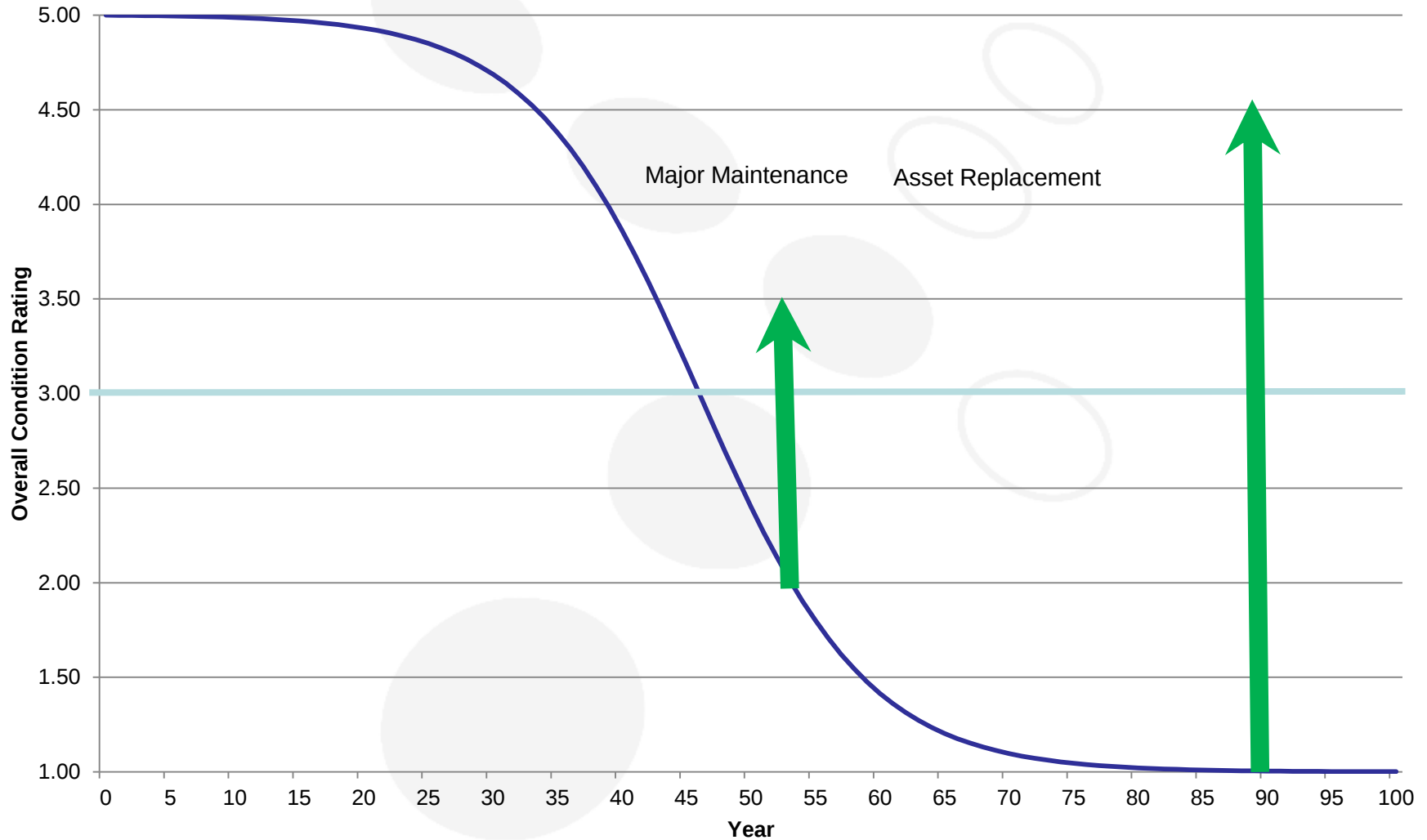


Cumulative Maintenance Index



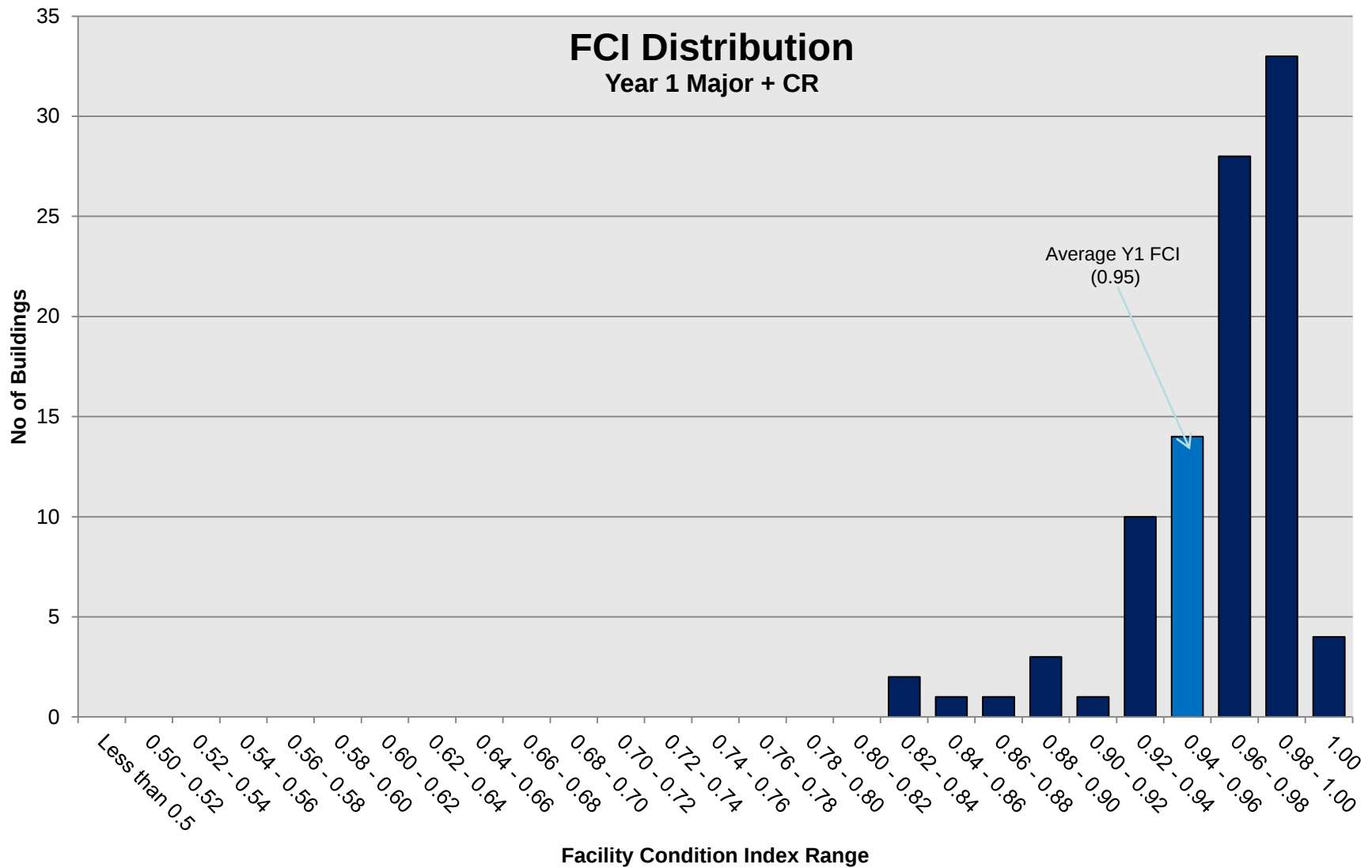
Backlog Calculation

Asset Degradation Curve



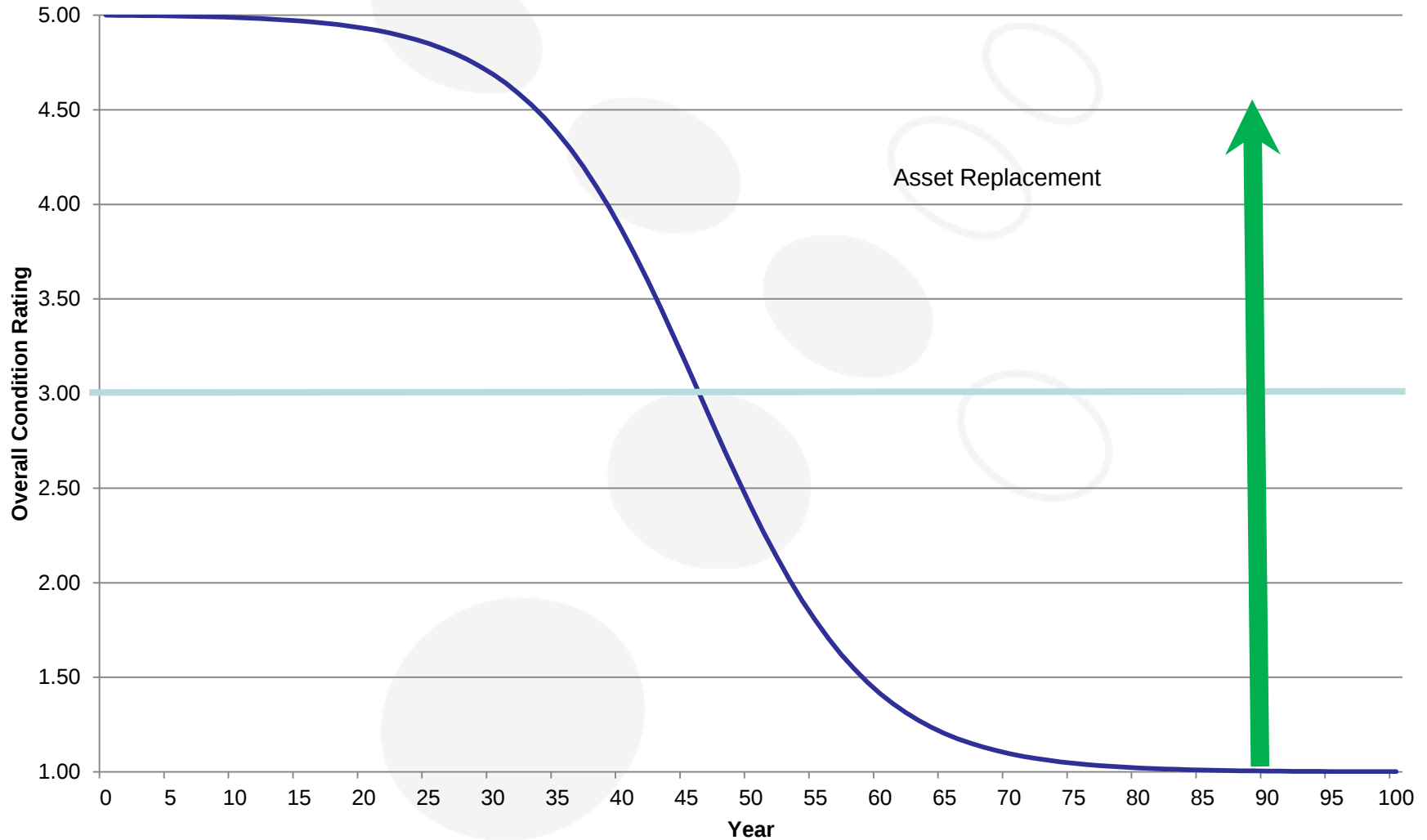
