MINING FOR GEMS USING

APPA'S 2007 AND 2008

FACILITIES PERFORMANCE INDICATORS

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APPA is the association of choice serving educational facilities professionals. APPA's mission is to support educational excellence with quality leadership and professional management through education, research, and recognition. APPA's **Center for Facilities Research** engages in a deliberate search for knowledge critical to policy making in education. CFaR encourages the study of the learning environment, appropriate management strategies, and their impact on education.

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Executive Summary

This research project was intended to add credibility to the results of the APPA Facilities Performance Indicators (FPI) survey results. Currently survey results are examined using descriptive statistics such as the mean, median and standard deviation. Additionally a number of functional slices of the data are examined. These include such areas as Region, Carnegie Classification and Funding.

The purpose of this research study is to examine relationships amongst ratios to assist survey participants in telling a story of cause and effect. The study focused on 75 relationships that span the range of the seven essential questions that form the organizing framework of the FPI Survey, see Appendix E. The researcher applied correlation testing to the 75 relationships and found correlations for all. Unfortunately only two relationships passed the moderate correlation threshold, either below -.5 or greater than +.5. Once a moderate correlation was identified, the researcher applied significance testing to the relationships followed by regression analysis testing.

The results of the study show moderate correlations between the FCI and the Needs Index. This relationship can be looked at two ways. FCI to Needs and Needs to FCI. Another relationship returning moderate correlation is FCI to CRDM Backlog. This relationship can also be looked at in two ways. FCI to CRDM Backlog and CRDM Backlog to FCI. Definitions can be found in Appendix F.

These moderate correlations and the resultant regression analyses enables an institution who knows their FCI an ability to predict their Needs Index. It also allows an institution who knows their Needs Index an ability to predict their FCI. Additionally, campuses who know their CRDM Backlog can derive their FCI and vice versa. This is powerful knowledge that can help our institutions more accurately tell their facilities story to campus decision makers.

Starting down the research road, this researcher was hopeful that a large percentage of the targeted 75 ratios would be correlated. In fact all of the ratios returned some level of correlation. Only 2 however returned moderate levels of correlation. Results from FPI 2007 and 2008 data did reveal some interesting trends. This researcher saw an increasing level of maturity in the data collection. For 2007 only 3 relationships of 8 returning weak correlations (+ or - 25%) supported our research hypothesis, see Appendix E. For 2008 10 of 10 indicators returning weak correlations (+ or - 25%) supported our research hypothesis, see Appendix E. This information tells this researcher that as institutions participate in the FPI over time, the quality of the data becomes more accurate and helps to support our research hypothesis.

Additionally, for both the 2007 and 2008 data, the same two relationships returned moderate correlation results. This shows this researcher that our participating institutions are very focused on both the FCI, Needs Index and CRDM Backlog and see these as essential indicators.

Acknowledgments

This research study was only made possible through the tutelage and data analysis services provided by the Brigham Young University Facilities Management Program. Specifically senior student Kirk T. Howcroft provided excellent statistical support assisted by his academic advisor, Dr. Jeffrey L. Campbell. Without their guidance this project would not have been possible.

I also would like to thank APPA's Information and Research Committee for their financial support in funding the cost associated with the statistical support services provided by Brigham Young University.

Chapter 1: Introduction and Problem Statement

Background Information

APPA has been in the performance indicator business for over 15 years. Our facilities profession started this journey with the Comparative Costs and Staffing (CCAS), migrated to the Strategic Assessment Model (SAM) and within the past three years the Facilities Performance Indicators (FPI). APPA has become a vast storehouse of data and information related to the life cycle of our buildings and infrastructure within Higher Education.

Historically APPA has conducted a Strategic Assessment Model survey and a Comparative Costs and Staffing Survey on alternate years. The two surveys were seen by APPA members as two disconnected events. In response, APPA's Information and Research Committee developed an annual data collection event that synthesizes the data points from the Strategic Assessment Model (SAM) with the data points from the Comparative Costs and Staffing Survey. A new WEB based survey, the Facilities Performance Indicators Survey is conducted each year. Data is collected during a 60 day window from August through November with the results being released in a WEB report in February. Over 300 data points, both quantitative as well as qualitative, are collected within eight modules and displayed within the Strategic Assessment Model Balanced Scorecard framework. This new synthesis helps to annualize APPA's data collection efforts within a common framework, making the results available to our members through the WEB.

During the 2008 cycle of FPI, a new organizing framework was created that

continues to honor the concepts integral to the Balanced Scorecard but now utilizes seven essential questions. The data points and ratios become the answers to the questions. These questions relate to the entire life cycle of buildings and infrastructure and APPA is saying that effective Facilities Managers must know the answers to these questions for their respective campuses. Additionally, the new framework allows participants to choose either an express version of the survey in which 75 data points are collected or they can selectively drill down into each of the areas, adding another 200 plus data points. This change was in response to participant feedback indicating that the survey was too long and cumbersome.

The 2008 FPI report was released with additional enhancements based on participant suggestions. The first enhancement includes an executive presentation feature. This allows folks to select various fields that populate a sequence of graphs. This presentation can be updated on the fly and available from the WEB. The second enhancement includes the ability to pick an unlimited number of cohorts. Previously the report accommodated the choice of your institution and two others. Now a participant can create their own cohort limited by only the total number of participants. Finally, starting with the 2008 report, participants have unlimited access to the report at no charge. This is a tremendous member benefit for participating institutions.

APPA, as your association of choice, fully understands the importance of data; measurement provides a starting point from which you can track improvement.

Without a starting point how do you know if you're improving or falling behind? APPA's FPI serves as a continuous improvement tool that helps institutions understand where they currently are and make goals for future improvement.

Although APPA's FPI looks at averages, means and standard deviations for ratios it has never looked at potential relationships between ratios. This research project is intended to do just that. By examining relationships between ratios we're able to see how the value of one variable might affect the value of another. We're also able to predict values for an unknown variable from a known variable. Examining the data in new and different ways helps to add credibility to the data and to the overall survey process.

APPA wants to ensure that its members have the tools which they need in order to become as competent and credible as possible within their respective institutions. To become an influential partner at the campus decision making table, one must bring value added data and information and that's what we are striving to ensure with the FPI reports. Effective Facilities Managers are able to bring to the table the realities of campus capital assets and are able to provide alternative strategies for consideration that will address those realities.

Purpose of the Study

The purpose of this study is to provide additional insight into the results of the 2007 and 2008 Facilities Performance Indicator survey. The researcher will identify statistical significance and correlations amongst data sets. By subjecting the survey results to a more rigorous analysis, the researcher intends to

enhance the relevance and credibility of the survey results.

Null Hypothesis

The null hypothesis is that there are no correlations between the following ratios within the population.

Research Hypothesis

There is positive correlation between the Facilities Condition Index and Needs Index.

There is positive correlation between the Needs Index and Facilities Condition Index.

There is positive correlation between the Facilities Condition Index and CRDM Backlog.

There is positive correlation between the CRDM Backlog and the Facilities Condition Index.

Chapter 2: Literature Review

In doing a literature review for this research project, focus was placed on correlation results and how those results could be utilized to project unknown variable values in the general population. There is a wealth of information that helps us understand why data and information is essential to good decision making and so that is not the focus of this literature review. However APPA's Strategic Assessment Model publication tells us that compelling reasons for data collection are self improvement, peer comparisons and benchmarking efforts. Additionally, data helps facilities managers communicate with business officers and certainly data collection and its results help a facilities officer present how an institution is doing in comparison to the profession and peers. Data collection enhances credibility. In God we trust; in all else bring data.

Data collection allows the facilities organization to see where it is within a continuum of others within our profession, establish a goal and strategies to get there. Without measurement how do you know if you're getting better and how will you convince others of your improvement in areas important to the client.

Lawrence Lapin provides a useful definition of statistics as a body of methods and theory that is applied to numerical evidence when making decisions in the face of uncertainty. Furthermore he says that one is never 100% sure that what they are predicting based on a data set is totally accurate. It is only accurate within certain limits. Lapin goes on to say that error is a reality in all statistics. Wherever uncertainty is involved the potential for error is also present. Statistical processes are provided to help deal with this error. This researcher

cannot help but make a comparison to the work of Stephen Covey when he says "we see the world as we are, not as the world is". Furthermore Covey tells us that if you want incremental change work on your processes. If you want significant improvement work on your paradigms. Research can help us see something different.

Lapin goes on to provide us with some useful definitions that address statistical processes used in this study.

- A sample is a collection of observations representing only a portion of the population.
- To draw conclusions about populations from samples, we must use inferential statistics which enables us to determine a population's characteristics by directly observing only a portion, or sample of the population.
- Correlation analysis is used to measure the degree to which two variables are related, to show how closely two variables can move together. The central focus of correlation analysis is to find a suitable index that indicates how strongly x and y are related.
- Picture a scatter plot, perfect correlation occurs when all of the data points lie along one line. Since there is no scatter around the regression line, the data indicate that y will change by some predetermined amount for each increment of y. Knowing x allows us to make perfect predictions of y.
- The correlation coefficient (Pearson test) measures only the strength of association between two variables.

- The coefficient of determination tells us how much of the y variable is explained by the x variable.
- The t test for significance tells us the level of confidence that we could have that our numbers would occur within the general population.
- Regression analysis tells us how one variable is related to another by providing an equation that allows us to use the known value of one variable to estimate the unknown value of the remaining variable.

Brigham Young University advisors tell us that within the laws of statistics, correlation returns with values of + or - .25 are considered weak, + or - .5 are considered moderate and + or - .75 are considered strong.

Lawrence Lapin also warns against using historical correlations and regression to predict current values. So many factors can change relationships over time that this is a dangerous practice to embrace. This tells this researcher that just because we have a particular relationship today we should not use those values to predict values into the future.

William Emory tells us that with any sample, that sample will certainly vary from the general population. The researcher must decide whether these differences are statistically significant or are insignificant. Our t test applied to the FPI data and ratios shows that the variance of our data from the general population was insignificant.

Frederick Williams provides a useful discussion of the null and research hypotheses. The null hypothesis can be evaluated in terms of the probabilities

that sampling statistics provides. The other, the research hypothesis, is the actual research prediction that we want to test. The research hypothesis is always the logical opposite of the null hypothesis, such that if the null hypothesis is found to be relatively improbable, then by implication, the research hypothesis is taken as acceptable. Williams goes on to say that the null and research hypotheses are logical alternatives. We support the research hypothesis only if we've decided to reject the null hypothesis, due to its low probability.

As previously stated, although this researcher is somewhat discouraged by the lack of strong correlations, I'm buoyed by the words of Jim Collins. "I encourage you to question and challenge. One ought not reject the data merely because one does not like what the data implies." Another quote by Collins "The key to great companies is not in better information, but in turning information into information that cannot be ignored."

Chapter 3: Methodology

This researcher utilized the FPI 2007 and 2008 data sets for this analysis. In surveys for both years participants represented all APPA Regions and Carnegie classifications. The 2007 data set includes 200 participants while the 2008 data set represents 225 participants. Appendices B and D provide detailed demographic information.

The approach for this research project is to use Excel statistical tools to look for relationships amongst variables. We identified 75 key ratios which became the focus of our analysis for both 2007 and 2008 data, see Appendix E. It was this key group of 75 relationships that became the focus of this study. Correlation coefficient testing was run against these key relationships for both the 2007 and 2008 FPI data. Once we found relationships with correlation coefficients greater than .5 or less than -.5 additional statistics were run on those moderately strong correlations.

We started with the coefficient of determination testing to see how much of the y value could be explained by the x value. We followed up with a one-tailed t test to prove significance. Finally we ran regression analysis to see how one can predict a y value when x is known. We then looked at the data and compared correlations between 2007 and 2008.

Subsequent studies could look at additional relationships and also look across functional slices of the data; public institutions that are research focused.

Chapter 4: Findings

2007 Data Findings

Of the 75 key relationships amongst ratios we found two ratios with correlation returns that were moderate (above .5), therefore we reject the null hypothesis. Additionally these two relationships supported our research hypothesis of positive correlation. In addition, there were another 8 relationships that returned a weak correlation (+ or - .25 to + or - .5). Of these 3 supported our research hypothesis and 5 did not. The two relationships returning moderate correlation are as follows:

X Independent Variable	Y Dependent Variable	Pearson Correlation
FCI	Needs Index	.529492026
Needs Index	FCI	.529492026
FCI	CRDM Backlog	.517674167
CRDM Backlog	FCI	.517674167

Using our methodology we then looked at the Coefficient of Determination to see how much of the y value is explained by the x value.

X Independent Variable	Y Dependent Variable	Coefficient Determination
FCI	Needs Index	.280361805
Needs Index	FCI	.280361805
FCI	CRDM Backlog	.267986543
CRDM Backlog	FCI	.267986543

Using a one-tailed t test for significance at 95% confidence we find that all of our ratios have an n of 108 and so the required t is 1.658 and all of our t values are over 6.0. The t test basically tests how normally distributed the data is and how likely the data is to exist in the general population.

We then conducted a regression analysis for the two relationships and obtained

the following results:

X	Y	Slope	Y Intercept	Standard Error
FCI	Needs Index	1.179165087	.111062903	.160954741
Needs Index	FCI	.237762981	.041714871	.072275081
FCI	CRDM Backlog	732,105,238	20,429,696	103,087,982
CRDM Backlog	FCI	.0000000004	.061814695	.072893871

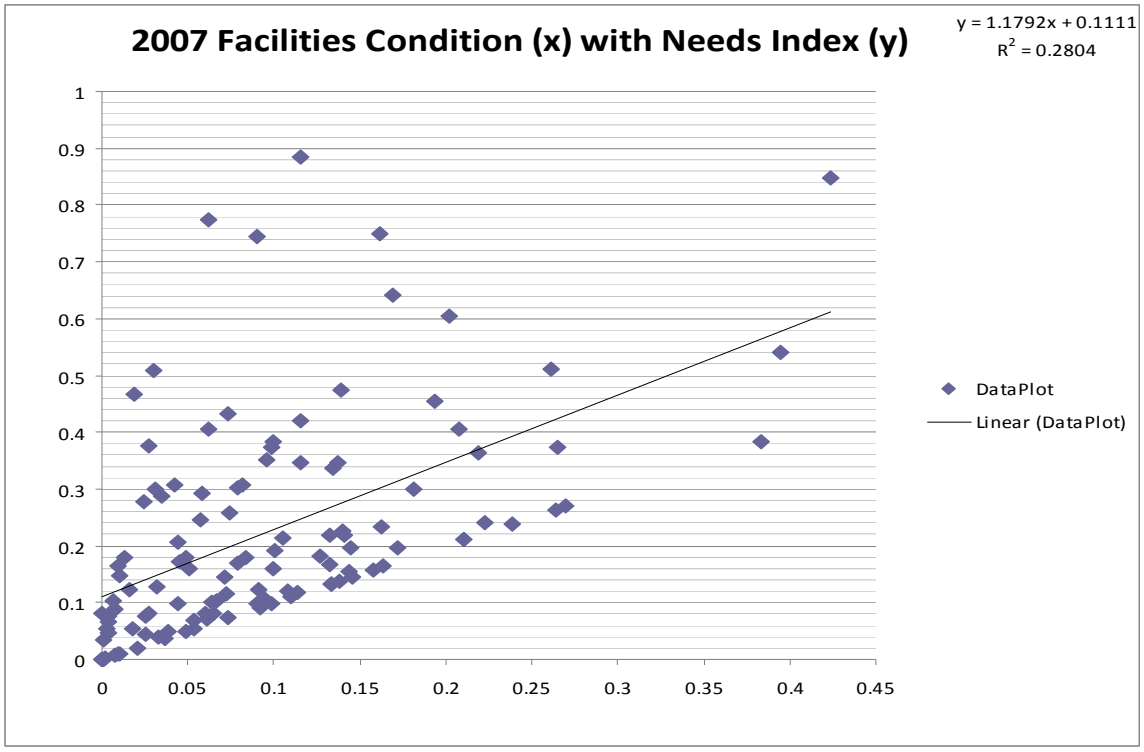
Using the equation y=ax+b, where a is the slope and b is the y-intercept, in the first relationship above, given a FCI of 20% we could predict a Needs Index value of 36.67% with a standard error of plus or minus 16%. .072893871

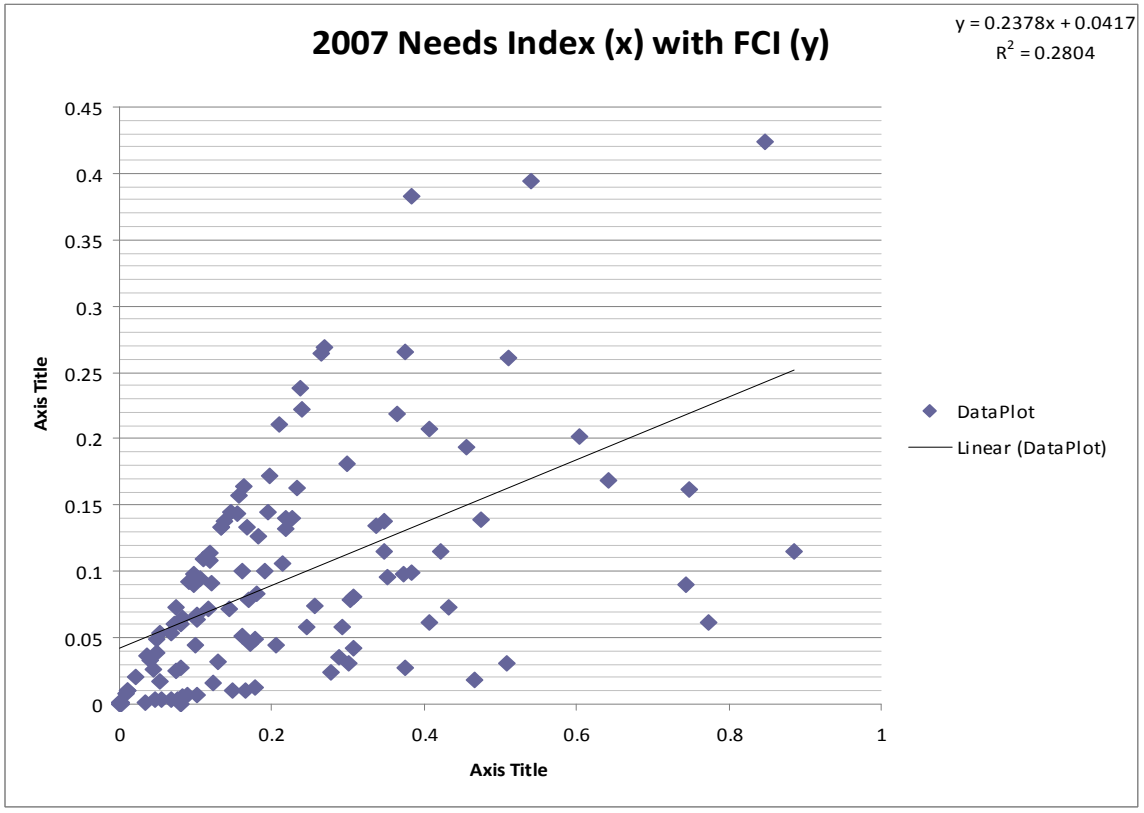
Using the second line above, if I have a Needs Index of 40% we could predict a FCI of 13.68% with a standard error of plus or minus 7%.

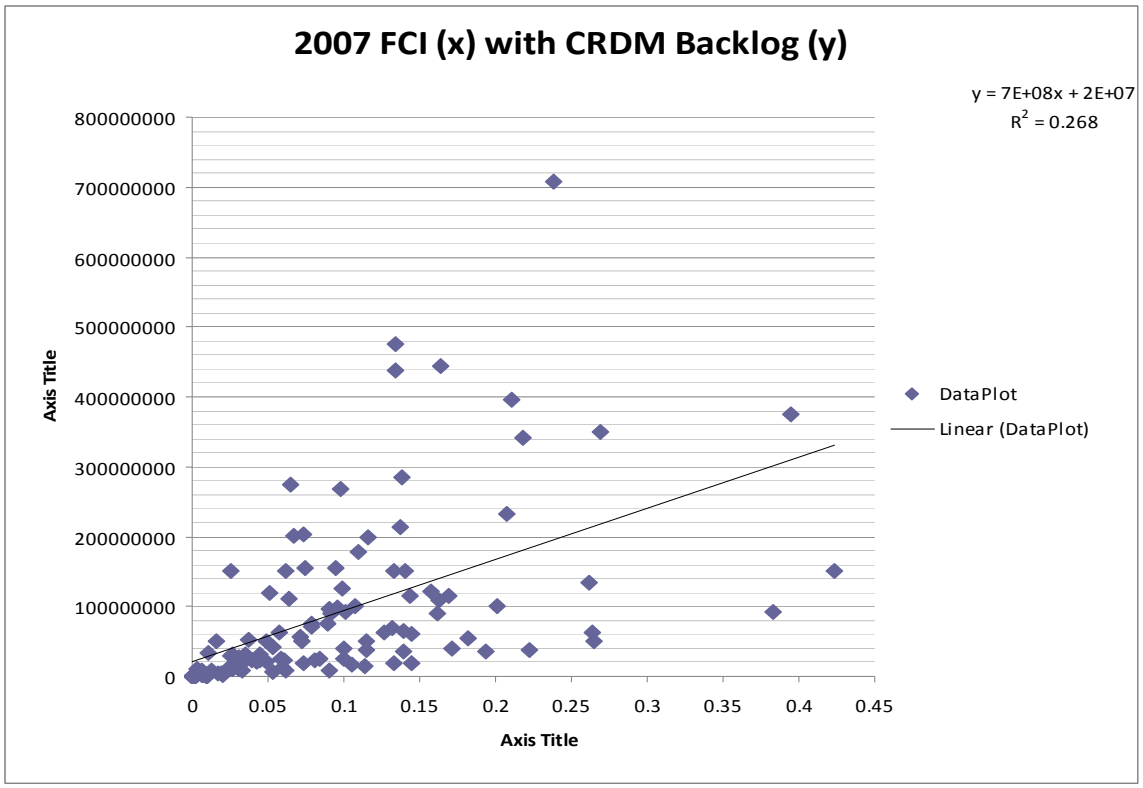
Using the third line above, if I have a FCI of 20% we could predict a CRDM backlog of $166,850,744 with a standard error of plus or minus $103,087,982.

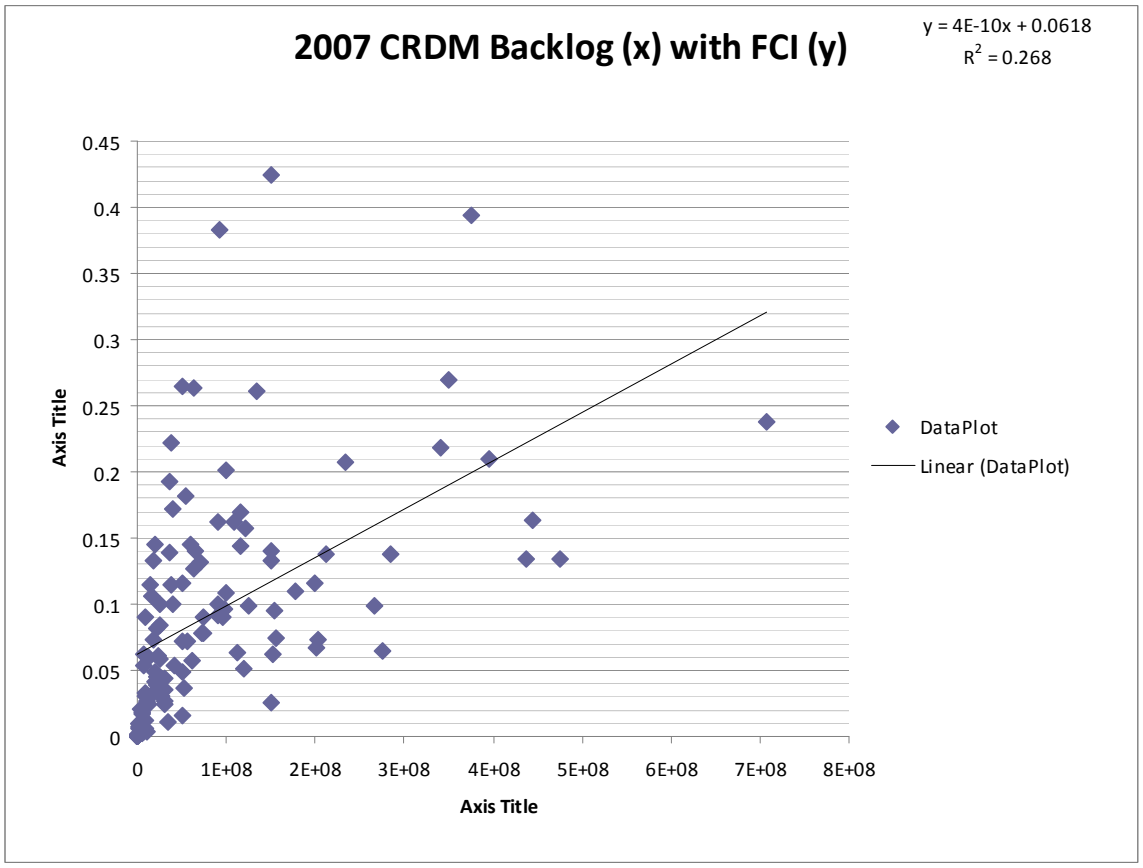
Using the fourth line above, if I have a CRDM Backlog of $300,000,000, we could predict a FCI value of 18% with a standard error of plus or minus 7%.

