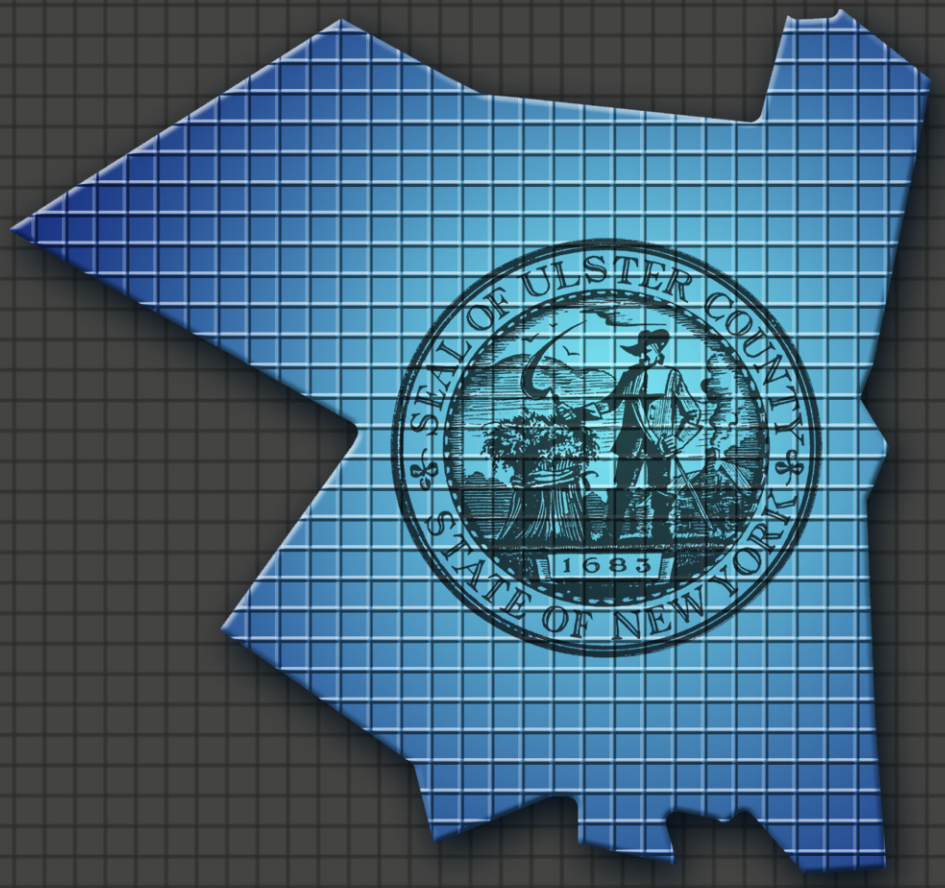


Facility Report

Facility Management & Development Program, Ulster County, New York

March 2008

C&S COMPANIES

CBRE
CB RICHARD ELLIS

2.0 Work Areas

2.0 Work Areas

The size and complexity of Ulster County operations, including ongoing management and relocation of personnel, office space and resources, mandated the development and application of a decision-making framework and data base that would provide comprehensive information on County facilities, their infrastructure, future needs as well as strategies for meeting those needs. Over the course of 6 months, C&S Engineers dedicated 1,700 hours to assessing existing conditions, analyzing business plans and management procedures, and creating tools and recommendations to assist Ulster County in the selection of lifecycle focused facility strategies.

Six work areas comprised the project. Each focused on a separate task or group of related tasks needed for C&S Engineers to develop tools and recommendations to support facility planning and management in Ulster County. The 6 work areas consisted of: an assessment of the current situation, forecasting future space needs, updating facility standards, assessment of county facility management practices, planning new construction or leased facilities to address space needs, and the compilation of the facility management and development program.

2.1 Work Area 1

2.1.1 Goals

Knowing where one is at is the first step to understanding what one needs to do in order get to where one wants to go. Thus the initial phase of the project (Work Area 1) involved assembling pertinent facility information and developing a baseline assessment of the current situation.

2.1.2 Process

C&S documented the physical conditions of each building using a multi-trade assessment team of architects and engineers. The six person team assessed the architectural, structural, mechanical, plumbing, electrical, life safety and communication components of each site and building. In total, the team evaluated 66 different systems associated with each of the 74 buildings, comprising 770,000 square feet of floor area, and located at 38 different sites.

The team rated building conditions using a red/yellow/green rating scheme and building condition index (BCI) formula. These two classification techniques enable macro and micro level facility planning respectively. The color coded scheme takes the 66 systems within a building, or the 74 buildings within the facility inventory and quickly organizes them into 3 condition categories. Simple order replaces the cacophony of competing demands and makes it possible to begin to prioritize effort and resources. The BCI numerical values create hierarchy within color codes, allow building systems to be weighted according to importance, enable buildings to be compared to other buildings, and support the adaptation of physical condition ratings into formulas that drive the decision making tools described later.

Within the color coded scheme, a green rating designated that the system functions as intended and as needed by the occupant and no issues are anticipated over the next ten years that would impact the required performance of the component. A yellow rating designates that issues exist that will prevent the component from meeting the required level of performance in five to ten years. A red rating designates that the component currently fails to meet the required minimum level of performance or will fail to meet the minimum level of performance over next 5 years.

The BCI applies a weighting system (Fig. 2-1) to the red/yellow/green ratings, enabling the prioritization of the systems based on the importance of the system to the integrity of the building, safety of the occupants, and functionality of the building.

Figure 2-Error! No text of specified style in document.**-1 BCI weighting**

Color Code	Urgent	Priority	Routine
Red	0	0	0
Yellow	6	4	2
Green	12	8	4

Giving each system a numerical value enabled C&S to rate the overall condition of the building and overall condition of the inventory. Taking the sum of green values for all the systems within a building produces the total possible score for the building. After the assessment, the sum of all values based on the color ratings produces the actual score for the building. The BCI is the number that results when the actual score is divided by the total possible score. The BCI is always a number between 0 and 1. A BCI of 1 would indicate a building with a perfect score (all green ratings). A BCI of 0 would indicate a building with the worst possible score (all red ratings). By averaging the BCI for all the buildings, a BCI is created for the inventory as a whole. The table below (Fig 2-2) shows an example inventory of three buildings (A, B, and C) and the BCI resulting from the assessments.