FCI Distribution

Year 1 Major + CR

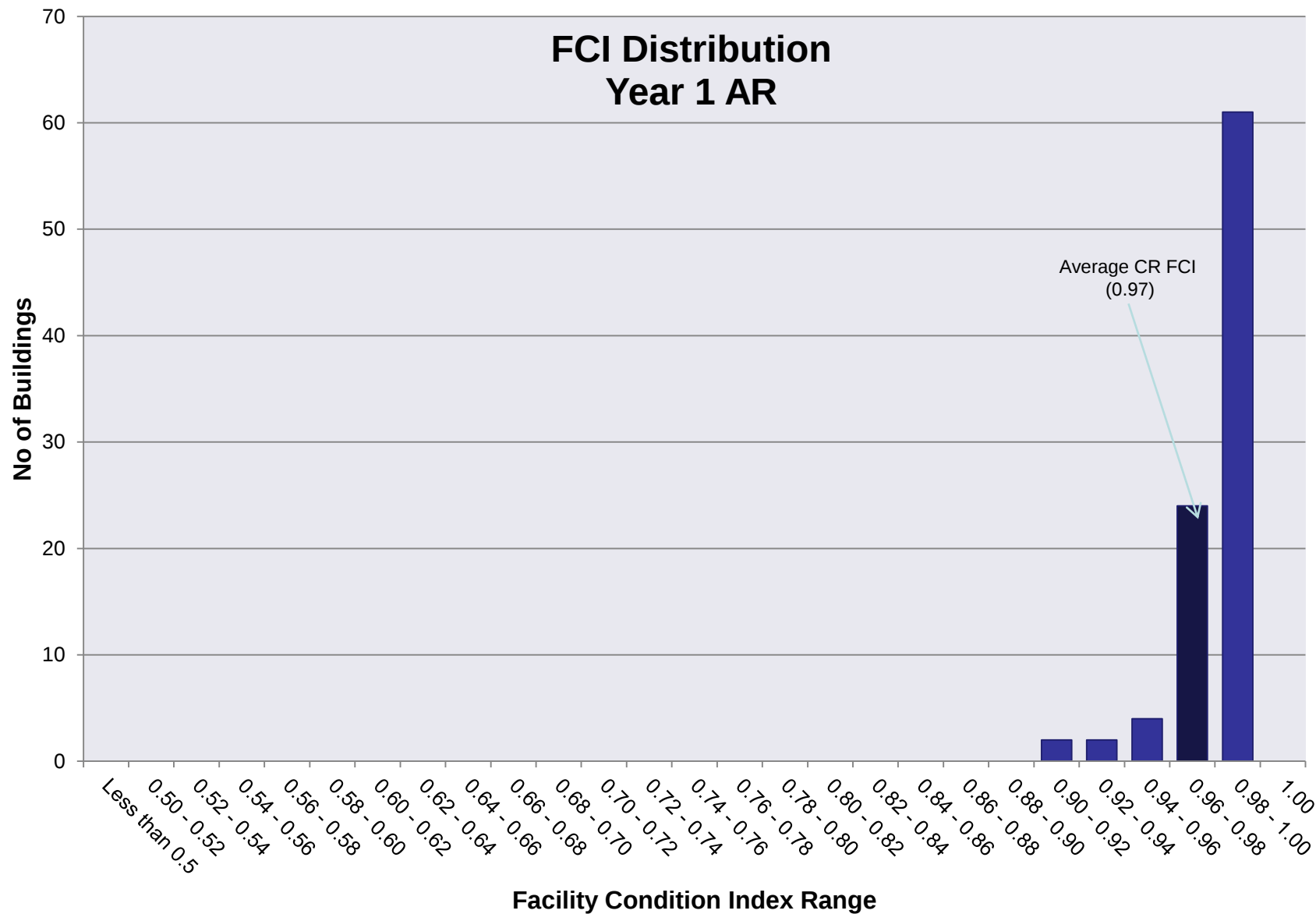


Backlog Calculation

Asset Degradation Curve

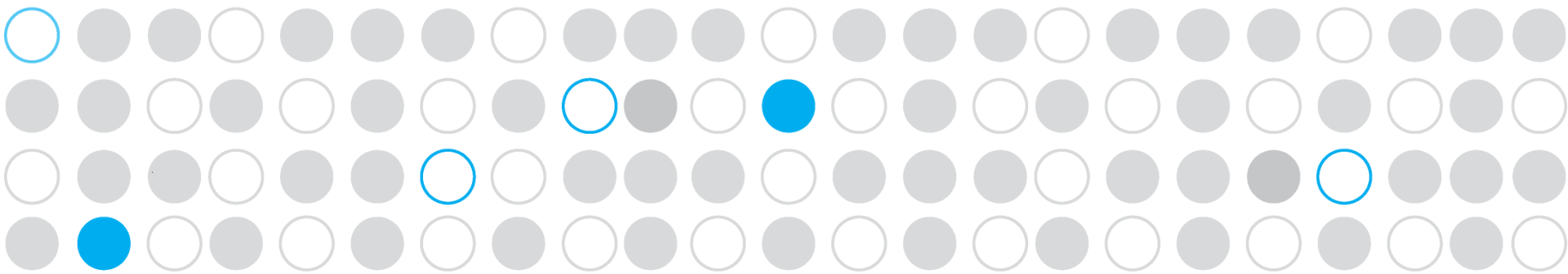


FCI Distribution Year 1 AR



