PARSONS

William Rainey Harper College
Campus Facility Assessment

December 2007

Executive Summary

Introduction

In August 2007, Parsons Commercial Technology Group Inc. (Parsons) was engaged by William Rainey Harper College (HC) in Palatine, Illinois to perform a General Facilities Condition Assessment. T The assessment covered 1.3 million square feet of the HC Main Campus in the Palatine area. Paul Hufford from Parsons led the project and worked closely with Jim Ma and Rich Costell of Harper. This was a partnership between Parsons and Harper. Parsons assessed approximately 900KSF and Harper assessed the remainder. Parsons provided overall quality control, the reports and concluded the project with a presentation to the President and the Board.

These were the buildings assessed:

Building	Gross Area
Building A&K	132,593 SF
Building B	27,060 SF
Building C	23,908 SF
Building D	115,903 SF
Building E	14,258 SF
Building F	101,970 SF
Building G	19,314 SF
Building H	62,843 SF
Building I	39,709 SF
Building J	53,238 SF
Building L	88,860 SF
Building M	97,100 SF
Building O	784 SF
Building P	26,799 SF
Building R*	44,942 SF
Building S	12,151 SF
Building T	5,175 SF
Building U	5,774 SF
Building V	12,714 SF
Building W*	50,122 SF
Building X*	98,071 SF
Building Y*	53,113 SF
Building Z*	141,742 SF
Modular Classrooms**	3,648 SF
TOTAL	1,231,791 SF

*Assessed by HC Staff
 ** Demolished

Objectives

The purpose of this Facility Condition Assessment (FCA) was to develop a reasonable budget for today's deferred maintenance cost and required future capital renewal cost. That means that in addition to the cost of repairing existing deficiencies, the condition assessment database contains information that will help planners:

1. Estimate the cost of required building system (Deferred Maintenance) repairs.

2. Predict the required capital cost to replace existing building systems as they reach the end of their useful life.

Approach

A general assessment uses statistics about the building systems that make up a facility; for example, foundation systems, structural systems, roofing systems, HVAC systems, etc. A general assessment provides the system level deficiencies based on the life cycle analysis of a cost model. The cost model is a representative cost estimate of systems for a building using the recognized, RS Means cost data. The result of the assessment provides the cost data for deferred maintenance and capital renewal. The deferred maintenance items are systems that are expired or beyond their useful life. The capital renewal items are those systems that will expire in the future.

The assessment team started by interviewing HC Facilities & Operations staff to gather existing facility records such as installation dates, renovation dates, and all relevant data on major building systems. Floor plans, maintenance records, layouts and other available data were collected and analyzed. During these meetings, our assessors performed these tasks:

- Verified and expanded general description of the buildings and their major systems

- Identified current or backlog building system renewal deficiencies

- Assessed the useful life of the major building systems

Our assessor used our assessment software known as Condition Management Estimation Technology (COMET). COMET is an updateable database that will allow us to:

- Create a database of capital renewal items

- Estimate the cost of current deferred maintenance backlog

- Produce and analyze (on a continual basis) future costs

- Provide consequences of multiple funding scenarios against multiple benchmarks

- Continue to update the database as repairs are corrected or new deficiencies are identified.

The general assessment provides current deferred maintenance and future renewal cost estimates and budgets. For example: facility records indicate a system is due for replacement. Data is entered in the assessment software accordingly. During on-site inspection, however, it

is discovered the system was recently replaced but the replacement was not documented in facility records. The system's actual age is updated in the software and it will be calculated into future renewal costs rather than deferred maintenance costs. Similarly, when field assessors encounter systems in better or worse condition than life cycle standards predict, the assessor can adjust the software to reflect a shorter or longer life expectancy.

Summary of Findings

Summary of Costs

The costs presented below are a summary of the findings of Harper College portfolio for the current deficiencies, including a life cycle analysis. The costs include soft cost associated with a rehabilitation project.