Figure 2-Error! No text of specified style in document.**-2 Example Inventory BCI**

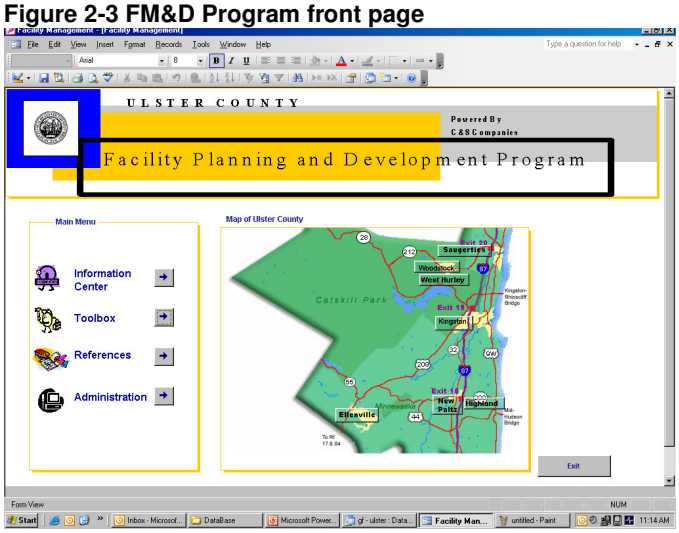
	Max Possible Score	Actual Score	BCI
Building A	690	300	.43
Building B	630	450	.71
Building C	500	425	.85
Inventory BCI			.66

By assigning a BCI range to each color, the buildings and inventory can receive a color code. The following BCI ranges and corresponding colors were used as a basis for this study:
Red: 0 – 0.5; Yellow: 0.5 – 0.75; and Green: 0.75 – 1.00

2.1.3 Products

The Technical Report: Assessment of Current Situation provides a detailed description of the methodologies used and findings associated with the work area. In order to make the information readily accessible and easily to use by Ulster County in the facility decision making process, C&S developed a database to organize the information. This database ultimately formed the primary framework for the entire facility management & development (FM&D) program and in effect became a single portal for facility information, planning and management tools, and references.

Figure 2-3 FM&D Program front page



The "Information Center" area of the FM&D database contains all the information gathered during the building assessments. The database offers multiple avenues to the information. Facility condition assessments, photos, and drawings can be accessed by reports, queries, or drilling down through the inventory to a specific building.

One of the products in the information center is the buildings condition assessment. The red/yellow/green ratings for the 66 systems of each building can be accessed in the form of reports or by clicking on the site or condition assessments buttons (Fig. 2-4). In cases of yellow or red ratings, C&S provided notes to clarify the deficiency, recommendations for how to correct the deficiency, a cost estimate for the recommended action, and target dates by which the recommended action should be taken.

The "Summary Condition Assessment Report" located in FM&D database lists all 66 building systems by trade and shows the priority attributed to each system (Fig. 2-5). The weighting of the colored ratings allows the condition of critical systems to have a greater effect on the overall condition rating for the building and the inventory.

Figure 2-4 Building assessment information

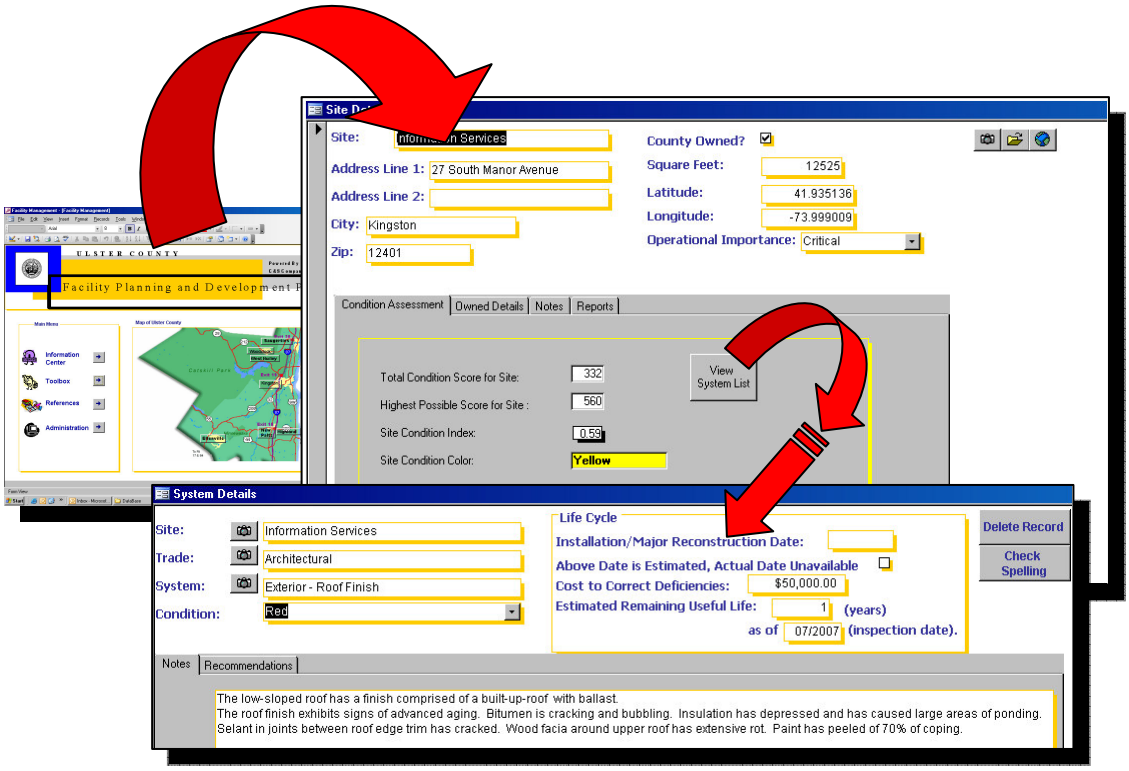
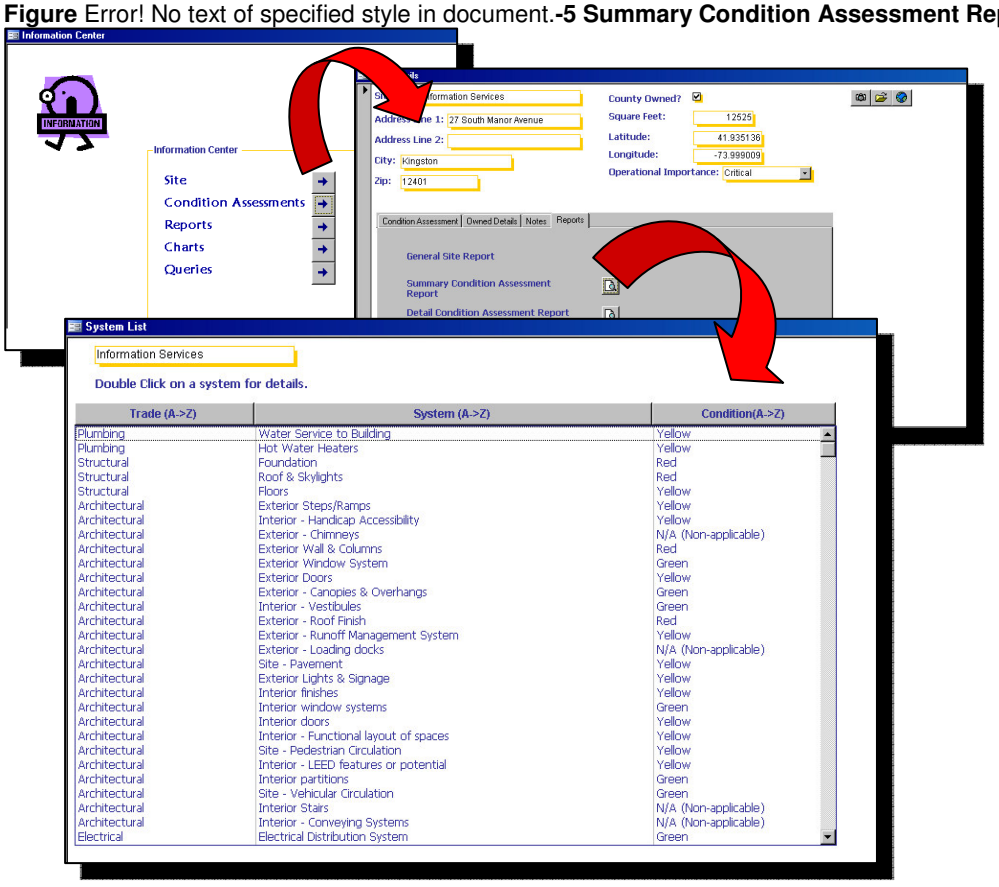


