EXECUTIVE SUMMARY

McHENRY COUNTY COLLEGE

FACILITY CONDITION ANALYSIS

APRIL 2011

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SENIOR PROJECT MANAGER

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SUMMARY OF CONDITIONS AND CONCLUSIONS

1.1 Introduction

McHenry County College in Crystal Lake, Illinois initially began with the construction of the Automotive Technology Building, later renamed D Building, in 1974. As a result, the oldest site improvements are now 37 years old. The campus has grown considerably since the first facility was built, with the addition of the main hall (A Building) in 1976, the multipurpose gymnasium wing to the south end of A Building in 1981, B and C Buildings in 1991, the A Building southern Library pod in 1996, E Building in 1997, and the latest, the Student Services addition to the north side of A Building, in 2003. McHenry County College (MCC) is a small community college enrolling approximately 4,500 to 5,000 students with no on-campus residency. The College's present 168 acre campus is located northwest of Crystal Lake, Illinois on State Route 14 between Crystal Lake and the community of Woodstock. The campus contains a total of thirteen buildings, including the five main academic facilities, with the Fire Science Tower, the Pump House, the large glass and smaller plastic-covered greenhouses, the Grounds trailer, and the three metal storage and maintenance sheds. Also part of this college is the Shah Center, a corporate training and business development center that was remodeled from a former hotel in 2005 approximately six miles northeast of MCC in the town of McHenry, Illinois.

As part of a strategic planning initiative, MCC solicited a proposal for a comprehensive condition audit and capital renewal analysis in which ISES responded in late 2010. The FCA project included the inspection of 7 individual facilities, totaling 392,953 square feet. Classroom space accounted for 47.4 percent of the square footage in the study, Office / Administration space accounted for 19.3 percent, and Student union space accounted for another 13.6 percent. Library, Laboratory, and Gymnasium space combined total was 16.1 percent of the sample group. Also evaluated as part of the campus-wide FCA were the Campus Grounds, the Potable Water System, and Public Safety and Security. Since these infrastructure assessments do not have associated gross square footage, these systems cannot be used in comparison to individual facilities.

The facilities portfolio analyzed as a part of this effort totals seven buildings and 392,953 square feet. The following is a break-down of the space usage within the studied buildings:

Building Use	%
Classroom	47.4
Office/Admin	19.3
Student Union	13.6
Library	5.7
Laboratory	5.4
Gymnasium	5.0
Other	5.4

The following observations and conclusions are based on a thorough Facility Condition Analysis of the 7 facilities by ISES Corporation, and represent the evaluation of approximately 0.4 million gross square feet. The FCA process was supervised by Greg Evans, PE / Director of Physical Facilities at McHenry County College. The Analysis was directed by Carl E. Mason, Jr., P.E., Senior Project Manager, ISES Corporation. Survey teams members, consisting of architectural and engineering inspectors, collected, evaluated, and compiled the data for the study.

1.2 Summary of Findings

A. FRC and FCNI Definition and Utilization

The FCNI referred to above is the Facility Condition Needs Index. This index provides a relative measure for comparing one building (or group of buildings) to another. The index is a simple calculation, derived by dividing total project costs (for the total ten-year window covered by the FCA) by the total facility replacement cost (FRC). When applying the index as an evaluation tool, the lower the number, the better the facility condition. It should also be noted that this is an index, not a percentage. It can (and often does in the case of historic facilities) exceed 1.00.

The FRC represents the cost to replace an existing building with one of similar use type and size on the same site. This includes demolition, site preparation, professional fees, and construction costs. ISES gives

the client the option to develop their own FRCs or have ISES develop those costs for them. For this FCA effort, McHenry County College opted to have ISES develop the FRCs based on 2010 R.S. Means construction cost data.

There are two main methods of applying the FCNI in analyzing the data derived from an FCA. The first method involves looking at individual facilities. When applying it to a single facility, the lower the FCNI, the better. In terms of assessing where a facility falls within a range of conditions, the following standards can be applied.

Individual Building FCNI Range	Condition Description
0.00 - 0.10	Excellent condition, typically new construction
0.11 - 0.20	Good condition, renovations occur on schedule
0.21 - 0.30	Fair condition, in need of normal renovation
0.31 - 0.50	Below average condition, major renovation required
0.51 - 0.59	Poor condition, total renovation indicated
0.60 and above	Complete facility replacement indicated

The above ranges represent averages based upon ISES Corporation experience extending over 8,500 facilities with more than one billion gross square feet and associated infrastructure evaluations. The reader is cautioned, however, to examine each facility independently for mitigating factors (i.e., historic structures, temporary structures, facilities with abnormally low replacement costs, such as warehouses, etc.).

The second method of utilizing the FCNI is for comparing groups of facilities to other groupings. Comparisons in this vein do not yield hard data, but rather form the basis of analysis for comparing the overall state of facilities to another comparable grouping. Figure 3 in Section 2 of this document provides a listing of relevant ISES Corporation historical data for other institutions for which we have provided FCA services.