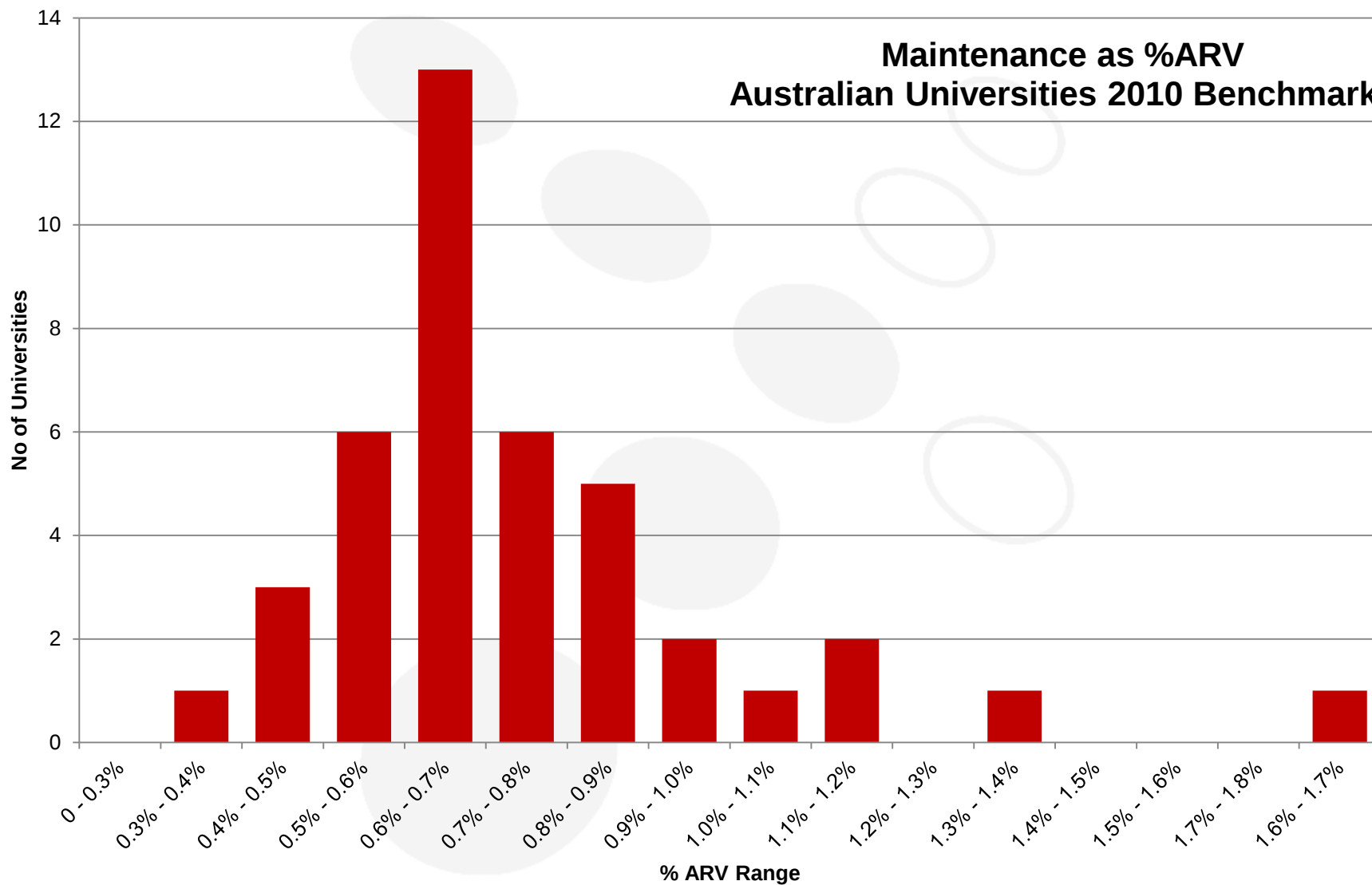
Condition Assessment Peter Principles

- You will only find what you seek.
- The more detailed the assessment, the greater the backlog.
- Backlog is capped by budget constraints.
- Could result in a highly unreliable FCI.
- Based on Utas results, the ‘make a list’ approach has historically delivered an FCI of 0.97 which is not representative of the condition of the estate.