Scatter plots for the four relationships follow:


2007 Facilities Condition (x) with Needs Index (y)
y = 1.1792x + 0.1111
R² = 0.2804
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
DataPlot
Linear (DataPlot)


2007 Needs Index (x) with FCI (y)
y = 0.2378x + 0.0417
R² = 0.2804
Axis Title
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
0.2
0.4
0.6
0.8
1
Axis Title
DataPlot
Linear (DataPlot)


2007 FCI (x) with CRDM Backlog (y)
y = 7E+08x + 2E+07
R2 = 0.268
800000000
700000000
600000000
500000000
400000000
300000000
200000000
100000000
0
Axis Title
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
Axis Title
DataPlot
Linear (DataPlot)


2007 CRDM Backlog (x) with FCI (y)
y = 4E-10x + 0.0618
R2 = 0.268
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Axis Title
0
1E+08
2E+08
3E+08
4E+08
5E+08
6E+08
7E+08
8E+08
Axis Title
DataPlot
Linear (DataPlot)

2008 Data Findings

Of the 75 key relationships amongst ratios we found the same two ratios with correlation returns that were moderate (above .5) therefore we reject the null hypothesis. Additionally these two relationships supported our research hypothesis of positive correlation. In addition, there were another 10 relationships that returned a weak correlation (+or - .25 to + or - .5). Of these all 10 supported our research hypothesis. The two relationships returning moderate correlation are as follows:

X Independent Variable	Y Dependent Variable	Pearson Correlation
FCI	Needs Index	.527188153
Needs Index	FCI	.527188153
FCI	CRDM Backlog	.510050467
CRDM Backlog	FCI	.510050467

Using our methodology we then looked at the Coefficient of Determination to see how much of the y value is explained by the x value.

X Independent Variable	Y Dependent Variable	Coefficient Determination
FCI	Needs Index	.277927348
Needs Index	FCI	.277927348
FCI	CRDM Backlog	.260151478
CRDM Backlog	FCI	.260151478

Using a one-tailed t test for significance at 95% confidence we find that all of our ratios have an N of 108 or 117 and so the required t is 1.658 and all of our t values are over 6.0. These returns tell us that the numbers are significant and would be highly be likely to occur within the general population. We then conducted a regression analysis for the two relationships and obtained the following results:

X	Y	Slope	Y Intercept	Standard Error
FCI	Needs Index	1.050743611	.117403415	.148678144
NeedsIndex	FCI	.26450539	.037033979	.074596082
FCI	CRDMBacklog	919,778,327	22,576,622	136,165,472
CRDMBacklog	FCI	.00000000028	.063378385	.075508696

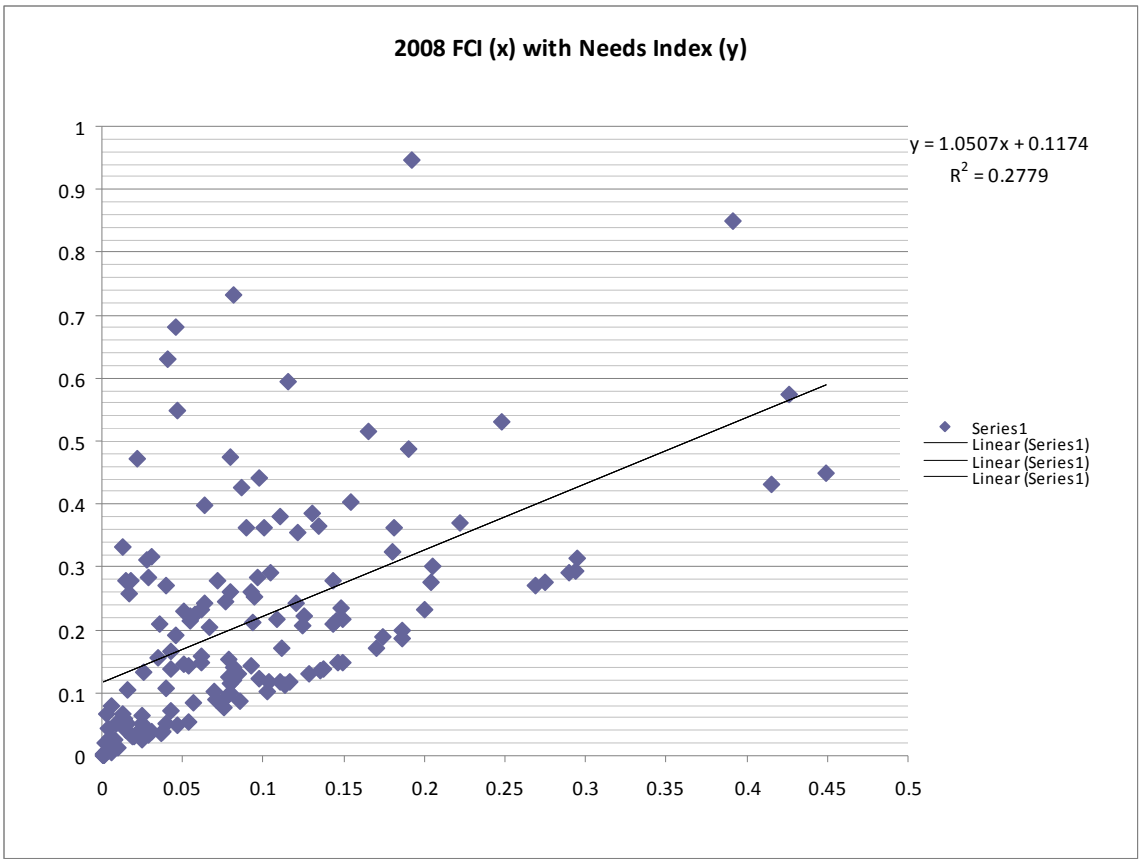
Using the equation y=ax+b, where a is the slope and b is the y-intercept, in the first relationship above, given a FCI of 20% we could predict a Needs Index value of 32.75% with a standard error of plus or minus 14.8%.

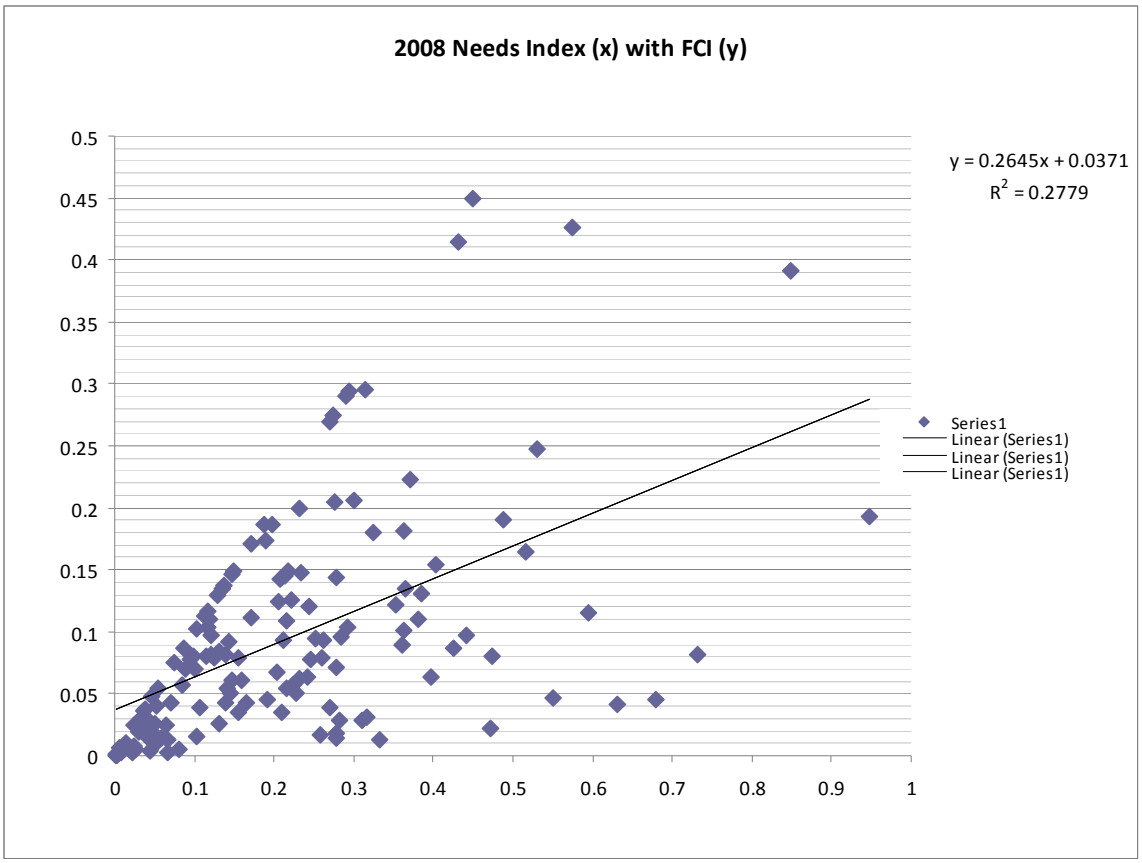
Using the second line above, if a Needs Index of 40% is known, we could predict a FCI of 14.28% with a standard error of plus or minus 7.5%.

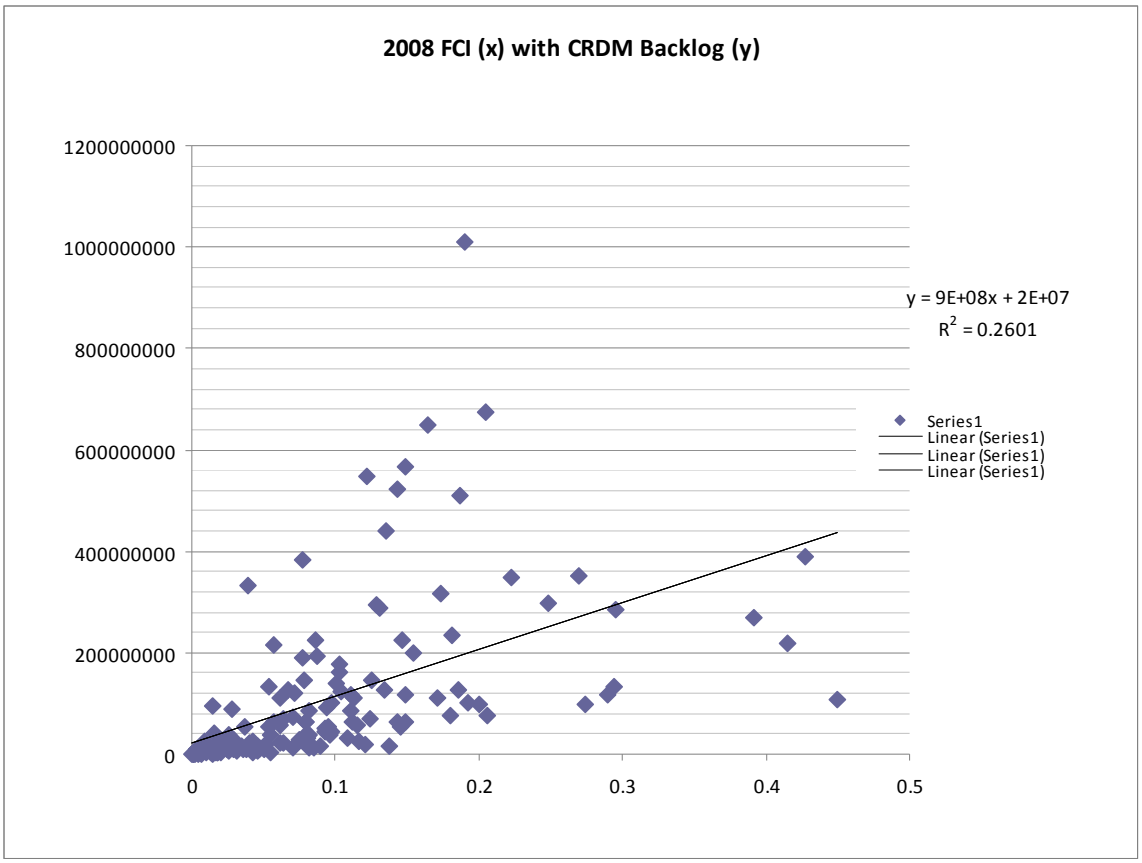
Using the third line above, if a FCI of 20% is known, we could predict a CRDM backlog of $206,532,287 with a standard error of plus or minus $136,165,472.

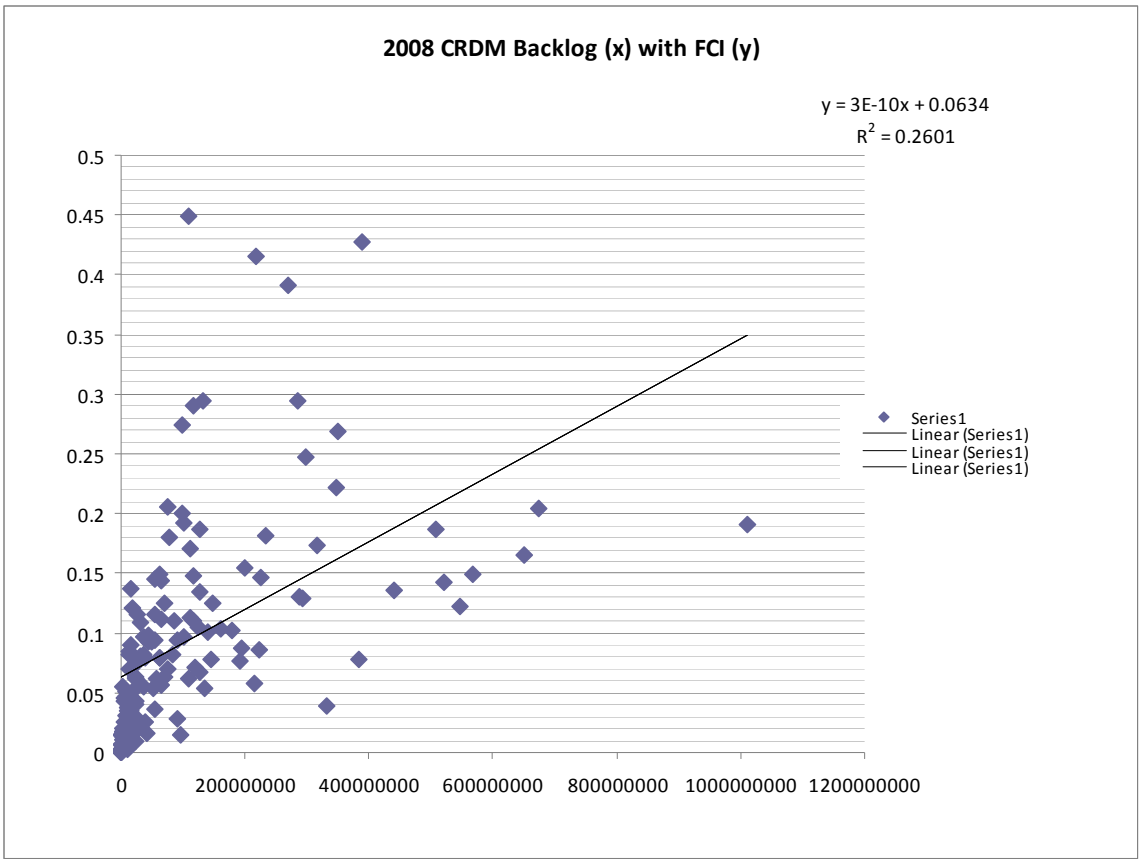
Using the fourth line above, with a known CRDM backlog of $200,000,000 we could predict a FCI of 12% with a standard error of plus or minus 7.6%.

Scatter plots for the four ratios follow.


2008 FCI (x) with Needs Index (y)
y = 1.0507x + 0.1174
R2 = 0.2779
Series1
Linear (Series1)
Linear (Series1)
Linear (Series1)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5


2008 Needs Index (x) with FCI (y)
y = 0.2645x + 0.0371
R2 = 0.2779
Series1
Linear (Series1)
Linear (Series1)
Linear (Series1)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1


2008 FCI (x) with CRDM Backlog (y)
1200000000
1000000000
800000000
600000000
400000000
200000000
0
0
0.1
0.2
0.3
0.4
0.5
y = 9E+08x + 2E+07
R2 = 0.2601
Series1
Linear (Series1)
Linear (Series1)
Linear (Series1)



Comparing 2007 to 2008

It's interesting to note that the same 2 relationships showed moderate correlations from year to year. The other observation worthy to note is that the number of weak correlations increased from 8 in 2007 to 10 in 2008. More importantly only 3 of the 8 in 2007 supported our research hypothesis but in 2008 10 of 10 weak correlations supported our research hypothesis. My inference from this is that as the data collection process continues, the maturity and integrity of the data is getting better.

Chapter 5: Conclusions and Recommendations

As a Past APPA President I have spent my entire facilities management career focused on the creation of resources and tools that, if used, can greatly increase the competence and credibility of our facilities professionals. FPI is one such tool. Utilization of FPI data in correlation with concepts discussed in the APPA publication, *Buildings the Gift That Keeps on Taking*, can greatly enhance the facilities manager's ability to communicate to other key campus decision makers the realities related to the largest capital asset on any of our campuses and that is buildings and infrastructure. Use of FPI lends credibility to the story by bringing data to the table that describes an institution's actual performance as well as the performance of their peers.

As discussed previously, the 2008 FPI organizing framework focuses on a set of essential questions that incorporate total cost of ownership principles. The correlation results of this research study are focused on one of the most important of those questions. Am I making the right investment in buildings and infrastructure? This question relates directly to the reinvestment discussion within *Buildings the Gift That Keeps on Taking*. Our facilities profession is focused on two ratios that help us understand our reinvestment needs on campus. The first is the FCI Index which is the CRDM backlog divided by Current Replacement Value. The next is the Needs Index which adds to FCI the backlog of renovation, modernization and plant adaptation backlog. The Needs Index is a comprehensive ratio focused on the condition of the campus from a buildings and infrastructure as well as an academic program perspective. As an

example, at the University of Maryland, Baltimore our Needs Index approaches 37%. This tells us that 37% of our campus space does not effectively support the competitive position of the academic program. Needless to say, this is an important ratio to understand and one that helps us understand the investment challenge that faces our institution.

The specific results of this research study will help facilities managers make predictions of the Needs Index when only the FCI is known. This is most helpful for those institutions who might not know the academic program need on their campus. Also for those campuses who know their comprehensive Needs Index but not the specific building and infrastructure backlog, they will also be able to predict their FCI with some level of confidence. In our current challenging economic environment, the ability to compute one unknown ratio from a known ratio gives us greater competence and credibility without the added financial burden of conducting a full blown audit.

This research project points out the importance of continuing to look for relationships within the FPI data sets. I believe that as our profession participates in the FPI survey in greater numbers and becomes more sophisticated in its understanding of the data, the quality of the data results will improve and many of the relationships that seem intuitive today will start to reveal themselves in the future.

I encourage other eager researchers to utilize the data set in running additional analyses. As mentioned in the methodology section, an interesting study would

focus on analysis of the data set using various demographic slices to see if additional relationships unveil themselves.

Appendix A: References

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Appendix B: 2007 Report

2006-07

Facilities Performance Indicators Report

Facilities Performance Indicators

APPA LEADERSHIP IN EDUCATIONAL FACILITIES

Published by APPA

APPA is the association of choice serving educational facilities professionals. APPA's mission is to support educational excellence with quality leadership and professional management through education, research, and recognition.

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ISBN: 1-890956-47-3

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Editor: Steve Glazner

Contents

Preface

Welcome to the expanded Web-based *Facilities Performance Indicators Report*. (FPI). APPA's Information and Research Committee's goal for this year was to complete programming the report generation, and round out the report tools for accessing and interpreting the statistics.

2006-07 Report Innovations
The 2006-07 FPI encompasses two major programming achievements:

1. ***Dashboard Display of an Institution's Scores***
   Phase two of the ARCHIBUS-developed Dashboard tool is incorporated in the Report. This second phase makes the Dashboard a flexible tool for setting goals at various levels within an organization and organizing dashboards into Balanced Scorecard perspectives. It also simplifies copying dashboards into your desktop for use in reports and presentations.

2. ***Programmed Calculations***
   The database structure was adjusted so as to not limit future functionality, and the automated calculations and summary statistic generation were modified to the adjusted structure.

   Bar chart generation was automated and now is available in a pop-up window for <u>all</u> numeric report fields (Significant Supporting Data and Ratios and Measures data points.) The charts are produced "on-the-fly" and the charts adjust to whatever institutions you select and whatever summary you specify in the Detailed FPI Reports.

3. ***Setting Preferences***
   a. Comparison Institution Preferences
      An institution that participated in the 2007 Survey will find the name of their campus automatically in the first institution slot. This can be overridden if desired.

      The list of participating institutions can be sorted by name, Carnegie Class, Funding, APPA Region, Enrollment Range, and Building Range. There is a primary and secondary sort preference that can be set.

      You set preferences by indicating which institutions are to occupy the No. 1, No. 2, and No. 3 Institutional slots in the Detailed FPI Reports. These are the default institutional settings for the Detailed FPI Reports. The institution selections can be temporarily changed within any Detailed FPI Report. A change is made permanent by returning to the Preferences part of the Report.

b. Summary Preferences
The default summary which you want to appear in the Detailed FPI Reports is selected from a pop-up window. The summary selection can be temporarily changed within any Detailed FPI report. A change is made permanent by returning to the Preferences part of the Report.

c. Chart Design Options
In 2007, the chart design options are limited to 2D and 3D bar and pie charts and the ability to show or hide the data tables. The design selections may be expanded in the 2008 FPI Report.

4. Survey Participation

The Survey Participation contains this text report, demographic data, and general data on the participating campuses. The demographic and general data tables are enhanced by pop-up charts.

5. Participant Summary Reports

31 key measurements have been placed into a special report for survey participants, providing a Balanced Scorecard view of the participant's 2007 performance on bar charts with data tables. The participant's scores are contrasted to the summary averages of the participant. As an example, the scores of a specialized medical university in the Eastern Region are contrasted in a bar chart against the following:

- Overall Average
- < 20 Years Building Age Range
- Level 3 Financial Self-Evaluation
- Level 4 Customer Satisfaction
- Special Medical Carnegie Class
- Public Funding
- Average Excluding Auxiliary Services
- ERAPPA Region
- 5,000-11,999 Enrollment Range

These charts are encased in supporting information, such as the high-level questions that the measurements address, the formula for computing the measure, and the measure's definition. These charts can be easily inserted into presentations and reports.

6. Trend Data

The bar charts display 2005 through 2007 institutional and group summary scores. This is the start of trend reporting that becomes more meaningful with each succeeding FPI Report.

7. Data Point Changes

- There are expanded Performance Indicators reports on staffing ratios and down time (data for analyzing the affects of leave on productivity potentials).

- Innovation and Learning is broadened to include mandatory and elective training hours and filling of open positions with existing staff.
- Customer Satisfaction has expanded to include reporting of satisfaction by facilities' function. The reporting on this set of new data points will not be complete until 2008, but it is information that is central to the evaluation of cost performance and staffing ratios.
- Union status was eliminated from the FTE and Salaries survey module, reducing entries by one-third.
- Public Safety was dropped as a separate function in Financial Operations.
- General Data entries were consolidated and reduced.

8. A New Look

The 2007 FPI Report has been adapted to fit into the stunning new APPA website design. The FPI tables and charts have an entirely new appearance which you will be proud to display to your campus.

APPA's Information and Research Committee has many positive goals for the FPI report that enhance its ability to meet your needs for solid information supporting facilities professionals in planning, reporting, and managing operations. The 2008 FPI report will address tiered survey and reporting so that institutions can choose different levels of participation.

Canadian Monetary Conversion

The 2006 Canadian Dollar conversion factor used was $1.00 CAD = $0.86 USD. The 2007 FPI Report has no Canadian Dollar conversion and will continue in this mode until circumstances warrant a different policy. This decision is based on the fact that Canadian campuses are relatively unaffected by changes in USD since they purchase very few goods and services from the United States. This policy change affects the 2006 Canadian scores by about 14 percent and has a much lesser affect on the group summary statistics in that Canadian institutions are about 20 percent of the total participation.

There are three institutions from outside the USA and Canada. These are from Ireland, Australia, and Egypt. The 2007 currency conversions are (Entry Dollar * Conversion factor = USD):

Canada Pound = 1 USD
Ireland Euro = 1.4494 USD
Australia Pound = 0.8742 USD
Egyptian Pound = 0.181232 USD

We intend to retain these currency conversion factors for 2008 unless there are compelling reasons to modify the factors. By freezing the conversion factors, the institutions are able to track their performance changes without the data being clouded by changes in the stability of the USD.

Background

The facilities professionals at colleges, universities, and K–12 schools and districts work to achieve excellence through the constant improvement of the services they contribute to support missions and goals of their institutions.

The goals of APPA's Information and Research Committee include providing facilities professionals with an integrated set of tools and information that they need to improve their organizations' financial performance and the effectiveness of their primary processes, facilities employees' readiness to embrace the future, and the facilities department's ability to satisfy its customers.

The Information and Research Committee is constructing an integrated research information database for educational facilities. The structure of the new Facilities Performance Indicators Survey was redesigned, and the survey's first tool for developing statistical files on educational facilities—the new Web-based modular Facilities Performance Indicator Survey—debuted in March 2005 and collected data from the fiscal year 2003-04. The survey was administered each Fall from 2005 through 2007. Depending on participation and prior report purchases, APPA provides Report users access to a three-year rolling set of Web-based FPI reports.

Programming the FPI report on the Web changed it from a static publication to a dynamic tool for user-driven comparisons. It is evolving into an instrument to depict statistics in three views: statistical reports, bar charts, and dashboard dials. Each year programming broadens the capabilities of these views. The 2005-06 report introduced the first phase of the view of data on Dashboards developed by ARCHIBUS, Inc. for APPA. The 2006-07 FPI Report contains expanded Dashboard capabilities. 2006-07 also introduces a new set of Participant Summary Charts that replace the former, limited Bonus Reports.

The Facilities Performance Indicators Survey (FPI) supersedes and builds upon the two major surveys APPA conducted in the past: the Comparative Costs and Staffing (CCAS) survey and the Strategic Assessment Model (SAM). The FPI covers all the materials collected in CCAS and SAM, along with some select new data points and improved survey tools. This new "combo" survey first introduced in 2005 includes the following features:

- a modular structure, which offers flexibility that allows an institution to decide which aspects of operations to measure and evaluate each year;
- one-time capture of general campus information in the first survey module, which alleviates the need to record the same statistics for each APPA survey taken;
- automated worksheets, which enable users to step through the calculation of current replacement value (CRV) and British thermal

units (BTUs)—exercises that have proved difficult for many survey respondents in the past; and

- Instant reports that are generated upon the completion of a number of the modules, thereby providing immediate calculations that allow users to evaluate the accuracy of their data points and receive immediate feedback on their operations.

