


[Plant Renewal – Capital Renewal]

APPA Facilities Institute
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1

1

[Introduction]

- ✓ Elements of Effective Capital Renewal Program
- ✓ Basics for Getting Started




2

2

[Challenges]

- Not an annual budget item
- In the mix with other institutional priorities for available funds
- Subject to variances in funding level can make planning difficult
- Subject to different accounting rules



3

3

[An Effective CR Program]

- Focus on Stewardship and Sustainability
 - sustaining a critical resource
 - help the institution manage risk
 - make effective use of funding
- Credibility and Trust
 - transparent
 - technically sound data and analysis
 - well defined process

APPA 4

4

[An Effective CR/DM Program]

- Effective Communication
 - identify key stakeholders
 - develop appropriate information
 - collaborative approach
- Prepare for Success

APPA 5

5

[A Brief History of Higher Ed Facilities]

- Higher Ed enrollment grew 600 percent, from 1950 to 2016.
- During the same period, the number of institutions grew from 1,800 to more than 4,000.
- Many institutions have (as of 2016) as much as 75 percent of their facilities in the range of 30 to 40 years old beyond the first cycle of major renewal expenditures.

APPA 6

6

[Stewardship]

“The careful and responsible management of something entrusted to one's care”

- The purpose of Higher Education was/is not to create buildings and infrastructure
- Who “owns” the infrastructure on your campus?

APPA 7

7

[Stewardship]

<p><u>Positive Traits</u></p> <ul style="list-style-type: none"> ■ Innovation ■ Inclusive ■ Team Player ■ Communication 	<p><u>Not So Positive</u></p> <ul style="list-style-type: none"> ■ Status Quo ■ Ownership ■ Exclusive ■ Control
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APPA 8

8

[Stewardship - Managing Risk]

Roles and Responsibilities

The Institution

- What comprises risk
- Acceptable levels of risk
- Resources provided for mitigation

Facilities Management

- Identify and communicate facility risks
- Outline solutions and costs
- Insure effective implementation

APPA 9

9

[Stewardship – Risk Factors]

- Building Age Profile
- First cost vs. durability
- Absence of life cycle funding
- Competing institutional priorities

APPA 10

10

[Potential Risks]

- ✓ Disruption to Normal Activities
- ✓ Reduced Capacity
- ✓ Accelerating Damage to Facilities
(compound effect)
- ✓ Potential Impact on Health and Life Safety
- ✓ Negative Public Image

APPA 11

11

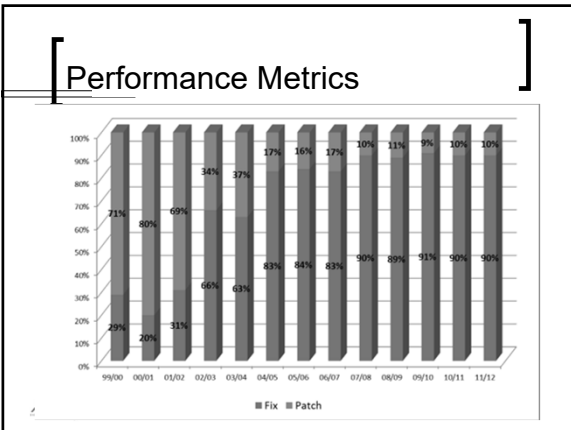
**[Stewardship
Effective Use of Funding]**

Opportunities

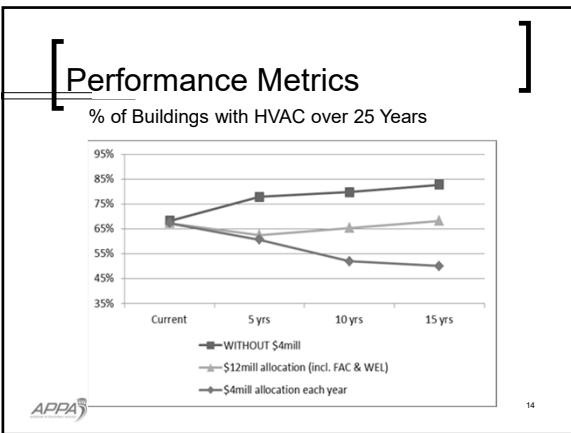
- ❖ Improvement in Facility Condition
- ❖ Outside inspections – i.e. Fire Marshal
- ❖ Changes to operational expenditures