Figure Error! No text of specified style in document.**-5 Summary Condition Assessment Report**



2.1.4 Findings

Using the database, to query condition assessment data, C&S made the following observations:

- The evaluated building inventory has a median age of 46 years, an average condition rating of YELLOW, and an average Building Condition Index of .68.
- The building inventory has $47 million worth of deficiencies (red & yellow).
- The inventory has 4 red sites, 26 yellow sites and 8 green sites. [Sites are used in lieu of buildings because 3 out of the 38 sites consist of multi-building complexes that C&S evaluated as one building. Those sites consisted of the Fairgrounds, Pool Complex, and Heavy Vehicle Maintenance Complex.]
- With the condition of most of its buildings falling in the YELLOW rating category, Ulster County can expect the bulk of the identified deficiencies to become critical deficiencies between 2013 and 2018.
- With a median age of 46, a majority of the buildings are in the later half of their expected efficient lifecycles.

2.1.5 Recommendations

Based on the assessment of existing conditions, C&S provides the following recommendations:

- Develop a capital investment program that seeks to address the deficiencies over the next ten years.
- Use the FM&D Program to prioritize requirements, and target critical systems first.
- Re-assess building conditions every 5 years

2.2 Work Area 2

2.2.1 Goals

The second phase of the project (Work Area 2) had the objective to develop a forecast of future space requirements. If we go back to the statement from the work area 1 description, “Knowing where one is at is the first step to understanding what one needs to do in order get to where one wants to go,” this was the area in which we learned where Ulster County wants to go. Understanding how each department planned to do business over the next ten years enabled us to develop the forecast of the spaces needed to support those plans.

C&S developed a forecast of future space needs based on interviews with key staff personnel, review of County staff size, and current space utilization. The forecast is a snapshot that reflects business plans and staffing projects made in the summer of 2007. However, the space planning tool that was added to the facility management & development (FM&D) database in this work area provides Ulster County with the means to keep the forecast current.

2.2.2 Process

C&S posed a series of questions to leaders from 28 Ulster County departments to learn their plans for the future, inter-departmental relationships, anticipated staff changes and the impact that the built environment has on their operations. Their responses formed the basis for the forecast of future space needs and a departmental relationship diagram. C&S posed the following programming questions to each of the departments.

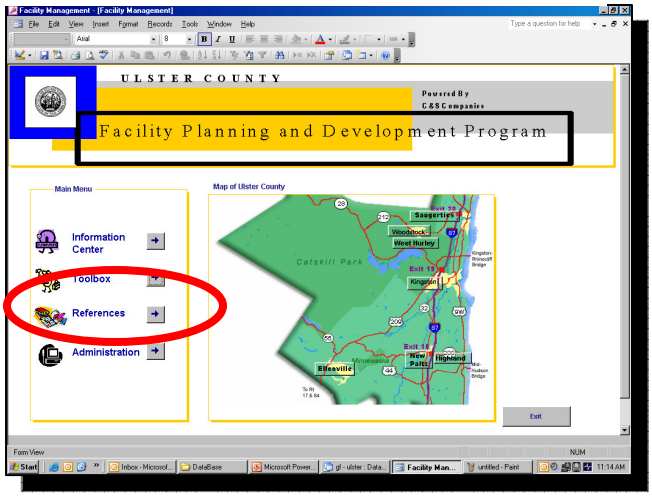
- What is the primary function of the Department?
- What is the current staffing of the Department?
- Over the next 10 years, do you expect any changes to the departmental business plan that could affect the staffing or scope of functions of the Department?
- What are the indicators of success for the Department?
- Which other departments does this Department interact with on a regular basis? Do inter-departmental tasks require physical adjacency and/or electronic adjacency? Do current physical and electronic adjacencies impede the Department from achieving success? If so, how?
- Which buildings does the Department currently occupy?
- Do the existing buildings, that the Department occupies, impede the Department from achieving success?

2.2.3 Products

2.2.2.1 Concept of Operations

A document called “concept of operations” was developed for each department to record the responses to the programming questions. The departmental concept of operations can be found in the FM&D database “References” area (Fig. 2-6).