This Web-based 2006-07 *Facilities Performance Indicators Report*—consists of the following sections:

- ***Preferences***, a new Report capability whereby you set default institutions for comparisons, your preferred group summary, and chart design options.
- ***Survey Participation,*** a new Report section containing this text report, demographics, and general data on participant campuses.
- ***Participant Summary Reports,*** a new Report section (replacing the former, limited Bonus Reports) that showcases participant scores on a select set of measures against the participant's cohort groups in the Balanced Scorecard perspectives. This report is provided only to participating institutions.
- ***Dashboard,*** an updated set of ARCHIBUS dials are incorporated into an FPI window so that transportation among Report sections and dashboards is greatly simplified. The dashboards overlay an institution's measurement scores onto dials with visual comparisons to overall averages. Goals can be inserted to show the future desired performance positions.
- ***Detailed FPI Reports:***
  - ***General Data***, covering statistics reported in this first section of the FPI survey that provides a broad profile of the participating institutions. In past years General Data was reported in the PDF version of the FPI Report.
  - ***Operating Costs Report***, which covers basic statistics on daily facilities operations;
  - ***Strategic Financial Measures Report*****,** the indices first introduced in the Strategic Assessment Model Report.
  - ***Building and Space Report***, a relatively new report that explores statistics on these topics. These ratios provide essential information on characteristics of educational facilities.
  - ***Personnel Data and Costs Report***, which looks at trends in salary levels, staffing of full-time equivalent (FTE) positions by position and also introduces some new ratios and measures that can be used for staffing and analysis of personnel costs.
  - ***Internal Processes Report***, which measures important, select facilities business processes.
  - ***Evaluations Report,*** that displays the institution's four performance self-evaluations in the survey and the results of their campus-based customer and employee satisfaction

surveys. Training and positions filled by internal candidates statistics are found in this section.

The range of information contained in the Web-based *Facilities Performance Indicators Reports* is much broader than what has been covered in any APPA survey summary before 2005. The organization and approach of the report have been redesigned as well. The Web-based *Report* contains all of the bar charts and statistical tables that APPA members have grown to expect and more. The *Report* also includes sections that introduce new methods for organizing data displays.

- The information is organized around the eight main facilities functions: administration, construction/architecture and engineering, custodial services, energy/utilities, landscaping/groundskeeping, maintenance/trades, public safety, and other functions.
- A string of ratios and measures for each function provides a variety of measurement perspectives.
- Significant supporting data show the base information used in most of the ratio calculations.

In 2005 APPA broke new ground in its reporting scope with the *Building and Space Report.* Outside of the FPI reports on this subject, the space data is being used for a study on energy consumption. APPA continues to explore ways to improve the energy/utilities function information. There are contraposing interests of keeping data entry simple for the non-engineer and of providing meaningful and normalized energy/utility statistics.

The 2006–07*Facilities Performance Indicators* report reflects some APPA members' desire for confidentiality. The only institutional list of participants is contained in Appendix A of this text form of the Report. Identified institutional studies are available to participants who indicate a willingness to share their identity with other participants. These institutions have a gold mine of information at their fingertips. APPA encourages institutions that have not done so to join those who participated in the Facilities Performance Indicators Survey so that they also can profit from this data discovery process and receive the new Participant Summary Reports.

All others view the confidential report in which institution names are coded. Those using the confidential Report are advised to examine the institutional listing which shows the general statistics about the participants in the survey. This general campus information is provided so that users of this report can evaluate the institutions that have contributed statistics to the averages reflected in the summaries.

The *Facilities Performance Indicators Report* is designed for survey participants, interested professionals, and serious researchers interested in financial performance. The *Report* includes the following features, among others:

- a comparison of up to three institutions selected by the user;

- simultaneous display of significant data and ratios and measures for three selected institutions and overall and group averages;
- the capability to read and/or print out the whole range of 2006–07 reports contained in the *Facilities Performance Indicators Report,* including institution-by-institution tables;
- the capability to view all numeric report figures in chart form.
- the ability to export the calculated information and survey entries to Microsoft Excel or other software for additional studies.

The Web-based 2006-07 *Report* includes the survey instrument and data download files.

Participating institutions from outside the United States were given the option of entering their financial information in their national currency instead of U.S. dollars, size entries in gross square meters instead of gross square feet and hectares instead of acres. The entries for those who exercised this option have been converted to gross square feet and acres. Select foreign currencies are converted to U.S. Dollars.

APPA's Information and Research Committee provided leadership and direction in the development of the Facilities Performance Indicators Survey as well as the innovative new methods used for the data storage, retrieval, and analysis that was constructed under the committee's watch. The 2007-08, the Information and Research Committee consists of the following members:

Chair/Vice President for Information and Research:

Michael J. Sofield, *Smithsonian Institution*

Committee Members

CAPPA: Terry L. Major, *Southeast Missouri State University*
ERAPPA: Norman Young, *University of Hartford*
MAPPA: Jeri Ripley King, *University of Iowa*
PCAPPA: Richard Storlie, *University of Nevada, Las Vegas*
RMA: Greg Wiens, *Athabasca University*
SRAPPA: Dan Young, *Embry-Riddle Aeronautical University*
At-Large Member: Darryl K. Boyce, *Carleton University*
At-Large Member: Maggie Kinnaman, *University of Maryland, Baltimore*
Staff Liaison: Steve Glazner, *APPA Director of Knowledge Management*

APPA thanks the three companies involved in the annual FPI survey and FPI report:

- Heather Lukes of Digital Wise Inc. who supports the APPA website and survey instrument,
- Brad Peterson, Nick Stefanidakis, Joel Emery, and others at ARCHIBUS who develop the Dashboard, and

- Laura Long and Ann Palmer of LTL Collaborative, LLC, who program the FPI report and scrub the survey data

Finally, we thank the many institutions and APPA members who responded once again to our survey, and whose participation makes the report both valid and functional.

Interpreting This Report

The purpose of *Facilities Performance Indicators* is to provide a representative set of statistics about facilities in educational institutions. The third iteration of the Web-based Facilities Performance Indicators Survey was posted and available to facilities professionals at more than 3,000 institutions from August to December 2007. The website offered a PDF version of the survey for participants who preferred to use that medium for reporting data. Only a handful returned entries by fax or mail.

Data analysis and cleanup are performed in three phases of report processing:

- The instant reports provided at the completion of certain survey modules are tools for participants to audit their entries and make corrections.
- After the survey is closed and measures are calculated, out-of-range numbers are questioned. New tools were developed to select and sort survey entries and calculate report fields.
- Additional errors are discovered when the data are summarized into averages by group.

Participating institutions were contacted primarily by e-mail and asked to review any questionable entries. In the few cases where no institutional response could be obtained, the entry was deleted. All changes to original data entries are documented on the survey comments fields.

The report has rare instances in which an entry was correct but was so radical that it was not useful to other institutions. This year's survey contains about 40 such entries—they remain in the database but are excluded from Overall and grouping summaries.

The "per student" measures for medical centers were deleted from the 2006-07 report. The medical centers have very low student enrollments. Their costs are not driven by their size of their student body and their costs/student are outside of the norm for other classes of institutions.

Organization of the Tables
The statistics contained in this report are summarized according to the following categories:

1. Funding Source
    a. Private
    b. Public
2. Carnegie Classification
    a. Doctoral/Research Universities—Extensive
    b. Doctoral/Research Universities—Intensive
    c. Master's Colleges and Universities
    d. Baccalaureate Colleges
    e. Associate's Colleges
    f. Specialized Institutions
    g. K–12
3. Canadian (faux) Carnegie Classification
    a. Doctoral/Research
    b. Research Universities—High
    c. Research Universities—Very High
    d. Master's Colleges and Universities
    e. Baccalaureate Colleges
    f. Overall
4. Region
    a. CAPPA (Central)
    b. ERAPPA (Eastern)
    c. MAPPA (Midwest)
    d. PCAPPA (Pacific Coast)
    e. RMA (Rocky Mountain)
    f. SRAPPA (Southeastern)
5. Student Full-Time-Equivalent Enrollment Range
    a. 0 to 999
    b. 1,000 to 1,999
    c. 2,000 to 2,999
    d. 3,000 to 4,999
    e. 5,000 to 11,999
    f. 12,000 to 19,999
    g. 20,000+
6. Auxiliary Services
    a. Included in Entries
    b. Excluded from Entries
7. Percent Dollars Contracted
    a. Less than 1%
    b. 1% to 19.9%
    c. 20% to 49.9%
    d. 50%+
8. Building's Average Age (used selectively)
    a. Less than 20 years old
    b. 20 to 29 years old
    c. 30 to 39 years old
    d. 40 to 49 years old
    e. 50+ years old
9. Cogeneration (used with Energy and Utilities)
    a. No
    b. Yes
10. District Utility System (used with Energy and Utilities)
    a. No
    b. Yes
11. Custodial Service Level (used with Custodial Services)
    a. Orderly Spotlessness
    b. Ordinary Tidiness
    c. Casual Inattention
    d. Moderate Dinginess
    e. Unkempt Neglect
12. Grounds Service Level
    a. State-of-the-Art Maintenance
    b. High-Level Maintenance
    c. Moderate-Level Maintenance
    d. Moderately Low-Level Maintenance
    e. Minimum-Level Maintenance
13. Maintenance Level
    a. Showpiece Facility
    b. Comprehensive Stewardship
    c. Managed Care
    d. Reactive Management
    e. Crisis Response
14. Customer Overall Satisfaction
    a. 3 Satisfied
    b. 4 Very Satisfied
    c. 5 Extremely Satisfied
15. Employee Overall Satisfaction
    a. 2 Very Dissatisfied
    b. 3 Satisfied
    c. 4 Very Satisfied
16. Performance Self-Evaluation (Financial, Internal Processes, Customer Satisfaction, and Innovation & Learning)
    a. 1 Copper No Program
    b. 2. Bronze Beginning Program
    c. 3. Silver Mature Program
    d. 4. Gold Stretch Goal
    e. 5. Platinum Flawless Program

Funding, Carnegie classification, and student enrollment were audited against the *2007 Higher Education Directory*, published by Higher Education Publications, Inc., and an APPA region was assigned according to the state or province in the institution's address. Institutions designated K–12 are in an artificial "K–12" Carnegie classification. Non U.S. institutions participating in the survey had self-assigned Carnegie classifications based on the current classification definitions.

Comments on Three of the Detailed FPI Reports

General Data

General data is a new Report Section to give the user of the 2006–07 *Facilities Performance Indicators* report a perspective on the type of institutions that are included in the statistical pool.

Operating Costs Report

The Operating Costs Report consists of a series of reports on operational expenses (in-house labor, in-house nonlabor, and contract costs) normalized by gross square footage or acres and by student FTE. The measures include FTE from Personnel Data and Costs survey module compared to GSF (gross square feet). These costs, FTE, and GSF/acres are broken down into six functions performed by facilities operations: administration, construction/renovation/architecture and engineering, custodial services, energy/utilities, landscaping/groundskeeping, and maintenance/trades.

Some things to be aware of when looking at the Operating Costs Report are:

1. The information about contracted services was improved by new data captures in Operating Costs and in Personnel Data and Costs sections of the survey. GSF completely serviced by a contractor and contractor FTE performing work otherwise done by inhouse labor are the new data points in 2006. These new data points make the FTE/GSF and the FTE/Student FTE measure by function more accurate.

2. The GSF reported for Construction A&E function was limited to the footage under planning, bid, award and/or construction during the 2005-06 fiscal year. In 2006-07 participants were given two choices; footage under planning, bid, award, and construction or total campus GSF. The cost/GSF is reported both ways.

Strategic Financial Measures Report

The Strategic Financial Measures are highly dependent on the Current Replacement Value (CRV) estimates since CRV is the divisor in formulas for most of its measures. CRV estimates become more realistic with each survey. However, before you select a campus as a comparison cohort for strategic measures, check their gross CRV estimate value per GSF. The two components for this calculation are in the Significant Supporting Data line (Total campus GSF w/Aux and Current Replacement Value). CRV/GSF averages are to include infrastructure and reflect current construction costs. You probably would not want to compare your performance against a campus that has a CRV/GSF value that is significantly different than yours.

Report Characteristics

Several characteristics of the way the survey is computed should be kept in mind, because these techniques tend to bias the averages in the report.

- Blanks and zeros were not included in computations except in a few cases where there was no question that zero was a legitimate entry. The data collection system does not distinguish between no entry and no cost. (Respondents may enter only the information that was of interest to their campus.) Statistics do not include zero or null entries. This computing method affects almost every portion of the report.

- No summary averages are computed as averages of averages, because that is not valid. Summary averages are the sum of all entries divided by the count of all entries.

- The data generally do not conform to a standardized bell curve. Typically, data are clustered at the low end of a range rather than being symmetrical around the mean. As a result, the median figures are typically somewhat lower than the average figures that are reported.

- A summary that breaks groups down into many categories will produce some small counts and counts vary from measure to measure since respondents do not answer all survey questions. The average for a small count should be used with caution. Please activate the “Count” button on the Report displays before evaluating the grouping statistics. This Web-based *Facilities Performance Indicators* Report includes counts for all group averages.

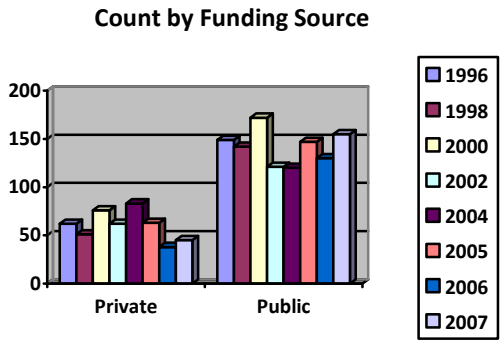
- Look at historical bar charts to identify those group averages that appear to be stable statistics and those that have large fluctuations. A small sample size typically produces fluctuations from year-to-year.

Despite these disclaimers, the statistics are generally representative, and therefore valid, as substantiated by consistent data that are as illustrated in historical charts. Where the statistics are historically different, the validity of the data can be substantiated by identifying the sources of data differences, such as the influence of nontraditional specialized institutions in the participant pool. This is a general caution and should not be viewed as a shortcoming of APPA's current Facilities Performance Indicators Survey. Biases, reporting consistency, and other concerns are always present when evaluating statistical information, and it is always important to know how to make valid comparisons. Keeping this in mind is the best way to ensure that this report is used as effectively as possible.

FY 2006-07 Respondents and Participation Trends

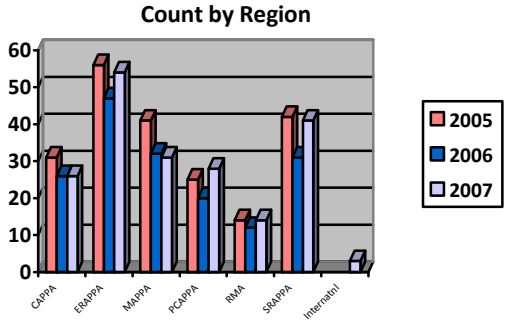
There are 200 participants in the 2006-07 Report. There have been two spikes in past CCAS survey participation in the past: in 1994, 516 institutions responded; and in 2000, the first time the survey could be completed online on the APPA website, 248 institutions took part. In other years about 200 institutions—plus or minus 10 percent—participated in the survey. The 2006-07 survey participation was adversely affected by a new report cycle schedule. The 2006-07 survey had 200 institutions complete General Data and at least one other survey module. This was a return to the expected participation level.

In the past, about 30 percent of the participant pool consistently came from institutions that had private sources of funding and 70 percent came from those that had public sources. In 2004 the representation by the private sector increased to 40 percent by a larger participation of private K–12 institutions. In 2005, private institutions were 30 percent of the total. They dropped to 23 percent of the participants in 2006 and retained that ratio in 2007.

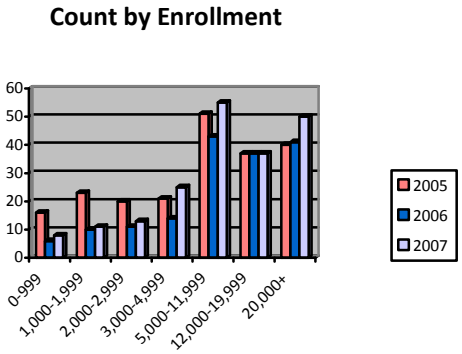


All regions are represented in the survey, with the largest number of respondents coming from the Eastern region (ERAPPA), the Midwest (MAPPA), and the

Southern region (SRAPPA). The international participants are from Australia, Ireland, and Egypt. Canadian institutions are included in the six APPA regions.



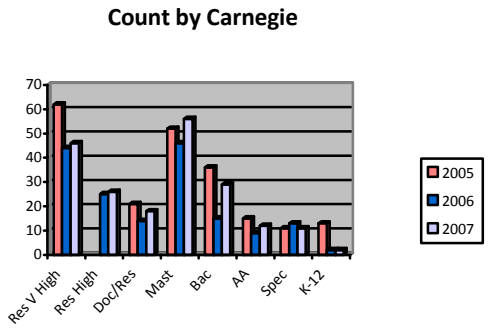
Participating institutions' enrollment ranges—which start at 0 and go up to 20,000-plus—has been rather consistent over the last six survey cycles, In 2004 there was a jump in institutions with enrollments between 0 and 999 that was reflective of an increase of K–12 institutions. The drop in participation in 2006 was concentrated in the lower enrollment range institutions. 2007 had increases in the 3,000 to 11,999 and the 20,000-plus ranges.



The representation of institutions as categorized by the Carnegie classifications has been generally consistent. The change in Carnegie Classifications for the doctoral and research institutions has divided two categories into three in 2006. APPA decided to couple Doctoral/Research Intensive to Doctoral Research and Doctoral/Research Extensive to Research Very High. That left Research High as a lone new category.

Specialized institutions are shown as one category in the chart. The FPI shows this Carnegie Classification as Specialized (count 5) and Specialized Medical (count 6). While the counts are small when this division is made, the Medical

Centers have need to make comparisons to their own group and not a mixture of medical and other types of specialized institutions.



Carnegie Classifications

The following are descriptions of the primary institutional classifications as defined by the Carnegie Foundation for the Advancement of Teaching:

Doctorate-granting Universities (Three new categories replacing former Doctoral-Research Intensive and Extensive): Includes institutions that award at least 20 doctoral degrees per year (excluding doctoral-level degrees that qualify recipients for entry into professional practice, such as the JD, MD, PharmD, DPT, etc.). Excludes Special Focus Institutions and Tribal Colleges.

Research Universities Very High Research Activity
Research Universities High Research Activity
Doctoral/Research Universities

Master's Colleges and Universities: Includes institutions that award at least 50 master's degrees per year. Excludes Special Focus Institutions and Tribal colleges.

Baccalaureate Colleges: Includes institutions where baccalaureate degrees represent at least 10 percent of all undergraduate degrees and that award fewer than 50 master's degrees or fewer that 20 doctoral degrees per year. Excludes Special Focus Institutions and Tribal Colleges.

Associates Colleges: Includes institutions where all degrees are at the associates level or where bachelor's degrees account for less than 10 percent of all undergraduate degrees. Excludes institutions eligible for classification as Tribal Colleges or Special Focus Institutions.

Special focus Institutions: Institutions awarding baccalaureate or higher-level degrees where a high concentration of degrees is in a single field or set of related fields. Excludes Tribal Colleges.

Specialized
Specialized/Medical Medical schools and medical centers

K–12: This includes schools and school districts focusing on primary and secondary education. It is not a Carnegie Classification, but one assigned for the purposes of the FPI report.

APPA Regions

APPA's six geographical regions function independently of APPA and offer their own educational programs, annual meetings, publications, and other benefits. Each region maintains its own set of officers, committees, and activities to serve member institutions within the region. Regions determine their own membership requirements, dues, structure, and services.

Regions work with APPA to ensure that international programs address concerns of interest to all members. To maintain strong links among all regions, each region is represented on the APPA Board of Directors and on APPA committees.

APPA chapters are general city-wide or state-wide organizations of members who meet periodically to share information and discuss issues of local or state interest.

Institutions from outside the United States of America and Canada are put into an "International" region for the purpose of this FPI Report. A concentration of institutions from any one foreign region will be recognized in the future FPI Reports.

Up-to-date information about the regions—including conference dates, contact information, and links to the regional websites—are available on APPA's website at **www.appa.org**.

General Data

Information in this section is provided to assist you in your evaluation of information contained in the *2006-07 Facilities Performance Indicators Report*.

- Count of institutions in each group pool used in report statistical summaries
- Characteristics of the institutions that make up each grouping's statistical pool.

The Response Tally tables under *Survey Participation* in the FPI Report shows whether the distribution within a grouping could be considered significant for your purposes.

- Funding source includes counts of 45 private and 155 public institutions. Both of these are ample samplings.
- The grouping according to Carnegie classification has low counts for Associate (12), Specialized (5), Specialized/Medical (6), K-12 (2), and Doctoral/Research (18).

- The breakdown by APPA region shows good counts except for RMA which had only 14 institutions in this study.
- All enrollment ranges below 3,000 have low counts.
- The grouping on auxiliary services has good counts.
- The <20 years building age range count is 16.
- The summaries for the various levels of service, customer satisfaction, employee satisfaction, and the performance self-evaluations will have low counts on the low and high extremes of the scales.

Tables in this *Report* show counts for all entries. Some participants completed only a few of the modules, some erroneous entries have been eliminated, and participants sometimes did not answer every question within a module. Consequently, the counts on most tables throughout this report can be expected to be lower than those shown in the Tally Table. Noting the counts on statistical tables can help the user decide whether or not the statistics are useful for a particular operation's purposes. This report has not produced cross-tab tables between two groupings, because many entries in such tables would have low counts. Below are counts of participants by survey module.

Grouping	200
General Data	198
Strategic Financial	186
CRV Worksheet	90
Financial Operations	188
MMBTU Worksheet	124
Internal Processes	160
FTE & Salaries	173
Innovation & Learning	127
Customer Satisfaction	130
Customer Satisfaction by Function Worksheet	69
Performance Self-Evaluation	129

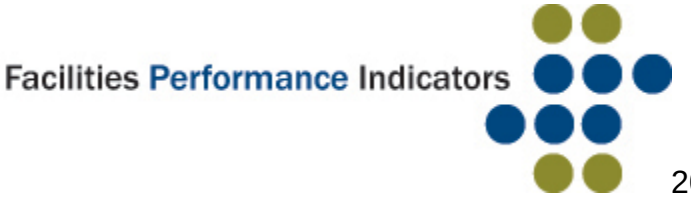
2006-07 Facilities Performance Indicators Participants

Abilene Christian University
Acadia University
American University
American University in Cairo
Angelo State University
Appalachian State University
Arizona State University
Arkansas State University
Baylor University
Black Hills State University
Bowling Green State University
Brandeis University
Brigham Young University/Hawaii
Bryant University
Bucknell University
Butler University
California Polytechnic State University
California State University/Channel Islands
California State University/Dominguez Hills
California State University/East Bay
California State University/Fresno
California State University/Fullerton
California State University/Long Beach
California State University/Los Angeles
California State University/San Bernardino
Carleton College
Carleton University
Casper Community College
Central Methodist University
Chaminade University of Honolulu
Cincinnati State Technical & Community College
Clemson University
Colorado College
Cornell University
Cranbrook Educational Community
Dalhousie University
Delta College
East Carolina University
Eastern Illinois University
Eastern Mennonite University
Ecole De Technologie Superieure
Elizabeth City State University
Embry-Riddle Aeronautical University/Extended
Evergreen State College
Fanshawe College of Applied A & T
Fayetteville State University
Geneva College
Georgia Tech
Goshen College
Grand Rapids Community College
Guilford College
Harrisburg Area Community College
HEC Montréal
Indiana University/Bloomington
Iowa State University
John Carroll University
Kansas State University
Kennesaw State University
Lakehead University
Laval University
Luther College/LA
McMaster University
Medical College of Wisconsin
Medical University of South Carolina
Miami University
Michigan State University
Midlands Technical College
Minneapolis College of Art & Design
Montana State University
Moravian College
Mount Allison University
Nipissing University
North Carolina A&T State University
North Carolina Central University
North Carolina School of Science & Mathematics
North Carolina School of the Arts

North Carolina State University
North Dakota State University
Northwestern College
Ohio State University/Affiliate
Oklahoma City Community College
Pace University
Queen's University
Queensland University of Technology
Reed College
Rend Lake College/District 521
Roberts Wesleyan College
Rochester Institute of Technology
Rockhurst University
Ryerson University
Saginaw Valley State University
Saint Lawrence College
Saint Mary's University/Cn
Saint Xavier University
Salt Lake Community College
San Francisco State University
Seattle University
Seton Hall University
Shepherd College
Sheridan College
Simon Fraser University
Sinclair Community College
Smithsonian Institution
Soka University of America
Sonoma State University
South Dakota State University
Southern Utah University
St. Francis Xavier University
St. Jerome's University
St. John's College/New Mexico
SUNY College/Geneseo
SUNY College/New Paltz
Tarleton State University
Tennessee State University
Trinity University/Texas
Trinity Western University
University College Dublin
University College of Cape Breton
University of Akron
University of Alaska/Fairbanks
University of Alberta
University of Arkansas
University of British Columbia
University of Calgary
University of California/Berkeley
University of California/Santa Barbara
University of Central Oklahoma
University of Colorado/Boulder
University of Connecticut
University of Florida
University of Georgia
University of Guelph
University of Hawaii/Manoa
University of Illinois/Urbana-Champaign
University of Kentucky
University of Kentucky/Physical Plant
University of Lethbridge
University of Maine/Orono
University of Manitoba
University of Mary Washington
University of Maryland/Baltimore
University of Maryland/Baltimore County
University of Massachusetts/Medical School
University of Memphis
University of Michigan/Ann Arbor
University of Michigan/Dearborn
University of Missouri/Kansas City
University of Missouri/Rolla
University of Missouri/St Louis
University of Moncton
University of Montreal
University of Nebraska/Kearney
University of Nebraska/Lincoln
University of Nebraska/Omaha
University of Nevada/Las Vegas
University of New Brunswick
University of New Mexico
University of North Carolina/Asheville
University of North Carolina/Chapel Hill
University of North Carolina/Charlotte
University of North Carolina/Greensboro
University of North Carolina/Pembroke

University of North Carolina/Wilmington
University of Oklahoma
University of Ottawa
University of Pittsburgh
University of Prince Edward Island
University of Quebec/Outaouais
University of Quebec/Trois-Rivieres
University of Regina
University of Richmond
University of Saskatchewan
University of Sherbrooke
University of South Alabama
University of Southern Maine
University of Tennessee/Knoxville
University of Texas MD Anderson Cancer Center
University of Texas/Arlington
University of Texas/San Antonio
University of Toronto
University of Virginia
University of Waterloo
University of West Georgia
University of Western Ontario
University of Windsor
University of Wisconsin/Stout
University of Wisconsin/System
Valparaiso University
Villanova University
Virginia Tech
Washington & Lee University
Washington State University
West Virginia University
Western Carolina University
Western Michigan University
Wilfrid Laurier University
Winston-Salem State University
Worcester Polytechnic Institute
Xavier University
Yale University

Appendix C: 2008 Survey



2007-08 FPI Survey

Welcome to the 2007-08 Facilities Performance Indicators (FPI) Survey. There are major improvements to this updated survey. Here is a list of some of the innovations:

1. The survey is reorganized around "**Essential Set**" questions that every facilities professional must be able to answer. Under each question you will find the data input fields needed to provide the measures which address the question. This format aids you to focus on the "why" as well as the "what" of survey questions.
2. In response to the need to simplify the FPI survey for small campuses and the desire of some large campuses to hone in on only the essential measures, the survey modules have been reorganized to give you a choice of **Essential Set** and **Detail** sets of entries. **Detail** sets contain the **Essential Set** questions and more.
3. Youcan choose to use **Essential Set** entries for one category of questions and **Detail** entries for another category of questions within a Survey section.

