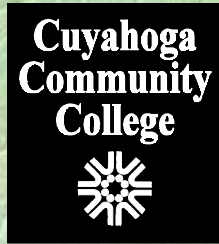


First Annual
HEI Users Conference
Central Ohio Technical College
Newark, Ohio
March 24, 2000



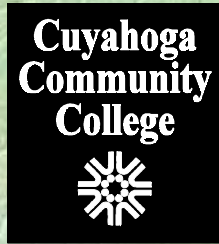
Deferred Maintenance Model and Estimating Techniques

Bob Bennett

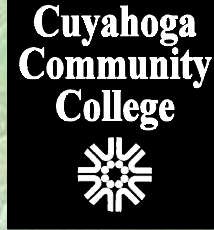
Asst.. Vice President, Operations

District Office

Cuyahoga Community College

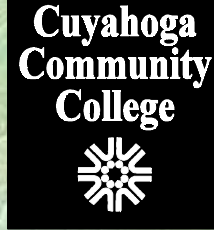


..... but first a word from our
sponsor



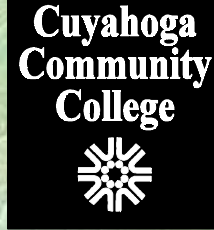
What is Deferred Maintenance?

- Halpern Study
- Politics of Capital Investment and spending
(right after asbestos?)
 - Federal
 - State
 - Institutional



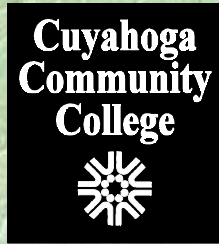
“The numerous surveys to which we have responded have offered their own definitions.”

- Pete van der Have

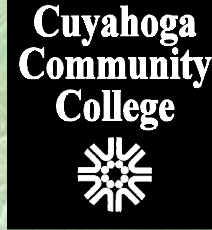


Deferred Maintenance

- The result of
 - The institutional decision dynamic (i. e. Institutional Politics)
 - Resource Contention + Priorities

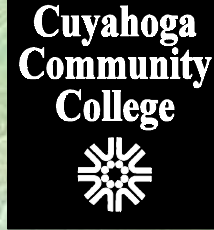


- Funds spent on:
 - Visible projects
 - Unfunded Mandates
 - EPA, ADA, OSHA, Building Codes
 - Obsolescence
 - Changing User Expectations
 - Popular Projects
 - Support of the Core Mission of the Institution.

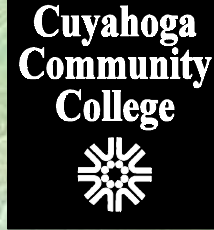


Tri-C Definition

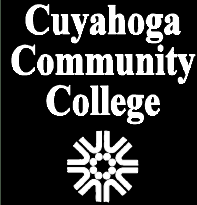
- What is the scope of what District Operations want to achieve?
- Clear understanding of the nature of these projects AS PROJECTS.
- Common Lexicon (special vocabulary) or Terminology.



- Terminology that is consistent with state funding.
- Terminology that protects the funding from pillage and plunder.

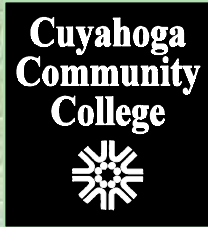


- **Basic Renovation**
 - in lieu of ‘deferred maintenance’
- ‘Programmatic’ Renovation for user activity directed renovations