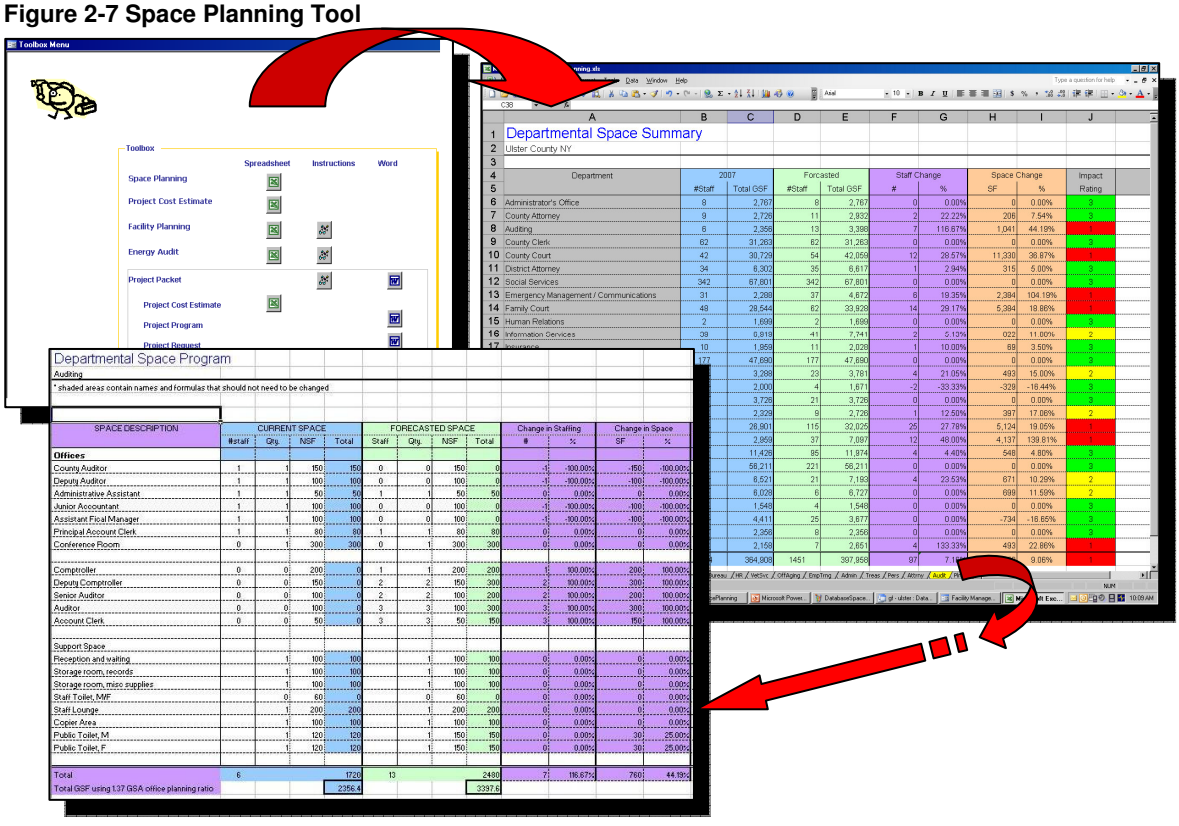
Figure 2-6 Reference area of FM&D database



2.2.2.2 Space Planner

In order to link the impact of anticipated staff changes to space requirements, C&S created space programs for each of the departments. The space programs are intended as planning models to enable the facility planner to develop a correlation between changes in staffing to space needs. The value of the space models lie in their ability to quantify change as a percentage of existing space, and the difference in square feet. The space planning tool can be found in the FM&D database Toolbox area (Fig. 2-7).

Figure 2-7 Space Planning Tool



To represent the extent to which the forecasted space requirements impact operations, C&S assigned a numerical value and color code to the each department. The Departmental Space Summary in the FM&D Space Planning tool presents the functionality scores by department (Fig. 2-8).

All values on the "Dept Sum" sheet are automatically either pulled from the department sheets or generated by a formula. The impact ratings are driven by both the percentage of change and the total difference in square feet.

The following descriptions designate the 3 categories of change:

- Critical (1, RED): future space requirements reflect a need for additional space that represents an increase of greater than 40% or greater than 1,000 square feet (SF)
- Priority (2, YELLOW): future space requirements reflect a need for additional space that represents an increase of 10-40% or between 200 and 1,000 square feet (SF)
- Routine (3, GREEN): future space requirements reflect a need for no additional space, or that represents an increase of less than 20% or less than 200 square feet (SF)

Figure 2-8 Departmental Space Summary Sheet in Space Planning Tool

Departmental Space Summary

Ulster County NY

Department	2007		Forcasted		Staff Change		Space Change		Impact
	#Staff	Total GSF	#Staff	Total GSF	#	%	SF	%	Rating
Administrator's Office	8	2,767	8	2,767	0	0.00%	0	0.00%	3
County Attorney	9	2,726	11	2,932	2	22.22%	206	7.54%	3
Auditing	6	2,356	13	3,398	7	116.67%	1,041	44.19%	1
County Clerk	62	31,263	62	31,263	0	0.00%	0	0.00%	3
County Court	42	30,729	54	42,059	12	28.57%	11,330	36.87%	1
District Attorney	34	6,302	35	6,617	1	2.94%	315	5.00%	3
Social Services	342	67,801	342	67,801	0	0.00%	0	0.00%	3
Emergency Management / Communications	31	2,288	37	4,672	6	19.35%	2,384	104.19%	1
Family Court	48	28,544	62	33,928	14	29.17%	5,384	18.86%	1
Human Relations	2	1,699	2	1,699	0	0.00%	0	0.00%	3
Information Services	39	6,919	41	7,741	2	5.13%	822	11.88%	2
Insurance	10	1,959	11	2,028	1	10.00%	69	3.50%	3
Mental Health	177	47,690	177	47,690	0	0.00%	0	0.00%	3
Office for the Aging	19	3,288	23	3,781	4	21.05%	493	15.00%	2
Employment & Training	6	2,000	4	1,671	-2	-33.33%	-329	-16.44%	3
Personnel	21	3,726	21	3,726	0	0.00%	0	0.00%	3
Planning	8	2,329	9	2,726	1	12.50%	397	17.06%	2
Probation	90	26,901	115	32,025	25	27.78%	5,124	19.05%	1
Public Defender	25	2,959	37	7,097	12	48.00%	4,137	139.81%	1
Public Health	91	11,426	95	11,974	4	4.40%	548	4.80%	3
Public Works	221	56,211	221	56,211	0	0.00%	0	0.00%	3
Purchasing	17	6,521	21	7,193	4	23.53%	671	10.29%	2
Surrogate's Court	6	6,028	6	6,727	0	0.00%	699	11.59%	2
Tourism	4	1,548	4	1,548	0	0.00%	0	0.00%	3
Tresurer's Office	25	4,411	25	3,677	0	0.00%	-734	-16.65%	3
Veterans Service Agency	8	2,356	8	2,356	0	0.00%	0	0.00%	3
Youth Bureau	3	2,158	7	2,651	4	133.33%	493	22.86%	1
Total	1354	364,908	1451	397,958	97	7.16%	33,050	9.06%	1

In addition to forecasting space requirements by department, the space planning tool automatically compiles department space forecast values by building (Fig. 2-9).