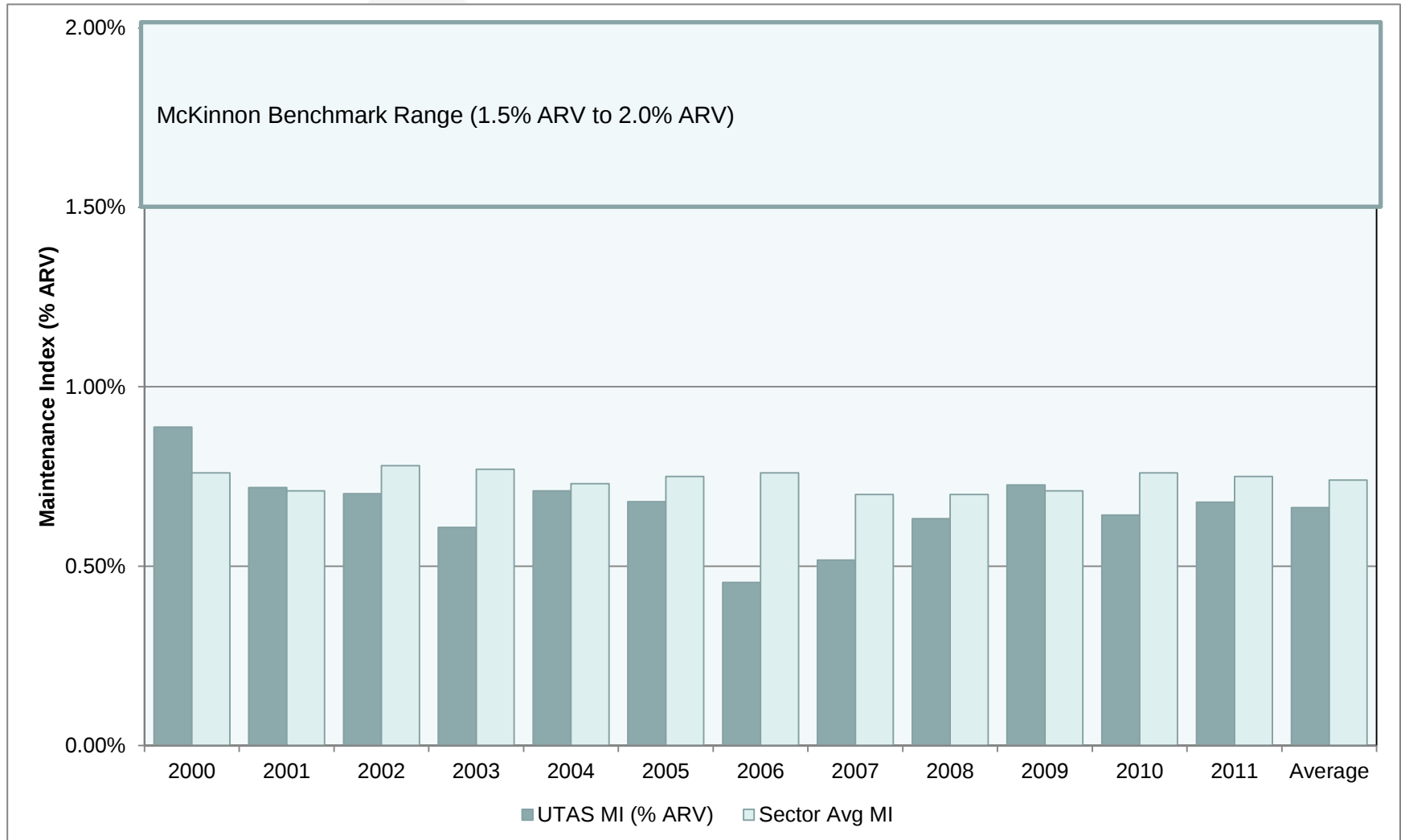


TEFMA Reporting

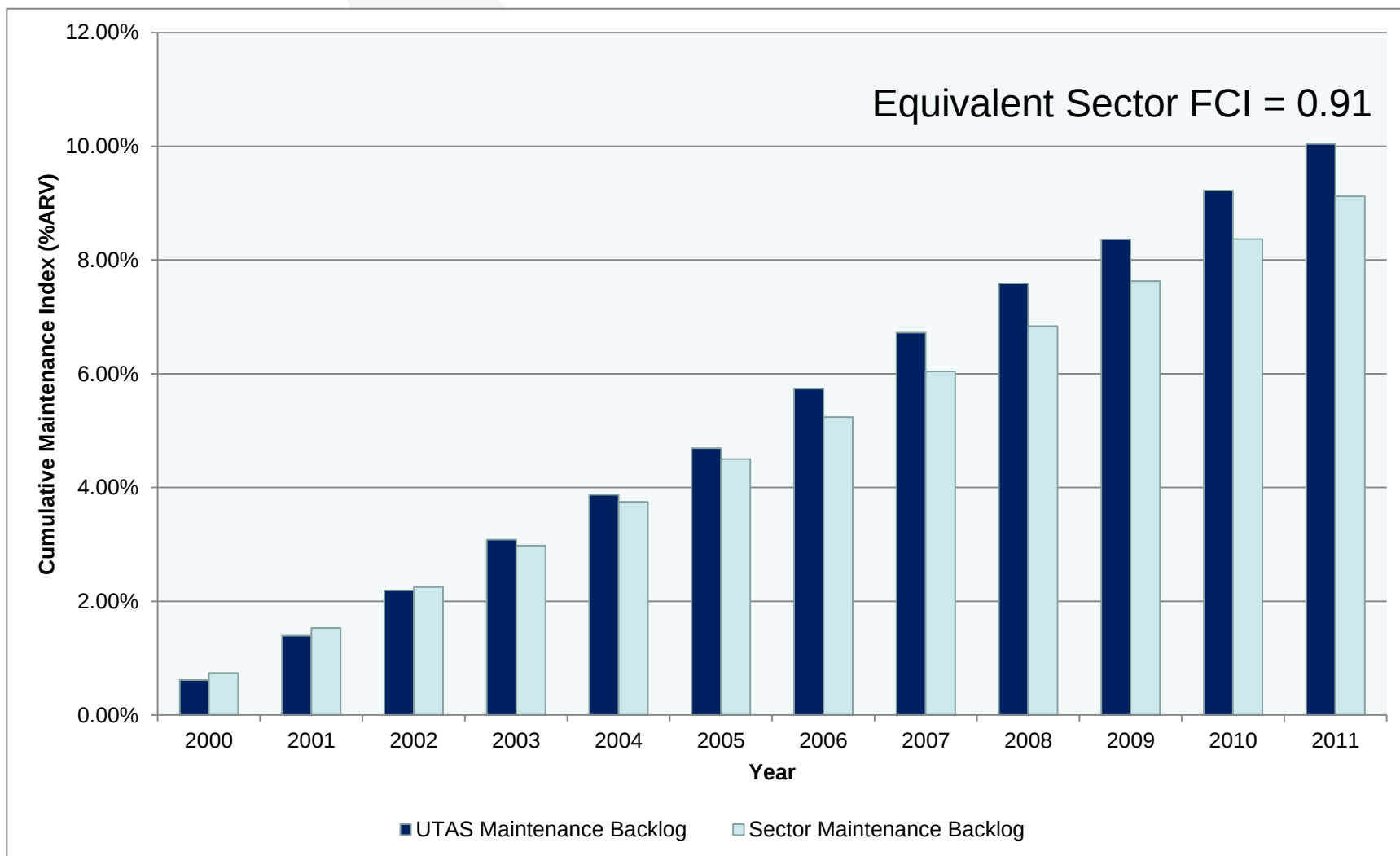
Maintenance as %ARV