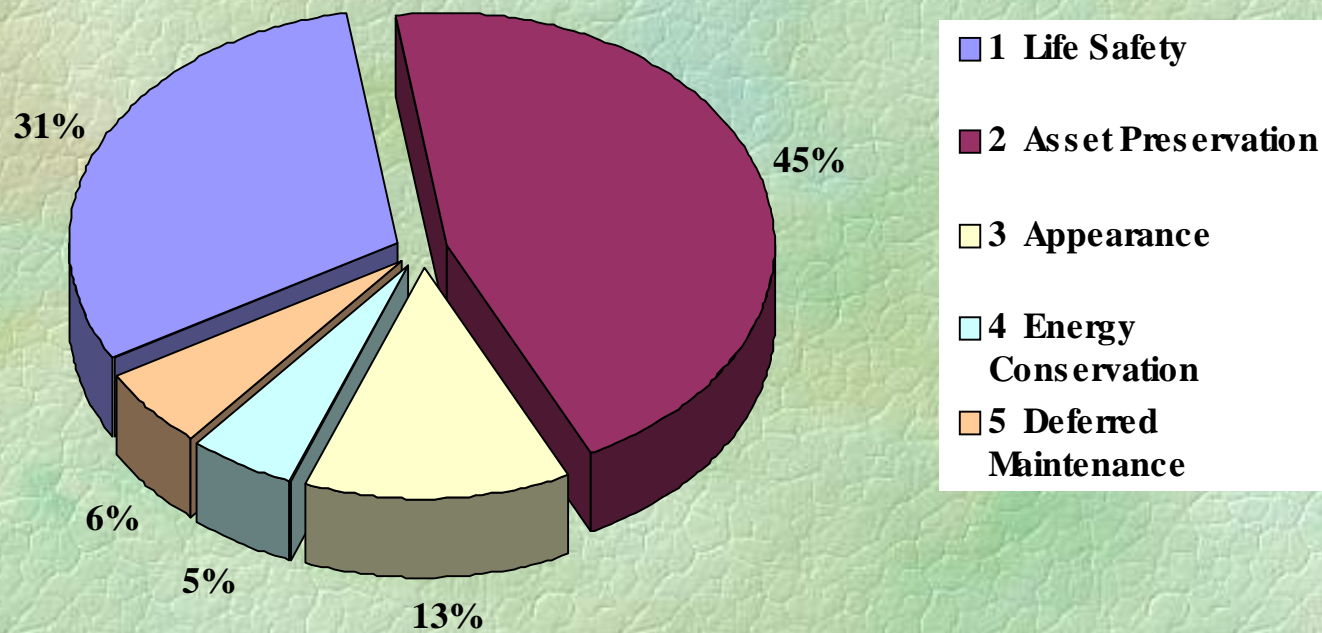


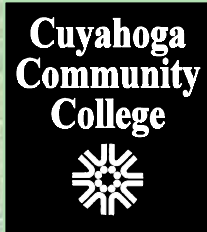
Categories of Basic Renovation

- Priority #1: Life Safety / Code / ADA
- Priority #2: Asset Preservation
- Priority #3: Function & Appearance
- Priority #4: Energy Conservation (Ohio House Bill Seven)
- Priority 5: 'Deferred Maintenance'