   On this Survey home page, you can shift into overdrive by selecting the "Express Survey" which produces only the **Essential Set** list of questions throughout the FPI Survey.

4. As part of the Survey Registration process, your survey administrator was asked to indicate whether all entries throughout the FPI survey will include or exclude auxiliary services. That choice is shown as part of the top banner of all survey sections.
5. The instant reports are redesigned to fit the new structure changes. One caution about the instant reports: these do not have conversions from meters to feet, hectares to acres or foreign currency to USA Dollars.

Survey questions with the ? icon have definitions you view by passing your cursor over the ? icons. Survey questions with rectangle icons contain descriptions of how data entries are used in measures. These also are viewed by passing your cursor over the icons.

the entire survey (PDF) to collect your entries off-line.

If you encounter any errors, irregularities, problems, etc., please contact the APPA staff person, Christina Hills chills@appa.org, or LTL Collaborative ltl@rockisland.com.

Questions?
Contact your regional representative on the Information & Research Committee for assistance:
ERAPPA—Norm Young, University of Hartford, young@hartford.edu
SRAPPA—Mike Sherrel, University of Tennessee/Knoxville, jsherrel@utk.edu
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About the Facilities unit #1

- The purpose of this section is capture the cohort information for FPI Report summaries and basic campus statistics used in combination with data entries throughout this Survey for calculation of FPI Report measures/ratios.
- Essential Set questions are in Bold

Questions	Entry
1. FICE*	
2. UNITID*	
3. APPA Region*	
4. Carnegie Classification*	
5. Affiliation/Control*	
6. Funding*	
7. Enrollment Range*	
8. Student official FTE enrollment as of Fall 2007.*	
9. Total Regular Full-Time Equivalent (FTE) Facilities Staff*	
7. Benefits as percentage of total compensation.* Enter a whole number without percent sign; e.g., 30 but not .30 or 30%.	
10. Is the institution's standard work-week 40 Hours? Y/N	
10.a. If No, number of hours in your standard work-week? Exclude descriptors like Hrs in your entry.	

Definitions:

FICE: Identification number assigned to accredited institutions of higher education in the USA by the Federal Interagency Committee on Education. The FICE can be referenced in the *Higher Education Directory.*

UNITID: Federal number assigned to higher education institutions in the USA.

APPA REGION: States in the USA and Provinces in Canada are assigned to APPA regions. Other non-Canadian and non-USA countries are assigned to an international region unless a large enough number from a region warrant a separate designation.

CARNEGIE CLASSIFICATION: Carnegie Foundation classification system for accredited institutions of higher education. APPA uses K-12 as the classification for schools in those ranks. Foreign institutions are aligned into the Carnegie Class that best fits their profile.

AFFILIATION/CONTROL: Affiliation/control refers to the entity which has primary governance over an institution. Four-year public institutions usually have state governance. Two-year public institutions usually have local government governance. Private institutions frequently are independent, or under a church body. The *Directory of Higher Education* is the source of this information for accredited institutions in the USA.

FUNDING: Independent and private institutions are in the class of Private. Institutions receiving public funding are classed as Public. In the USA, the Federal accounting standards required to be followed identify whether institutions are public or private.

ENROLLMENT RANGE: Enrollment ranges are defined by APPA for use in the FPI report and are based on the institution's reported student FTE in General Data survey section.

TOTAL REGULAR FULL-TIME EQUIVALENT (FTE) FACILITIES STAFF: Total number of regular staff, full time equivalent (FTE) employees caring for the total GSF and grounds maintained by the facilities department. Include the FTE performing all functions covered by this survey (Administration, Renovation/Construction/A&E, Custodial Services, Grounds/Landscaping, Energy/Utilities, Maintenance, Public Safety, and Other facilities functions.

1 FTE = 1 person working 100% time for a full year. 0.5 FTE = 1 person working 50% time for a full year OR 1 person working 100% time for a half-year.

BENEFITS AS PERCENTAGE OF TOTAL COMPENSATION: The department's total net benefits cost (insurance, retirement, etc.), excluding the cost of sick leave and vacation. This average percentage may be available from the institution's Human Resource Department or Budget Office.

IS THE INSTITUTION'S STANDARD WORK WEEK 40 HOURS? If your standard work week is 40 hours, select YES. If your standard work week is not 40 hours (for the majority of employees within facilities), please indicate the standard number of hours in question 10.a.. This information is used to normalize all hour responses in survey modules to the same standard for comparison purposes.

What facilities make up our institution? #2

1. The purpose of this Survey Section is to identify a small set of statistics that describe your campus' physical assets. The Essential Set version includes the few statisctics that most likely would be used in a presentation. The Detail version provides the drill down information by type of space.

- There are two very important entries in this section: GSF Maintained and CRV. Both of these data points are unsed in the calculation of many FPI measurements with CRV being an element of the most strategic measurements.
    - All FPI Survey participants are encouraged to use the CRV Calculation Worksheet in that it assists in the development of a sound CRV estimate, it provides an audit trail for data scrubbing and it provides drill-down information on campus GSF and construction costs.
    - Please note that the CRV estimate should be based on GSF Maintained.

NON-U.S. INSTITUTIONS. Non-U.S. institutions may enter GSM/Gross Square Meters and their own country's currency amounts (no conversion to U.S. dollars.)

Essential Set questions are in bold.

Questions	Entry
1 Total campus building area of buildings OWNED and RENTED, and used by the institution, including non-contiguous spaces:*	
1.a Rented or leased GSF included in 1 above.	
1.b. Total GSF maintained by facilities. *	
Total Campus Assignable Square Footage (ASF) of buildings owned and/or used by the institutions, including non-contingent spaces.* The ASF by room use categories can be requested from the campus office that maintains a space inventory.	
2.a. Classroom ASF	
2.b. Laboratory ASF	
2.c. Office ASF	
2.d. Study ASF	
2.e. Special Use ASF	
2.f. General Use AFS	
2.g. Support Facilities ASF	
2.h. Health Care ASF	
2.i. Residential ASF	
2.j. Unclassified ASF	
2.k. Nonassignable ASF	
2.l. Structural ASF	
3. Number of buildings (OWNED only).	
4. Average age (years) of mission critical OWNED buildings .*	
5. Total number of campus grounds (acres)*	
6. Total acres maintained by facilities department *	
7. Current Replacement Value	

Definitions:

TOTAL CAMPUS BUILDING AREA OF BUILDINGS OWNED AND RENTED, AND USED BY THE INSTITUTION, INCLUDING NON-CONTIGUOUS SPACES: The sum of floor area located within the outside faces of exterior walls for all stories of areas, in gross square feet/meters (GSF-GSM). Include all non-contiguous areas used by the institution. The GSF-GSM reported by the landlord can be used for rented spaces.

RENTED/LEASED GSF INCLUDED 1 ABOVE: Include all building space used but not owned outright by the institution

AVG. AGE (YEARS) OF MISSION CRITICAL OWNED BLDGS**:** Please use an appropriate adjusted age for any capital rehabilitation projects that have the inherent result of extending the useful life of the building. Include auxiliary services.

TOTAL GSF-GSM MAINTAINED BY FACILITIES DEPARTMENT: The portion from total campus building area that is maintained by the institution's primary facilities department. Do NOT include any GSF that is maintained by separate housing, athletic, or other auxiliary facilities operations.

NOTE: This is the footprint that should be used to develop estimates for:
Current Replacement Value (CRV)
Deferred Maintenance,
Capital Renewal Need
Renovation/Modernization/Adaptation Need

TOTAL CAMPUS ASSIGNABLE SQUARE FOOTAGE (ASF) OF BUILDINGS OWNED AND/OR USED BY THE INSTITUTION, INCLUDING NON-CONTINGENT SPACES: The ASF by the below listed room use categories can be requested from the campus office that maintains a space inventory. Assignable square footage (ASF) is the sum of all areas on all floors of a building included within the outside faces of its exterior walls, including floor penetration areas for circulation and shaft areas that connect one floor to another. Include auxiliary services. US institutions should use the FICM code standard.

a. Classroom ASF Classroom is a room used for classes and that is also not tied to a specific subject or discipline by equipment in the room or the configuration of the room. This category excludes conference rooms, meeting rooms, auditoria and class laboratories. Room Use codes in FICM 100 series.

b. Laboratory ASF A laboratory is a room characterized by special purpose equipment or a specific room configuration which ties instructional or research activities to a particular discipline or a closely related group of disciplines. Room Use FICM codes in 200 series

c. Office ASF Office facilities are individual, multi-person, or workstation space specifically assigned to academic, administrative, and service functions of a college, university, school, or other educational institution. Room Use codes in FICM 300 series.

d. Study ASF Study space is classified into five categories: study room, stack, open-stack study room, processing room, and study service. Room Use codes in the FICM 400 series.

e. Special Use ASF This category includes several room use categories that are sufficiently specialized in their primary activity or function to merit a unique room code. This includes areas/rooms for military training, athletic activity, media production, clinical activities (outside of separately organized health care facilities), demonstration, agricultural field activities, and animal and plant shelters. Room Use codes in the FICM 500 series

f. General Use ASF General use facilities are characterized by a broader availability to faculty, students, staff, or the public than are Special Use Facilities, which are typically limited to a small group or special population. General use facilities comprise a campus general service or functional support system (assembly, exhibition, dining, relaxation, merchandising, recreation, general meetings, day care) for the institutional and participant community population. Room Use codes in the FICM 600 series.

g. Support Facilities ASF Support facilities, which provide centralized space for various auxiliary support systems and services of a campus, help keep all institutional programs and activities operational. Room Use codes in the FICM 700 series.

h. Health Care ASF General use facilities are characterized by a broader availability to faculty, students, staff, or the public than are Special Use Facilities, which are typically limited to a small group or special population. General use facilities comprise a campus general service or functional support system (assembly, exhibition, dining, relaxation, merchandising, recreation, general meetings, day care) for the institutional and participant community population. Room Use codes in the FICM 600 series.

i. Residential ASF Residential facilities includes housing for students, faculty, staff, and visitors to the institution. Hotel or motel and other guest facilities are included in this series if they are owned or controlled by the institution and used for purposes associated with defined institutional missions (excluding commercial investment).

j. Unclassified ASF Unclassified facilities include those assignable areas that are inactive or unassigned; in the process of being altered, renovated, or converted; or in an unfinished state. Room Use FICM codes 050, 060, and 070.

k. Non-assignable ASF Circulation, building service and mechanical are the non-assignable areas. Room Use FICM codes WWW, XXX, and YYY.

l. Structural ASF The area within the GSF of a building that cannot be occupied or put to use is the structural area. Structural area = the gross area less the net usable area. Room Use FICM code ZZZ.

TOTAL NO. OF CAMPUS GROUNDS (ACRES/HECTARES) INCLUDING AUXILIARIES: The total number of campus acres, including acreage assigned to auxiliary services. Include acreage that is undeveloped and acreage not maintained by facilities. Exclude land held as an investment for future sale.

TOTAL NO. OF ACRES/HECTAREST MAINTAINED: Do not include research farms, woods, etc. Do NOT include any acreage that is maintained by separate housing, athletic, or other auxiliary facilities operations. Areas that are given minimal attention, i.e., spring mowing for fire protection, can be either excluded or included at a reduced percentage of acres to reflect the lessor maintenance labor/cost.

CURRENT REPLACEMENT VALUE: The CRV value must be consistent with/based on the total campus GSF in your entries in General Data and the GSF used as the basis for data entries in the Strategic Financial survey module. If you do not use the "Worksheet: Campus CRV " and directly enter your CRV value here, then include auxiliary services CRV only if you are including auxiliary services in all of your responses for this survey section. CRV is the total amount of expenditure (in current dollars) required to replace the institution’s facilities to its optimal condition. This includes the full replacement cost for all buildings, grounds, utility systems, and generating plants. Insurance replacement values or book values should not be used to define current replacement value should meet the current acceptable standards of construction, and comply with regulatory requirements. It is

recommended that the average total project cost per square foot, multiplied by the gross square footage of buildings, be used for the building portion of CRV.

CRV INFRASTRUCTURE: Infrastructure primarily refers to the spaces between the buildings of a campus and to the non-architectural elements of campus design. These elements include, but are not necessarily limited to

- Circulation systems (roadways, walkways),
- systems (sewers, drains, steam tunnels, electrical cabling, fiber optic lines),
- Parking systems,
- Campus places (natural places, recreational areas, plazas, malls),
- Paving and hard surfaces,
- Landscape (plants, trees, flowers, ground cover),
- Campus furniture (benches, drinking fountains, bus shelters, partitions)
- Way-finding and signage (entrance/exit signs, campus maps, trailblazer and directional signs, building identification), lighting,
- Refuse and waste removal (trash receptacles, smoking urns, dumpsters),
- Art and artifacts (sculpture, fountains, memorials, plaques), and
- Access points for people with disabilities.

CRV Worksheet

Type of Space	GSF (GSM)	Cost/GSF (GSM)	GSF X Cost/GSF (GSM)
Research/Lab			
Classroom/Admin			
Residential			
Parking Garages			
Libraries/Archives/Museums			
Hospitals/Clinics			
Special/General Use			
Historic Buildings			
Other			
Subtotal CRV			
Infrastructure			
Total CRV			

Notes:

- Infrastructure can be dollar amount or a percent of Subtotal CRV costs.
- GSF (GSM) Subtotal should equal GSF/GSM maintained
- GSF(GSM) to be the same as used for capital renewal, deferred maintenance, renovation, modernization, adaptation estimates
- Cost/GSF is the current cost of construction

Is my institution adequately funding the facilities management annual budget? #3

The objective of this Survey Section is to evaluate the funding of facilities management. Three measurements of facilities funding are reported based on comparisons to gross institutional expenditures, GSF Maintained, and current replacement value (CRV) of maintained campus buildings and their infrastructure. GSF and CRV are entries in different survey modules.

Questions	Entry
1. Annual Facility Operating Expenditure excluding utilities*	
2. Gross institutional expenditures.*	

ANNUAL FACILITY OPERATING EXPENDITURE (INCLUDING BENEFITS): Activities required for ongoing, routine operations and maintenance of a building. Operations and maintenance activities include the labor and material costs necessary for

- Administration of the facilities operation
- The renovation and construction function (Renovation/Construction/A&E)
- MMBTUs maintenance of a building and its basic systems or utilities (e.g., roof, electrical and mechanical systems, floors and ceilings and walls, plumbing, elevators, fire alarms)
- Major maintenance funded by the Annual Facilities Maintenance Operating Budget
- Grounds (e.g., landscape, roads, and pathways)
- Infrastructure (e.g., central plant, electrical distribution, water and sewer systems.), including cost of water and sewer services but not purchased or co-generated other utilities.

- EXCLUDE EXPENDITURE:
- Major maintenance or capital renewal funded by other institutional accounts that are separate from, and not included in, the facilities operating budget
- Total cost of all purchased utilities and the function of co-generating utilities expenses
- The amount reported should at least equal the sum of operating costs reported in the Desired Outcomes survey section.

Are the operating funds that my facilities department receives being spent in a manner that supports desired outcomes? #4

- The purpose of this Survey Section is to provide measures for your evaluation of facilities operations and business practices. Data entry points and definitions for Cost of Operations and Staffing Ratios are shown first. Business Practices data entry points and definitions follow last.
- The primary operations measures are costs and staffing compared to GSF. The FTE and Salary entries made under the Detail Option has additional purposes such as comparative information useful for recruitment and retention of facility staff and drill-down analysis of in-house labor costs. FTE and salary information by position is input for the **Staffing Costs and the Hourly Rate Model Reports.**
- The questions pertaining to operations are organized by facilities function and collect GSF, operating costs and staffing information. The Essential Set version asks only for total GSF, total costs and total FTE. The Detail version breaks GSF down into inhouse and outsourced, splits costs into labor, non-labor and outsourced, and captures FTE and Salaries by position. If you chose the Express Survey, you have only Esential Set entries. Otherwise, you can choose between making Summary or Detail entries for GSF, costs and FTE & Salaries within each function.
- The business practices measurements cover work orders, energy, construction management, downtime, and your self-evaluation of financial management and to growth and learning practices.

Note: Following are the general definitions and instructions for all operations parts of this Survey Section. These definitions follow the Detail set of questions. The Essential Set entries for Total Costs are the sum of In-house Labor, In-house Non-labor and Outsourced costs. The Essential Set version combines in-house and contractor FTE into one entry and excludes Positions and Salary entries.

- TOTAL GSF/GROSS SQUARE FOOTAGE or TOTAL GSM/GROSS SQUARE METERS (in the case of grounds/landscaping, total acres or hectares maintained) for which the department performs specific functions in this category. Note that the square footage may vary from function to function. This figure disregards whether the work is performed by an outside contractor or is reimbursable.

- GSF/GSM/ACREAGE/HECTARES COMPLETELY SERVICED BY CONTRACTOR. (Detail Survey) If a contractor performs a "full service" facilities function for a portion of the campus, enter the GSF/GSM or acreage/hectares outsourced to the contractor. As an example, contracted window washing for custodial services, is not full service but outsourcing custodial services for a building is reported as GSF/GSM serviced by the contractor.

- TOTAL IN-HOUSE LABOR COSTS. Include all salaries, wages, and benefits.

- TOTAL IN-HOUSE NON-LABOR AND SUPPORT COSTS. Include supplies, equipment, training, postage, uniforms, copier contracts, pre-employment physicals, travel, overhead charges, and other non-labor costs and other small service contracts. Outsourced functions are reported under Outsourced Services. Exclude Construction costs under Renovation/Construction/A&E..

- TOTAL COSTS FOR OUTSOURCED SERVICES. Include total amount spent on outsourced services for each facilities function. Exclude construction costs under Renovation/Construction/A&E.

- JOB FUNCTION (Detail Survey): The job categories are broadly defined and organized by core facilities functions. Please find the categories that most closely align with your particular

job titles and functions. The Other category is used when your positions do not align with the survey's.

- NUMBER OF FTE EMPLOYEES: Indicate the total number of employees in each of the 44 listed job categories. Prorate part-time, student, and other workers as appropriate to your FTE formula. If a position routinely incurs overtime, reflect the overtime in the FTE. For instance, if the normal work week consists of 40 hours and a person routinely works 44 hours, that equates to a 110% FTE or 1.1 FTE. Please Note: FTE reported here should approximate the Facilities FTE entered."About the faclities unit.".

- NUMBER OF CONTRACTOR FTE: If contractor FTE are performing functions normally performed by positions listed in this survey module and you have access to contractor FTE information, please enter the number of contractor FTE. This information is captured by function, not by position. *The information is important when staffing for a function (combined in-house and contractor FTE) is compared to GSF and to student enrollment for comparison purposes*. A reasonable estimate is better than no entry.

1. AVERAGE ANNUAL SALARY (Detail Survey): Use annual salary during current fiscal year. Enter the equivalent of a 100% time annual salary for part-time positions. Do not include benefits in this entry. For positions that cover more than one person, indicate average salary for the group.

- NON-U.S. INSTITUTIONS. Non-U.S. institutions may enter GSM/Gross Square Meters, their own country's currency amounts (no conversion to U.S. dollars), and hectares.

Operating Costs and Staffing Ratios

Administration

Question	Entry
1.a. Total GSF for which department performs specific function in this category.*	
1.a.1) Outsourced GSF-GSM included in 1.a. above	
1.b. Total in-house labor costs (including salaries, wages, benefits). *	
1.c. Total in-house non-labor cost (including supplies, equipment, training, etc.) *	
1.d. Total costs for outsourced services. *	
Administration Total Expenditures.*	

Position	FTE	Average Annual Full-time Salary
In-house & Contractor's FTE		
1.e. Contractor's FTE		
1.f. Chief Facilities officer*		
1.g. Associate/Assistant Director*		
1.h. Business/Budget Manager*		
1.i. Human Resources Manager		
1.j. Training Officer*		
1.k. Telecommunications Specialist*		
1.l. Computer Programmer/Analyst*		
1.m. Other Administrative Managers*		

1.n. Secretarial/Clerical*		
1.o. Other Administrative/Management Positions*		

Construction/Renovation/A&E

Question	Entry
2.a) CONSTRUCTION/RENOVATION/A&E GSF. If office budget is based on funded and authorized construction projects, enter GSF in 2.a.1) . If office budget is based on total campus GSF under its perview, enter GSF in 2.a.2).	
2.a.1) Total GSF of capital construction that is FUNDED and AUTHORIZED for which department performs specific function in this category. Refer to the definition for more information.	
2.a.2. Total GSF for Construction/Renovation/A&E based on Total Campus GSF Maintained	
2.a.3. Outsourced GSF	
2.b. Total in-house labor costs (including salaries, wages, benefits).	
2.c. Total non-labor cost (including supplies, equipment, training, etc.).	
2.d. Total costs for outsourced services, EXCLUDING the cost of the capital projects. These operating costs are concerned with the campus' oversight of the building program but not the capitalized costs of construction.	
Construction Total Expenditures	

Position	FTE	Average Annual Full-Time Salary
In-house & Contractor's FTEs		
2.e. Contractor's FTE		
2.f. Architect*		
2.g. Engineer*		
2.h. Facility Planner*		
2.i. Construction Manager*		
2.j. Estimator/Scheduler*		
2.k. Project Coordinator/Manager*		
2.l. Other Construction/Renovation/A&E Positions*		

Custodial

Question	Entry
3.a. Total GSF for which department performs specific function in this category. *	
3.a.1) Outsourced GSF	
3.b. Total in-house labor costs (including salaries, wages, benefits). *	
3.c. Total non-labor cost (including supplies, equipment, training, etc.).*	

3.d. Total costs for outsourced services.	
Custodial Total Expenditures	
3.e. Please indicate the overall campus custodial service level (based on APPA's Custodial Staffing Guidelines)*.	

Position	FTE	Average Annual Full-Time Salary
In-house & Contractor FTEs		
3.f. Contractor FTEs		
3.g. Custodial Superintendent/Mgr*		
3.h. Custodial Supervisor/Foreman*		
3.i. Custodial Crew/Team Leader* 3.j. Custodian/Housekeeper*		
3.k. Other Custodial Positions*		

Landscaping/Grounds

Question	Entry
4**.a. Total acreage for which department performs specific function in this category. ***	
4.a. 1) Outsourced GSF	
4.b. Total in-house labor costs (including salaries, wages, benefits).	
4.c. Total non-labor cost (including supplies, equipment, training, etc.).	
4.d. Total costs for outsourced services.	
Landscaping/Grounds Total Expenditures	
4.e. Please indicate the overall campus landscaping/grounds maintenance level (based on APPA's Operational Guidelines for Grounds Management)*	

Position	FTE	Average Annual Full-Time Salary
In-house & Contractor's FTE		
4.f. Contractor FTE		
4.g. Grounds Superintendent/Mgr*		
4.h. Grounds Supervisor/Foreman*		
4.i. Grounds Crew/Team Leader*		
4.j. Groundskeeper*		
4.k. Other Grounds Positions*		

Maintenance

Question	Entry
5.a. Total GSF for which department performs specific function in this category.*	
5.a.1) Outsourced GSF	
5.b.. Total in-house labor costs (including salaries, wages, benefits). *	
5.c. Total non-labor cost (including supplies, equipment, training, etc., but excluding materials and spare parts).*	

5.d. Total costs for outsourced services. *	
5.e. Total repair materials and spare parts.*	
Maintenance Total Expenditures	
5.f. Please indicate the overall campus maintenance level (based on APPA's Maintenance Staffing Guidelines)*	

Position	FTE	Average Annual Full-Time Salary
In-House & Contractor FTE		
5.g. Contractor FTE		
5.h. Chief Superintendent Maintenance*		
5.i General Zone Maintenance Worker*		
5.j. Elevator Mechanic*		
5.k. Vehicle/Equipment Mechanic*		
5.l. Storekeeper/Expediter*		
5.m. Laborer/Trades Worker*		
5.n. Other Maintenance Positions*		
5.o. Shop Supervisor/Foreman*		
5.p. Carpenter*		
5.q. Electrician*		
5.r. Locksmith*		
5.s. Machinist/Welder*		
5.t. AC/Refrigeration*		
5.u. Mason*		
5.v. Painter*		
5.w. Plumber/Pipefitter*		
5.x. Roofer*		
5.y. Sheetmetal Worker*		
5.z. Other Trades Positions*		

Energy/Utilities

Question	Entry
6.a Total energy GSF*	
6.a.1) Outsourced GSF	
6.a.2) If campus operates co-generation plant (the costs of which are included herein), enter campus GSF serviced by co-generation. (These GSF are included in GSF reported in 6.a) and 6.a.1) above.)*	
6.b. Person to contact regarding Million BTU entry.*	
6.ab.1) Name	
6.b.2) Telephone Number	
6.b.3) Email of energy/utilities contact person	
6.b.4) Total energy consumption in MMBTUs (million BTUs)*	
6.c.1) Institution's annual utilities expenditure (including water and sewer)*	
4.a. Amount for water and sewer in 6.c.1) above.	
6.c.2) Total in-house labor costs (including salaries, wages, benefits).*	
6.c.3) Total non-labor cost (including supplies,	

equipment, training, etc.). *	
6.c.4) Total costs for outsourced services.*	
Energy/Utilities Total Expenditures	

Question	Entry
6.d. PLEASE CLARIFY YOUR UTILITIES OPERATIONS:	Yes/No Entries Below
6.d.1) Do you have cogeneration on your campus?	
6.d.2) If you have cogeneration on your campus, do you purchase services from a third party?	
6.d.3). Do you operate a district utility system?	
6.d.4)) If you operate a district utility system, is your district system campus owned and operated?	
6.d.5) Do you purchase electricity in a deregulated market?	
6.d.6) Do you purchase natural gas in a deregulated market?	
6.d.7) Have you executed a performance contract for energy-related services on your campus?	
6.d.8) Do you employ a full-time energy engineer/manager?	