APPA 12

12



13



14

Credibility

Data → Information → Knowledge → Wisdom

- Ask questions, beginning with your organization
- Find out what your institution wants/needs to know
- Use the data that you have before gathering more

15

[Data and Information]

What data do you need?

- Building age and size
- Type of construction
- Replacement value
- Initial investment and reinvestment
- Building systems
- Types of space/GSF/ASF

APPA 16

16

[Data and Analysis]

Where can you get data?

- ✓ Building inventory
- ✓ Annual Financial Report
- ✓ Institutional Studies
- ✓ Campus History
- ✓ Floor Plans
- ✓ Design and Construction records

APPA 17

17

[Be Aware of the Cost of Data]

- ◆ Use "free" data from within your institution
- ◆ Inventory existing data within your organization
- ◆ Determine the ROI for creating and or maintaining data

APPA 18

18

Communication

A brief list of your stakeholders

- Academic/Research
- Students
- Finance/Budget Office
- Governing Board
- Facilities staff

APPA 19

19

Stakeholders

Possible Areas of Nonalignment

- Risk Tolerance
- Time Frame – long vs short
- ROI/Financial Impact
- Tolerance for Service Interruptions

APPA 20

20

Communication Strategies

- Be consistent in the message
- Use terms and definitions that make sense to your institution
- Focus message on specific audiences
- Identify how each audience will benefit
- Keep it simple, bumper sticker

APPA 21

21

Switching Gears

- Leaving Elements of an Effective Program
- Moving to the basics of getting started

Any questions/clarification before we move on?

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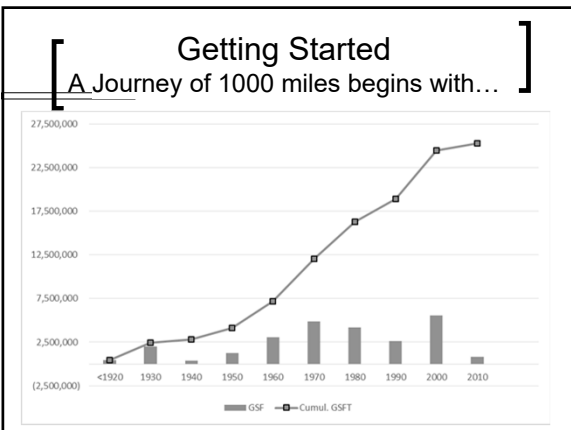
22

Getting Started Questions

- What don't you know, or wish you knew more, about your facilities?
- What do you know that your campus would find useful?
- What do you and your audiences need to understand better?

APPA 23

23



24

Some Important Issues

- Validity and Reliability
- The value of skepticism
- The 80/20 rule
- Triangulation

APPA 25

25

Condition Index

CR/DM Requirements
Replacement Value

Example:

$$\frac{\$100 \text{ Million}}{\$1 \text{ Billion Replacement Value}} = .10$$

FCI
 cccc.10

APPA 26

26

Condition Index Clarified

- It is a ratio of reinvestment vs. capital replacement cost
- It's not an indicator of operational capability
- Value as an institutional performance metric
- It may be an indicator of risk

APPA 27

27

Replacement Value

Possible Methods of Calculation:

- ❖ apply historical cost factor to original construction cost (ENR, inflation)
- ❖ find a comparable new facility and use same \$/sf
- ❖ use insured value
- ❖ develop cost model based on cost of building components

APPA 28

28

Assessing Capital Renewal Needs

Three basic approaches: All require a consistent approach to CRV

- ❑ “Rule of Thumb” – based on a percentage of replacement value(not capital value), primarily a funding model.
- ❑ Predictive modeling – determination of future funding requirements based on building system life primarily a statistical analysis
- ❑ Condition or Deficiency-Based – comprehensive physical inspection performed on regular cycles, identifying building system functionality and cost

APPA 29

29

“Rule of Thumb”

- Generally 1.5% to 3% of replacement value
- Used to establish an annual aggregate funding range.