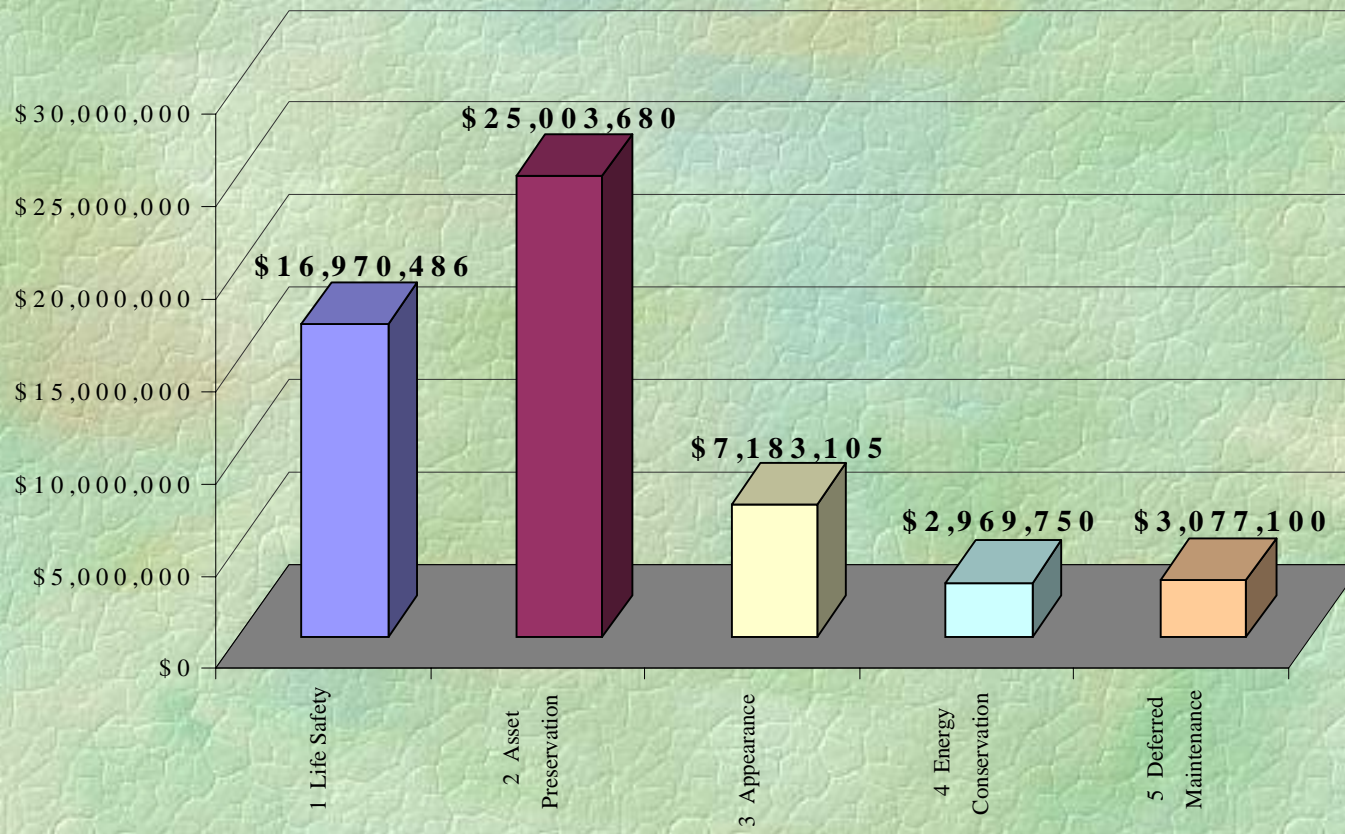


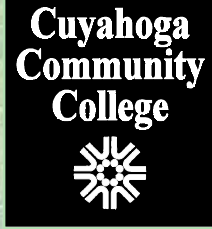
COLLEGE WIDE: TOTAL COST BY PRIORITIES



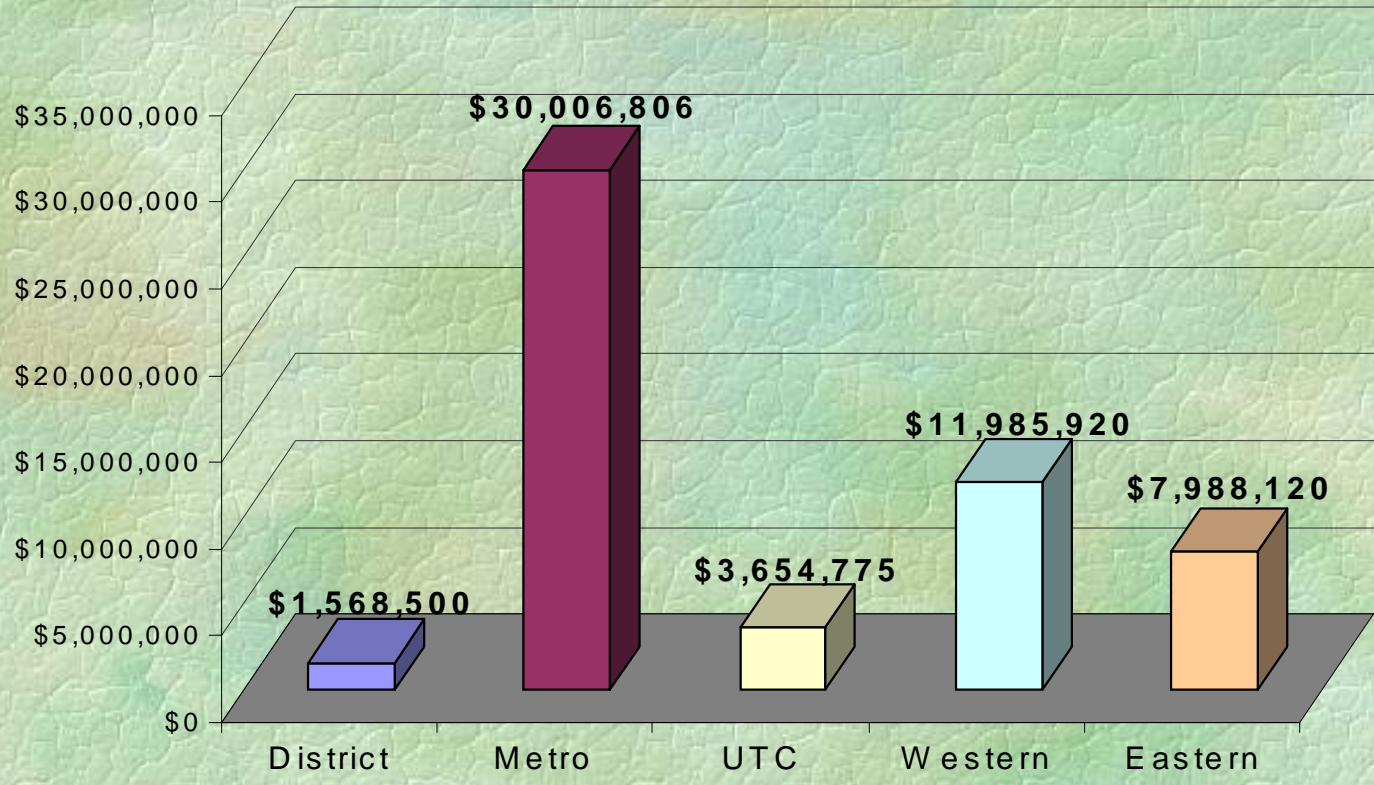


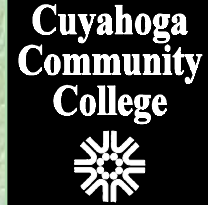
COLLEGE WIDE: TOTAL COST BY PRIORITIES



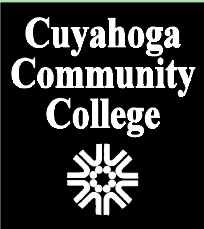