Position	FTE	Average Annual Full-Time Salary
In-House & Contractor FTE		
6.e. Contractor FTE		
6.f Director of Utilities*		
6.g. Utilities Supervisor/Mgr*		
6.h.. Energy Engineer/Mgr*		
6.i.. HVAC Controls Technician*		
6.j. Utilities Operator/Maintenance*		
6.k. Other Energy/Utilities Positions*		

Other

Question	Entry
7.a. Total GSF for which department performs specific function in this category.*	
7.a.1) Outsourced GSF	
7.b. Total in-house labor costs (including salaries, wages, benefits). *	
7.c. Tota non-labor cost (including supplies, equipment, training, etc.)*	
7.d. Total costs for outsourced services.*	
Other Total Cost	
Please list any “other” services included:	
7.e.	
7.f.	
7.g.	

Position	FTE	Average Annual Full-Time Salary
In-house & Contractor FTE		
7.h.1) Security Contractor FTE		

7.i. Security*		
7.j. Environmental Safety*		
7.k. Other Public Safety Positions*		
7.l.1) Other Contractor FTE		
7.m. Other 1		
7.n. Other 2		
7.o. Other 3		

Operating Costs and Staffing Ratios Definitions

ADMINISTRATION/MANAGEMENT COSTS: Include all costs necessary to fulfill the duties of administration (management, financial, and clerical support) for all areas under the jurisdiction of the facilities department

- Include salaries, wages, employee benefits, travel, equipment, and other operating costs attributed to the chief administrator, assistant administrators of business management, and office personnel. Includes those assigned to payroll, billing, materials ordering, personnel records, and planning for the facilities management organization.
- Other administrative operating costs include supplies, materials, prorated share of telephones, postage, computer rental, accounting costs, and career training programs
- CAUTION: If you elect to exclude auxiliary enterprises, a pro-rata portion of Administration/Management function costs are to be excluded to the extent administration/management provides support to auxiliary enterprise services.

SENIOR FACILITIES OFFICER**:** The highest ranking administrative officer responsible for the operation and maintenance of the institution's facilities. Common titles include vice president for facilities, associate or assistant vice president or vice chancellor, director of facilities management or physical plant, and superintendent of buildings and grounds. An institution may report more than one individual in this line when primary responsibility for activities such as planning, construction and maintenance of facilities are separated within the institution.

ASSOCIATE/ASSISTANT DIRECTOR**:** Responsible to the senior facilities officer. In charge of assigned functions with a minimal amount of supervision.

BUSINESS/BUDGET MANAGER**:** On-staff person responsible for facilities accounting and budgeting matters. This typically includes monthly financial reports and annual budgets. It includes accountants.

HUMAN RESOURCES MANAGER**:** Individual within facilities department responsible for personnel and staffing issues, benefits management, and other administrative activities.

TRAINING OFFICER**:** Individual within facilities department responsible for assessing training and certification needs, and for organizing and conducting management and technical training.

TELECOMMUNICATIONS SPECIALIST: A technology specialist whose expertise covers telecommunications. This type of individual tends to be up-to-date on advances in technology and is responsible for communications-related issues for the facilities department.

COMPUTER PROGRAMMER/ANALYST**:** An individual experienced in both hardware and software applications of computer technology. This person may have a strong technical skill related to identifying and making improvements to facilities department computer hardware and software. This includes skills required for maintaining and upgrading electronic building control systems; e.g., programmable logic controllers.

OTHER ADMINISTRATIVE MANAGERS**:** Include other administrative managers who are not included in other categories.

SECRETARIAL/CLERICAL**:** Includes typical secretaries and clerks who support the facilities staff.

OTHER ADMINISTRATIVE/MANAGEMENT POSITIONS**:** Use this category where it is not reasonable to place a position in one of the above job categories. Do not use this category because of a slight difference in the name of the position**.**

CONSTRUCTION/RENOVATION/A&E COSTS FY 2007-08: Include all:
Costs in the facilities department incurred to fulfill the duties of planning, designing, engineering, contracting, managing, inspecting, financial, and clerical support for all capital projects areas under the jurisdiction of the facilities department.

- Facilities department costs necessary to fulfill the duties of design and engineering for all areas under the jurisdiction of facilities management.
- Salaries, wages, employee benefits, travel, equipment, and other costs required to provide technical and engineering services necessary to complete functions assigned and funded by the facilities organization.
- Staff personnel such as engineers, architects, and drafts persons.
- Facilities department costs associated with the actual estimating, contracting, inspecting, and final approval of new or renovated construction and other related projects.
    - Staff personnel such as project estimators, contract administrators, construction inspectors, and program or project coordinators/managers, usually the individuals with responsibility to manage these combined efforts.
    - Exclude the costs of capital construction projects. Only operating costs are reported.

CONSTRUCTION GSF-GSM: Campuses with an active campus renewal/expansion program usually base the measure of the Construction Office against the GSF-GSM undergoing planning, bidding, award, construction. Campuses with less active capital programs might evaluate Construction against the total campus GSF since there is some degree of oversight connected with all existing space. Find out which GSF measure best suites your campus and enter the GSF-GSM under either data entry points (but not both).

ARCHITECT: Individual primarily responsible for design and perhaps master planning efforts.

ENGINEER: Individuals whose work is associated with design improvements to the campus. Areas of expertise may include civil, mechanical, electrical, or industrial engineering. Would typically be assigned engineering or design work related to the construction or major modification of existing facilities.

FACILITY PLANNER: Includes facilities planners and coordinators involved in the construction/renovation activities.

CONSTRUCTION MANAGER**:** Plans and coordinates construction projects. Oversees construction supervisors and workers of the in-house workforce.

ESTIMATOR/SCHEDULER**:** Responsible for developing critical path method (CPM) type schedules for all projects managed by the facilities construction and renovation function performed by the in-house workforce. Develops budgets for renovations, remodeling, and new construction.

PROJECT COORDINATOR/MANAGER: Coordinates projects in a manner that ensures projects to be completed on time, within budget, and meets client’s expectations.

OTHER CONSTRUCTION/RENOVATION/A&E POSITIONS**:** Use this category where it is not reasonable to place a position in one of the above job categories. Do not use this category because of a slight difference in the name of the position.

CUSTODIAL OPERATIONS COSTS FY 2007-08: Include all:

- Costs related to custodial and housekeeping services in building interiors, and exterior functions such as window washing
- Salaries, wages, employee benefits, travel, equipment, and other operating costs associated with custodians and supervisors required to clean buildings.
- Work by outside contractors to perform custodial tasks.
- Small setups in which materials are stored in buildings where they are used.
- Operating costs such as paper, paper towels and tissue, wax, erasers, chalk, cleaners, and other materials and supplies.
- Common operations include mopping, sweeping, and waxing floors (sanding and refinishing floors are excluded); dusting, polishing furniture and fixtures, such as Venetian blinds, partitions, pictures, maps, and radiators; cleaning chalkboards, trays, erasers, and replacing chalk; washing and dusting walls; cleaning and disinfecting commodes and urinals; cleaning and washing other fixtures, walls, and partitions, and replenishing restroom supplies; emptying and cleaning waste receptacles; dusting and cleaning windows and other glass surfaces; sweeping and cleaning entrances; and opening and/or closing building doors and windows. Refer to APPA's Custodial Staffing Guidelines publication for additional information.

a. CUSTODIAL SERVICE LEVELS:

Level 1 Orderly Spotlessness:

- Floors and base moldings shine and/or are bright and clean; colors are fresh. There is no buildup in corners or along walls.
- All vertical and horizontal surfaces have a freshly cleaned or polished appearance and have no accumulation of dust, dirt, marks, streaks, smudges, or fingerprints. Lights all work and fixtures are clean.
- Washroom and shower fixtures and tile gleam and are odor-free. Supplies are adequate.
- Trash containers and pencil sharpeners hold only daily waste, are clean and odor-free.

Level 2 Ordinary Tidiness

- Floors and base moldings shine and/or are bright and clean. There is no buildup in corners or along walls, but there can be up to two days worth of dust, dirt, stains, or streaks.
- All vertical and horizontal surfaces are clean, but marks, dust, smudges, and fingerprints are noticeable upon close observation. Lights all work and fixtures are clean.
- Washroom and shower fixtures and tile gleam and are odor-free. Supplies are adequate.
- Trash containers and pencil sharpeners hold only daily waste, are clean and odor-free.

Level 3 Casual Inattention

- Floors are swept or vacuumed clean, but upon close observation there can be stains. A buildup of dirt and/or floor finish in corners and along walls can be seen.

- There are dull spots and/or matted carpet in walking lanes. There are streaks or splashes on base molding.
- All vertical and horizontal surfaces have obvious dust, dirt, marks, smudges, and fingerprints. Lamps all work and fixtures are clean.
- Trash containers and pencil sharpeners hold only daily waste, are clean and odor-free.

Level 4 Moderate Dinginess

- Floors are swept or vacuumed clean, but are dull, dingy, and stained. There is a noticeable buildup of dirt and/or floor finish in corners and along walls.
- There is a dull path and/or obviously matted carpet in the walking lanes. Base molding is dull and dingy with streaks or splashes.
- All vertical and horizontal surfaces have conspicuous dust, dirt, smudges, fingerprints, and marks. Lamp fixtures are dirty and some lamps (up to 5 percent) are burned out.
- Trash containers and pencil sharpeners have old trash and shavings. They are stained and marked. Trash containers smell sour.

Level 5 Unkempt Neglect

- Floors and carpets are dull, dirty, dingy, scuffed, and/or matted. There is a conspicuous buildup of old dirt and/or floor finish in corners and along walls. Base molding is dirty, stained, and streaked. Gum, stains, dirt, dust balls, and trash are broadcast.
- All vertical and horizontal surfaces have major accumulations of dust, dirt, smudges, and fingerprints, all of which will be difficult to remove. Lack of attention is obvious.
- Light fixtures are dirty with dust balls and flies. Many lamps (more than 5 percent) are burned out.
- Trash containers and pencil sharpeners overflow. They are stained and marked. trash containers smell sour.

CUSTODIAL SUPERINTENDENT/MANAGER: Responsible for the overall housekeeping operation.

CUSTODIAL SUPERVISOR/FOREMAN: Individuals with first-line supervisory responsibility for directing the daily work of the skilled and non-skilled housekeeping workforce. Includes responsibility for the timeliness, quality, and cost of work; accurate timekeeping; training and certification (if not covered by the department's training officer); leave balances, etc.

CUSTODIAL TEAM/CREW LEADER: Responsible for planning and coordinating the work of coworkers and guiding and training them while performing the same kind and level of work that they do a majority of the time.

CUSTODIAN HOUSEKEEPER: Performs duties such as cleaning interior surfaces, windows, rest rooms, and much more.

OTHER CUSTODIAL POSITIONS: Use this category where it is not reasonable to place a position in one of the above job categories. Do not use this category because of a slight difference in the name of the position.

LANDSCAPING/GROUNDS COSTS FY 2007-08: Include all costs to operate and maintain campus landscapes and grounds. These encompass:

- Salaries, wages, employee benefits, travel, equipment, and other operating costs associated with all supervisory and operating personnel.
- Work by outside contractors to perform landscaping and grounds maintenance.
- Maintenance of all areas of the campus; growing plants, trees, grass, shrubs, flowers, nursery stock, seed, fertilizers, and plant materials.
- Maintenance of physical education, intramural, and ROTC drill fields.
- Maintenance of open ditch drainage, fences, retaining walls, and riprap.
- Care of miscellaneous fixed equipment such as benches and shelter houses.
- Operation and replacement costs of all equipment used in connection with grounds maintenance.

LANDSCAPING/GROUNDS MAINTENANCE LEVEL: Descriptions of landscape maintenance levels are very lengthy. To provide an insight on maintenance levels, Turf Care alone is highlighted below. For more information see the APPA Operational Guidelines for Grounds Management

Level 1 Turf Care State-of-the-Art Maintenance

Grass heights maintained according to species and variety of grass. Mowed at least once every five days. Aeration as required but not less than four times per year. Reseeding or sodding as needed. Weed control to be practiced so that no more than 1 percent of the surface has weeds present.

Level 2 Turf High-Level Maintenance

Grass cut once every five working days. Aeration as required but not less than two times per year. Reseeding or sodding when bare spots are present. Weed control practiced when weeds present a visible problem or when weeds represent 5 percent of the turf surface. Some pre-emergent products may be used at this level.

Level 3 Turf Moderate-Level Maintenance

Grass cut once every ten working days. Normally not aerated unless turf quality indicates a need or in anticipation of an application of fertilizers. Reseeding or resodding done only when major bare spots appear. Weed control measures normally used when 50 percent of small areas are weed infested or when 15 percent of the general turf is infested with weeds.

Level 4 Turf Moderately Low-Level Maintenance

Low frequency mowing scheduled based on species. Low growing grasses may not be mowed. High grasses may receive periodic mowing. Weed control limited to legal requirements for noxious weeds.

Level 5 Turf Minimum-Level Maintenance

Low frequency mowing scheduled based on species. Low growing grasses may not be mowed. High grasses may receive periodic mowing. Weed control limited to legal requirements for noxious weeds.

GROUNDS SUPERINTENDENT: Responsible for the overall landscape and grounds maintenance operation.

GROUNDS SUPERVISOR/FOREMAN: Individuals with first line supervisory responsibility for directing the daily work of the skilled and non-skilled workforce. Includes responsibility for the timeliness, quality, and cost of work; accurate timekeeping; training and certification (if not covered by the department's training officer); leave balances, etc.

GROUNDS TEAM/CREW LEADER: Responsible for planning and coordinating the work of coworkers and guiding and training them while performing the same kind and level of work that they do a majority of the time.

GROUNDSKEEPER: Semi-skilled trade above that of common laborer. The position requires knowledge in the operation and maintenance of grounds equipment and supplies, as well as the care and maintenance of landscape materials.

OTHER GROUNDS POSITIONS: Use this category where it is not reasonable to place a position in one of the above job categories. Do not use this category because of a slight difference in the name of the position.

BUILDING MAINTENANCE/TRADES COSTS FY 2007-08: All costs necessary for the proper planning, scheduling, and dispatching of maintenance work. Include work management, dispatching of work orders, shop scheduling, and execution of work. Work management includes developing and revising work orders and cost estimates, maintaining historical maintenance databases, maintaining system configuration, supervising trades people, reconciling estimates with actual costs, maintaining installed computerized maintenance management systems, and maintaining a customer interface. Include all costs related to routine repairs, minor corrective maintenance, MMBTUs maintenance, and service calls. The following are encompassed:

- Salaries, wages, employee benefits, travel, equipment, and other operating costs required to maintain the interior and exterior of buildings.
- Work by outside contractors to perform building maintenance tasks.<li>Plumbing, heating, air conditioning, and ventilation.
- Electrical repairs of all types, including primary and secondary systems, certain lamp replacements (requiring special ladders and rigging) and maintenance of outdoor lighting fixtures (excluding energy costs)
- Carpentry and cabinet making.
- Painting and glazing.
- Hardware, locks, keys, closures, and records for same.
- Roofing and sheet metal work, including downspouts and gutters.
- Welding and necessary machine work.

NOTE: Report repair materials and spare parts separately. Exclude repair materials and spare parts costs from In-house Non-labor Costs unless such costs cannot be separated out.

OVERALL CAMPUS MAINTENANCE LEVEL:

Level 1: Showpiece Facility

Maintenance activities appear highly focused. Typically, equipment and building components are fully functional and in excellent operating condition. Service and maintenance calls are responded to immediately. Buildings and equipment are regularly upgraded, keeping them current with modern standards and usage.

Level 2: Comprehensive Stewardship

Maintenance activities appear organized with direction. Equipment and building components are usually functional and in operating condition. Service and maintenance calls are responded to in a timely manner. Buildings and equipment are regularly upgraded, keeping them current with modern standards and usage.

Level 3: Managed Care

Maintenance activities appear to be somewhat organized, but they remain people-dependent. Equipment and building components are mostly functional, but they suffer occasional breakdowns.

Service and maintenance call response times are variable and sporadic without apparent cause. Buildings and equipment are periodically upgraded to current standards and usage, but not enough to control the effects of normal usage and deterioration.

Level 4: Reactive Management

Maintenance activities appear to be somewhat chaotic and are people-dependent. Equipment and building components are frequently broken and inoperative. Service and maintenance calls are typically not responded to in a timely manner. Normal usage and deterioration continues unabated, making buildings and equipment inadequate to meet present usage needs.

Level 5: Crisis Response

Maintenance activities appear chaotic and without direction. Equipment and building components are routinely broken and inoperative. Service and maintenance calls are never responded to in a timely manner. Normal usage and deterioration continues unabated, making buildings and equipment inadequate to meet present usage needs.

SHOP SUPERVISOR/FOREMAN: Individuals with first-line supervisory responsibility for directing the daily work of the skilled and non-skilled workforce. Includes responsibility for the timeliness, quality and cost of work; accurate timekeeping; training and certification (if not covered by the department's training officer); leave balances, etc. An individual shop could have one person in this position for a small crew, and one or more assistants for larger crews.

CARPENTER: Maintains, repairs, and replaces building hardware, woodwork, casework, cabinetry, and various building systems.

ELECTRICIAN: Performs work on the building's electrical systems and equipment, including electronic circuitry. For the purposes of this survey, this position includes those who work with either high-voltage or low-voltage equipment.

LOCKSMITH: Maintains locks in doors and building equipment and all door hardware.

MACHINIST/WELDER: Performs work on various types of metal used in building systems, in support of maintenance operations.

AC/REFRIGERATION: Maintains, services, repairs, overhauls and operates air conditioning and refrigeration equipment.

MASON: Performs work involving concrete, stone, brick, plaster, and tile to interiors and exteriors of buildings.

PAINTER: Applies paint and other protective coatings to interior and exterior surfaces.

PLUMBER/PIPE FITTER: Performs work on piping systems transporting liquids, gases, and steam. Includes both supply and drain piping and related fixtures, as well as related control and metering equipment.

ROOFER: Performs work on all types of building roofs and associated building systems.

SHEET METAL WORKER: Builds and installs duct work for air handling systems.

OTHER TRADES POSITION: Use this category where it is not reasonable to place a position in one of the above job categories. Do not use this category because of a difference in the name of the position.

CHIEF/SUPERINTENDENT OF MAINTENANCE: Responsible for one of the major maintenance functions of THE FACILITIES MANAGEMENT DEPARTMENT.

GENERAL ZONE MAINTENANCE WORKER: This position can be defined in several ways. One is a general purpose worker without journey level skills who might be situated at any one of several locations to accomplish tasks not requiring a skilled trades person. It could be an individual skilled in more than one trade or craft. Or it could include individuals assigned to a zone maintenance organization or location. Please do not include employees who are listed elsewhere.

ELEVATOR MECHANIC: Performs work on all types of conveying equipment, including elevators, dumbwaiters, materials handling systems, moving stairs and walks, pneumatic tube systems, hoists, and escalators, to ensure their compliance with all safety regulations and building codes.

VEHICLE/EQUIPMENT MECHANIC: Diagnoses, troubleshoots and conducts both minor and major repairs on institutional vehicles. Inspects vehicles to insure compliance with safety regulations and requirements.

STOREKEEPER/EXPEDITER: Responsible for the facilities department's storeroom. Typical duties include purchasing, inventory control, and billing.

LABORER/TRADES WORKER: Performs semiskilled tasks in support of journeyman related to the

OTHER MAINTENANCE POSITIONS: Use this category where it is not reasonable to place a position in one of the above job categories. Do not use this category because of a slight difference in the name of the position.

PERSON TO CONTACT REGARDING MILLION BTU ENTRIES AND ENERGY/UTILITIES QUESTIONS: Please enter the name, email, and telephone number of the person who can field questions about MMBTU, cogeneration and other energy/utilities topics.

DIRECTOR OF UTILITIES: Individual(s) with primary management responsibility for the institution's utilities and energy management program.

UTILITIES SUPERVISOR/FOREMAN**:** Individuals with first-line supervisory responsibility for directing the daily work of the skilled and non-skilled workforce. Includes responsibility for the timeliness, quality, and cost of work; accurate timekeeping; training and certification (if not covered by the department's training officer); leave balances, etc. An individual shop could have one person in this position for a small crew, and one or more assistants for larger crews.

ENERGY ENGINEER/MANAGER: An individual who is a full-time specialist in energy engineering and management.

HVAC CONTROLS TECHNICIAN: Pneumatic, electric and digital HVAC controls, energy management system maintenance and programming, hydrolytic system controls, instrumentation calibration, and maintenance.

UTILITIES OPERATOR/MAINTENANCE: Consists of stationary engineers, boiler and chiller operators, and other whose primary responsibility is operation of utility equipment and systems. This also includes maintenance personnel whose primary responsibilities are dedicated to utility systems and not general facility maintenance. In some organizations, utility system operating and

OTHER UTILITIES POSITIONS: **USE** this category where it is not reasonable to place a position in one of the above job categories. Do not use this category because of a slight difference in the name of the position.

TOTAL ENERGY CONSUMPTION IN MMBTUs (Please use below MMBTU Calculation Worksheet)**:** The Worksheet converts commonly used units of energy into British Thermal Units (BTUs) so that comparisons can be made on total energy consumption.

TOTAL PURCHASED UTILITIES FY 2007-08: The annual expenditure for utilities. Include the expenditure for electricity, natural gas, propane gas, fossil fuels used for heating, cooling, lighting and equipment operation. Include water and sewer.

TOTAL OTHER COSTS FY 2007-08: Include all net costs associated with the operation of any other facilities related services that does not naturally fit under any of the above categories. Report here security, environmental safety, snow removal and maintenance of hardscape areas (roads and walks, parking areas). Space is provided for up to three additional activities. Please put the name of "other" services, if any, in the space provided.

SECURITY: Includes all individuals responsible for personal and property safety on campus, including police investigation, fire safety, emergency preparedness, etc.

ENVIRONMENTAL/SAFETY: Includes asbestos workers, recycling coordinating/workers, solid and hazardous waste disposal, etc.

OTHER PUBLIC SAFETY POSITIONS: Use this category where it is not reasonable to place a position in one of the above job categories. Do not use this category because of a slight difference in the name of the position.

Business Practices

Work Orders

Question	Entry
8. Reactive Routine Maintenance Service Work Orders (exluding emergency and preventive work orders):*	
8.a. Reactive routine work orders are what PERCENT of the total of reactive and preventive work orders? Please enter as a whole number without decimal point: e.g., enter 33 but not .33 or 33%.	
8.b. Reactive routine work order cycle time in HOURS with materials on-hand* Round off to the nearest hour.	
8.c. Reactive routine work order cycle time in HOURS when ordering & receipt of materials is required* Round off to nearest hour.	
8.d. Reactive and preventive routine work orders (excluding emergency work orders)*:	
8.d.1) Average Age (HOURS rounded to the nearest hour) of reactive and preventive routine maintenance work orders*	
8.d.2) No. staff HOURS (rounded to the nearest hour) in backlog for completing open work orders	

(estimated time for every open work order)*	
8.e.. Total FTE dedicated to performance of work orders*	

Sustainability/Energy Efficiency

Question	Entry
Annual energy efficiency expenditure DOLLARS FY 2007-08:*	

Project Management

Question	Entry
8.f.1). Project soft actual costs:*	
8.f.2) Architecture & engineering actual DOLLAR costs.*	
8**.f.3) Adjusted total actual project costs.***	
8.g.. PERCENT of adjusted total actual project cost attributable to change orders? Please enter as a whole number: e.g., enter 10 but not .10 or 10%.	

Work Down-Time

Question	Entry
8.h.1). Annual Holidays (Days) Taken Per Person for Year Reported*	
8.h.2) Total Annual Hours Sick Leave Taken (excluding Work-Related Injuries) by All Facilities FTE*	
8.h.3). Total Annual Vacation Hours Used by All Facilities FTE*	
8.h.4) Total Annual Hours Missed Due to Work-Related Injuries for All Facilities FTE*	
8.h.5)Total Annual Hours of Other Leave Taken by All Facilities FTE*	
Total hours of "Work Down-Time" which includes absences from the work place for holidays, vacation, sick leave, work-related injury leave, and other types of paid leave such as jury duty, military leave, personal leave, and maternity leave. Do not include non-productive hours while at the workplace.	