B. Analysis of Overall Conditions

The FCA process for McHenry County College culminated in a database of deficiencies that need to be addressed over the next ten years. For the 7 buildings in the study evaluated for this Executive Summary, ISES identified over 41 million dollars in project recommendations over the next ten years. As previously stated, the three campus-wide infrastructure assessments which identified an additional $5.7 million dollars in project recommendations over the next ten years are not included in this comparison since this evaluation is for buildings only. When comparing the 41.2 million dollars in project recommendations to the $161.5 million dollar replacement value for the seven facilities in the study, the subsequent FCNI equals 0.26. This FCNI figure is lower than the median (0.33) typically experienced by ISES Corporation, indicating that these buildings are in better than average condition. With the average age, weighted by the square footage of 29 years for the portfolio analyzed, the FCNI is to be expected. For a complete analysis, it is necessary to look at individual components and classifications and then compare them to the median.

The first area for standard analysis is reviewing the project backlog distribution across the various building systems. The table below summarizes this information and was derived from a review of the data in Figures 2 and 4 in Section 2. Data representing ISES client history statistics has been included for comparative purposes.

	AC	EL	ES	FS	HE	HV	IS	PL	SI	VT
	ALL NUMBERS IN PERCENTAGES									
McHenry County College	0.7	15.5	7.6	5.3	0.1	45.8	14.3	9.5	1.1	0.0
ISES Historical Average	5.9	14.8	11.8	8.1	1.3	29.5	18.2	7.4	2.1	0.9

(AC-Handicapped Accessibility, EL-Electrical, ES-Exterior Structure, FS-Fire / Life Safety, HE-Health, HV-HVAC, IS-Interior Finishes / Systems, PL-Plumbing, SI-Site, VT-Vertical Transportation)

The median for MEP systems is about 52 percent of total backlog. MEP systems account for about 71 percent of total deficiencies in the MCC database. This deviation from the norm is partly attributable to the fact that the portfolio of facilities inspected was mostly academic in nature. MEP system renovations in laboratories in particular are often twice that of less intensive spaces. It was observed that, although competently maintained, the majority of the HVAC systems are generally aged and nearing the end of their

anticipated service life cycles and due for capital renewal. Exterior envelope and Interior Finish categories, which normally amount to 30 percent or more, make up only 22 percent of the MCC project backlog. This deviation is likely due to the fact that funding for refinishing comes from multiple sources and is a high priority because it affects campus aesthetics. The inference that can be made is that interior finishes receive, whether inadvertent or not, the most attention of any building system. If this is the case, such a phenomenon is not uncommon among under-funded facilities management organizations. It should also be noted that accessibility projects represent a considerably lower than average proportion of the project backlog, thus indicating that accessibility is also a high priority for McHenry County College.

Next, we need to examine the distribution of project costs across the three project classifications. The three classifications utilized in categorizing the data are:

A. Plant / Program Adaption: Expenditures required to adapt the physical plant to the evolving needs of the institution and to changing codes or standards. These are expenditures beyond normal maintenance. Examples include compliance with changing codes (e.g. accessibility), facility alterations required by changed teaching or research methods, and improvements occasioned by the adoption of modern technology (e.g., the use of personal computer networks).
B. Deferred Maintenance: Refers to expenditures for repairs which were not accomplished as a part of normal maintenance or capital repair which have accumulated to the point that facility deterioration is evident and could impair the proper functioning of the facility. Costs estimated for deferred maintenance projects should include compliance with applicable codes, even if such compliance requires expenditures beyond those essential to affect the needed repairs. Deferred maintenance projects represent catch up expenses.
C. Capital Renewal: A subset of regular or normal facility maintenance which refers to major repairs or the replacement / rebuilding of major facility components (e.g., roof replacement at the end of its normal useful life is capital repair; roof replacement several years after its normal useful life is deferred maintenance).

	Plant / Program Adaption	Deferred Maintenance	Capital Renewal
	ALL NUMBERS IN PERCENTAGES		
McHenry County College	3.0	8.9	88.1
ISES Historical Average	20.3	28.4	51.3

In the chart above, we can see that 3.0 percent of the project backlog falls within the Adaption Projects classification. This classification typically consists of accessibility and life / safety projects. Consisting almost entirely of fire / life safety upgrades, MCC is better than the historical average of other clients in this project classification. This is largely due to the existence and acceptable installation of the fire / life safety systems and accessibility improvements within the MCC portfolio.

The proportion of Capital Renewal projects to Deferred Maintenance projects at MCC is greater than that of past ISES clientele. This indicates that, while diligent maintenance efforts are keeping them operational, a significant number of original systems have reached their statistical life cycles and need to be replaced.

The MCC portfolio has a lower amount of deferred maintenance projects, and thus more capital renewal projects, than the sample set. This supports the suggestion that the campus is being well maintained but with critical equipment being due for life cycle replacement under capital renewal within the next ten years.