APPA 30

30

[Predictive/Life Cycle Modeling]

- Focus is on building systems:
 - life span
 - system cost
- Can be applied to individual buildings or groups of buildings
- Provides, annual, average and total costs by system

APPA 31

31

[Predictive Modeling Data Requirements]

- System – Unifomat classification, level 3 or 4
- Expected life
- Cost – can be \$ or % of value
- Date of construction

APPA 32

32

[Predictive Modeling – Institution]

30 Years

APPA 33

33

[Condition Assessment]

- Determines CRV based on individual building system cost
- Determines remaining life span for existing building systems
- Provides, annual, average and total costs and projects future costs
- Can determine impact of future spending on facility condition

APPA 34

34

[Comparison of Approaches]

University of Texas at Austin
Cost to maintain current facility condition

Approach	Outcome (\$ per year -50 yrs)
Rule of Thumb at 2.5%	\$55M
Condition Assessment	\$45M
Predictive Life Cycle	\$50M

APPA 35

35

[Why Do Condition Assessments?]

- “It’s not what I know that keeps me awake, its what I don’t know”
- “What you’re telling me can’t possibly be true”
- “Everything is broken and must be replaced right away”

APPA 36

36

Lessons Learned

- Be skeptical, validate your data and analysis
- Take advantage of 80/20 rule
- Remember to manage both individual trees and the forest
- Don't drive using the rear view mirror, what's ahead is more important

APPA 37

37

Building A Successful Program

- Trust and Credibility
- Stewardship/Sustainability
- Communication
- Prepare for Success

APPA 38

38

Plant Renewal – Capital Renewal

Questions, Comments, Observations

Sign-in Sheet & Evaluations


APPA 39

39

Overview

This topic is related to four APPA initiatives

- Total Cost of Ownership (TCO)
- Informatics (D-I-K-W)
- Facility Performance Indicators (FPI)
- Body of Knowledge (BOK)

 40

40


Resources

Stewardship

- ◆ <https://waywardjourney.com/2014/08/13/are-you-a-good-steward-or-a-bad-steward/>

Building Systems

- ◆ <https://arc-solutions.org/wp-content/uploads/2012/03/Charette-Marshall-1999-UNIFORMAT-II-Elemental-Classification....pdf>

 41

41


Resources

Informatics

- <https://www.appa.org/wp-content/uploads/2019/04/20160630APPACilitiesInformaticsMaturityMatrixTechnicalReport-4.pdf>

Facility Performance Indicators

- <https://www.appa.org/facilities-performance-indicators-fpi/>


 42

42

[Resources]

Body of Knowledge
 > <http://appa.org/BOK/index.cfm>

Total Cost of Ownership
 > <https://www.appa.org/facilities-manager/an-introduction-to-total-cost-of-ownership/>


 43

43

[Resources (APPA Bookstore)]

Campus Investment Package


- Strategic Capital Development: The New Model for Campus Investment
- Buildings...The Gifts That Keep on Taking: A Framework for Integrated Decision Making
- Planning & Managing the Campus Facilities Portfolio
- Charting a New Course for Campus Renewal (PDF)
- The Facilities Audit: A Process for Improving Facilities Conditions

 44

44

[Resources (APPA Bookstore)]

- 1996 Foundation to Uphold
- 1998 Charting a New Course for Campus Renewal
- The Decaying American Campus: A Ticking Time Bomb

 45

45