Figure 2-9 Building Space Forecast Sheet in Space Planning Tool

Building Space Forecast Ratings

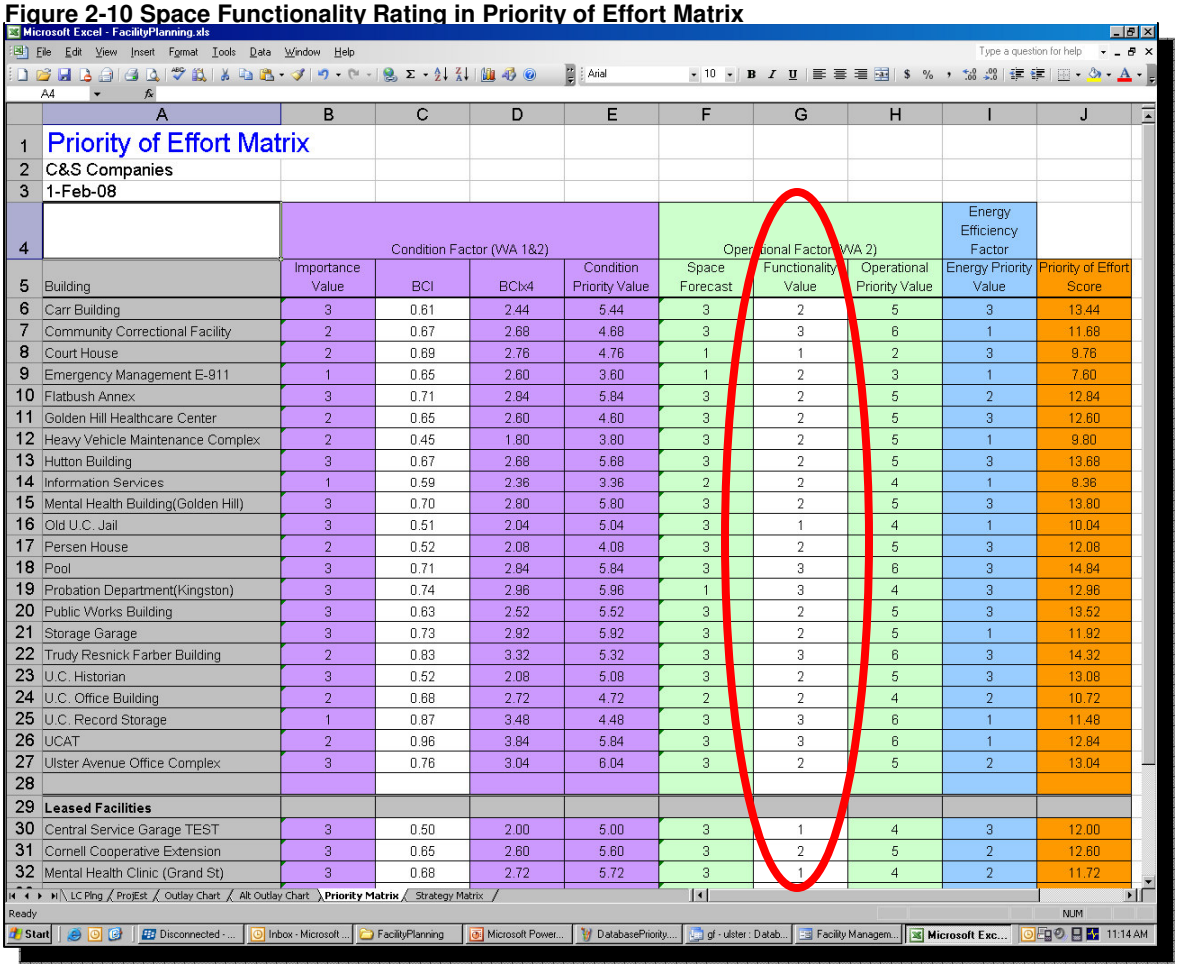
Ulster County NY

Building	CURRENT SPACE				FORECASTED SPACE				Change in Staffing		Change in Space		Space
	#staff	Qty.	NSF	Total	Staff	Qty.	NSF	Total	#	%	SF	%	Forecast Rating
Carr Building													
Probation	6	0	0	1290	6	0	0	1290	0	0	0	0	
	6			1290				1290	0	0.00%	0	0.00%	3
Community Correctional Facility													
Probation	30	0	0	5670	30	0	0	5670	0	0.00%	0	0.00%	
	30			5670				5670	0	0.00%	0	0.00%	3
Court House													
DA	28	0	0	3630	29	0	0	3860	1	3.57%	230	6.34%	
Public Defender	1	0	0	100	1	0	0	100	0	0.00%	0	0.00%	
County Court	42	0	0	22430	54	0	0	30700	12	28.57%	8270	36.87%	
	71			26160	84			34660	13	18.31%	8500	32.49%	1
Emergency Management E-911													
Emerg Mgt / Comm	31	0	0	1670	37	0	0	3410	6	19.35%	1740	104.19%	
	31			1670				3410	6	19.35%	1740	104.19%	1

2.2.2.3 Measure of Functionality

C&S used responses to the questions to also evaluate the degree to which the functionality of the spaces impacts Ulster County operations. We assigned each department a functionality rating of 1, 2, or 3. The value of "1" signified that the built environment creates a situation that prevents the department from achieving intended goals. A "2" identified that the built environment creates a situation that creates an obstacle the County must overcome in order to achieve intended goals. A "3" indicated that the built environment enables the department to achieve intended goals. The Priority of Effort Matrix in the FM&D Facility Planning tool presents the functionality scores by building (Fig. 2-10).