Finally, we will compare how the backlog falls within the four priority classes, as shown in the chart below:

	Priority 1 and 2 (Year 1)	Priority 3 (Years 2-5)	Priority 4 (Years 6-10)	Priority 5 (Grandfathered)
	ALL NUMBERS IN PERCENTAGES			
McHenry County College	6.0	44.4	48.9	0.7
ISES Historical Average	22	58	20	NA

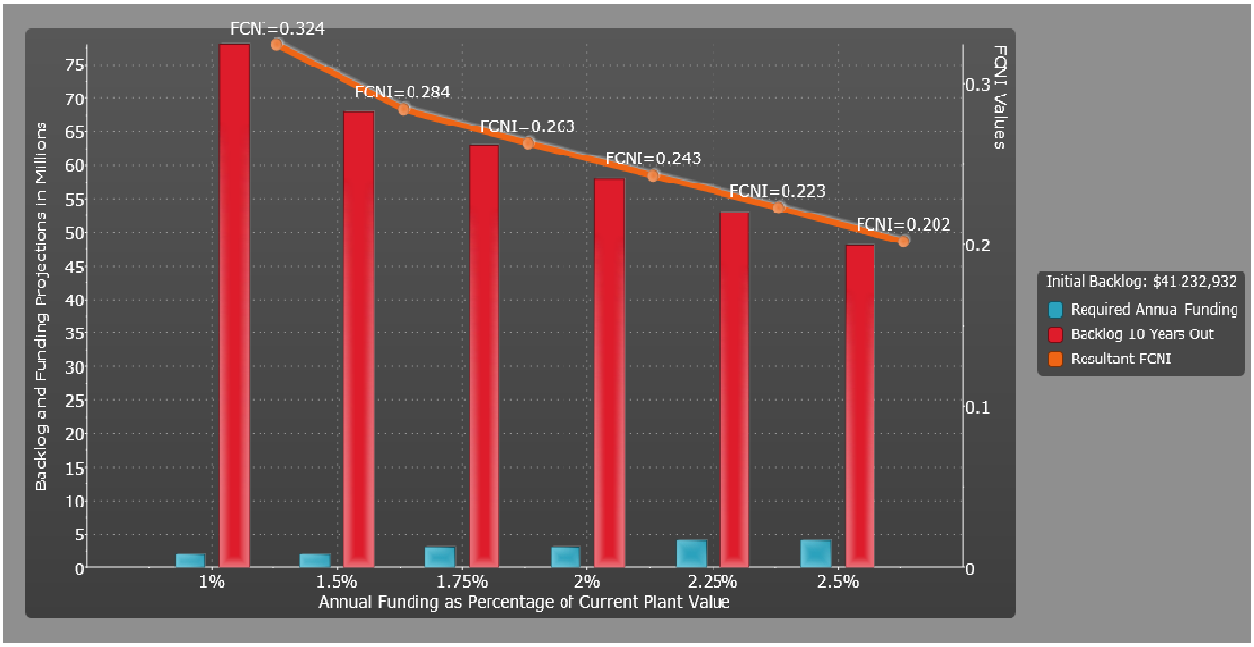
For this group of buildings, Priorities 1 and 2 account for only 6 percent of the total backlog compared to the 22 percent ISES Historical Average. This shift can be attributed to the fact that the buildings in the study group are mission critical educational and research facilities where forced outages are unacceptable

and potentially critical deficiencies are promptly corrected. This also points towards MCC allowing funding for accessibility and life safety projects. Priorities 3 and 4 account for over 93 percent of total backlog, with 44.4 percent of that amount being due in years two through five. The balance of items due during years two through five and six through ten is attributable to the ages and nature of the portfolio-wide HVAC system funding needs.

1.3 Conclusions and Recommendations for Facility Improvement

The preceding sections of this report, supported by the graphs and charts contained in Section 2, illustrate that the overall conditions for McHenry County College's occupied facilities are better than the norm found from past ISES FCA clients. MCC currently lies at the upper 16th percentile of ISES clientele with similar characteristics. The most pressing issue on campus is the life cycle replacement of HVAC systems. These systems are relatively expensive to replace. However, due to their age, the cost to replace them would be significantly hedged by energy savings and lower maintenance costs.

The funding model tool in the ISES AMS database calculates that the status quo FCNI of 0.26 can be maintained by reinvesting at the rate of 1.75 percent of current plant value ($2.83 million annually). The figure is an annuity and accounts for inflation. The chart below shows the projected FCNI and backlog (after ten years) resulting from the reinvestment of various percentages of current Plant Value.



The model also considers the rates at which the portfolio will grow, the project backlog will grow due to maintenance deferral, and new project backlog will crop up. If the future reinvestment rate is lower than 1.75 percent of plant value, the FCNI will gradually increase over the next ten years. For example, a 1 percent reinvestment rate ($1.61 million annually), will cause the portfolio-wide FCNI to increase or worsen to 0.32 at the end of ten years. Reinvestment at the rate of 2.5% of plant value ($4.04 million annually), will cause the portfolio-wide FCNI to decrease or improve to 0.20 at the end of ten years.

The funding model is interactive and, in its calculations, can include projected rates at which the portfolio will grow, that existing backlog will increase due to maintenance deferral, and that new backlog will occur. Many different scenarios can be played out in this powerful financial model feature of the database software.

The Life Cycle Model projection (Figure 9) shows an average annual cost per square foot for these McHenry County College facilities in the amount of $7.33. This figure is derived by estimating the cost to replace all major systems / components of the buildings as they reach the end of their estimated life spans over a fifty-year period. When the annual average of $7.33 per gross square foot is applied to the

entire group of facilities inspected, it results in an annual Capital Renewal funding requirement of $2.9 million. This figure is very comparable to the aforementioned status quo annual reinvestment rate since the LCM does not take plant adaption into account and plant adaption was only 3 percent of the total backlog. The number is on par with the annual reinvestment rate required to keep the overall condition of facilities from deteriorating.