Facility Name	Total Current Repair Cost	Replacement Value	FCI %
Building A,K	8,478,242	33,391,393	25.39
Building B	3.065,956	7,408,902	41.38
Building C	2,174,173	5,182,859	41.95
Building D	15,396,572	29,423,663	52.33
Building E	1,292,343	2,852,602	45.30
Building F	7,680,912	23,331,530	32.92
Building G	1.451,542	3,534,360	41.07
Building H	5,621,554	14.271,328	39.39
Building I	1,170,875	10,011,117	11.70
Building J	2,282,397	11.446,970	19.94
Building L	849,601	20,509,375	4.14
Building M	4,070,846	16,585,175	24.55
Building O	8,989	72,092	12.47
Building P	2,149,681	8,156,561	34.92
Building R	401,992	10,698,945	3.76
Building S	191,212	2,431,151	7.87
Building T	89,712	646 882	13.87
Building U	146,151	589,917	24.77
Building V	428,264	2.150,179	19.92
Building W	641,658	12.971,833	4.95
Building X	258,677	24,572,634	1.05
Building Y	49,790	12,875,878	0.38
Building Z	386,180	39,579,068	0.98
Mod. Classrooms	0	0	0
Total	**$58,287,321**	**$290,694,414**	**20.05**

The Facility Condition Index (FCI) is a ratio (often expressed as a percentage) with the total project cost of current deficiencies as the

numerator and the current replacement value of the facility as the denominator.

The FCI is used to compare the relative condition of facilities and usually the higher the FCI, the poorer the relative condition of the facility. For example, if a facility with a replacement value of $1,000,000 and has $100,000 of deficiencies, the FCI is $100,000/$1,000,000 or 0.10 (10%).

The FCI is calculated by dividing the total value of deficiencies in a building by the building's replacement value. FCIs can be used to provide a comparative analysis on the buildings in the assessment. FCIs can also be run on multiple buildings, allowing you to measure the condition of a portfolio of buildings.

FCI By Building Age - Main Campus
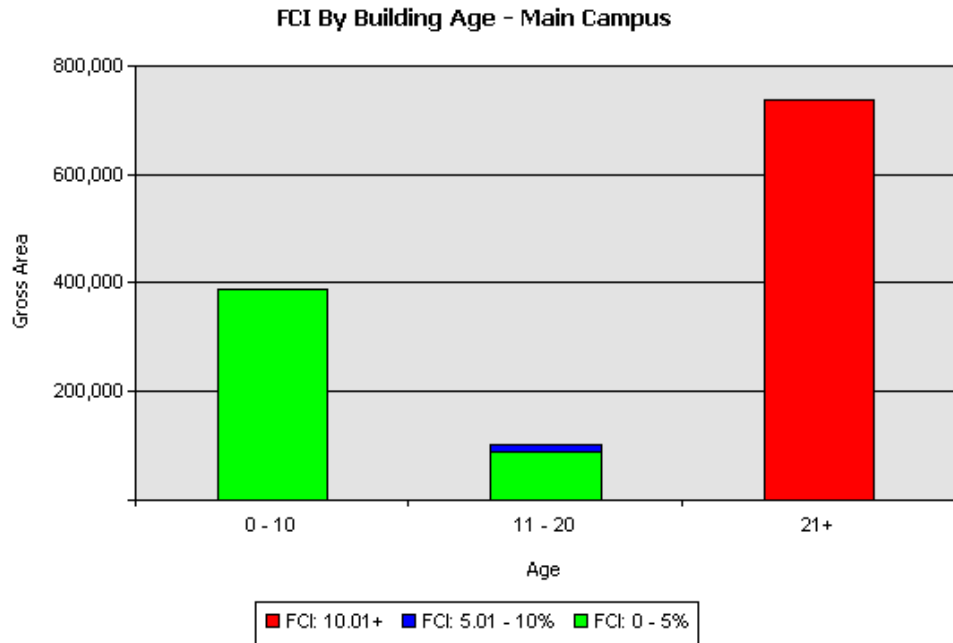
Deficiencies by Priority

The table below summarizes the deficiencies by priority for the Harper College facilities visited:

Priority	Deficiency Amount
Life Safety / Immediate Need	$7,271
Potentially Critical – 12 months	$705,846
Necessary / Not Critical – 2-5 years	$54,207,991
Recommended – 3-10 years	$2,945,319
Dose Not Meet Current Code/Standard	$420,945

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Facility Renewal Forecast for Harper College

The graph below summarizes the funding required to renew systems as they expire (or exceed their expected useful life) between 2007 and 2017. This graph does not take into account the funding required to renew systems that were already found to have expired at the time of the assessment in 2007.
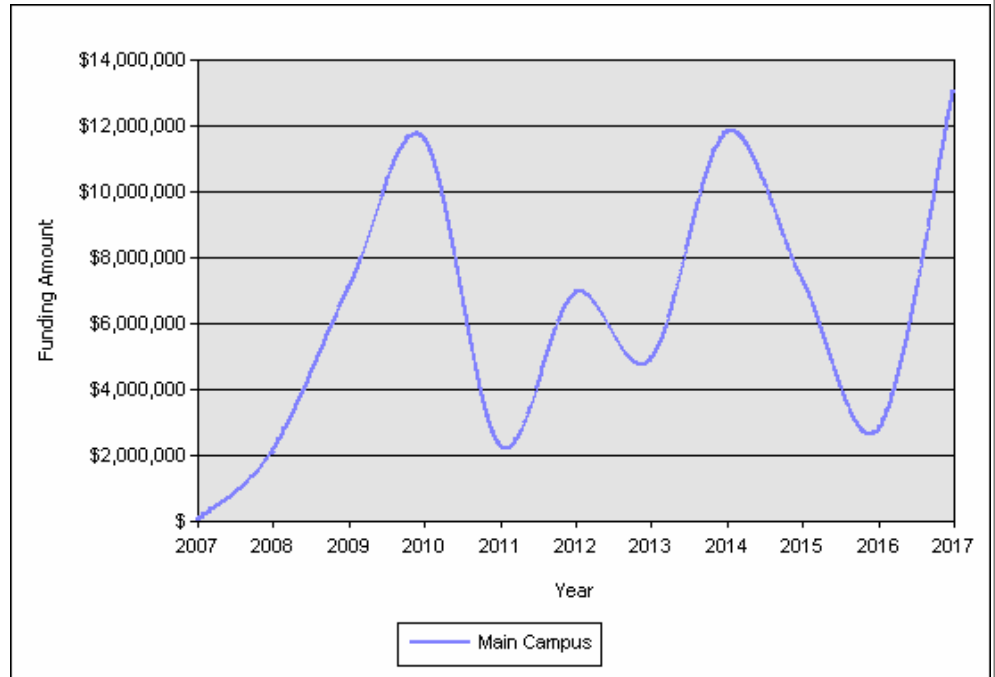
The next chart illustrates the 10-year total funding requirements for the Harper College for three (3) funding scenarios. It shows the combined funding needed for the assessed deficiencies and the predicted capital renewal requirements.

Using this chart, we can determine:

- How much funding is required to maintain the current FCI of 20.05%
- What level of funding is required to achieve an FCI of 13% or 7%
- What effect does the college's maintenance budget have on the FCI

The table below shows these three scenarios:

Current FCI: Keep the Current FCI of 20.05% Stable (Red)

The red line assumes no spending in the current year (2007) for current deficiencies but capital renewal costs over the next 10 years will be required to maintain the current FCI level.

Required Funding: Reduce the FCI to 13% (Blue)

The blue line assumes no spending in the current year (2007) for all current deficiencies. It assumes the required level of funds for capital renewal over the next 10 years, in addition to a premium to buy-down the current deficiencies to achieve an FCI of 13%.

Required Funding: Reduce the FCI to 7% (Green)

The green line assumes no spending in the current year (2007) for all current deficiencies. It assumes the required level of funds for capital renewal over the next 10 years, in addition to a premium to buy-down the current deficiencies to achieve an FCI of 6%. Supporting data for this chart with a listing of current deficiencies can be found in the "Deficiency Analysis" reports for each building. The table below shows the 10 year annual capital renewal funding requirements from the chart below.