Australian Universities 2010 Benchmarks



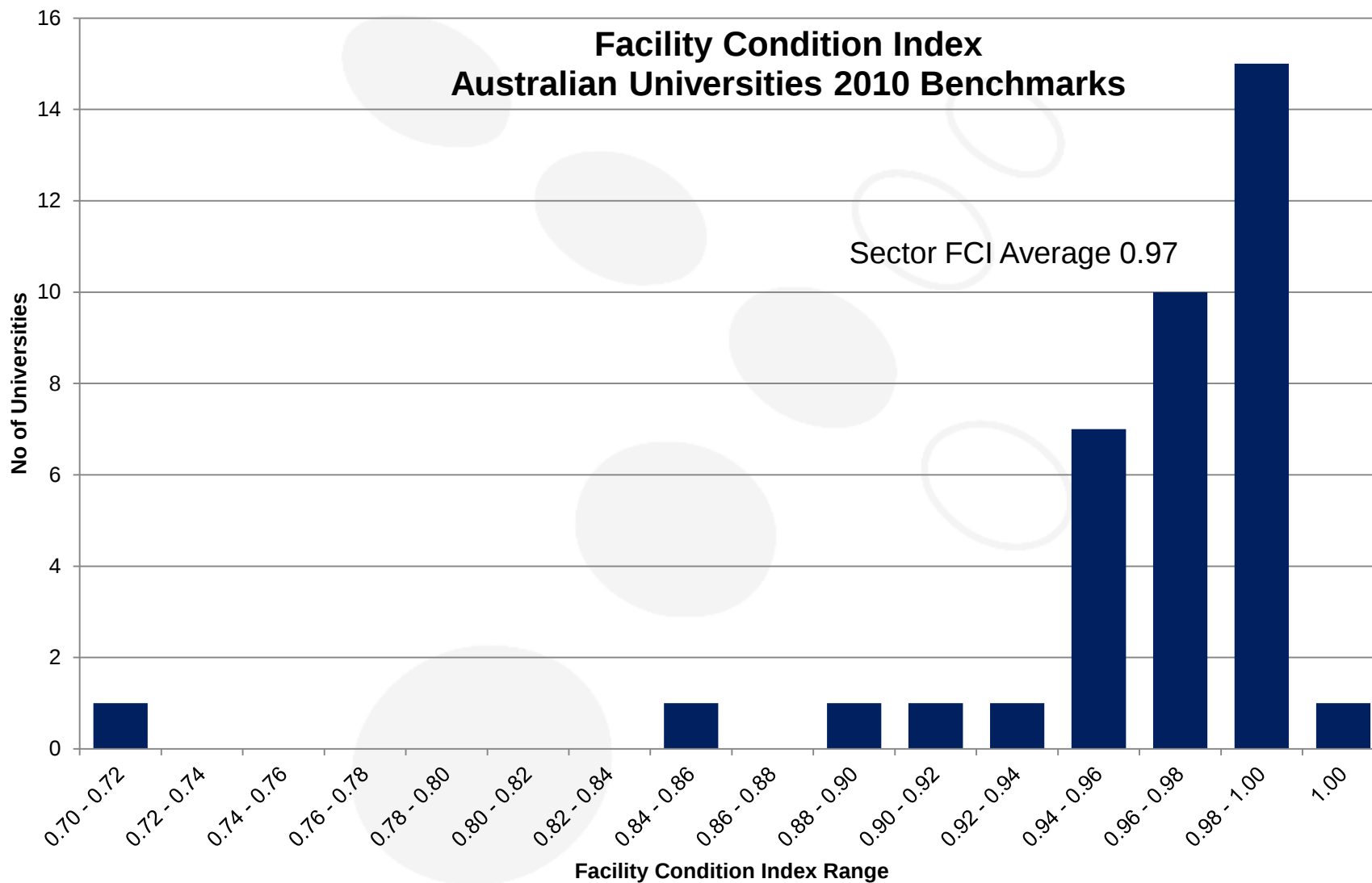
Utas Maintenance Index (2000 to 2011)