The ISES FCA paints the picture for long-term capital needs. The data captured in it can serve as project planning guides as buildings are selected for renovation. FCNI comparisons can be utilized to help determine which buildings should be replaced in lieu of renovation. The chart below suggests how the FCNI data can help determine what actions should be taken for long-range facility portfolio improvements:

FCNI Range	Condition Description	Number of buildings	% of GSF
0.00 - 0.10	Excellent condition, typically new construction	0	0
0.11 - 0.20	Good condition, renovations occur on schedule	2	14.3
0.21 - 0.30	Fair condition, in need of normal renovation	4	78.8
0.31 - 0.50	Below average condition, major renovation required	1	6.9
0.51 - 0.59	Poor condition, total renovation indicated	0	0
0.60 and above	Complete facility replacement indicated	0	0

The total identified backlog, along with the FCNI projection capabilities built into the database, can be used to predict what levels of funding are necessary for future years. Once a target condition has been established in terms of FCNI, individual facilities can be selected for renovation or replacement as dictated by their condition. For assets selected for renovation, use the FCA data to ensure that all major issues associated with a given asset are dealt with at renovation time. Also use the FCA data to support replacement of economically non-viable facilities.

1.4 Additional Considerations

When planning for the annual investment required to meet the desired goal, keep in mind that the annual investments discussed above represent funding from all sources (annual Deferred Maintenance and Capital Renewal funding, major renovation funding, program-related grant funding that provides for space renewal, and so on). Note that new construction will have a positive effect on the FCNI provided that existing buildings are replaced with new structures. If new structures are built but the older facilities are kept in service, the FCNI will grow or worsen. Also, if the maintenance staff is not increased commensurately with adding square footage to the portfolio, the FCNI issue will be compounded.

When applying the results of this executive summary and overall study to the development of a budget strategy, several additional key factors need to be kept in mind. First, this study did not address the outdoor athletic facilities owned by the University, so those omitted facilities may need to be incorporated into the overall plan before budget strategies are developed. Secondly, while the results of the executive summary for this FCA study did address all buildings, it did not include any of the campus-wide infrastructure systems, such as streets, parking lots and walks, potable water system, sanitary and stormwater systems, natural gas, security, and electricity. These systems have been quantified in this study but are not included in the executive summary evaluation and comparison of building facilities. It will be critical to incorporate these elements in any budget strategies if the University embarks upon a significant growth plan in the future.

FCA DATA AND COMPARISONS

2.1 Figure 1 – Detailed Facility Inventory

BLDG CODE	NAME	BLDG USE	YEAR BUILT	GSF	FRC	TOTAL PROJECT COSTS	FCNI
A	A BUILDING	CL	1976	222,303	$89,257,000	$23,181,969	0.26
B	B BUILDING	CL	1991	65,708	$28,798,000	$8,065,772	0.28
C	C BUILDING	CL	1991	19,104	$7,876,000	$2,202,098	0.28
D	D BUILDING AND ATTACHED GREENHOUSES	ST	1975	27,029	$10,380,000	$4,242,948	0.41
E	E BUILDING	LB	1997	43,400	$17,893,000	$2,351,551	0.13
FST	FIRE SCIENCE TOWER	WH	1992	2,701	$1,114,000	$241,042	0.22
SHC	SHAH CENTER	CL	1985	12,708	$6,239,000	$947,552	0.15
GRAND TOTALS				**392,953**	**$161,557,000**	**$41,232,932**	**0.26**

2.2 Figure 2 – Detailed Project Totals Matrix

SYSTEM	PRIORITIES					
DESCRIPTION	1	2	3	4	5	TOTALS
ACCESSIBILITY	0	0	1,999	0	295,868	297,867
ELECTRICAL	1,684	0	3,450,930	2,954,737	0	6,407,352
EXTERIOR	0	0	2,697,552	455,364	0	3,152,916
FIRE/LIFE SAFETY	0	1,570,921	430,681	169,587	0	2,171,188
HEALTH	0	0	0	49,102	0	49,102
HVAC	0	515,880	7,966,016	10,400,946	0	18,882,843
INTERIOR FINISHES/SYS.	0	354,500	365,021	5,182,433	0	5,901,954
PLUMBING	0	21,863	2,964,252	916,201	0	3,902,315
SECURITY SYSTEMS	0	0	0	19,569	0	19,569
SITE	0	0	447,827	0	0	447,827
TOTALS	**$1,684**	**$2,463,163**	**$18,324,277**	**$20,147,939**	**$295,868**	**$41,232,932**

CAPITAL RENEWAL	$36,332,609
DEFERRED MAINTENANCE	$3,683,544
PLANT/PROGRAM ADAPTION	$1,216,780
FACILITY REPLACEMENT COST	$161,557,000
FACILITY CONDITION NEEDS INDEX (FCNI)	0.26