TOTAL COST BY CAMPUS

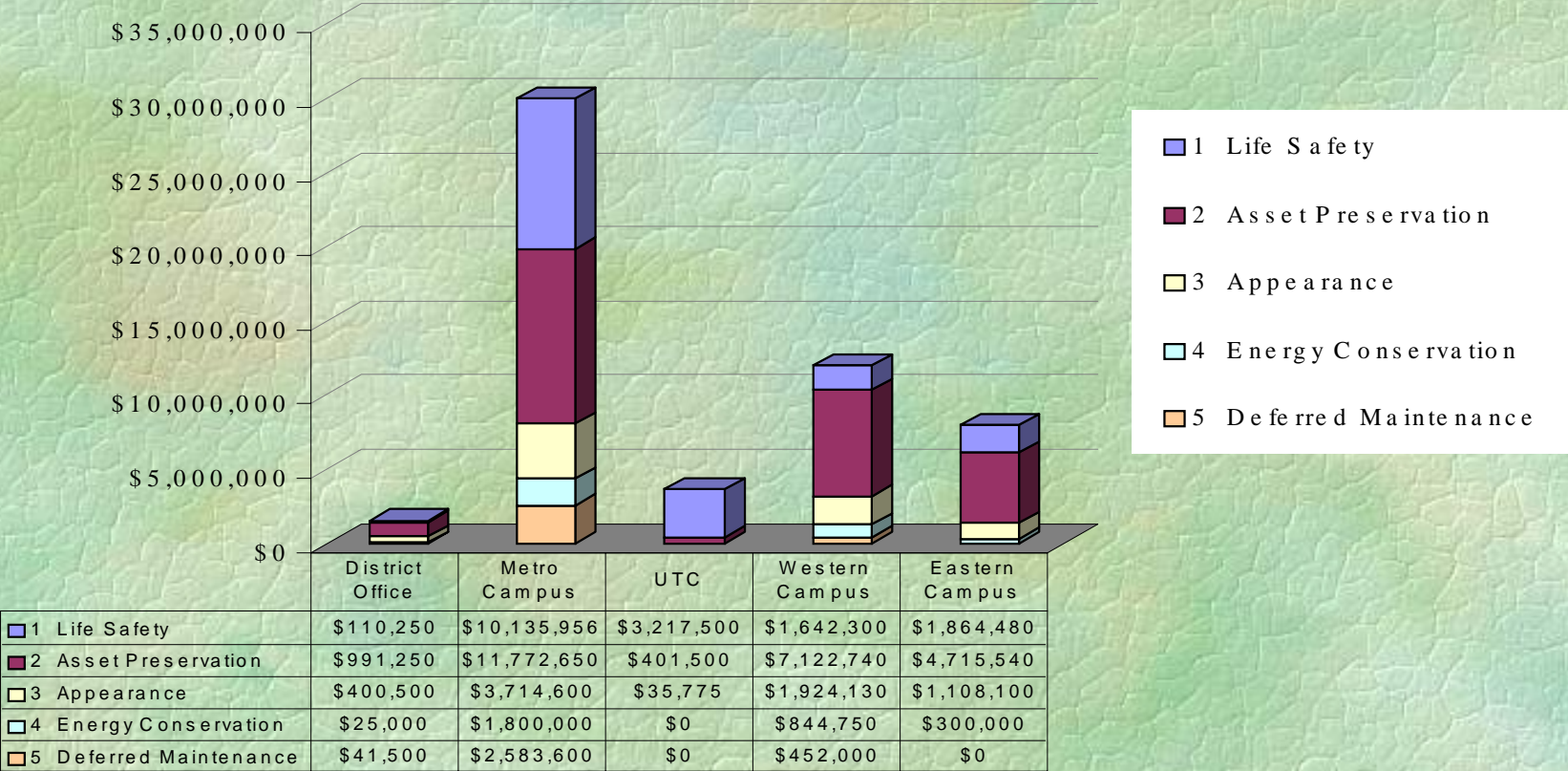


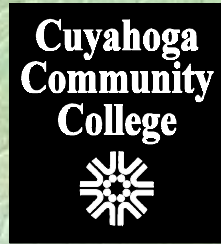


College Wide			
1 Life Safety		\$16,970,486	
2 Asset Preservation		\$25,003,680	
3 Appearance		\$7,183,105	
4 Energy Conservation		\$2,969,750	
5 Deferred Maintenance		\$3,077,100	
	TOTAL	\$55,204,121	