Figure 2-10 Space Functionality Rating in Priority of Effort Matrix



Priority of Effort Matrix

C&S Companies

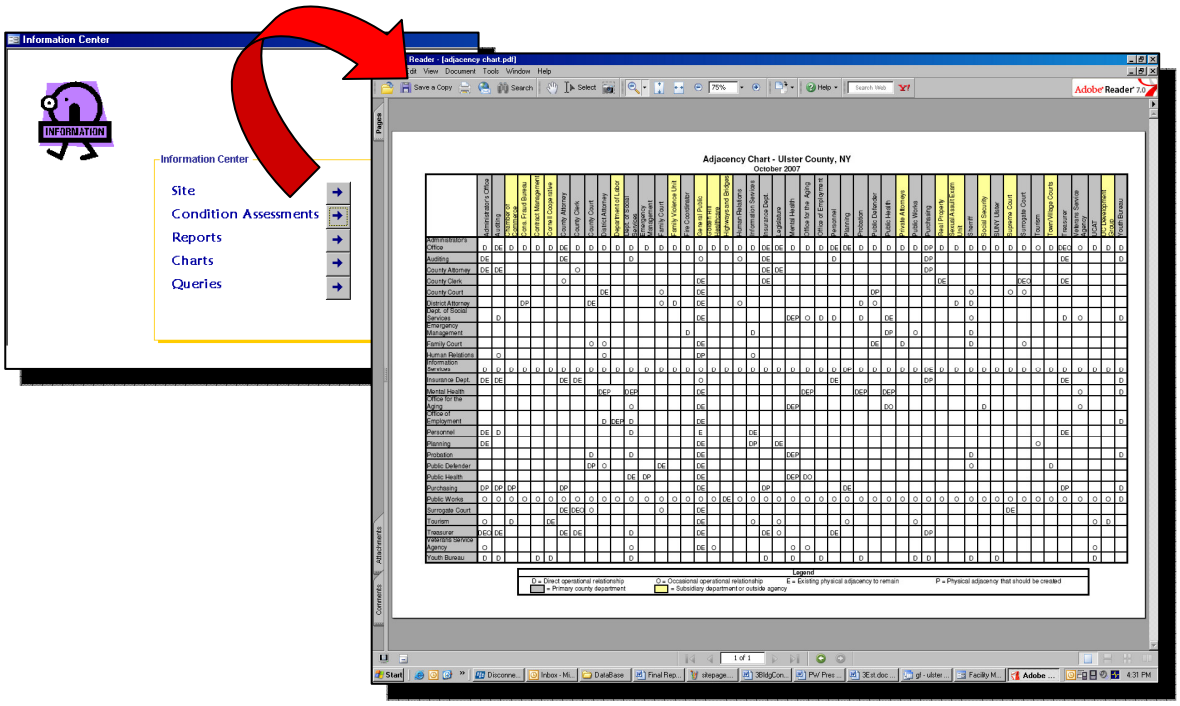
1-Feb-08

Building	Condition Factor (WA 1&2) Importance Value	BCI	BCIx4	Condition Priority Value	Operational Factor (WA 2) Space Forecast	Functionality Value	Operational Priority Value	Energy Efficiency Factor Energy Priority Value	Priority of Effort Score
Carr Building	3	0.61	2.44	5.44	3	2	5	3	13.44
Community Correctional Facility	2	0.67	2.68	4.68	3	3	6	1	11.68
Court House	2	0.69	2.76	4.76	1	1	2	3	9.76
Emergency Management E-911	1	0.65	2.60	3.60	1	2	3	1	7.60
Flatbush Annex	3	0.71	2.84	5.84	3	2	5	2	12.84
Golden Hill Healthcare Center	2	0.65	2.60	4.60	3	2	5	3	12.60
Heavy Vehicle Maintenance Complex	2	0.45	1.80	3.80	3	2	5	1	9.80
Hutton Building	3	0.67	2.68	5.68	3	2	5	3	13.68
Information Services	1	0.59	2.36	3.36	2	2	4	1	8.36
Mental Health Building(Golden Hill)	3	0.70	2.80	5.80	3	2	5	3	13.80
Old U.C. Jail	3	0.51	2.04	5.04	3	1	4	1	10.04
Persen House	2	0.52	2.08	4.08	3	2	5	3	12.08
Pool	3	0.71	2.84	5.84	3	3	6	3	14.84
Probation Department(Kingston)	3	0.74	2.96	5.96	1	3	4	3	12.96
Public Works Building	3	0.63	2.52	5.52	3	2	5	3	13.52
Storage Garage	3	0.73	2.92	5.92	3	2	5	1	11.92
Trudy Resnick Farber Building	2	0.83	3.32	5.32	3	3	6	3	14.32
U.C. Historian	3	0.52	2.08	5.08	3	2	5	3	13.08
U.C. Office Building	2	0.68	2.72	4.72	2	2	4	2	10.72
U.C. Record Storage	1	0.87	3.48	4.48	3	3	6	1	11.48
UCAT	2	0.96	3.84	5.84	3	3	6	1	12.84
Ulster Avenue Office Complex	3	0.76	3.04	6.04	3	2	5	2	13.04
Leased Facilities									
Central Service Garage TEST	3	0.50	2.00	5.00	3	1	4	3	12.00
Cornell Cooperative Extension	3	0.65	2.60	5.60	3	2	5	2	12.60
Mental Health Clinic (Grand St)	3	0.68	2.72	5.72	3	1	4	2	11.72

2.2.2.4 Relationship Diagram

C&S created a relationship diagram to depict the type of relationship each department has with other departments. Due to the complexity of the resulting diagram, C&S also developed a chart to present the same relationships. Both can be found in the Reports area of the FM&D Information Center (Fig. 2-11).

Figure 2-11 Departmental Relationship Chart



The relationship diagram/chart provides a useful tool when considering departmental moves. The chart/diagram illustrates whether or not the move would impact other departments or the general public, which allows the facilities manager to plan accordingly.

2.2.4 Findings

- Ulster County has 71,000 SF of unused space (10% of space evaluated). This is mostly in the form of vacant buildings such as Old Jail (54,000 SF), Persen (7,000 SF), and UC Historian/17 Pearl St (4,300 SF). Some buildings have unused areas, such as 3rd floor of Hutton (820 SF) and County Storage area of Probation (4,620 SF).

- In general, the amount of space appears adequate, although in some cases the arrangement of spaces creates significant obstacles.
    - At both County Court and Family Court sites, not enough waiting space forces witnesses, victims and defendants to wait in same areas, which creates discomfort for victims and defendants, and increases risk that intimidation could affect testimonies. At County Court, the size of the evidence room does not meet requirements, and increases risk of compromise of evidence. The size of the jury room limits number of jurors that can be processed at a time, which increases length of process. Lack of physical security features create security risks for staff and visitors.
    - The location of Legislature Chambers on the 6th floor of the Ulster County Office Building inhibits access to the chambers, creates physical security risks, and makes emergency egress difficult for handicap members and visitors.

- In general the locations of departments with respect to other departments work well. The collocation of elements from Mental Health, Social Services, and Public Health to create one-stop shops has resulted in improved customer service.

- The model forecasts a need for an additional 33,000 gross square feet of space. The bulk of the requirement comes from the court system.

2.2.5 Recommendations

- Develop plans to address space increases forecasted for the Court system. Consider an option to co-locate all court functions into one court facility to gain efficiencies.
- Address issue of inadequate space for emergency management services
- Move location of Legislature Chambers to improve access and security
- Eliminate unused space
- Look for opportunities to group services to provide one-stop shops for the public
- Co-locate heavy and light vehicle maintenance services to gain efficiency

2.3 Work Area 3

2.3.1 Goals

In the third phase of the project (Work Area 3), we started to develop the tools and make the recommendations that would answer the "what one needs to do," portion from our phrase, "Knowing where one is at is the first step to understanding what one needs to do in order get to where one wants to go." This work area had the objective to update existing standards. We examined design, space and lifecycle planning standards. Standards like these that control facility design, space allotment and building life cycles can significantly impact capital programming and the functionality of facilities. They add predictability to the performance of the built environment, enable further refinement of future space needs, and set the major capital investment milestone schedule.

2.3.2 Process

2.3.2.1 Design standards

Design standards define quality levels or expected performance of the components of construction. These affect building life cycle milestones, maintenance rates, energy usage rates, and occupant satisfaction and productivity. Since Ulster County does not have a formal set of design standards, C&S researched those of the General Services Administration (GSA). The GSA standards include both prescriptive requirements and performance based requirements. They intend to obtain quality levels focused on life cycle performance and pay-back periods. As a result, initial investments could be greater; however, they would be offset by savings over the lifespan of the materials, system and building. The GSA standards provide enough direction to obtain a common facility standard across the inventory, yet allow leeway for design creativity to address characteristics unique to each site.

2.3.2.2 Space standards

As a component of Work Area 3, C&S reviewed existing Ulster County space guidance to determine if revisions could make it a more beneficial tool. Organizations use space standards to designate sizes for typical areas found in their buildings, and sometimes to provide general guidance on the layout of the areas. Having a space standard benefits an organization by providing a tool for allotting space according to staffing and function. This space planning tool enables the planner to more accurately anticipate future space requirements. Providing some guidance on the arrangement of spaces also can benefit the organization. The replication of arrangements with proven positive outcomes can be used to focus future project design, add unity across an inventory, and increase the functionality of inventory as a whole.