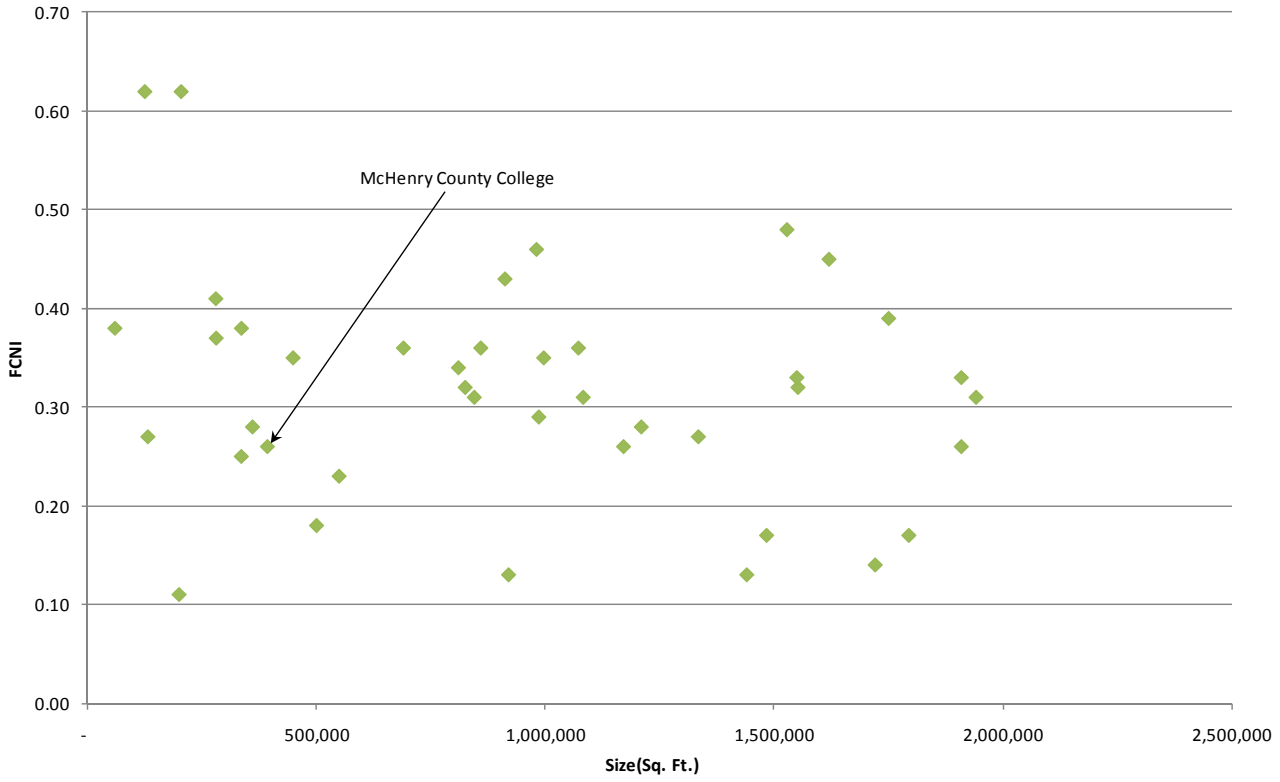
GROSS SQUARE FEET	392,953

TOTAL PROJECT COST PER SQUARE FOOT	$104.93

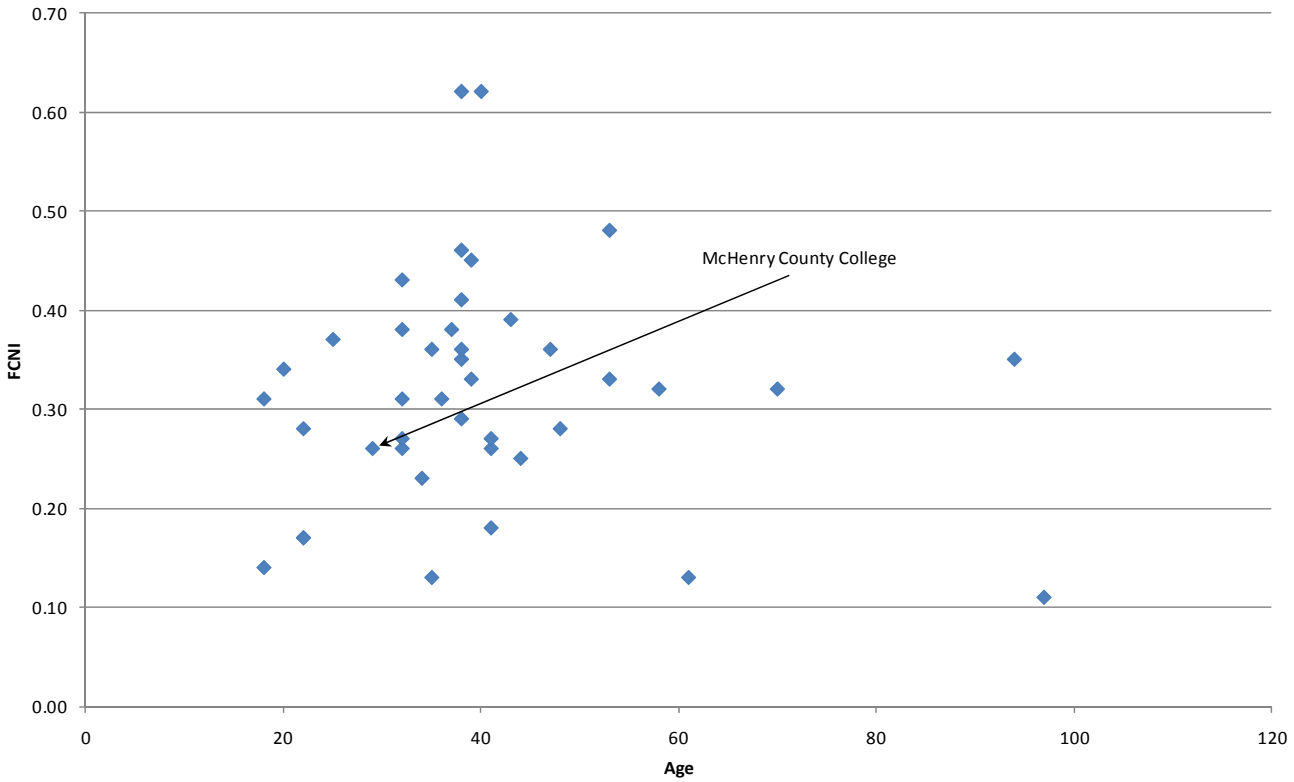
2.3 Figure 3 – ISES Client History and FCNI Comparison Table and Graphs