Facility Funding vs. FCI for Main Campus
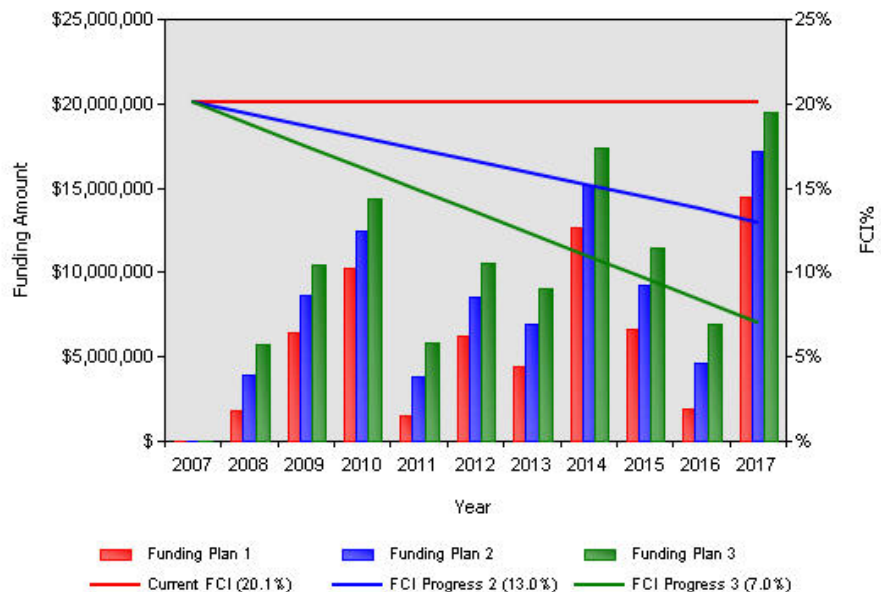
Year	Current FCI	FCI 13%	FCI 7%
2008	$1,781,890.73	$3,893,086.59	$5,689,578.07
2009	$6,410,860.63	$8,585,392.36	$10,435,778.58
2010	$10,232,781.89	$12,472,549.58	$14,378,447.39
2011	$1,523,732.96	$3,830,693.68	$5,793,768.42
2012	$6,187,729.71	$8,563,899.25	$10,585,866.23
2013	$4,460,413.40	$6,907,868.02	$8,990,494.02
2014	$12,681,953.82	$15,202,832.09	$17,347,936.86
2015	$6,660,350.26	$9,256,854.87	$11,466,312.79
2016	$1,927,761.93	$4,602,161.68	$6,877,903.34
2017	$14,419,169.12	$17,173,800.86	$19,517,814.77
Total:	$66,286,644.45	$90,489,138.98	$111,083,900.48

Cost Model

A cost model is a representative estimate of the building in question. The cost model originates from an RS Means database for academic buildings. Additional systems, assemblies and applicable project costs are added based on the building and its unique circumstances.

Separate cost models were developed for different building functions i.e. Classrooms, Library, Science Labs, Gym, etc. Its objective is to accurately analyze each building based on its unique design requirements.

Sample Cost Model for a Classroom Building at Harper College

Extended Facility Condition Index (EFCI)

The EFCI is calculated by dividing the value of deferred maintenance plus the present value of future renewal costs by the building's current replacement value. EFCI provides a broader perspective for budgeting because it includes current deferred maintenance and forecast out-year requirements. EFCI is used to compare facility conditions over the budgeting plan period.

FCI Uses	EFCI Uses
Prioritize expenditure of existing budgets.	Develop facility maintenance and renewal budgets.
Compare facilities based upon current deficiencies.	Provides a broader perspective for budgeting because it includes forecast out-year requirements <u>and</u> current deferred maintenance requirements.
	Compare facility conditions over the budgeting plan period.