Performance Self-Evaluations Descriptions

Level 1 Copper (No Program) No systematic financial/internal process/innovation & learning/customer satisfaction data collection program evident. Only anecdotal information is available on how well financial integrity and physical asset stewardship are satisfied.
Level 2 Bronze (Beginning Program) Beginnings of a systematic financial/internal process/innovation & learning/customer satisfaction data collection program. May be tracking some indicators. Major gaps exist. Some primary indicators are not included. Early stages of a transition from reacting to problems to a general improvement orientation with noted results. Trends show some improvements and/or good performance is noted for some primary services.
Level 3 Silver (Mature Program) A sound, systematic financial/internal process/innovation & learning/customer satisfaction data collection and evaluation program has been established to examine perspective objectives. Program collects and trends performance indicators for almost all service activities. A fact-based improvement process is in place for reducing costs/improving performance of most primary services. Emphasis is placed more on improvement than on reacting to problems. Improvements and cost savings can be measured and substantiated. Performance trends show cost or service improvement in many to most primary services. No adverse trends are noted. Some trends and/or service levels are evaluated against relevant comparisons or benchmarks from similar institutions. Results show areas of strength with good to very good relative service levels.
Level 4 Gold (Stretch Excellent Program) A sound, systematic financial/internal process/innovation & learning/customer satisfaction data collection, evaluation, and refinement program has been established that documents results in satisfying perspective objectives. A fact-based improvement process is in place for reducing costs or improving services for all primary services. Cycles of improvement demonstrate a mature program of incremental improvements and refinements in making previous improvements even better. Performance trends show cycles of cost or service improvement in many to most primary services. Most improvement trends and/or performance levels are sustained over cycles of data collection. Current financial performance is good to excellent for most service activities. No adverse trends are noted. Most trends and/or service levels are evaluated against relevant comparisons or benchmarks from similar institutions. Results show areas of leadership with very good relative service levels.
Level 5 Platinum (Flawless Program) A sound, systematic financial/internal process/innovation & learning/customer satisfaction data collection, evaluation, and refinement program fully established that accomplishes overall financial perspective objectives. Program collects performance indicators for all primary services. Specific services within broader primary services are being evaluated for individual services centers (lock shop, sign shop, zones, plumbing, etc.) and making improvements. A very strong fact-based improvement process is fully in place for reducing costs or improving services for all primary services. Emphasis is placed on refinement of previous improvements to make them even better. Cycles of improvement demonstrate a mature program of continuous improvements and refinements in primary services and have been sustained over several years. Current performance is excellent for most primary services. No adverse trends are noted. Most trends and/or service levels are evaluated against relevant comparisons or benchmarks from other similar institutions. Some are benchmarked with outside industries. Results show areas of leadership with excellent relative service levels.

Performance Self-Evaluation Scores

Balanced Scorecard Perspective	Performance Self-Evaluation Level (Levels 1-5)
8.i.1) Enter Financial Performance Self-Evaluation level.	
8.i.2) Enter Internal Processes Performance Self-Evaluation level	
8.i.3) Enter Learning Performance & Growth Self-Evaluation level	
8.i.4) Enter Customer Performance Self-Evaluation Level	

Business Processes Definitions

REACTIVE ROUTINE WORK ORDER CYCLE TIME WITH MATERIALS ON HAND* ROUND OFF TO THE NEAREST HOUR BASED ON 7-DAY WEEK, 24 HOURS/DAY: Cycle time is Completion Time minus Process Start Time based on a seven day week and a 24-hour day. The Cycle Time analysis can be applied to any number of facilities operations. Cycle time is the length of time it takes to complete a process or a meaningful element of a process.

The definition of "complete " and "a meaningful element " is non-prescriptive. Typical examples could be work order processes by priority category or trade, such as preventive maintenance and customer repair work requests.

A meaningful element with that process might be the time to prepare an estimate for a customer or any other phase of a process requiring close examination.

For this survey, reactive routine work orders are the subject of the cycle time analysis. Cycle Time, for the purpose of the survey, is the average length of time (hours rounded to the nearest hour) that it takes to complete routine maintenance service work orders. Base the hours on a seven-day week and a 24-hour day.

The cycle time of each work order started at the time the order was received (arrived) in facilities. The cycle time ended for each work order when the job was completed to the end user's satisfaction. The time interval is based on a seven-day week and a 24-hour day.

Calculate the average of the lengths of time it took to complete every routine maintenance service work order closed out over any recent period of time (usually the previous month). Select a time period long enough so that the results would be truly representative of the classification of work orders without being skewed by abnormal work schedules.

Divide the work orders into those completed with materials on hand (Essential Set Measure) and those work orders that required purchase and receipt of materials. and for routine work orders that required purchase and receipt of material(s) to complete the work.

REACTIVE AND PREVENTIVE WORK ORDERS (EXCLUDING EMERGENCY WORK ORDERS)**:** Reactive routine maintenance service work normally comprises day-to-day minor maintenance activities, such as hot and cold calls, leaking pipes, malfunctions in door hardware, and lights burned out. It may be anything that is not an emergency, preventive maintenance, minor work, or major project

PREVENTATIVE ROUTINE WORK ORDERS: These are scheduled maintenance tasks.

AVERAGE AGE (HOURS ROUNDED TO THE NEAREST HOUR) OF ROUTINE AND PREVENTIVE ROUTINE MAINTENANCE WORK ORDERS* (HOURS ROUNDED TO THE NEAREST HOUR). Average age reported in this survey will be the average length of time that all open routine maintenance service work orders have been in the work order system and remain uncompleted. It is

the average time that has elapsed since each open work order was initiated to the present or the date of the measurement. Base average age on a seven-day week and a 24-hour day.

NUMBER OF STAFF HOURS (HOURS ROUNDED TO THE NEAREST HOUR) IN BACKLOG FOR COMPLETING OPEN WORK ORDERS (ESTIMATED TIME FOR EVERY OPEN WORK ORDER): The number of staff hours in backlog are the number of staff hours required for completing open work orders. The number of hours required for accomplishing all uncompleted work is calculated by totaling the estimated time that will be needed for every open work order transaction

TOTAL FTE DEDICATED TO PERFORMANCE OF WORK ORDERS**:** Staff FTE is the number of staff who would normally be assigned to the type of work of which part is in backlog status.

ANNUAL ENERGY EFFICIENCY EXPENDITURES FY 2007-08: Expenditures for all new, replacement or retrofit equipment, devices, and units that are either hard/flexible wired attached to a permanent fixed plant asset (excludes auxiliary facilities) that can be justified by cost savings in energy usage over the life of the equipment installed or retrofitted. Energy units must directly support the function of the institution and are regarded by the industry as high or very high efficiency. Energy conservation units are generally referred to as environmentally friendly and have an associated "payback" period. Energy conservation cost need to be expressed in dollar value spent in the given annual year for total energy conservation expenditures. This includes total labor, fringe benefits, supplies, transportation, and other special condition for installation. *Usually large, one-time energy reinvestment projects, that would otherwise distort comparisons to normal annual reinvestment amounts, can be averaged over several years.*

CAPITAL PROJECTS ACTUAL COSTS: Project Soft Costs, Architecture and Engineer Costs, and Adjusted Total Actual Project Costs have to originate from the same capital project(s). At a minimum, select one significant and representative capital project completed in fiscal year 2007-08 regardless of its start date. It is preferable to use a group of capital projects completed in the fiscal year (regardless of their start date) because a group provides more stable information for comparing performance from year-to-year in the future.

PROJECT SOFT ACTUAL COSTS**:** Report the amount expended to prepare and complete the non-construction needs of this project(s). Soft costs include such items as architecture, design, engineering, permits, inspections, consultants, environmental studies, and regulatory demands needing approval before construction begins. Soft costs exclude construction costs, telecommunications, furnishings, fixed equipment costs, and any other permanent components of the project.

ARCHITECTURE & ENGINEERING ACTUAL COSTS: Report the total actual costs charged by the architecture and engineering firms to the project(s) as reported in Project Soft Costs above.

ADJUSTED TOTAL ACTUAL PROJECT COSTS: Report the total adjusted actual project costs for the same project(s) as reported in Project Soft Costs above. Include the total cost to complete and close the project(s) excluding the equipment and furnishings costs. Include soft costs and construction costs.

WORK DOWN-TIME: Work Down-Time includes absences from the work place for holidays, vacation, sick leave, work-related injury leave, and other types of paid leave such as jury duty, military leave, personal leave, and maternity leave.

WORK UP-TIME includes billable hours, meetings, training, and necessary work activities such as on-site travel time, equipment maintenance, storing equipment and supplies, evaluating customer requested work, preparing work estimates, etc.

ANNUAL HOLIDAYS (DAYS) TAKEN PER PERSON FOR YEAR REPORTED**:** Average Annual Holidays Taken Per Person for Year Reported. Record the number of days a staff person was off-work on paid status in recognition/celebration of holidays during the fiscal year covered by this survey.

TOTAL ANNUAL HOURS SICK LEAVE TAKEN (EXCLUDING WORK-RELATED INJURIES) BY ALL FACILITIES FTE: Report the sick leave used (not that which was accrued) during the fiscal year covered by this survey. Leave taken for work-related injuries is reported separately below

TOTAL ANNUAL VACATION HOURS USED BY ALL FACILITIES FTE: Enter the sum of all vacation hours used (not accrued) by the facilities staff in the fiscal year reported..

TOTAL ANNUAL HOURS MISSED DUE TO WORK-RELATED INJURIES FOR ALL FACILITIES FTE: Follow the definition used by your institution's governing entity for work-related injuries. Include hours while on leaves of absence due to work-related injuries.

TOTAL ANNUAL HOURS OF OTHER LEAVE TAKEN BY ALL FACILITIES FTE: Other Leave Taken by All Facilities FTE during the fiscal year covered by this survey. Examples are jury duty, military leave, personal leave, and maternity leave.

WORKSHEET: ANNUAL MMBTU USAGE CALCULATION

This worksheet converts commonly used units of energy into British Thermal Units (BTUs) so that comparisons can be made on total energy consumption. The conversion involves multiplying units of energy by factors and, while this is simple arithmetic, it can be perplexing. For this reason we request that you enter the name of the person to contact regaring BTU calculations in Section 4. Financial Operations or Section 5. Internal Processes sections of the survey.

The Worksheet is organized as follows: Total energy consumption entries are put in the first part. The second part contains entries on auxiliary services usage. The third part contains entries on any usage by/sale to external entities. Please follow this design.

The MMBTU entries on the survey will be made automatically after you save the entries and indicate "Mark as Complete" for this module on the survey home page. An instant MMBTU report also will be generated and listed on the home page for your viewing and printing. You are able to make entry corrections after viewing the instant report results, save the entries,again "Mark as Complete" on the home page, and re-view the modified instant report.

The BTU calculation is based on conversion factors for each type of energy. A default factor is shown but you can override the default factor by entering a substitute BTU conversion number. *DO NOT CHANGE THE UNIT OF MEASURE.*

The best method of completing the MMBTU worksheet it to include auxiliary services in the first "Gross Energy Sources" section and complete the second part of the worksheet, "Distribution to Auxiliary Services". The processing program keys off whether you are including/excluding auxiliaries in all of your entries as indicated in the survey registration process.

- If you are excluding auxiliaries, the program assumes that auxiliary BTUs are included in the 1st section of the Worksheet and deducts Distribution to Auxiliary Services from the Gross Energy Sources (as well as distributions to external organizations).
- If you are including auxiliaries, the program uses the Gross Entergy Sources entries (less distributions to external organizations).

MMBTU stands for millions of BTUs.

LEGEND OF UNITS:
kLbs = 1,000 pounds of steam; Therm = 100,000 BTUs;
kTon-h = 1,000 ton-hrs;
MCF = 1,000 cubic feet of gas

Gross Energy Sources

Source	Factor	Amount	BTU
1. Gallons of Oil #1	1.a. Oil#1 Default factor is 138,000 BTUs/Gallon.		
2. Gallons of Oil #2	2.a. Oil#2 Default factor is 139,000 BTUs/Gallon.		
3. Gallons of Oil#3	3.a. Oil#3 Default factor is 140,000 BTUs/Gallon.		
4. Gallons of Oil#4	4.a. Oil#4 Default factor is 150,000 BTUs/Gallon		
5. Gallons of Oil#5	5.a. Oil#5 Default factor is 145,000 BTUs/Gallon.		
6. Gallons of Oil#6	6.a. Oil#6 Default Factor is 150,000 BTUs/Gallon.		
7. Tons of Coal	7.a. Coal Default Factor is 24,000,000 BTUs/Ton		
8. Tons of Wood	8.a. Wood Default factor is 12,000,000 BTUs/Ton.		
9. kWh of Electricity	9.a. Electricity Default factor is 3,412 BTUs/kWh.		
10. kLbs of Steam	10.a. Steam Default factor is 1,000,000 BTUS/Klbs		
11. Therm of Hot Water	11.a. Hot Water Default factor is 100,000 BTUs/Therm.		
12. Kton-h of Chilled Water	12.a. Chilled Water Default factor is 12,000,000 BTUs/Kton-h.		
13. MCF of Natural Gas	13.a. Natural Gas Default factor/MCF is 1,000,000 BTUs/MCF.		
14. Other Energy Source quantity	14.a. Other energy source conversion BTU factor		
Total BTU (Gross Purchased Energy)			
Total MMBTU (Gross Purchased Energy / 1,000,000			

Distribution to Auxiliary Services

Source	Factor	Amount	BTU
15. kWh of Electiricty	15.a. Electricity Default factor is 3,412		

	BTUs/kWh.		
16. kLbs of Steam	16.a. Steam Deafault factor is 1,000,000 BTUs/kLbs.		
17. Therms of Hot Water	17.a. Hot Water Default factor is 100,000		
18. Kton-h of Chilled Water	18.a. Chilled Water Default factor is 12,000,000.		
19. MCF of Natural Gas	19.a. Natural Gas Default factor is 1,000,000.		
20. Other energy source quantity	20.a. Other energy source conversion BTU factor		
Subtotal BTUs Distributed to Aux Services			
Total MMBTUs (Distributed to Aux Services BTUs / 1,000,000			

Distribution to External Organizations

Source	Factor	Amount	BTU
21. kWh of Electiricty	21.a. Electricity Default factor is 3,412 BTUs/kWh.		
22. kLbs of Steam	22.a. Steam Deafault factor is 1,000,000 BTUs/kLbs.		
23. Therms of Hot Water	23.a. Hot Water Default factor is 100,000.		
24. Kton-h of Chilled Water	24.a. Chilled Water Default factor is 12,000,000.		
25. MCF of Natural Gas	25.a. Natural Gas Default factor is 1,000,000.		
26. Other energy source quantity	26.a. Other energy source conversion BTU factor		
Sutotal BTUs Distributed to External Organizations			
Total MMBTUs Distributed to external Organizations (BTUs / 1,000,000)			

Total MMBTU Calculations	Entry
Total energy consumption in MMBTUs INCLUDING sales to auxillary services but EXCLUDING external organizations	
Total energy consumption in MMBTUs	

EXCLUDING sales to auxillary services and external organizations	

Is my institution making the right investment in our existing buildings, infrastructure and academic programs? #5

Question	Entry
1 Buildings Useful Life (Years): Average expected years of useful life of the mission critical facilities*	
2 Deferred Capital Maintenance Backlog.*	
3 Capital renewal cumulative need.*	
4 Renovation, modernization, and adaptation cumulative need.*	
5 Capital Renewal Deferred Maintenance Expenditures*	
6 Renovation, modernization, and adaptation annual expenditure.*	
7 Capital expenditures for new/expansion space major campus capital projects.	
8 Capital expenditures for major campus capital projects replacing existing space during the 2007-08 fiscal year.*	
9 If your institution has a strategy for reducing your Needs Index percentage, what reduced Needs Index percentage is the goal? Enter percent as a whole number: e.g., 25% entry is 25.	
10 What would be a reasonable number of years for reaching a reduced Needs Index Goal?	

Definitions:
BUILDINGS USEFUL LIFE (YEARS): Average expected years of useful life of the mission critical facilities Buildings life-cycle years is the average number of years your campus buildings are expected to be functional with adequate maintenance, renovation, modernization, adaptation, etc., before being replaced. For historic buildings, include in the average the number of estimated years that elapse between major renewals of the historic buildings.

DEFERRED CAPITAL MAINTENANCE BACKLOG: Deferred maintenance is work that has been deferred on a planned or unplanned basis to a future budget cycle or postponed until funds become available.

- INCLUDE EXPENDITURES for the total dollar amount of existing major maintenance repairs and replacements identified by a comprehensive facilities condition audit of buildings, grounds, fixed equipment, and infrastructure needs.

- EXCLUDE EXPENDITURES for projected maintenance and replacements of such other types of work, such as program improvements or new construction; these items are viewed as separate capital needs.

CAPITAL RENEWAL CUMULATIVE NEED**:** The amount currently required over and above facility maintenance operating budget expenditures, to bring the physical plant into reliable operating

condition for its present use. This dollar amount is over and above normal maintenance for items with a life cycle in excess of one year and is not normally contained in an annual facility operating budget. Capital renewal cumulative need does not include those items that are included in the deferred maintenance backlog.

RENOVATION, MODERNIZATION, AND ADAPTATION CUMULATIVE NEED: An estimate of the amount required for the addition or expansion of facilities by work performed to change the interior alignment of space or physical characteristics of an existing facility so that it can be used more effectively, be adapted for new use, or comply with existing codes. This estimated amount is required to meet the evolving technological, programmatic, or regulatory demands of the campus.

ANNUAL CAPITAL RENEWAL/DEFERRED MAINTENANCE EXPENDITURES: Annual Capital Renewal Deferred Maintenance Expenditures are all expenditures in excess of facility operation and maintenance expenditures required to keep the physical plant in reliable operating condition for its present use.

These expenditures are over and above normal maintenance for items with a life cycle in excess of one year and are not normally contained in an annual facility operating budget.

- This is a separately funded, uniquely identified program that renews, replaces, or renovates building systems on a schedule based on life-cycle recommendations and on assessment of expected remaining useful life.
- This is typically represented as a total expenditure for capital renewal of an institution's capital assets. Plant renewal focuses on maintaining the operability, suitability, and value of capital assets. It is accomplished through the replacement and rework of those components of a building that wear out even though those components are routinely maintained. Capital or plant renewal is a time-driven process with specific useful life cycles for such things as heating and ventilation systems, etc. Capital renewal often is provided in the form of capital funding for "major maintenance" before it becomes deferred.

RENOVATION, MODERNIZATION, AND ADAPTATION ANNUAL EXPENDITURE: The annual expenditure for the addition or expansion of facilities by work performed to change the interior alignment of space or physical characteristics of an existing facility so that it can be used more effectively, be adapted for new use, or comply with existing codes. This expenditure is required to meet the evolving technological, programmatic, or regulatory demands of the campus.

CAPITAL EXPENDITURES FOR NEW/EXPANSION SPACE MAJOR CAMPUS CAPITAL PROJECTS.: Include major campus capital project expenditures disbursed during the 2007-08 fiscal year.

CAPITAL EXPENDITURES FOR MAJOR CAMPUS CAPITAL PROJECTS REPLACING EXISTING SPACE DURING THE 2007-08 FISCAL YEAR: Include major campus capital project expenditures disbursed during the 2007-08 fiscal year.

STRATEGY FOR REDUCING YOUR NEEDS INDEX PERCENTAGE: The Needs Index is composed of cumulative deferred maintenance, capital renewal, and renovation/modernization/adaptation divided by current replacement value (CRV). The resultant percent reflects the portion of the campus in need of capital investment in order to be fully functional. Most campuses cannot eliminate the total Need Index, but many have a strategy for working it to a lessor percent of CRV through annual/periodic capital investments into existing/replacement GSF. If your campus has such a strategy, indicate the Needs Index percentage goal:, e.g., if your current Needs Index is 25% and you wish to reduce it to 20%, enter 20.

REASONABLE NUMBER OF YEARS FOR REACHING A REDUCED NEEDS INDEX GOAL: If you have entered a reduced Needs Index goal, enter the number years currently estimated to reach that goal.

What role does Total Cost of Ownership play in your institution's asset investment strategy?

5 Fully funded for new construction, Maintenance and Operations and Renewal based on bldg type
4 Funded for new construction, M&O and partial renewal
3 Funded for new construction and Maintenance and Operations
2 Funded for new construction and partial funding for M&O
1 Funded for new construction only

Question	Entry (5 to 1 above)
What role does Total Cost of Ownership play in your institution's asset investment strategy?	

Are Customers Satisfied with Space and Services? #6

- The purpose of this section is to collect your statistics and responses that will assist you in assessing the degree to which your organization is directed toward customer satisfaction.
- The Customer Perspective addresses how your organization determines requirements, expectations, and preferences of customers to ensure relevance of current services and to develop new opportunities. This Perspective builds relationships with customers. It measures results of customer satisfaction and performance of services. Primary customer groups include faculty, staff, students, customer representatives and decision-makers for customer departments, and other significant stakeholders. Primary services would include those for operations and maintenance, energy and utilities, and planning, design, and construction.

Customer Satisfaction Survey Results:

If your organization assessed the satisfaction level of its customers in the past two years using a numerically calibrated survey instrument, please complete (Essential Set Option) Overall Average Customer Satisfaction Index or (Detail Option) Distribution Index questions.

Those completing the Detail entries, are requested to complete the Worksheet: *Customer Satisfaction By Function* to provide function specific customer satisfaction information.

If you have not assessed the satisfaction level of customers in the past two years, go to question 2.

Question	Entry
1. Overall Average Customer Satisfaction Index:*	
1. Distribution Index: Indicate the percent of customers whose overall scores averages were in the following ranges.* The total of the entries must equal 100%. Use whole number entries and exclude the % sign.	
1.a Percent Extremely Satisfied	
1.b. Percent Very Satisfied.	

1.c. Percent Satisfied.	
1.d. Percent Very Dissatisfied	
1.e. Percent Extremely Dissatisfied.	
2. Our organization seeks out the requirements, expectations, and preferences of all of our customer groups biannually or more often.	
3. Customer feedback is obtained when work is performed.	
4. Customer feedback includes an evaluation of the relevance of current services and opportunities for new services.	
5. Our customer satisfaction is measured in a consistent manner from year to year.	
6. A major part of our customer satisfaction measurements is numerically calibrated.	
7. Our facilities supervisors and managers study customer requirements, expectations, preferences, and satisfaction, and take the appropriate actions to improve delivery of services.	
8. Our customer satisfaction assessment program is improving the delivery of services and customer satisfaction.	
9. Employees are recognized in our strategic plan as the most important component in our ability to satisfy customers with our delivery of services.	
10. Our services meet or exceed the “hidden” or unstated needs of our customer groups.	

Customer Satisfaction Definitions

OVERALL AVERAGECUSTOMER SATISFACTION INDEX: THE Customer Satisfaction Index is the overall average of all questions answered by all customers. (Sum of all answers divided by the count of all answers.)

DISTRIBUTION INDEX: Indicate the percent of customers whose overall scores averages were in the five indicated ranges. The total of the entries must equal 100%.

QUESTION SERIES: The responses to the listed 10 questions describe the innovation and learning practices in an organization.

Worksheet Customer Satisfaction By Function

This worksheet reports customer satisfaction by function. This is essential information for better comparative evaluations of financial operations functions in particular. This information has the potential of becoming a primary grouping on which statistics are developed.

The worksheet also captures information on the types of surveys being conducted, the campus groups being surveyed for satisfaction and the frequency of satisfaction surveying.

This is the first time that information about facilities customer satisfaction will be routinely collected on a national scale. It will provide a better profile of facilities customer surveying practices.

Facilities Function	Retro Survey Frequency	Retro Survey Groups Surveyed	Point of Service Survey Frequency	Last Fiscal Year Overall Satisfaction 1-5 Scale 5 = Extremely Satisfied 1 = Extremely Dissatisfied	Next Fiscal year Satisfaction Goal 1-5 Scale 5 = Extremely Satisfied 1 = Extremely Dissatisfied
Construction/Renovation/A&E	☉ 5 - Annually ☐ 4 - Bi-Annually ☐ 3 - 3-5 Years Apart ☐ 2 - 1X & Unrepeated ☐ 1 - Never	☐ FAC - Faculty ☐ STF - Staff ☐ STU - Students ☐ OTH - Other	☐ 5 - All Work ☐ 4 - All Major Work ☐ 3 - Annual Sampling ☐ 2 - Occassionally ☐ 1 - Never		
Custodial	☉ 5 - Annually ☐ 4 - Bi-Annually ☐ 3 - 3-5 Years Apart ☐ 2 - 1X & Unrepeated ☐ 1 - Never	☐ FAC - Faculty ☐ STF - Staff ☐ STU - Students ☐ OTH - Other	☐ 5 - All Work ☐ 4 - All Major Work ☐ 3 - Annual Sampling ☐ 2 - Occassionally ☐ 1 - Never		
Landscaping/Grounds	☉ 5 - Annually ☐ 4 - Bi-Annually	☐ FAC - Faculty ☐ STF - Staff	☐ 5 - All Work ☐ 4 - All Major Work		

	☐ 3 - 3-5 Years Apart ☐ 2 - 1X & Unrepeated ☐ 1 - Never	☐ STU - Students ☐ OTH - Other	☐ 3 - Annual Sampling ☐ 2 - Occassionally ☐ 1 - Never		
Energy/Utilities	☐ 5 - Annually ☐ 4 - Bi-Annually ☐ 3 - 3-5 Years Apart ☐ 2 - 1X & Unrepeated ☐ 1 - Never	☐ FAC - Faculty ☐ STF - Staff ☐ STU - Students ☐ OTH - Other	☐ 5 - All Work ☐ 4 - All Major Work ☐ 3 - Annual Sampling ☐ 2 - Occassionally ☐ 1 - Never		
Maintenance	☐ 5 - Annually ☐ 4 - Bi-Annually ☐ 3 - 3-5 Years Apart ☐ 2 - 1X & Unrepeated ☐ 1 - Never	☐ FAC - Faculty ☐ STF - Staff ☐ STU - Students ☐ OTH - Other	☐ 5 - All Work ☐ 4 - All Major Work ☐ 3 - Annual Sampling ☐ 2 - Occassionally ☐ 1 - Never		
All Other	☐ 5 - Annually ☐ 4 - Bi-Annually ☐ 3 - 3-5 Years Apart ☐ 2 - 1X & Unrepeated ☐ 1 - Never	☐ FAC - Faculty ☐ STF - Staff ☐ STU - Students ☐ OTH - Other	☐ 5 - All Work ☐ 4 - All Major Work ☐ 3 - Annual Sampling ☐ 2 - Occassionally ☐ 1 - Never		

Am I building staff that can sustain excellence? #7

- The purpose of this section is to collect the statistics and responses which will assist you in assessing the degree to which your organization is directed towards creating a high-performance workplace and a learning organization.
- In a learning organization, people at all levels, individually and collectively, are continually increasing their knowledge and capacity to produce the best practices and best possible results. The perspective considers how the organizational culture, work environment, employee support climate, and systems enable and encourage employees to contribute effectively. Work environment and systems include work and job design, compensation, employee performance management, and recognition programs. Training is analyzed in how well it meets ongoing needs of employees and develops their leadership and knowledge sharing skills to improve efficiency and accommodate change. There is an emphasis on measuring results relating to employee well being, satisfaction, development, motivation, work system performance, and effectiveness.