Sampling of ISES Client History List										
Client Name	Year of Inspection	Facility Condition Needs Index	Gross Square Feet	Asset Count	Average Year Built	Avg. Age at Insp.	Project Backlog per Square Foot	Total Backlog	FCNI Percent Rank	Avg Year Built Percent Rank
Dumbarton Oaks Research Library and Collection	2008	0.11	200,168	13	1911	97	$66.14	$13,240,100	100%	100%
California State University Channel Islands	2010	0.13	919,735	32	1975	35	$49.48	$45,505,298	98%	17%
University of North Florida	2008	0.14	1,720,437	28	1990	18	$40.40	$69,498,230	95%	0%
Western Michigan University	2001	0.18	500,367	5	1960	41	$46.17	$23,102,103	92%	76%
Michigan State University	2003	0.23	549,627	5	1969	34	$34.74	$19,094,755	90%	36%
Friendship Public Charter School	2003	0.25	336,066	4	1959	44	$34.13	$11,468,395	87%	79%
McHenry County College	**2011**	**0.26**	**392,953**	**7**	**1982**	**29**	**$104.93**	**$41,232,932**	**84%**	**9%**
San Francisco State University	2003	0.26	1,908,545	21	1962	41	$70.16	$133,898,966	84%	73%
Tarleton State University	2002	0.26	1,170,882	47	1970	32	$40.41	$47,310,861	84%	30%
University of West Georgia	2004	0.27	1,334,306	36	1963	41	$45.01	$60,061,598	76%	69%
Greenhills School	2000	0.27	132,000	1	1968	32	$40.92	$5,401,815	76%	40%
Claremont University Center	1999	0.28	360,464	12	1951	48	$50.20	$18,096,221	71%	90%
Chapman University	2002	0.28	1,209,650	31	1980	22	$48.30	$58,426,248	71%	11%
Valdosta State University	2004	0.29	985,822	19	1966	38	$46.06	$45,409,388	65%	53%
Morehouse College	2007	0.31	844,948	24	1971	36	$66.97	$56,583,054	63%	24%
Rowan University	2005	0.31	1,940,879	44	1962	32	$74.51	$144,619,873	63%	74%
California State University San Bernadino	2000	0.31	1,082,701	18	1982	18	$62.03	$67,162,351	63%	8%
Phillips Exeter Academy	2007	0.32	1,551,807	132	1937	70	$82.55	$128,102,742	55%	95%
Kenyon College	2007	0.32	825,023	52	1949	58	$84.38	$69,612,041	55%	93%
Missouri University of Science and Technology	2010	0.33	1,549,304	43	1957	53	$135.40	$209,770,169	49%	82%
California State University Los Angeles	2005	0.33	1,908,641	20	1966	39	$99.30	$189,533,235	49%	53%
Georgia State University Foundation	2003	0.34	810,212	5	1983	20	$48.73	$39,480,904	44%	3%
University of the Arts	2008	0.35	996,503	15	1914	94	$125.05	$124,617,342	41%	98%
Oakland University	2004	0.35	449,117	6	1966	38	$69.71	$31,310,078	41%	53%
Emory University	1999	0.36	1,072,311	32	1952	47	$56.20	$60,264,473	36%	87%
California Polytechnic State University San Luis Obispo	2006	0.36	859,028	36	1968	38	$77.06	$66,198,105	36%	40%
University of Nebraska - Omaha	2006	0.36	690,190	6	1971	35	$76.81	$53,013,995	36%	24%
University of West Florida	2001	0.37	281,242	12	1976	25	$65.16	$18,326,662	28%	14%
University of California Irvine	2007	0.38	336,208	26	1970	37	$89.47	$30,082,075	25%	29%
Trinity College	2001	0.38	59,872	2	1969	32	$53.33	$3,192,955	25%	35%
University of Missouri-St. Louis	2010	0.39	1,750,014	39	1967	43	$154.57	$270,494,377	19%	45%
Pitzer College	2002	0.41	280,397	10	1964	38	$63.29	$17,746,437	17%	58%
Western Carolina University Dept. of Residential Lvg.	2004	0.43	911,938	14	1972	32	$73.41	$66,947,791	14%	19%
San Diego State University	2006	0.45	1,619,605	21	1967	39	$105.04	$170,118,528	11%	45%
University of Wyoming	2001	0.46	980,767	11	1963	38	$77.84	$76,342,523	9%	69%
Miami University, Ohio	2007	0.48	1,527,840	30	1954	53	$94.23	$143,963,945	6%	85%
Tift College (LAS)	2003	0.62	125,317	5	1963	40	$86.06	$10,785,108	3%	69%
Middle Georgia College	2002	0.62	204,609	8	1964	38	$75.69	$15,487,753	3%	58%
Averages	**2004**	**0.32**	**904,724**	**23**	**1964**	**41**	**$71.42**	**$69,881,669**		