COLLEGEWIDE: PRIORITIES BY CAMPUS





Estimate Estimate **Estimate** Estimate

Estimate Estimate Estimate **Estimate** Estimate

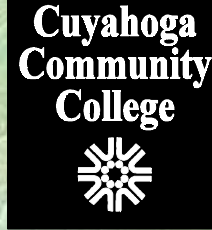
Estimate Estimate Estimate Estimate Estimate

Estimate Estimate **Estimate** Estimate

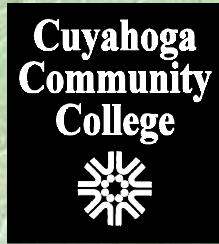
Estimate **Estimate** Estimate *Estimate* Estimate

Estimate Estimate Estimate Estimate **Estimate**

Estimate Estimate Estimate Estimate Estimate

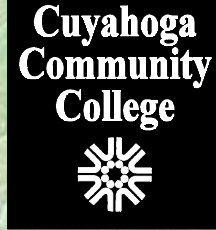


- Setting up a model
- Long Range Strategy
- Your System
 - No one else cares about which system, they only want outcomes.
 - A Document, Plan, Chart that will dazzle them - when the time is right.

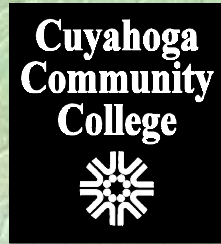


Correct Presentation +
Acute Sense of Timing =
Razzle Dazzle = \$

Your model can be a useful tool to market
your area and justify funding



- Tri-C's First Investment
 - Provided Base/Baseline Data
 - Usable Data
 - Pure Fact
 - A Foundation
 - Good Estimating Base



Estimate Estimate **Estimate** Estimate

Estimate Estimate Estimate **Estimate** Estimate

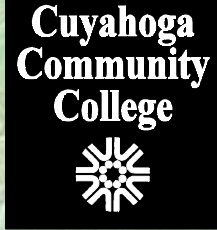
Estimate Estimate Estimate Estimate Estimate

Estimate Estimate **Estimate** Estimate

Estimate **Estimate** Estimate *Estimate* Estimate

Estimate Estimate Estimate Estimate **Estimate**

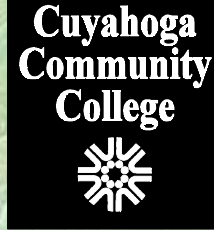
Estimate Estimate Estimate Estimate Estimate



Warner Study 1992

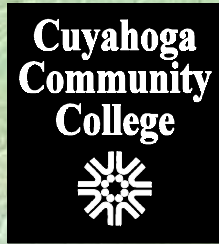
- Building on the Base
- Factors (and assumptions)
- Cost Model

	CAMPUS	Mfg Replace	EQUIP	Cost	YEAR Installed	Comments	RPL-2
1							
2	District	1993	Air Cooled Condenser ACC-2	13,000	1973	Current Project	
3	District	1995	Chiller	70,000	1973	1997 Project	
4	Eastern	2006	Air Handling Unit No. 1	28,000	1981	Current design, constr 1999-2000 (EM-1)	
5	Eastern	2006	Air Handling Unit No. 10	17,000	1981		
6	Eastern	2006	Air Handling Unit No. 4	35,000	1981	Replaced in 1995	2020
7	Eastern	2006	Air Handling Unit No. 5	11,000	1981	Current design, constr 1999-2000 (EM-1)	
8	Eastern	2011	Domestic Hot Water Tank	27,000	1981	Accelerated signs of corrosion, move to EM-4 1999-2000	
9	Eastern	2011	Elevator-Freight M-1	65,000	1981		
10	Eastern	2011	Elevator-Passenger M-1	55,000	1981		
11	Eastern	2028	Boiler No. 4	34,000	1988	Adding new controls for oil fuel backup	
12	Metro	1993	(2) Chiller Starters	76,000	1968	One replaced in 1996	
13	Metro	1995	Transformer "TRLEPA"	7,500	1970	Inspected in 1994 & deferred	1999
14	Metro	1998	Boiler I-3	150,000	1968	Retubing project 2001	
15	Metro	1998	Chiller I-1	180,000	1968	Replaced 1996	2026
16	Metro	1998	Domestic Hot Water Tank	20,000	1968	1999 Project	
17	Metro	1998	Dumbwaiter C-1	25,000	1968	No longer needed. Out of service	
18	Metro	1998	Elevator-Freight C-1	65,000	1968		
19	Metro	1998	Elevator-Passenger H-1	150,000	1968	New Coils installed 1994	2006
20	Metro	1998	Elevator-Passenger H-2	150,000	1968	New Filters installed 1996	2006
21	Metro	1998	Elevator-Passenger H-3	155,000	1968	Removed in 1990	
22	Metro	1998	Porch Lift A-1	15,000	1968	one to be deleted in TLC Project & moved	
23	Metro	1998	Porch Lift A-2	15,000	1968	one to be inspected as part of TLC project	
24	Metro	1998	Switchgear "PIMD"	75,000	1968		
25	Metro	1998	Switchgear Feeders B&C	50,000	1968	Inspected 1995 & deferred	2000
26	Metro	1998	Water Heater & Tank G-1	27,000	1968	Reling water tanks for 1999	
27	Metro	1998	Water Heater & Tank G-2	27,000	1968	Reling water tanks for 1999	
28	Metro	2000	Domestic Water Heater No. 1	16,000	1985		
29	Metro	2000	Elevator-Freight D-1	65,000	1970		