Employee Assessment Survey Results:If your organization assessed the satisfaction level of the employees in the last two years using a numerically calibrated survey instrument, please complete (Essential Set Option) Overall Average Employee Satisfaction Index, or (Detail Option) Distribution Index. Otherwise, go to question 2.

Question	Entry
1. Overall Average Employee Satisfaction Index:*	
1. Distribution Index: Indicate the percent of employees whose overall scores averages were in the following ranges.* The total of the entries must equal 100%. Use whole number entires and exclude the % sign. For instance, 10 is the correct entry for 10%*	
1.a Percent Extremely Satisfied	
1.b. Percent Very Satisfied.	
1.c. Percent Satisfied.	
1.d. Percent Very Dissatisfied	
1.e. Percent Extremely Dissatisfied.	
2. Our facilities operation measures the satisfaction level of all or most of our employees biannually or more often.	
3. Our employee satisfaction is measured in a consistent manner from year-to-year.	
4. Our employee satisfaction measurement is numerically calibrated.	
5. Our facilities supervisors and managers study employee satisfaction input to assess weaknesses and strengths within the organization.	
6. Our facilities supervisors and managers address organization weaknesses discovered through employee satisfaction measurements.	
7. Our employee satisfaction assessment program is improving employee satisfaction.	
8. Our recognition programs are aligned to the desired outcomes of our organization's strategy. They encourage the types of behaviors that result in our desired strategic outcomes.	

9. Our department and campus have awards and recognition programs for all ranks of employees which are wholeheartedly and consistently used.	
10. Employees are recognized in our strategic plan as the most important component in our ability to deliver service.	
11. Key practices are in place that are directed toward creating a high performance workplace and learning organization.	
12. Continuous improvement is an integral component of our organizational strategy.	

Training

Question	Entry
13. Total Annual On-Shift Training for All Facilities FTE*	
13.a. Total Annual Hours On-Shift Required/Mandatory Training. Exclude commas and descriptors, such as "hours".	
13.b. Total Annual Hours of On-Shift Elective Training. Exclude commas and descriptors, such as "hours".	
Total Annual Mandatory & Elective On-Shift Training for All Facilities FTE*	

Internal Candidates

Question	Entry
14. Percent of Facilities Open Positions Filled by Internal Candidates*	

Learning and Growth Definitions

OVERALL AVERAGE EMPLOYEE SATISFACTION INDEX: THE Employee Satisfaction Index is the overall average of all questions answered by all employees. (Sum of all answers divided by the count of all answers.)

DISTRIBUTION INDEX: Indicate the percent of employees whose overall scores averages were in the five indicated ranges. The total of the entries must equal 100%.

QUESTION SERIES: The responses to the listed 10 questions describe the innovation and learning practices in an organization.

TOTAL ANNUAL ON-SHIFT TRAINING: Report training occurring during normal shift hours, but exclude on-the-job training which occurs while work is performed.

For this survey exclude training electively taken by employees on their own initiative and expense during off-shift hours. Include training during work hours for which the employee stays on pay status even if the employee pays tuition costs.

On-shift refers to the normal hours per day for the normal work days per week. Off-shift refers to hours before or after the normal hours per day, weekends, and holidays

If attendance at a professional meeting is considered educational, include the on-shift time (normal hours/day on work days of the week) while in attendance at the meeting or on travel status to and from the meeting. Exclude travel time or meeting time occurring before and after normal shift hours and on weekends.

TOTAL ANNUAL HOURS ON-SHIFT REQUIRED/MANDATORY TRAINING: Training mandated or required by any governmental or licensing agency, or campus department pertaining to facilities employees. Include training mandated by facilities.

TOTAL ANNUAL HOURS OF ON-SHIFT ELECTIVE TRAINING: Training which is not required or mandated.

PERCENT OF FACILITIES OPEN POSITIONS FILLED BY INTERNAL CANDIDATES: Calculate the percent by dividing the number of positions filled by internal candidates by total positions filled during the fiscal year. An opportunity to recruit internal and external candidates must have incurred to be counted. Opportunities occur when a person retires, resigns or is layed off and their position will be refilled, or when a new position is added to the staffing. Opportunities DO NOT occur when there is no opportunity to recruit. An example may be when a person is reclassified for performing work that has evolved/grown responsibilities or scope. An example of the latter sometimes occurs during downsizing when a position is eliminated and the work is distributed to existing staff or when new software changes the manner in which work is performed.

Appendix D: 2008 Report

2007-08

Facilities Performance Indicators Report

Tracking Your Facilities Vital Signs

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Contents

Preface

Welcome to another expanded Web-based *Facilities Performance Indicators Report* (FPI). APPA's Information and Research Committee's goal for this year was to enable participants to minimize data entries to those that produce an essential set of measurements. Focusing on the questions that each facilities professional must be able to answer, the FPI survey underwent what is expected to be a final reorganization for a number of years. Data entries are organized around an introductory section titled *About Facilities,* followed by a set of seven thoughtful facilities questions. These seven questions provide the structure of both the FPI Survey and Report. The questions also are a framework for executive presentations on the status of your campus facilities.

2007-08 Report Innovations

The 2007-08 FPI encompasses many major programming achievements:

9. Essential Questions:
   The survey and reports are reorganized into the following Essential Questions
   - About the facilities unit.
   - What facilities make up our institution?
   - Is my institution adequately funding the facilities management annual budget?
   - Are the operating funds that my facilities department receives being spent in a manner that supports desired outcomes?
     - Operating Costs and Staffing Ratios
     - Business Practices
   - Is my institution making the right investment in our existing buildings, infrastructure, and academic programs?
   - Are the customers satisfied with the space and service?
   - Is my facilities department developing staff that can sustain excellence?

10. Preferences:
    Preferences are expanded to let you choose the summary data to be displayed in your Participant Summary Area Charts so that only data relevant to you is shown.

11. Participant Summary Reports:
    - Data points are organized into the Essential Question set.
    - Data field definitions and other explanatory information are available in pop-up windows.
    - Navigation through this section of the Report is easier.

12. Executive Presentation Feature:
    - An executive presentation can be launched using the FPI Web report.

- You choose which measurements (within the essential set of measurements) are included in your executive presentation.
- Your charts can be customized to show any of the standard summary averages of your choice.
- Your charts can display your campus scores as well as up to two additional participant institution scores.

13. Dashboard display of an institution's scores:
    The Dashboard has a new tab, Essential Questions, which allows you to select a dial from the Essential Question Set easily.

14. Detailed FPI Reports:
    - The 2007-08 detailed reports are reorganized into the Essential Question set as well. This makes the reports match the original survey more closely.
    - Data field definitions and other explanatory information are available in pop-up windows.
    - Cohort Group Summaries are available in the Summary Field Selection list.

15. Cohort Group Reports:
    This is a new section of the Web report wherein you can view any public Cohort Group and any Cohort Group of which you are a member.
    - When you select a particular Cohort Group, you can then select which institutions you want to see in the reports. You may see all within the Cohort or limit the selection to the institutions of your choice.
    - This Cohort display can be seen with any of the standard FPI Detailed Reports.

16. New Strategic Capitalization Measurements:
    New strategic measurements on capitalization investments are introduced. These illustrate whether your capital investments spent to replace existing facilities is sufficient to maintain the asset value of campus facilities over time and sufficient to reduce your existing need (to your specified goal) for capital renewal deferred maintenance and programmatic renovation, modification, and adaptation of existing space.

These enhancements, on top of the potent report capabilities delivered in the 2007-08 FPI Report, make it a flexible, sophisticated, and powerful tool for analyzing, planning, reporting, and managing your facilities operation. No other higher education professional organization provides such an essential instrument as a membership benefit.

We congratulate the institutions that elected to participate in the 2007-08 FPI Report, and we celebrate meeting our goals to deliver this superior 2007-08 FPI Report to the APPA membership and other interested parties.

Monetary Conversion

The 2006 Canadian Dollar conversion factor used was $1.00 CAD = $0.86 USD. The 2007 and 2008 FPI Reports have no Canadian Dollar conversion and will continue in this mode until circumstances warrant a different policy. This decision is based on the fact that Canadian campuses are relatively unaffected by changes in USD since they purchase very few goods and services from the United States.

There is one 2007-08 FPI participant institution from outside the USA and Canada and one located in Egypt. The conversion factor for Eqypt continues to be that used in 2007. The 2008 currency conversions are (Entry Dollar * Conversion factor = USD):

Canada Dollar = 1 USD
Egyptian Pound = 0.181232 USD

We intend to retain these currency conversion factors unless there are compelling reasons in the future to modify the factors. By freezing the conversion factors, the institutions are able to track their performance changes without the data being clouded by changes in the stability of the USD.

Background

The facilities professionals at colleges, universities, K–12 schools, and districts work to achieve excellence through the constant improvement of the services they contribute in support of missions and goals of their institutions.

The goals of APPA's Information and Research Committee include providing facilities professionals with an integrated set of tools and information that they need to improve their organizations' financial performance and the effectiveness of their primary processes, facilities employees' readiness to embrace the future, and the facilities department's ability to satisfy its customers.

The Information and Research Committee is constructing an integrated research information database for educational facilities. The structure of the new Facilities Performance Indicators Survey was redesigned and the survey's first tool for developing statistical files on educational facilities—the new Web-based modular Facilities Performance Indicator Survey—debuted in March 2005 and collected data from the fiscal year 2003-04. The survey was administered each Fall from 2005 through 2008. Depending on participation and prior report purchases, APPA provides Report users access to a three-year rolling set of Web-based FPI reports.

Programming the FPI report for the Internet changed it from a static publication to a dynamic tool for user-driven comparisons. It is evolving into an instrument to depict statistics in three views: statistical reports, bar charts, and dashboard dials. Each of the past years' programming broadened the capabilities of these views. The 2005-06 report introduced the first phase of the view of data on Dashboards developed by ARCHIBUS for APPA. The 2006-07 FPI Report contained expanded Dashboard

capabilities. The 2006-07 Report also introduced a new set of Participant Summary Charts that replace the limited Bonus Reports provided in the past. The 2007-08 Report provides the new Cohort Report, more preference capabilities, reorganization around the Essential Question set, and the Desktop Executive Presentation package.

The Facilities Performance Indicators Survey (FPI) supersedes and builds upon the two major surveys APPA conducted in the past: the Comparative Costs and Staffing (CCAS) survey and the Strategic Assessment Model (SAM). The FPI covers all the materials and data collected in CCAS and SAM, along with some select new data points, indicators, and improved survey tools. This new "combo" survey first introduced in 2005 includes the following features:

- a modular structure, which offers flexibility that allows an institution to decide which aspects of operations to measure and evaluate each year;
- one-time capture of general campus information in the first survey module, which alleviates the need to record the same statistics for each APPA survey taken;
- automated worksheets, which enable users to step through the calculation of current replacement value (CRV) and British thermal units (BTUs) - exercises that have proved difficult for many survey respondents in the past; and
- instant reports that are generated upon the completion of a number of the modules, thereby providing immediate calculations that allow users to evaluate the accuracy of their data points and receive immediate feedback on their operations.

This Web-based 2007-08 *Facilities Performance Indicators Report* consists of the following sections:

- ***Preferences***, a new Report capability in 2007-08 whereby you set default institutions for comparisons, your preferred group summary, and chart design options.
- ***Survey Participation,*** a new Report section in 2007-08 containing this text report, demographics, and general data on participant campuses.
- ***Participant Summary Reports,*** a new Report section in 2007-08 (replacing the former, limited Bonus Reports) that showcases participant scores in an essential set of measures against the participant's cohort groups and any two other participating institutions. This section is built around the Essential Question Set and includes the capability of producing a desk top executive presentation of FPI measurements.
- ***Dashboard,*** an updated set of dials designed and developed by ARCHIBUS was incorporated into the FPI in 2007 so that transportation among Report sections and dashboards was greatly

simplified. The dashboards overlay an institution's measurement scores on to dials with visual comparisons to overall averages. Goals can be inserted to show the future desired performance positions. The 2007-08 dials include a new Tab for the Essential Set Questions.

- ***Detailed FPI Reports:*** The detailed FPI Reports of the past were organized in memory of the historic APPA reports so that one set addressed operating costs, another set addressed personnel data and costs, etc. In 2007-08 the detail reports are reorganized around the Essential Set Questions. The preponderance of report screens fall under Question 4, *Are the operating funds that my facilities department receives being spent in a manner that supports desired outcomes?* These reports now are pulled together by core facilities functions. Each core function has a group of three report screens that show summary and drill-down detail information:
    - Operating Costs and Staffing Ratios
    - Personnel FTE and Salaries (drill-down detail)
    - FTE & Salaries Ratios and Measures

  This grouping makes it much easier to build a total picture of performance from cost, efficiency, salary levels, and staffing perspectives.
- **Cohort Group Reports:** This is the new report section wherein the detailed FPI Reports are viewed through the perspective of a cohort grouping. Cohort screens can show all institutions within the group, or any one or more of the group members.

The range of information contained in the Web-based *Facilities Performance Indicators Reports* is much broader than what has been covered in any APPA survey summary before 2005. The organization and approach of the report has been redesigned as well. The Report contains all of the bar charts and statistical tables that APPA members have grown to expect and more. The Report also includes sections that introduce new methods for organizing data displays.

- A string of ratios and measures for each Essential Question/core function provides a variety of measurement perspectives.
- Significant supporting data shows the base information used in most of the ratio calculations.

In 2005, APPA broke new ground in its reporting scope with the *Building and Space Report.* The 2007-08 FPI report has placed most of these reports in the Survey Participation section of the *FPI Report*. Outside of the FPI reports, the space data is being used for studies on energy consumption. APPA continues to explore ways to improve the energy/utilities function information with a special energy survey based on a select set of FPI survey questions launched in February 2009. There are opposing interests for keeping data entry simple for the non-engineer and for providing meaningful and normalized energy/utility statistics.

The 2007–08*Facilities Performance Indicators* report reflects some APPA members' desire for confidentiality. The only institutional list of participants is contained in Appendix A of this text form of the Report.

Participant institutional studies are available to participants who indicate a willingness to share their identity with other participants. These institutions have an abundant amount of information at hand. APPA encourages institutions that have not done so to join those who participated in the Facilities Performance Indicators Survey so that they can also profit from this data discovery process and receive the new Participant Summary Reports.

All others view the non-participant report in which institution names are coded. Those using the confidential Report are advised to examine the institutional listing which shows the general statistics about the participants in the survey. This general campus information is provided so that users of this report can evaluate the institutions that have contributed statistics to the averages reflected in the summaries.

The *Facilities Performance Indicators Report* is designed for survey participants, interested professionals, and serious researchers who want to mine the data. The Report includes the following features, among others:

- a comparison of up to three institutions selected by the user;
- a comparison of any or all within a cohort group;
- simultaneous display of significant data and ratios and measures for three selected institutions and overall and group averages;
- the capability to read and/or print out the whole range of 2006–07 reports contained in the *Facilities Performance Indicators Report,* including institution-by-institution tables;
- the capability to view all numeric report figures in chart form.
- the ability to export the calculated information and survey entries to Microsoft Excel or other software for additional studies.

The 2007-08 *Report* also includes the survey instrument and data download files.

Participating institutions from outside the United States were given the option of entering their financial information in their national currency instead of U.S. dollars, size entries in gross square meters instead of gross square feet, and hectares instead of acres. For those who exercised this option to use meters and hectares, their entries are converted into gross square feet and acres. One foreign currency is converted to U.S. Dollars.

APPA's Information and Research Committee provided leadership and direction in the development of the Facilities Performance Indicators Survey as well as the innovative new methods used for the data storage, retrieval, and analysis that was constructed under the committee's watch. The 2007-08 Information and Research Committee consists of the following members:

Chair/Vice President:
Randolph Hare, Washington & Lee University

Committee Members
CAPPA: Bobbie Tassinari, University of North Texas
ERAPPA: Norman Young, University of Hartford
MAPPA: Jeri Ripley King, University of Iowa
PCAPPA: Richard Storlie, University of Nevada, Las Vegas
RMA: Greg Wiens, Athabasca University
SRAPPA: Mike Sherrell, University of Tennessee/Knoxville
Member At-Large: Darryl Boyce, Carleton University
Member At-Large: Maggie Kinnaman, University of Maryland, Baltimore
Staff Liaison: Steve Glazner, APPA Director of Knowledge Management
FPI Project Manager: Christina Hills, APPA Research Specialist

APPA thanks the three companies involved in the annual FPI survey and FPI report:

- Heather Lukes of Digital Wise Inc., who supports the APPA website and survey instrument,
- Brad Peterson, Nick Stefanidakis, Mark Hesselschwerdt, and others at ARCHIBUS, who developed the Dashboard, and
- Laura Long and Ann Palmer of LTL Collaborative, LLC, who program the FPI report and scrub the survey data.

Finally, we thank the many institutions and APPA members who responded once again to our survey and whose participation makes the report both informative and functional.

Interpreting This Report

The purpose of APPA's *Facilities Performance Indicators* is to provide a representative set of statistics about facilities in educational institutions. The third iteration of the Web-based Facilities Performance Indicators Survey was posted and available to facilities professionals at more than 3,000 institutions in the Fall of 2008. The website offered a PDF version of the survey for participants who preferred to use that medium for reporting data. There were very few returned entries by fax or mail.

Data analysis and cleanup are performed in three phases of report processing:

- The instant reports provided at the completion of certain survey modules are tools for participants to audit their entries and make corrections.
- After the survey is closed and measures are calculated, out-of-range numbers are questioned. New tools were developed to select and sort survey entries and calculate report fields.
- Additional errors are discovered when the data is summarized into averages by group.

Participating institutions were contacted primarily by e-mail and asked to review any questionable entries. In the few cases where no institutional response could be obtained, the entry was deleted. All changes to original data entries are documented in the survey comment fields.

The report has rare instances in which an entry was correct but was so radical that it was not useful to other institutions. This year's survey contains about 40 such entries: They remain in the database but are excluded from Overall and grouping summaries.

The "per student" measures for medical centers and a specialized institution were deleted from the 2007-08 report. The medical centers have very low student enrollments. Their costs are not driven by the size of their student body, and their costs per student are outside the norm for other types of institutions.

Organization of the Tables

The statistics contained in this report are summarized according to the following categories:

17. Funding Source
    a. Private
    b. Public
18. Carnegie Classification
    a. Doctoral/Research Universities—Extensive
    b. Doctoral/Research Universities—Intensive
    c. Master's Colleges and Universities
    d. Baccalaureate Colleges
    e. Associate's Colleges
    f. Specialized Institutions
    g. K–12
19. Canadian (faux) Carnegie Classification
    a. Doctoral/Research

b. Research Universities—High
c. Research Universities—Very High
d. Master's Colleges and Universities
e. Baccalaureate Colleges
f. Overall

20. Region
    a. CAPPA (Central)
    b. ERAPPA (Eastern)
    c. MAPPA (Midwest)
    d. PCAPPA (Pacific Coast)
    e. RMA (Rocky Mountain)
    f. SRAPPA (Southeastern)
21. Student Full-Time-Equivalent Enrollment Range
    a. 0 to 999
    b. 1,000 to 1,999
    c. 2,000 to 2,999
    d. 3,000 to 4,999
    e. 5,000 to 11,999
    f. 12,000 to 19,999
    g. 20,000+
22. Auxiliary Services
    a. Included in Entries
    b. Excluded from Entries
23. Percent Dollars Contracted
    a. Less than 1%
    b. 1% to 19.9%
    c. 20% to 49.9%
    d. 50%+
24. Building's Average Age (used selectively)
    a. Less than 20 years
    b. 20 to 29 years
    c. 30 to 39 years
    d. 40 to 49 years
    e. 50+ years
25. Cogeneration (used with Energy and Utilities)
    a. No
    b. Yes
26. District Utility System (used with Energy and Utilities)
    a. No
    b. Yes
27. Custodial Service Level (used with Custodial Services)
    a. State-of-the-Art-Maintenance
    b. High-level Maintenance
    c. Moderate-level Maintenance
    d. Moderately Low-level Maintenance
    e. Minimum-level Maintenance
28. Grounds Service Level
    a. Orderly Spotlessness
    b. Ordinary Tidiness
    c. Casual Inattention
    d. Moderate Dinginess
    e. Unkempt Neglect
29. Maintenance Level
    a. Showpiece Facility
    b. Comprehensive Stewardship
    c. Managed Care
    d. Reactive Management
    e. Crisis Response
30. Customer Overall Satisfaction
    a. 3 Satisfied
    b. 4 Very Satisfied
    c. 5 Extremely Satisfied
31. Employee Overall Satisfaction
    a. 2 Very Dissatisfied
    b. 3 Satisfied
    c. 4 Very Satisfied
32. Performance Self-Evaluation (Financial, Internal Processes, Customer Satisfaction, and Learning & Growth)
    a. 1 Copper No Program
    b. 2. Bronze Beginning Program
    c. 3. Silver Mature Program
    d. 4. Gold Stretch Goal
    e. 5. Platinum Flawless Program
33. Cohort Average (Seen if public)
    a. Canadian Universities
    b. California State University System
    c. University of North Carolina System

Funding, Carnegie classification, and student enrollment were audited against the *2008 Higher Education Directory*, published by Higher Education Publications, Inc., and an APPA region was assigned according to the state or province in the institution's address. Institutions designated K–12 are in an artificial "K–12" Carnegie classification. Non U.S. institutions participating in the survey were given self-assigned Carnegie classifications based on the current classification definitions.

Comments on Three of the Detailed FPI Reports

General Data

General data is a new Report Section that provides the user of the 2007–08 *Facilities Performance Indicators* report a perspective on the type of institutions that are included in the statistical pool.

Operating Costs Report

The Operating Costs Report consists of a series of reports on operational expenses (in-house labor, in-house nonlabor, and contract costs) normalized by gross square footage or acres and by student FTE. The measures include FTE from Personnel Data and Costs by survey module compared to GSF. These costs, FTE, and GSF per acres are broken down into six functions performed by facilities operations: administration, construction/renovation/architecture and engineering, custodial services, energy/utilities, landscaping/groundskeeping, and maintenance/trades.

Some things to be aware of when looking at the Operating Costs Report are:

3. The information about contracted services was improved by new data captures in Operating Costs and in Personnel Data and Costs sections of the survey. GSF completely serviced by a contractor and contractor FTE performing work otherwise done by in-house labor are the new data points. These new data points make the FTE per GSF and the FTE per Student FTE measure by function more accurate.

4. The GSF reported for the Construction A&E function was limited to the footage under planning, bid, award and/or construction during the 2005-06 fiscal year. In 2007-08, participants were given two choices: footage under planning, bid, award, and construction; or total campus GSF. The cost per GSF is reported both ways.

Strategic Financial Measures Report

The Strategic Financial Measures are highly dependent on the Current Replacement Value (CRV) estimates since CRV is the divisor in formulas for most of its measures. CRV estimates become more realistic with each survey. However, before you select a campus as a comparison cohort for strategic measures, check its gross CRV estimate value per GSF. The two components for this calculation are in the Significant Supporting Data line (Total campus GSF w/Aux and Current Replacement Value). CRV/GSF averages are to include

infrastructure and reflect current construction costs. You probably would not want to compare your performance against a campus that has a CRV/GSF value that is significantly different from yours.

Report Characteristics

Several characteristics of the way the survey is computed should be kept in mind, because these techniques tend to bias the averages in the report.

- Blanks and zeros were not included in computations except in a few cases where there was no question that zero was a legitimate entry. The data collection system does not distinguish between no entry and no cost. (Respondents may enter only the information that was of interest to their campus.) Statistics do not include zero or null entries. This statistical method affects almost every portion of the report.

- No summary averages are computed as averages of averages, because that is not valid. Summary averages are the sum of all entries divided by the count of all entries.

- The data generally do not conform to a standardized bell curve. Typically, data are clustered at the low end of a range rather than being symmetrical around the mean. As a result, the median figures are typically somewhat lower than the average figures that are reported.

- A summary that breaks groups down into many categories will produce some small counts, and counts vary from measure to measure since respondents do not answer all survey questions. The average for a small count should be used with caution. Please activate the "Count" button on the Report displays before evaluating the grouping statistics. This Web-based *Facilities Performance Indicators* Report includes counts for all group averages.

- Look at historical bar charts to identify those group averages that appear to be stable statistics and those that have large fluctuations. A small sample size typically produces fluctuations from year-to-year.