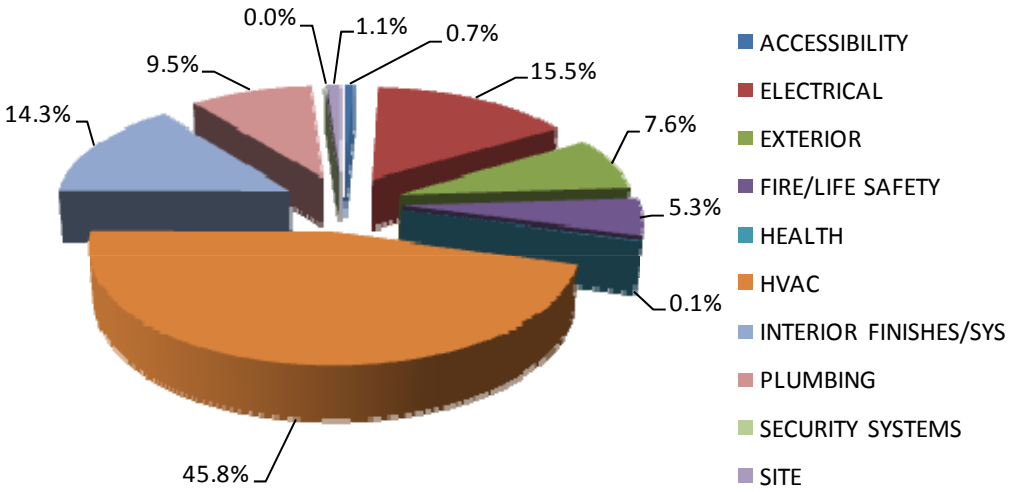
Sampling of ISES Client History – FCNI vs. Campus Size



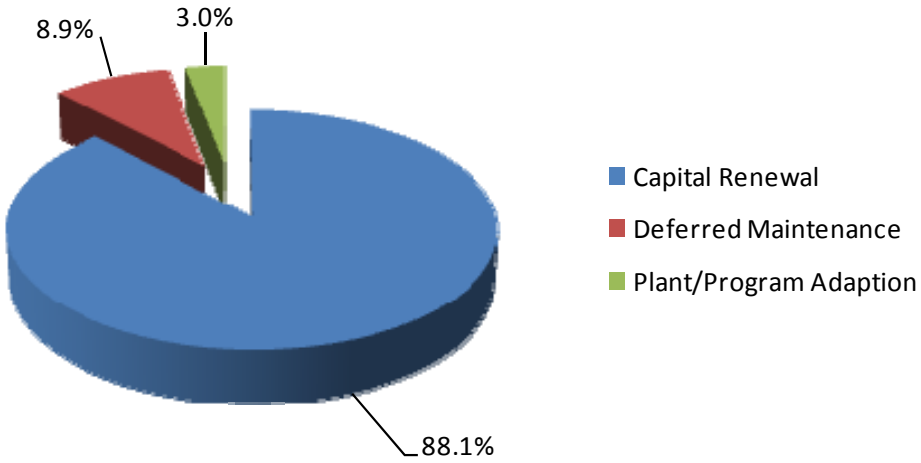
Sampling of ISES Client History - FCNI vs. Average Facility Age



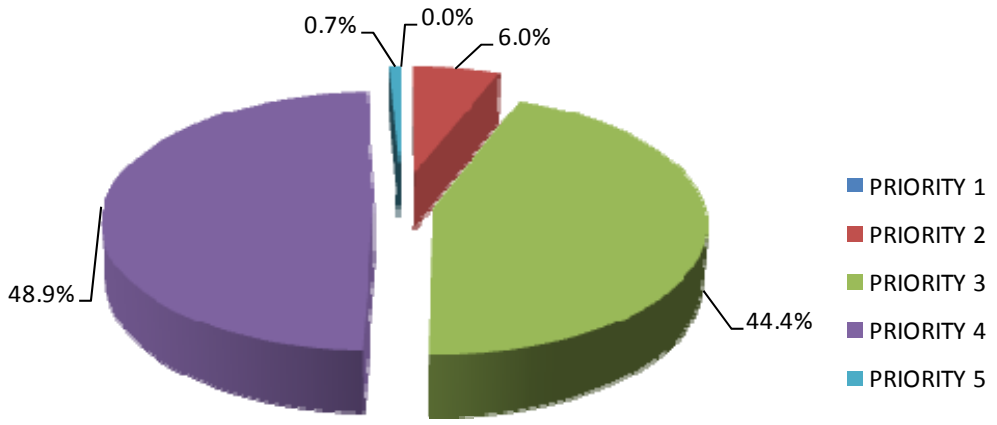
2.4 Figure 4 – System Code Project Cost Distribution Chart