The approach C&S took to update Ulster County's space guidance involved examining the existing standards, researching space guidance from other governmental entities, analyzing the costs and benefits associated with changes to existing guidance, and making a recommendation. The study focused on administrative space because it comprises the predominant space type in the County building inventory. The administrative standards could also apply to the office areas of the more functionally specialized activities such as court proceedings or the delivery of healthcare. The recommended standard does not significantly deviate from existing County guidance. It incorporates changes that will increase the functionality and flexibility of the workspace and decrease lifecycle costs.

With a median age of 46 years, the majority of the Ulster County facilities were designed and constructed before the age of computers. Since then the rapid advances in technology have markedly changed how we communicate and function in most aspects of our lives. Access to information and the speed at which information can be disseminated has made the hierarchal organizations that set the standard in the 1960s and 1970s, cumbersome and inefficient. Technology has flattened organizations. The ability to collaborate as a team now drives efficiency as opposed to the rigid adherence to "stove-piped" information flow. In order to maximize the potential of the changing organizational structure, therefore, the design of the spaces that house the activities needs to change as well.

In 2005, the General Services Administration (GSA) published two documents in 2005 that support these observations. C&S provided copies of the publications in Reference area of the FM&D database, which Ulster County could use as layout guidance for future office design projects. In the reports, GSA presents a change in space assignment logic. They recommend reducing the number of different types of office spaces, maximizing open office space, and increasing access to natural light and views to the exterior.

GSA changed their space programming logic from one of reinforcing the organizational hierarchy to one of facilitating collaboration across departments. Instead of aligning office size with position title, the new guidance allots space based on function. The number of different sized offices gets reduced. Having fewer types facilitates flexibility and eliminates psychological barriers to communication created by the hierarchy implied by space size.

Using furniture that employees can easily move also offers opportunity to decrease life cycle costs. The Office of Government-wide Policy estimates that flexibility of workspace design to accommodate change can reduce physical move costs by 80%.[1] GSA experience has shown that typical interior improvements have a lifespan of 10 years. Assuming a 50 year building lifespan, maximizing the flexibility of the workspace could significantly reduce the cost associated with the five interior renovations.

In order to provide a performance focused environment, GSA incorporated design concepts with proven results (AKA evidence based design). The AIA, Center for Health Design, and Robert Wood Johnson foundation all have conducted research in support of evidence based design. They uncovered significant evidence pointing to the benefits of providing natural views for staff. Studies showed that workers with views to the outside are up to 12% more productive, and perform up to 25% better on tests of mental function and memory recall, while those with lack of views showed increased fatigue.[2] In order to capitalize on those findings, GSA recommends pushing enclosed offices to the interior in order to offer exterior views to the whole office. The enclosed offices and meeting spaces would get window walls to allow exterior views from those spaces.

2.3.2.3 Target life cycle

A facility life cycle encompasses the series of milestone events that occur during the lifespan of a building. Understanding when capital investment milestones occur during the life cycle enables a planner to look across a facility inventory to identify the pattern of capital outlay. With this tool, the planner can develop strategies to avoid extreme peaks in capital investment requirements (points where milestones from multiple buildings occur at the same time) or adjust milestones to accommodate other operational requirements.

The following tasks comprised the process of developing a target facility life cycle for Ulster County:

- Formulate a picture of the total cost to own facilities in the Ulster County inventory

[1] GSA, "Leading by Example: a demonstration toolkit for creating a GSA world class workplace", pg 16

[2] AIA, "Evolutionary Psychology and Workplace Design: Doing What Comes Naturally", Oct 04

- Propose advantageous milestones in the building life spans
- Prepare a modeling program to support future case studies by Ulster County
- Validate the life cycle logic

Establishing a rough order of magnitude total cost for owning facilities provides a crucial piece of information required to develop own versus lease strategies, prepare a facility inventory operating budget, and plan major capital investments milestones. The cost of owning a building goes far beyond the initial cost to build the facility. In fact, the cost of construction represents only a fraction of the cost associated with owning and operating a facility over its life span. The other costs include: regular annual maintenance, energy usage, periodic component replacements and major renovations.

Regular maintenance and energy usage together are referred to as "sustainment" cost. It's easy to mistake the cost to sustain a building as the cost of owning the building, because sustainment costs drive operating budgets. Operating budgets because of their visibility and regularity create tangible price tags for buildings. To account for sustainment cost associated with Ulster County facilities, C&S compiled maintenance cost, and energy cost data. However, sustainment (S) forms only part of the cost picture.

Restoration and modernization (RM) costs usually come in the form of capital investment projects. Thus, they are typically funded separately from operating costs. They also occur less frequently and with less regularity, so these costs are not as easily associated with cost of owning a building. To estimate restoration and modernization cost and replacement cost a lifecycle model must be established. Then milestone years for RM investments can be selects. C&S based those events on a Department of Defense facility lifecycle model. The U.S. Army Medical Department uses a 50 year lifecycle model in their capital investment planning. We set the following RM milestones for the Ulster County 50-year target lifecycle:

- Yr 12 interior finishes and furniture replacement
- Yr 25 Renewal (gut building and replace systems)
- Yr 37 interior finishes and furniture replacement
- Yr 50 replacement

To verify that making the RM investments milestones during the life span of facilities would provide a financial advantage over just funding sustainment operations, C&S developed a modeling program. To account for degradation of materials, C&S used a 2% annual increase in the cost for maintenance. Reasonable deterioration rates fall between 2 and 10%, annually.[3] C&S used 2% as a conservative test of the recommended life cycle. To account for improvements in technology, C&S allotted a 20% reduction in energy costs at the Renewal point in the SRM lifecycle. The resulting modeling program also supports future life cycle planning and course of action analysis.

The sum of sustainment and restoration and modernization costs (SRM) occurring throughout the lifespan of the building form the true cost of owning a facility. Averaging the costs across the lifespan gives the average annual cost of owning the building. Creating a lifecycle model enables the SRM costs to be predicted.