Master Planning

- 1993 Master Plan
 - Used Information to make critical items part of projects.
- 1999 Master Plan
 - Established Categories
 - Location specific (by floor)



- Process:
 - Inspections
 - Detailed Physical Assessment Report
 - Charette (with detailed report as quiet backdrop) focused on other facilities wants.

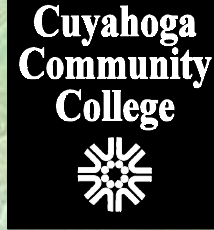
Helvetica (PCL6) **Print Preview** *B* *I* U \$ % , +.0 +.00

File Edit View Insert Format Tools Data Window Help

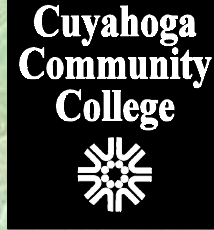
	A	B	C	D	E	F	G	H
1	BUILDING	FLOOR	CATEGORY	PRIORITY	CATEGORY KEY: A - APPEARANCE C - CODE M - MAINTENANCE F - FUNCTIONAL H - HB-7			
2					DESCRIPTION:	COST ESTIMATE	M.P. NUMBER	
104					Total	\$15,900		
105	E	G	F		Room 11: (Office) Ceiling has minor water damage. Lighting needs to be upgraded.	\$7,000	MA2.17	
106	E	G	F		Room 61: (Storage) High density storage system extend close to ceiling blocking lights.	\$3,000	MA2.17	
107	E	G	M		Corridor: (Media Center Side) 2 x 4 lay-in ceiling system grid is damaged in many places.	\$5,200	MA2.17	
108	E	2	M		Floor base is damaged in several locations.	\$4,500	MA2.17	
109					Total	\$19,700		
110	F		M		Diffusers: At HVAC diffusers ceiling tiles are dirty.	\$5,000	MA2.18	
111	F	1	M		Room 118: (Office Area) There are water stained ceiling tile.	\$3,000	MA2.18	
112	F	1	M		Corridor outside of room 111 has some damaged VCT flooring.	\$2,500	MA2.18	
113	F	2	M		Room 210 & 212: Minor water stained ceiling tiles.	\$4,400	MA2.18	
114	F	2	M		Room 201c: (Office) Water stained ceiling tiles.	\$500	MA2.18	
115					Total	\$15,400		
116	G	G	M		Room 23: There are a few locations with stained ceiling tiles.	\$3,600	MA2.19	
117	G	G	M		Rooms 21 and 22: Floors and walls need to be painted (Maybe ceramic tile flooring). At room 22 door to pool rubs floor.	\$15,900	MA2.19	

Summary \ Components \ MP&CP \ ADA \ Chart 1 Data \ Chart1-Campus \ Chart1a-Campus \ Chart 2 data a \ Chart 2 - E

Close Full Screen

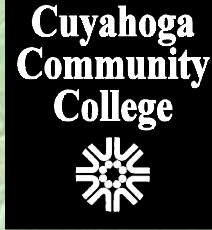


- Strategy:-- How to present the information
 - Focus on **resource contention**.
 - Compare WANTS with PRIORITIZED, CONSTANTLY INCREASING, AND GENERALLY UNCHANGING NEEDS.



TO THE BOARD

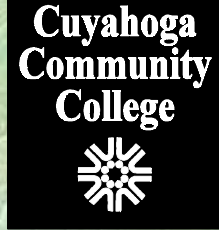
- This got everyone's attention!
- Where are we going from here?
- Combining Master Plan data and HEI.