2.5 Figure 5 – Project Classification Project Cost Distribution Chart



2.6 Figure 6 – Priority Class Project Cost Distribution Chart



2.7 Figure 7 – Summary of FCNI and Project Cost by Facility

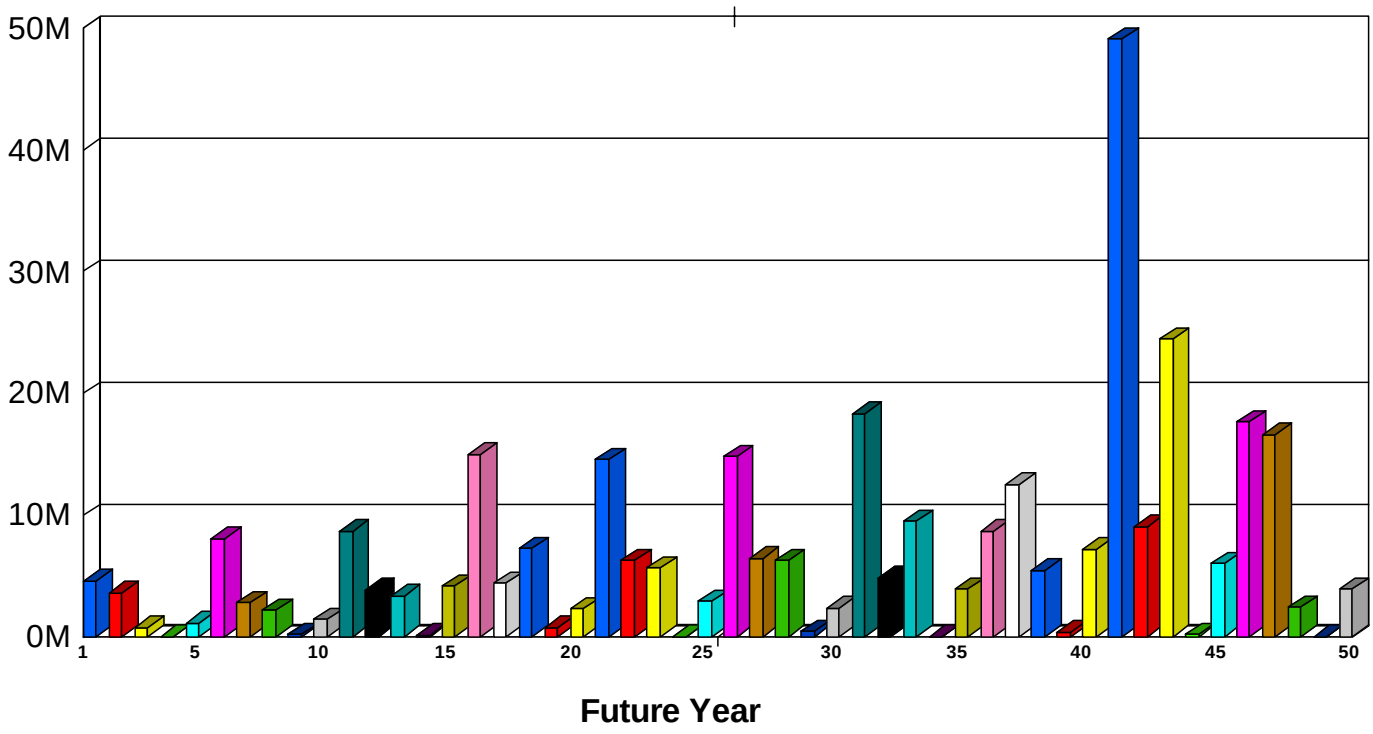
BLDG CODE	NAME	BLDG USE	YEAR BUILT	GSF	FRC	TOTAL PROJECT COSTS	FCNI
			FCNI 0.00 to 0.19				
E	E BUILDING	LB	1997	43,400	$17,893,000	$2,351,551	0.13
SHC	SHAH CENTER	CL	1985	12,708	$6,239,000	$947,552	0.15
			FCNI 0.20 to 0.29				
FST	FIRE SCIENCE TOWER	WH	1992	2,701	$1,114,000	$241,042	0.22
A	A BUILDING	CL	1976	222,303	$89,257,000	$23,181,969	0.26
C	C BUILDING	CL	1991	19,104	$7,876,000	$2,202,098	0.28
B	B BUILDING	CL	1991	65,708	$28,798,000	$8,065,772	0.28
			FCNI > 0.30				
D	D BUILDING AND ATTACHED GREENHOUSES	ST	1975	27,029	$10,380,000	$4,242,948	0.41

2.8 Figure 8 – Summary of Average Age and Primary Facility Use Types

YEAR	# OF FACILITIES	% OF GSF	GSF	AVG. AGE
1970 – 1979	2	63.5	249,332	35
1980 – 1989	1	3.2	12,708	26
1990 – 1999	4	33.3	130,913	18
TOTALS	**7**	**100**	**392,953**	**29**

FACILITY TYPE CODE	DESCRIPTION	# OF FACILITIES	% OF GSF	GSF
CL	Classroom / Academic	4	81.4	319,823
LB	Laboratory	1	11.0	43,400
ST	Shops / Trade	1	6.9	27,029
WH	Warehouse/Storage/Utility	1	0.7	2,701
	TOTALS	**7**	**100**	**392,953**

2.9 Figure 9 – Life Cycle Model Expenditure Projections



Average Annual Renewal Cost per Square Foot: $7.33

2.10 Figure 10 – Geographical FCNI Range Map