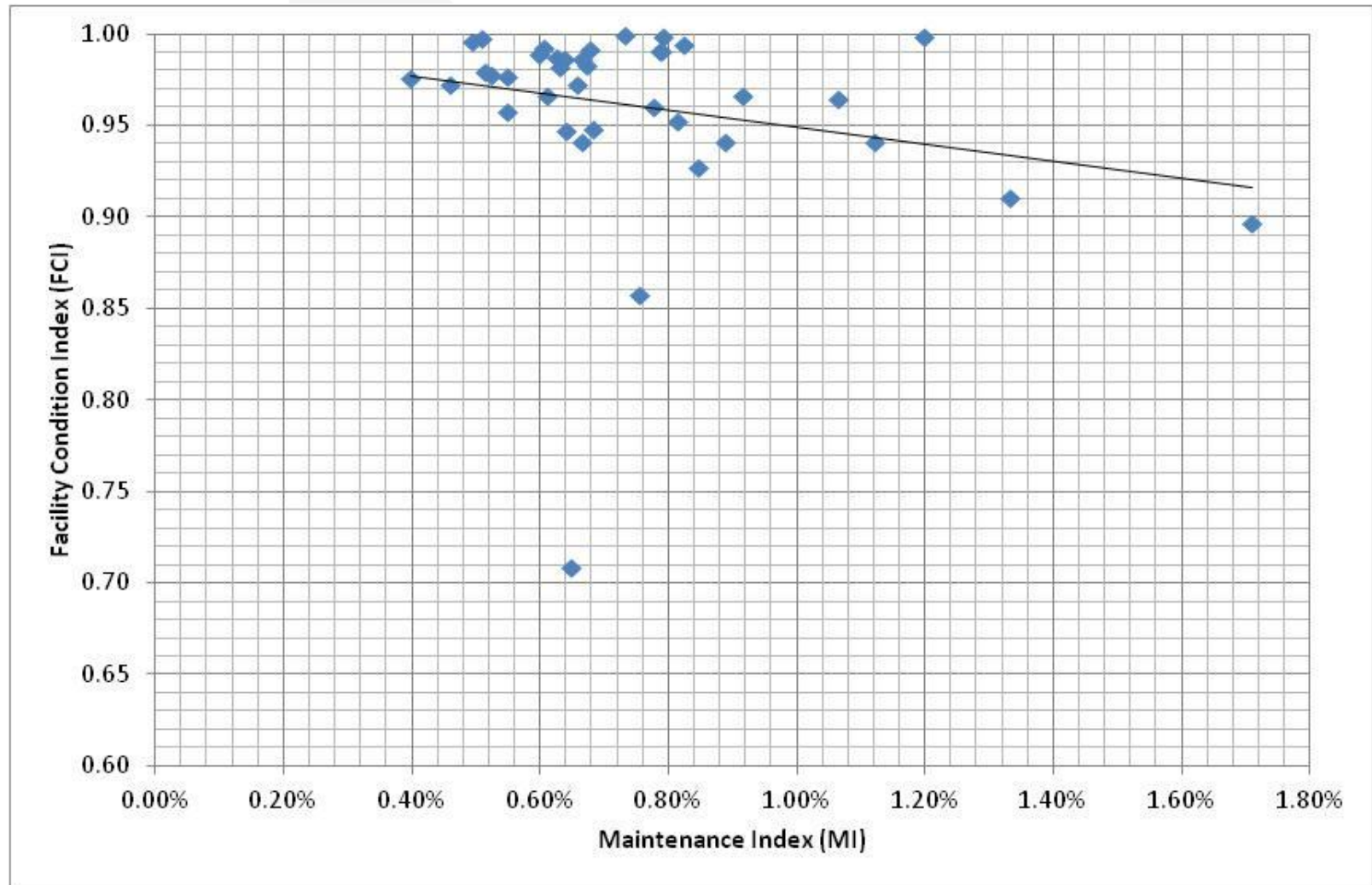
Cumulative Maintenance Index

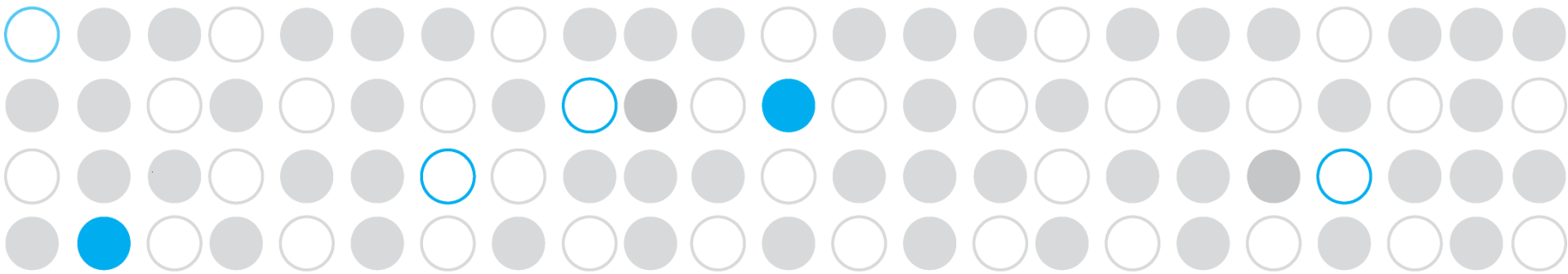


Facility Condition Index Australian Universities 2010 Benchmarks



Sector MI vs FCI





TEFMA Maintenance Benchmarks

Maintenance Index (TEFMA Review)



- Statutory and Preventative – 1.0% to 1.5%
- Corrective/ Planned/ Capital Renewal – 3% to 6%
- Total 4% to 7.5%
- Current
 - Maintenance index – 0.75%
 - Backlog – 0.35% (or there about)
 - Total 1.1%
- Gap – 2.9% (triple current investment) to 6.4% (six times current investment)

Maintenance Index (Whitestone)



- Corrective (unscheduled) – 0.24%
- Statutory and preventative – 0.32%
- Planned (major maintenance) - 0.31%
- Asset Replacement (capital replacement) – 1.41%
- Total 2.28%
- Current about 1.0%

Current Maintenance Index



- What level of service do you get for 0.75%

Building Elements Level 1 Major Group Elements	Level 2 Group Elements	Level 3 Individual Elements	Maintenance Types				Condition Based (Major)	Asset Replacement
			Corrective	Statutory	Preventative			
SUBSTRUCTURE	Substructure	01 SB Substructure						
SUPERSTRUCTURE	Superstructure	02 CL Columns						
		03 UF Upper Floors						
		04 SC Staircase	■					
		05 RF Roof	■					■
	External Fabric	06 EW Exterior Walls	■					■
		07 WW Exterior Windows	■					
		08 ED Exterior Doors	■	■				
INTERIORS	Internal Fabric	09 NW Interior Walls	■					
		10 NS Internal Screens	■					