☞ Corridors Painting

- Sample Survey of widths to get lengths and heights and factor in \$Cost/SF
- Use of tools like 'Scale Master'
- Modeling the scope of work (shift and costs)

☞ Modeling Classrooms for painting



Modeling Project Schedules can also be a useful tool when they need the project completed yesterday!

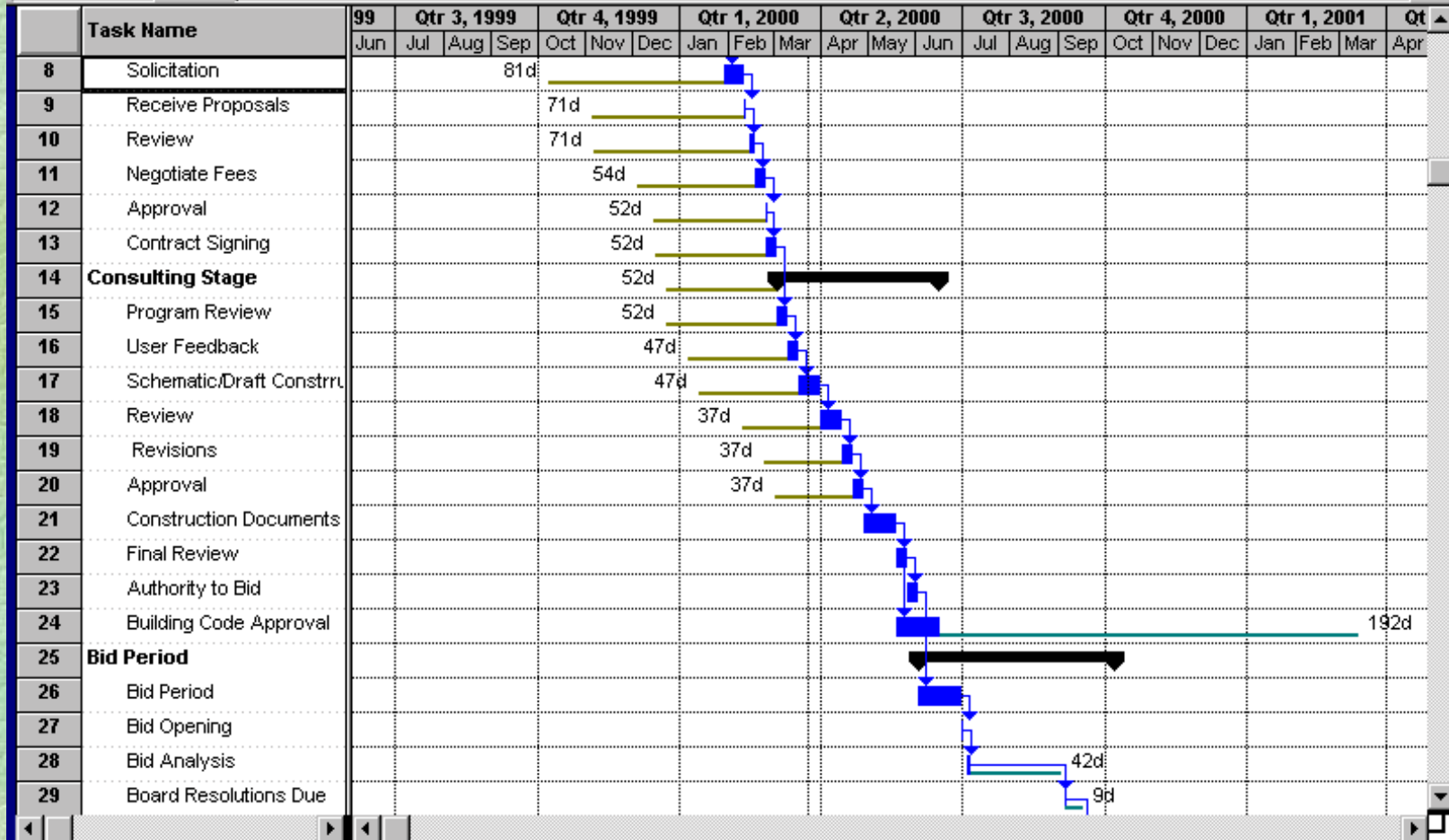
Microsoft Project - SCHED.MPP

File Edit View Insert Format Tools Window Help

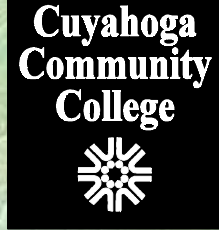
Standard toolbar icons: Save, Print, Undo, Redo, Copy, Paste, Find, etc.