Despite these disclaimers, the statistics are generally representative, and therefore valid, as substantiated by consistent data that are illustrated in historical charts. Where the statistics are historically different, the validity of the data can be substantiated by identifying the sources of data differences, such as the influence of non-traditional specialized institutions in the participant pool. This is a general caution and should not be viewed as a shortcoming of APPA's current Facilities Performance Indicators Survey. Biases, reporting consistency, and other concerns are always present when evaluating statistical information,

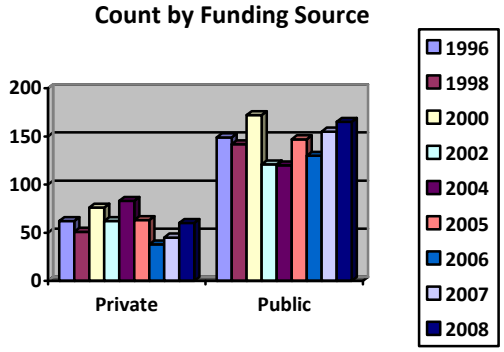
and it is always important to know how to make valid comparisons. Keeping this in mind is the best way to ensure that this report is used effectively.

FY 2007-08 Respondents and Participation Trends

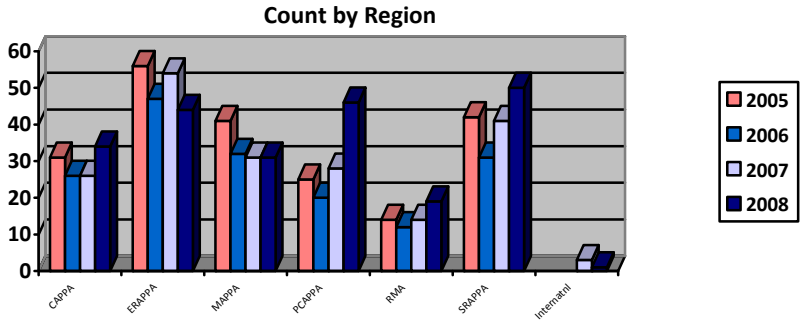
There are 225 participants in the 2007-08 Report. There have been two spikes in past CCAS survey participation in the past: in 1994, 516 institutions responded; in 2000, the first time the survey could be completed online on the APPA website, 248 institutions took part. In other years, about 200 institutions—plus or minus 10 percent—participated in the survey, so this year is about 13% above the normal level of participation.

Up until 2003, about 30 percent of the participant pool consistently came from institutions that had private sources of funding, and 70 percent came from those that had public sources.

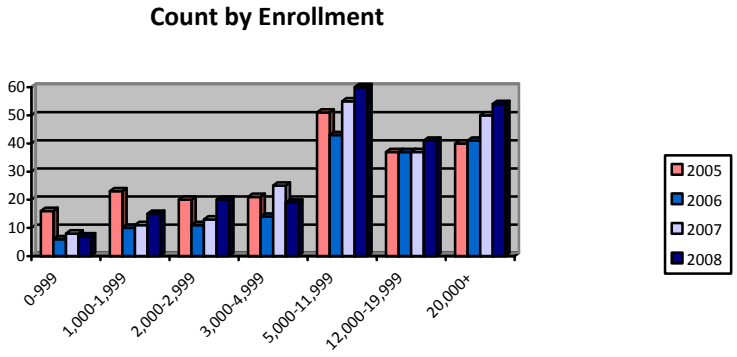
- In 2004 the representation by the private sector increased to 40 percent by a larger participation of private K–12 institutions.
- In 2005, private institutions were 30 percent of the total.
- They dropped to 23% of the participants in 2006 and retained that ratio in 2007.
- 2008 has a slight increase to 27% for the private institutions.



All regions are represented in the survey, with the largest number of respondents coming from the Southeastern region (SRAPPA), the Pacific Coast (PCAPPA), and the Eastern region (ERAPPA). The sole international participant this year is from Egypt.

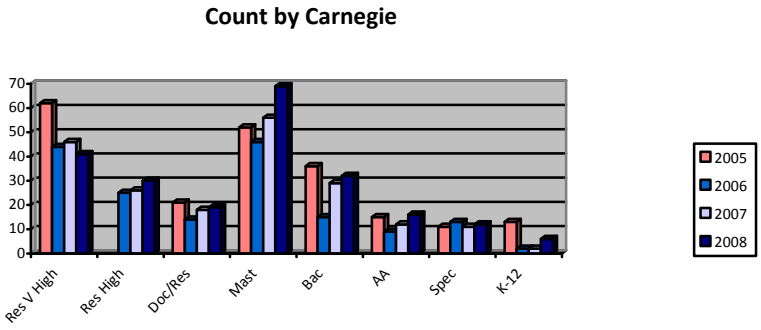


Participating institutions' enrollment ranges—which start at 0 and go up to 20,000-plus—has been rather consistent over the last seven survey cycles. The bar chart below shows that the enrollment range distribution in 2008 follows the normal experience levels.



The representation of institutions as categorized by the Carnegie classifications has been generally consistent. The change in Carnegie classifications for the doctoral and research institutions changed from two categories into three in 2006. APPA decided to couple Doctoral/Research Intensive to Doctoral Research and Doctoral/Research Extensive to Research Very High. That left Research High as a lone new category. The trend over the past few years is growth in participation in the Masters Carnegie class.

Specialized institutions are shown as one category in the chart. The FPI shows this Carnegie classification as Specialized (count 5) and Specialized Medical (count 7).
While the counts are small when this division is made, the Medical Centers have need to make comparisons within their own group and not a mixture of medical and other types of specialized institutions.



Carnegie Classifications

The following are descriptions of the primary institutional classifications as defined by the Carnegie Foundation for the Advancement of Teaching:

Doctorate-granting Universities: Includes institutions that award at least 20 doctoral degrees per year (excluding doctoral-level degrees that qualify recipients for entry into professional practice, such as the JD, MD, PharmD, DPT, etc.). Excludes Special Focus Institutions and Tribal Colleges.

Research Universities Very High Research Activity
Research Universities High Research Activity
Doctoral/Research Universities

Master's Colleges and Universities: Includes institutions that award at least 50 master's degrees per year. Excludes Special Focus Institutions and Tribal colleges.

Baccalaureate Colleges: Includes institutions where baccalaureate degrees represent at least 10 percent of all undergraduate degrees and that award fewer than 50 master's degrees or fewer that 20 doctoral degrees per year. Excludes Special Focus Institutions and Tribal Colleges.

Associate's Colleges: Includes institutions where all degrees are at the associate's level or where bachelor's degrees account for less than 10 percent of all undergraduate degrees. Excludes institutions eligible for classification as Tribal Colleges or Special Focus Institutions.

Special focus Institutions: Institutions awarding baccalaureate or higher-level degrees where a high concentration of degrees is in a single field or set of related fields. Excludes Tribal Colleges.

Specialized
Specialized/Medical Medical schools and medical centers

K–12: This includes schools and school districts focusing on primary and secondary education. It is not a Carnegie Classification, but one assigned for the purposes of the FPI Report.

APPA Regions

APPA's six geographical regions function independently of APPA and offer their own educational programs, annual meetings, scholarships, and other benefits. Each region maintains its own set of officers, committees, and activities to serve member institutions within the region. Regions determine their own membership requirements, dues, structure, and services.

Regions work with APPA to ensure that international programs address concerns of interest to all members. To maintain strong links among all regions, each region is represented on the APPA Board of Directors and on APPA committees.

APPA chapters are general city-wide or state-wide organizations of members who meet periodically to share information and discuss issues of local or state interest.

Institutions from outside the United States of America and Canada are put into an "International" region for the purpose of this FPI Report. A concentration of institutions from any one foreign region will be recognized in future FPI Reports.

Up-to-date information about the APPA regions—including conference dates, contact information, and links to the regional websites—are available on APPA's website at www.appa.org.

General Data

Information is this section is provided to assist you in your evaluation of information contained in the *2007-08 Facilities Performance Indicators Report*.

- Count of institutions in each group pool used in report statistical summaries.
- Characteristics of the institutions that make up each grouping's statistical pool.

The Response Tally tables under *Survey Participation* in the FPI Report shows whether the distribution within a grouping could be considered significant for your purposes.

- Funding source includes counts of 60 private and 165 public institutions. Both of these are ample samplings.
- The grouping according to Carnegie classification has low counts for Associate (16), Specialized (5), Specialized/Medical (7), K-12 (6), and Doctoral/Research (19).
- The breakdown by APPA region shows ample counts except for RMA, which had only 19 institutions in this study. The count for International is one.
- The two enrollment ranges below 2,000 have low counts of 7 and 15, and the two from 2,000 to 4,999 have medium counts of 19 and 20.
- The grouping on auxiliary services has 91 including auxiliaries and 131 excluding auxiliaries.
- The <20 years building age range count is 20 and the other building age ranges have counts between 37 and 62.
- The summaries for the various levels of service, customer satisfaction, employee satisfaction, and the performance self-evaluations will have low counts on the low and high extremes of the scales.

Tables in this Report show counts for all entries. Some participants completed only a few of the modules, some erroneous entries have been eliminated, and participants sometimes did not answer every question within a module. Consequently, the counts on most tables throughout this report can be expected to be *lower* than those shown in the Tally Table. Noting the counts on statistical tables can help the user decide whether or not the statistics are useful to a particular operation's purposes. This report has not produced cross-tab tables between two groupings, because many entries in such tables would have low counts. Below are counts of participants by survey module.

About Facilities	225
What Facilities	225
CRV Worksheet	116
Adequate Funding	213
Desired Outcomes Op Costs Staffing Ratios	216
Desired Outcomes Business Practices	185
MMBTU Worksheet	161
Right Investments	182
Customer Satisfaction	163
Sustaining Excellence	163

2007-08 Facilities Performance Indicators Participants

Adams 12 Five Star Schools
Albuquerque Academy
American University
American University in Cairo
Angelo State University
Appalachian State University
Arizona State University
Arkansas State University
Athabasca University
Babson College
Barry University
Baylor University
Bethany College
Black Hills State University
Boise State University
Bowling Green State University
Brigham Young University/Hawaii
Brigham Young University/Idaho
Butler University
California Polytechnic State University
California Polytechnic State University/Pomona
California State University/Bakersfield
California State University/Channel Islands
California State University/Chico
California State University/Dominguez Hills
California State University/East Bay
California State University/Fresno
California State University/Fullerton
California State University/Long Beach
Harrisburg Area Community College/Lancaster
Harrisburg Area Community College/Lebanon
Harrisburg Area Community College/York
HEC Montreal
Humboldt State University
Indiana University/Bloomington
Iowa State University
California State University/Los Angeles
California State University/Monterey Bay
California State University/Northridge
California State University/Sacramento
California State University/San Bernardino
California State University/San Marcos
California State University/Stanislaus
Carleton University
Casper Community College
Catholic University of America
Catlin Gabel School
Cincinnati State Tec & Community College
Clemson University
College of Wooster
Colorado College
Cornell University
Denison University
East Carolina University
Eastern Mennonite University
Edison Community College
Elizabeth City State University
Embry-Riddle Aeronautical University/Extended
Fanshawe College of Applied A & T
Fayetteville State University
Furman University
Georgia Tech
Goshen College
Guilford College
Harrisburg Area Community College
Philadelphia University
Portland State University
Queen's University
Rensselaer Polytechnic Institute
Roberts Wesleyan College
Rochester Institute of Technology
Rowan University

John Brown University
John Carroll University
Kamehameha Schools/Keaau
Kansas State University
Loudoun County (Virginia) Public Schools
Loyola Marymount University
Luther College
Medical College of Wisconsin
Medical University of South Carolina
Meredith College
Metropolitan Community College/Kansas City
Miami University
Michigan State University
Midlands Technical College
Missouri University of Science and Technology
Montana State University
Moravian College
Mount Allison University
Mount Saint Vincent University
New Mexico State University
North Carolina A&T State University
North Carolina School of Science & Mathematics
North Carolina State University
Northampton Community College
Northern Michigan University
Northern Wyoming Community College District
Northwestern College/Minnesota
Occidental College
Ohio Wesleyan University
Oklahoma City Community College
Oklahoma State University/Stillwater
Oral Roberts University
Pepperdine University
Rutgers University
Saginaw Valley State University
Saint Louis University
Saint Mary's University/Canada
University of Manitoba
University of Mary Hardin-Baylor
University of Mary Washington
University of Maryland/Baltimore
University of Maryland/Baltimore County
University of Massachusetts/Medical School
University of Memphis
University of Michigan/Ann Arbor
University of Michigan/Dearborn
University of Montana/Missoula
University of Montreal
University of Nebraska/Kearney
University of Nebraska/Lincoln
University of Nebraska/Medical Center
University of Nebraska/Omaha
University of Nevada/Las Vegas
University of Nevada/Reno
University of New Brunswick
University of New Mexico
University of North Carolina/Asheville
University of North Carolina/Chapel Hill
University of North Carolina/Charlotte
University of North Carolina/Greensboro
University of North Carolina/Pembroke
University of North Carolina/Wilmington
University of North Texas
University of Northern Iowa
University of Oklahoma
University of Ottawa
University of Pennsylvania/Philadelphia
University of Prince Edward Island
University of Regin

University of Richmond
University of Saskatchewan
University of South Alabama
University of South Dakota
University of Tennessee/Knoxville
University of Tennessee/Martin

University of Texas Health Science Center/San Antonio
University of Texas MD Anderson Cancer Center
University of Texas/Austin
University of Texas/Dallas
University of Texas/El Paso
University of Texas/San Antonio
University of the Arts
University of the Pacific
University of Virginia
University of Washington
University of Waterloo
University of West Florida
University of West Georgia
University of Wisconsin/Madison
University of Wisconsin/Stout
Valdosta State University
Valparaiso University
Vanderbilt University
Villanova University
Wake Forest University
Washington & Lee University
Washington State University
Washington University - St. Louis
West Virginia University
Western Carolina University
Western Michigan University
Western Washington University
Wheaton College/Illinois
Wilfrid Laurier University
York University

Appendix E: 2007/2008 Ratios for Correlation Testing

APPA CFaR Research
FPI 2008 Data Mining
Updated: April 8, 2009

	X		Y	N	Correlation	Slope	Yintercept	Stan Error	Null Hypo
Total Fac Op Exp/GIE	C02	FCI	B02	99	-0.129120447				Inverse
		Needs Index	B03	102	-0.049398961				Inverse
		Mtn Cost/GSF	D02	136	-0.045162681				Positive
		Cust Cost/GSF	A02	138	-0.009202062				Inverse
		GSF per Mtn FTE	D03	100	0.08104684				Inverse
		GSF per Cust FTE	A03	94	-0.064526578				Inverse
		Customer Sat	E01	106	-0.039951323				Positive
		Employee Sat	F01	18	0.388556993				Positive
		% Cap Investment	B04	63	-0.072915383				Positive
Total Fac Op Exp/CRV	C01	FCI	B02	101	-0.011293796				Inverse
		Needs Index	B03	105	0.067757375				Inverse
		Mtn Cost/GSF	D02	132	0.135802977				Positive
		Cust Cost/GSF	A02	134	0.133524315				Positive
		GSF per Mtn FTE	D03	97	-0.014805441				Inverse
		GSF per Cust FTE	A03	91	-0.111586416				Inverse
		Customer Sat	E01	102	-0.122395148				Positive
		Employee Sat	F01	16	0.410686344				Positive
		% Cap Investment	B04	65	0.297385552				Positive
Total Fac Op Exp/GSF	C03	FCI	B02	101	-0.102190298				Inverse
		Needs Index	B03	105	-0.049944854				Inverse
		Mtn Cost/GSF	D02	141	0.275186223				Positive
		Cust Cost/GSF	A02	143	0.279284791				Positive
		GSF per Mtn FTE	D03	101	-0.049369306				Inverse
		GSF per Cust FTE	A03	95	-0.056953389				Inverse
		Customer Sat	E01	107	-0.092701354				Positive
		Employee Sat	F01	19	0.270711471				Positive
		% Cap Investment	B04	65	0.086170955				Positive
Mtn Cost/GSF	D02	Mtn Service Levels	D01	145	0.019994661				Inverse
		FCI	B02	105	0.029736386				Inverse
		Needs Index	B03	108	0.047474344				Inverse
		GSF per Mtn FTE	D03	108	-0.398572413				Inverse
		Customer Sat	E01	110	0.117487084				Positive
		Employee Sat	F01	21	0.185727951				Positive
		CRDM Backlog	B01	108	0.066939447				Inverse
Cust Cost/GSF	A02	Cus Service Levels	E01	110	0.117487084				Inverse
		FCI	B02	105	0.029736386				Inverse
		Needs Index	B03	108	0.047474344				Inverse
		GSF per Cust FTE	A03	103	0.066513136				Inverse
		Customer Sat	E01	110	0.117487084				Positive
		Employee Sat	F01	21	0.185727951				Positive
		CRDM Backlog	B01	108	0.027941988				Inverse
GSF per Mtn FTE	D03	Customer Sat	E01	82	-0.09494184				Inverse
		Employee Sat	F01	7	-0.354491218				Inverse
		Mtn Cost/GSF	D02	108	-0.398572413				Inverse
		FCI	B02	79	0.079408124				Positive
		Needs Index	B03	81	-0.077717915				Positive
		Mtn Service Level	D01	102	0.049363073				Inverse
		CRDM Backlog	B01	81	0.036005377				Positive
GSF per Cust FTE	A03	Customer Sat	E01	77	0.222878327				Inverse
		Employee Sat	F01	6	-0.188199521				Inverse
		Mtn Cost/GSF	D02	103	0.066513136				Inverse
		FCI	B02	75	0.014596789				Positive
		Needs Index	B03	77	0.130983541				Positive
		Cus Service Levels	A01	96	0.147926654				Inverse
		CRDM Backlog	B01	77	0.093915165				Positive

FCI	B02	Needs Index	B03	108	0.527188153	1.050743611	0.117403415	0.148678144	Positive
		Mtn Cost/GSF	D02	105	0.029736386				Inverse
		Cust Cost/GSF	A02	105	0.038552087				Inverse
		GSF per Mtn FTE	D03	79	0.079408124				Positive
		GSF per Cust FTE	A03	75	0.014596789				Positive
		Customer Sat	E01	85	-0.118971828				Inverse
		Employee Sat	F01	16	-0.025547443				Inverse
		% Capital Investment	B04	63	0.027586998				Inverse
		CRDM Backlog	B01	108	0.510050467	9.20E+08	22576622	136165471.9	Positive
Needs Index	B03	FCI	B02	108	0.527188153	0.26450539	0.037033979	0.074596082	Positive
		Mtn Cost/GSF	D02	108	0.047474344				Inverse
		Cust Cost/GSF	A02	109	0.031921874				Inverse
		GSF per Mtn FTE	D03	81	-0.077717915				Positive
		GSF per Cust FTE	A03	77	0.130983541				Positive
		Customer Sat	E01	88	-0.115070372				Inverse
		Employee Sat	F01	17	0.055128615				Inverse
		% Capital Investment	B04	67	0.164780534				Inverse
		CRDM Backlog	B01	108	0.285735537				Positive
% Capital Investment	B04	FCI	B02	63	0.027586998				Inverse
		Needs Index	B03	67	0.164780534				Inverse

For the highlighted items above we can reject the null hypothesis and accept the research hypothesis that there is a positive correlation
To predict a Needs Index (y) from a given FCI (x), y=ax+b
Using line 61 above, given an FCI of .20 we can predict a Needs Index of .3468
This number would be within a range of + or - .16
Using line 70 above, given a Needs Index of .40 we can predict an FCI of .1368 with error of + or - .07

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	X		Y	N	Correlation	Slope	Yintercept	Stan Error	Hypothesis	
Total Fac Op Exp/GIE	C02	FCI	B02	99	-0.129120447				Inverse	
		Needs Index	B03	102	-0.049398961				Inverse	
		Mtn Cost/GSF	D02	136	-0.045162681				Positive	
		Cust Cost/GSF	A02	138	-0.009202062				Inverse	
		GSF per Mtn FTE	D03	100	0.08104684				Inverse	
		GSF per Cust FTE	A03	94	-0.064526578				Inverse	
		Customer Sat	E01	106	-0.039951323				Positive	
		Employee Sat	F01	18	0.388556993				Positive	**Y**
		% Cap Investment	B04	63	-0.072915383				Positive	
Total Fac Op Exp/CRV	C01	FCI	B02	101	-0.011293796				Inverse	
		Needs Index	B03	105	0.067757375				Inverse	
		Mtn Cost/GSF	D02	132	0.135802977				Positive	
		Cust Cost/GSF	A02	134	0.133524315				Positive	
		GSF per Mtn FTE	D03	97	-0.014805441				Inverse	
		GSF per Cust FTE	A03	91	-0.111586416				Inverse	
		Customer Sat	E01	102	-0.122395148				Positive	
		Employee Sat	F01	16	0.410686344				Positive	**Y**
		% Cap Investment	B04	65	0.297385552				Positive	**Y**
Total Fac Op Exp/GSF	C03	FCI	B02	101	-0.102190298				Inverse	
		Needs Index	B03	105	-0.049944854				Inverse	
		Mtn Cost/GSF	D02	141	0.275186223				Positive	**Y**
		Cust Cost/GSF	A02	143	0.279284791				Positive	**Y**
		GSF per Mtn FTE	D03	101	-0.049369306				Inverse	
		GSF per Cust FTE	A03	95	-0.056953389				Inverse	
		Customer Sat	E01	107	-0.092701354				Positive	
		Employee Sat	F01	19	0.270711471				Positive	**Y**
		% Cap Investment	B04	65	0.086170955				Positive	
Mtn Cost/GSF	D02	Mtn Service Levels	D01	145	0.019994661				Inverse	
		FCI	B02	105	0.029736386				Inverse	
		Needs Index	B03	108	0.047474344				Inverse	
		GSF per Mtn FTE	D03	108	-0.398572413				Inverse	**Y**
		Customer Sat	E01	110	0.117487084				Positive	

	X		Y	N	Correlation	Slope	Yintercept	Stan Error	Hypothesis	
		Employee Sat	F01	21	0.185727951				Positive	
		CRDM Backlog	B01	108	0.066939447				Inverse	
Cust Cost/GSF	A02	Cus Service Levels	E01	110	0.117487084				Inverse	
		FCI	B02	105	0.029736386				Inverse	
		Needs Index	B03	108	0.047474344				Inverse	
		GSF per Cust FTE	A03	103	0.066513136				Inverse	
		Customer Sat	E01	110	0.117487084				Positive	
		Employee Sat	F01	21	0.185727951				Positive	
		CRDM Backlog	B01	108	0.027941988				Inverse	
GSF per Mtn FTE	D03	Customer Sat	E01	82	-0.09494184				Inverse	
		Employee Sat	F01	7	-0.354491218				Inverse	**Y**
		Mtn Cost/GSF	D02	108	-0.398572413				Inverse	**Y**
		FCI	B02	79	0.079408124				Positive	
		Needs Index	B03	81	-0.077717915				Positive	
		Mtn Service Level	D01	102	0.049363073				Inverse	
		CRDM Backlog	B01	81	0.036005377				Positive	
GSF per Cust FTE	A03	Customer Sat	E01	77	0.222878327				Inverse	
		Employee Sat	F01	6	-0.188199521				Inverse	
		Mtn Cost/GSF	D02	103	0.066513136				Inverse	
		FCI	B02	75	0.014596789				Positive	
		Needs Index	B03	77	0.130983541				Positive	
		Cus Service Levels	A01	96	0.147926654				Inverse	
		CRDM Backlog	B01	77	0.093915165				Positive	
FCI	B02	Needs Index	B03	108	0.527188153	1.050743611	0.117403415	0.148678144	Positive	**Y**
		Mtn Cost/GSF	D02	105	0.029736386				Inverse	
		Cust Cost/GSF	A02	105	0.038552087				Inverse	
		GSF per Mtn FTE	D03	79	0.079408124				Positive	
		GSF per Cust FTE	A03	75	0.014596789				Positive	
		Customer Sat	E01	85	-0.118971828				Inverse	
		Employee Sat	F01	16	-0.025547443				Inverse	
		% Capital Investment	B04	63	0.027586998				Inverse	
		CRDM Backlog	B01	108	0.510050467	9.20E+08	22576622	136165471.9	Positive	**Y**
Needs Index	B03	FCI	B02	108	0.527188153	0.26450539	0.037033979	0.074596082	Positive	**Y**
		Mtn Cost/GSF	D02	108	0.047474344				Inverse	
		Cust Cost/GSF	A02	109	0.031921874				Inverse	
		GSF per Mtn FTE	D03	81	-0.077717915				Positive	

	X		Y	N	Correlation	Slope	Yintercept	Stan Error	Hypothesis	
		GSF per Cust FTE	A03	77	0.130983541				Positive	
		Customer Sat	E01	88	-0.115070372				Inverse	
		Employee Sat	F01	17	0.055128615				Inverse	
		% Capital Investment	B04	67	0.164780534				Inverse	
		CRDM Backlog	B01	108	0.285735537				Positive	Y
% Capital Investment	B04	FCI	B02	63	0.027586998				Inverse	
		Needs Index	B03	67	0.164780534				Inverse	

For the yellow highlighted items above we can reject the null hypothesis and accept the research hypothesis that there is a positive correlation

Appendix F: Definitions for Ratios with Moderate Correlations

Current Replacement Value (CRV)
The total amount of expenditure (in current dollars) required to replace the institution's facilities to its optimal condition.

CRDM Backlog
Capital renewal deferred maintenance backlog: Deferred maintenance is work that has been deferred on a planned or unplanned basis to a future budget cycle or postponed until funds become available. Include expenditures for the total dollar amount of existing major maintenance repairs and replacements identified by a comprehensive facilities condition audit of buildings, grounds, fixed equipment, and infrastructure needs. Exclude expenditures for projected maintenance and replacements of such other types of work, such as program improvements or new construction; these items are viewed as separate capital needs.

Facilities Condition Index (FCI)
The percent of the campus value in need of maintenance and repair from life cycle causes (versus program driven causes). FCI is a ratio between building and infrastructure backlog divided by current replacement value.

Needs Index
The percentage of the campus value in need of maintenance, repair and renewal from both programmatic and life cycle causes. Needs Index is a ratio between all campus needs divided by current replacement value.

All definitions are taken from the FPI 2008 Report. An in depth discussion of all FPI data input performance indicators definitions is found in both the 2008 Survey located in Appendix C.