		11 ND Interior Doors	■					
	Internal Finishes	12 WF Wall Finishes	■			■		
		13 FF Floor Finishes	■			■		■
		14 CF Ceiling Finishes	■			■		
	Fittings	15 FT Fittings	■			■		■
		16 SE Special Equipment	■					■
SERVICES	Plumbing	17 SF Sanitary Fittings	■			■		■
		18 PD Sanitary Plumbing	■			■		■
		19 WS Water Supply	■			■		■
		20 GS Gas Services	■			■		■
	HVAC	21 SH Space Heating	■		■	■		■
		22 VE Ventilation	■	■	■	■		■
		23 EC Evaporative Cooling	■	■	■	■		■
		24 AC Air Conditioning	■	■	■	■		■
	Fire Protection	25 FP Fire Protection	■	■	■	■		■
	Electrical	26 LP Light & Power	■	■	■	■		■
	Communications	27 CM Communications	■		■	■		■
	Transport	28 TS Transportation Systems	■		■	■		■
	Other	29 SS Special Services	■		■	■		■

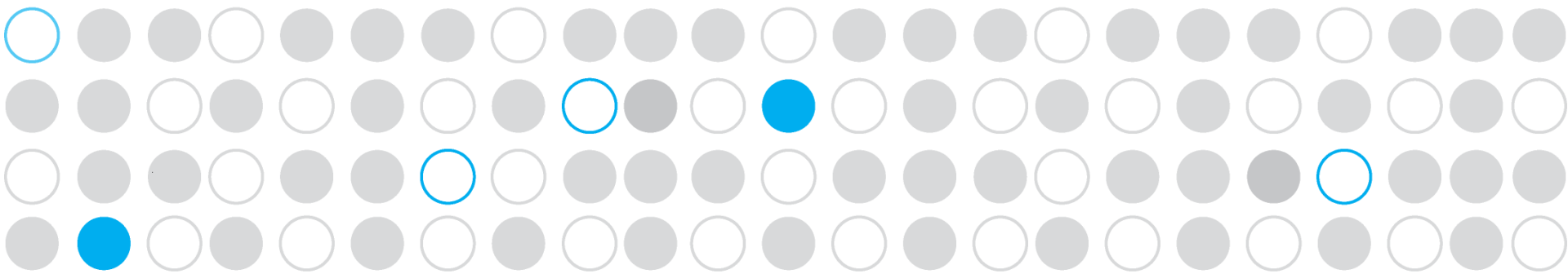
Levels of Service



- What impact does a differentiated level of service have on maintenance cost demand?

Conclusions

- FCI and backlog driven by the “make a list” approach is likely to understate the true backlog.
- FCI and backlog driven by the “make a list” approach is dependent on how hard you look and likely to vary significantly between institutions.
- FCI generally is not representative of estate condition (OCR a better measure)
- Modelling backlog/FCI driven by OCR (whether desktop or inspection) will give a more consistent measure.
- OCR and LCC approach addresses all the outcomes of the condition assessment, “make a list” does not.



THANK YOU

Questions?