Navigation: All Tasks | Arial | 8 | B | I | U

Solicitation



Ready NUM



☞ The Wand

- Building on the initial report
- Using Service Contractors Expertise
- Capitalizing on the bidding environment

Microsoft Word - tour.doc

File Edit View Insert Format Tools Table Window Help

Normal Arial 9 B I U

65%

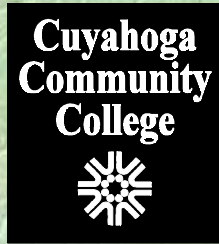
Tour Report

Page: 1

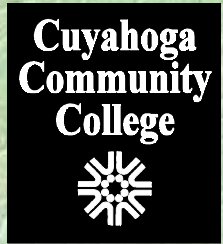
Sorted by: Start Date
Date Range: 03/10/2000 - 03/22/2000
Route: 1

3/10/00	11:14	Start of Tour : Metro & District (1)			
3/10/00	11:14	Mechanic : LATSKO,ADAM			
3/10/00	11:14	Equipment : 3VYXG NTH. CHILLER PURGE	Campus : METRO	Room : CHILL RM	CCC Tag : PCENM10700
3/10/00	11:14	3VYXG		Check condenser clean if necessary.	YES
3/10/00	11:14	3VYXG		Check operating controls.	OK
3/10/00	11:14	3VYXG		Check wiring and electrical connections.	YES
3/10/00	11:14	3VYXG		Check refrigerant pressures.	NO
3/10/00	11:15	3VYXG		Check for refrigerant leaks.	NO
3/10/00	11:15	3VYXG		Check compressor amp s to nameplate.	YES
3/10/00	11:15	3VYXG		Change filter dryers .	YES
3/10/00	11:15	Equipment : 3VZ2P CHILLER B	Campus : METRO	Room : RM 2	CCC Tag : CCENM10078
3/10/00	11:15	3VZ2P		Is this chiller start-up in April	@NO
3/10/00	11:15	3VZ2P		Is it May/June/July/Aug./Sep./Oct.	YES
3/10/00	11:15	3VZ2P		This is the daily check	OK
3/10/00	11:15	3VZ2P		Check chiller operation thru DDC	OK
3/10/00	11:15	3VZ2P		Visually check operation	OK
3/10/00	11:15	3VZ2P		Is it January?	@NO
3/10/00	11:16	Equipment : -0001 Repair-Trouble	Campus : WILDCARD	Room :	CCC Tag :
3/10/00	11:16	-0001		Scan equipment bar code	3VYXG
3/10/00	11:16	Equipment : 3VYXG Main tower water trm	Campus : METRO	Room : ROOF	CCC Tag :
3/10/00	11:16	3VYXG		F1, then scan problem ms. causes solutions	OK
				INSTALLED NEW CHEMICAL FEED LINES TO THE TOWER	
3/10/00	11:18	3VYXG		Is repair complete?	YES
3/10/00	11:20	Equipment : -0001 Repair-Trouble	Campus : WILDCARD	Room :	CCC Tag :
3/10/00	11:20	-0001		Scan equipment bar code	3VYXG
3/10/00	11:20	Equipment : 3VYXG Main tower water trm	Campus : METRO	Room : ROOF	CCC Tag :
3/10/00	11:20	3VYXG		F1, then scan problem ms. causes solutions	OK
				CLEANED TOWER AND STRAINERS- READY FOR STARTUP PERMITTING WEATHER	
3/10/00	11:22	3VYXG		Is repair complete?	YES
3/10/00	11:24	Equipment : -0001 Repair-Trouble	Campus : WILDCARD	Room :	CCC Tag :
3/10/00	11:25	-0001		Scan equipment bar code	3VZG1
3/10/00	11:25	Equipment : 3VZG1 VACUUM PUMP	Campus : METRO	Room : RM 8	CCC Tag : PVACM00306
				REPLACED COUPLING ON N DENTAL ASSIT. PUMP DUE TO LOW SUCTION REPLACED ON 3-07	
3/10/00	11:28	3VZG1		F1, then scan problem ms. causes solutions	OK
3/10/00	11:28	3VZG1		Is repair complete?	YES
3/10/00	11:30	Equipment : -0001 Repair-Trouble	Campus : WILDCARD	Room :	CCC Tag :
3/10/00	11:30	-0001		Scan equipment bar code	3VYWX

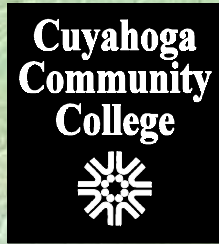
Page 1 Sec 1 1/5 At 0.2" Ln 1 Col 1 REC TRK EXT OVR WPH



The use of the Wand has generated other small but useful products from staff



What comes next?



Thank you for your time and attention

Bob Bennett