Current Replacement Value (CRV)

The current replacement value of the buildings is used as the denominator in the FCI. The CRV represents the hypothetical expense of rebuilding the existing facilities in a manner representing the original construction using current construction costs, materials, and methods. (It is not the facility's appraised value nor does it represent the cost to replicate the original building with today's amenities not normal to the time of original construction unless specifically modified by the assessor.) It is determined by multiplying the gross square foot area of the facility by an estimated cost per square foot ($/SF).

Repair Costs

This is the amount or total cost to repair an expired system or facility. This figure does not include modernization or building alteration costs to address functional adequacy. Repair costs include only those costs to renew the systems or buildings as defined by their original construction documents.

Total Project Costs

Total project costs include both direct construction costs and so-called "soft costs," i.e., costs that are necessary to accomplish corrective work but are not directly attributable to the deficiency. Construction costs include direct labor and materials plus overhead and profit for the general contractor. Soft costs include fees for architects, engineers, other consultants (e.g. hazardous materials), program management (whether in-house or by contract) and contingencies. COMET uses the terminology Soft Costs to refer to these additional costs.

Soft Costs

Soft costs are additional costs, which are necessary to accomplish the corrective work, but are not directly attributable to the deficient system. Soft costs vary by user but can include construction contingency; design; specialized investigations such as geotechnical, environmental, or hazardous material; program management fees whether in-house of consultant; and various administrative fees. The soft costs used in this assessment of these buildings are as follows:

General Conditions	15% of Construction Estimates
Design/CM Contingency	7% of Construction Estimates
Bonds and Insurance	2% of Construction Estimates
Contingencies	10% of Construction Estimates
Total Soft Costs	37.65% (compounded)

Expected Useful Life (EUL)

Expected life of a building system. The 'useful life' is determined by the trade organizations such as BOMA, manufacturers and is calibrated based on experiences of users –Harper College- of the system.

Priorities

Priority 1 – Life Safety
Compromises student, staff or public safety

Priority 2 – Currently Critical
A system or component is inoperable or compromised and requires immediate action

Priority 3 – Necessary / Not Critical
Maintain the integrity of the facility or component and replace those items which have exceeded their expected useful life

Priority 4 – Recommended
Necessary for optimal performance of the facility or component

Priority 5 – Does not meet current code/ADA/Grandfathered
Future Renewal items are those systems that are due to expire within the life of the building. The Grandfathered code issues are the items that do not meet current codes due to revisions but were compliant at the time of construction.

Deficiency Category

1 – Life Safety: used when a system requires replacement to be upgraded to a current standard for continued occupancy

2 – ADA/Code Compliance: used when a system should be provided to comply with current codes

3 – Building Integrity: used when a system requires replacement or repairs to prevent infiltration of the weather

4 – Deferred Maintenance: used when a system requires replacement due to damage or age

5 – Appearance: used when a system has degraded and requires refurbishment

6 – Capital Renewal: used when major repairs and renewals are needed due to the age of the system

7 – Environment: used when the repair or replace of equipment or systems have a positive effect on the environment.

General Assessment

The primary objective of this type of assessment is to review the major systems in each designated facility and note the overall condition of the building systems and components.

The condition of the building is evaluated by a physical visit and an analysis of a cost model. This evaluation involves understanding the age and the performance of each system. Each building system or component has an "expected useful life" and the relative cost for its repair or replacement. The "expected useful life" used for this assessment was that published by the Building Owners and Managers Association (BOMA), a nationally recognized organization.

A deficiency of a system is recognized by the recording of a building system as 100% used or the entry of an adjusted amount for a repair. Conveying, Doors, Electrical, Foundations and Interior Construction are considered as examples of building systems. If a particular building system has an expected useful life of 30 years and the system is currently 15 years old then the system is 50% used. The system would have approximately 15 years of remaining life to perform. If a system is 100% used the software will calculate the value of that system per square foot and multiply the value by the area of the building to determine a total value of the repair. If a system is only 50% used but requires repairs, an adjusted amount is entered and that value is considered a deficiency. Usually, a system is considered beyond its useful life or 100% used if the system has reached its life expectancy. If a system is older than its normal useful life but is still performing adequately it will be considered to still have remaining life. At times a system can perform longer than its predicted useful life.