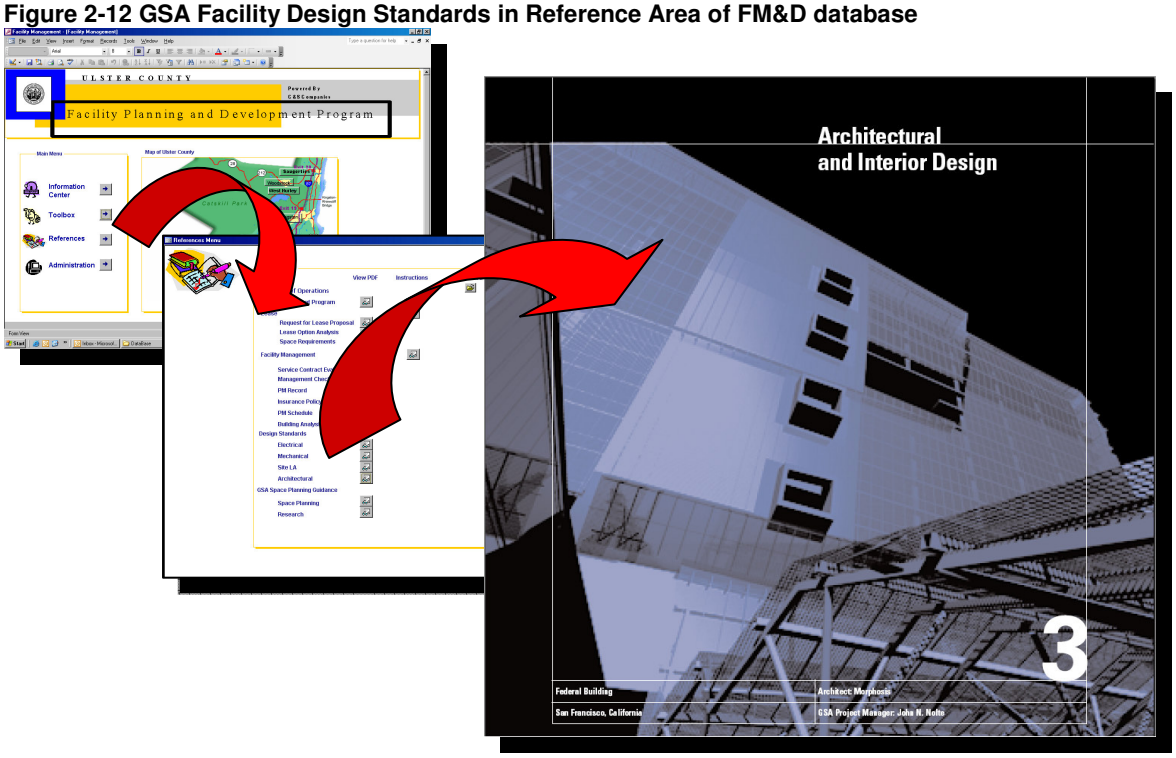
[3] Wooldridge, Balancing Capital and Condition: An Emerging Approach to Facility Investment Strategy; thesis for Doctor of Philosophy in Construction Engineering and Management at the Massachusetts Institute of Technology, 2002

2.3.3 Products

2.3.3.1 Design standard

We selected space guidelines found in Chapters 2, 3, 5 and 6 of GSA's "Facility Standards for the Public Buildings Service" as standards for the site, architectural, mechanical/plumbing, and electrical aspects of Ulster County facilities. The design standards can be found in the Reference area of the FM&D database (Fig. 2-12).

Figure 2-12 GSA Facility Design Standards in Reference Area of FM&D database



We suggest the following changes to GSA standards to adapt them for Ulster County:

- Where guidelines reference the Federal Government, change to Ulster County
- Add comment "Standards are intended as a guide and do not supersede more stringent requirements of building and zoning codes applicable to the project."
- Where guidelines reference ADA for accessibility requirements, change to ICC/ANSI A117.1
- Where guidelines reference GSA, change to Ulster County
- Section 3.5, pg. 86: Modify the "Cornerstone" guidelines to require only the following on the face of the cornerstone: "Ulster County" and the year of project completion
- Section 3.5, pg. 88: delete the "Artwork, Signage, and Registry of Designers paragraph
- Section 3.5, pg. 90: delete the "Art-in-Architecture" paragraph and the "Fine Arts Program Mission" guidelines. Ulster County may desire to provide guidelines regarding the commissioning of local artists.
- Section 5.3: Consider occupancies of areas prior to design for maintaining a specific relative humidity range. Standard air conditioning to a temperature is adequate for most office spaces and humidification is not typically provided in these areas the winter time.
- Section 5.3: 30% filters are typical of most office areas. Consider initial cost and maintenance costs prior to adopting final filters at 80% in air handling units.
- Section 5.3: Consider budget, building occupancy, and spaces when selecting appropriate number of thermal zones.
- Section 5.3: Consider whether energy modeling of each building is worthwhile on a building by building basis.

- Section 5.4: Economizers will be required in most instances to meet the New York State Energy Conservation Construction Code. Typically not required to be evaluated on a life cycle cost analysis for feasibility.
- Section 5.4: Consider initial cost, maintenance cost and space occupancies prior to requirement of UV lamps in all air handling units after cooling coils.
- Section 5.4: Limit flexible duct lengths to five feet.
- Section 5.14: Provide inertia bases only on pumps over 20 hp typically. Leave this at the engineer's discretion on a per project basis.
- Section 5.15: Damper position and temperatures are typically sufficient in lieu of air flow measuring stations on supply, return, and outside air on air handlers. Consider only installing air flow stations on VAV air handlers as required for proper operation.
- Section 5.17: Use of SMACNA criteria for specifying ductwork classes is typically adequate for commercial buildings, actual leak testing of ductwork is typically not required.

The requirements identified in the chapters on Fire Protection & Life Safety, and Security Design apply more to federal facilities than county facilities. In lieu of the GSA standards, C&S recommends that Ulster County includes the following statements in their design standard to cover the Fire Protection & Life Safety, and Security aspects of projects. Providing these statements in the Ulster County design standards will give Ulster County the opportunity to ensure the contracted architect or engineer understands the requirements and scope of issues to address. Requiring this deliverable up front provides sufficient time to provide clarification of the scope without impacting the project schedule.

- Fire Protection & Life Safety: "At the concept design submittal, contracted architects & engineers shall provide a narrative description of their approach to the fire protection and life safety design, which identifies the key aspects that it will address and demonstrates the appropriateness of the cost from a life cycle stand point."
- Security Design: "At the concept design submittal, contracted architects & engineers shall provide a narrative description of their approach to the security design, which identifies the key aspects that it will address and demonstrates the appropriateness of the cost from a life cycle stand point."

2.3.3.2 Space standard

C&S placed the recommended space standards (Fig. 2-13) at the end of the Space Planning workbook in the Toolbox area of the FM&D database. The recommended standards adjust the existing guidelines as follows:

- Amount of different types of office areas gets reduced
- Executive level office gets larger to align with Department of Defense guidance on executive level office space
- A team area space gets added in order to encourage collaboration and provide some expansion space.
- Guidance is provided to govern the allotment of common space (e.g. The amount of professional staff in a building or area drives the number and sizes of conference rooms).

In order to maximize the availability and use of conference rooms, they should not be "owned" by a particular department or section. A central reservations system should be established to manage use of the conference space. Appendix B provides a more detailed listing of the spaces, and shows the spreadsheet that will be accessible through the database to use as a space planning tool.

Figure 2-13 Comparison of existing space guidance and recommended standards

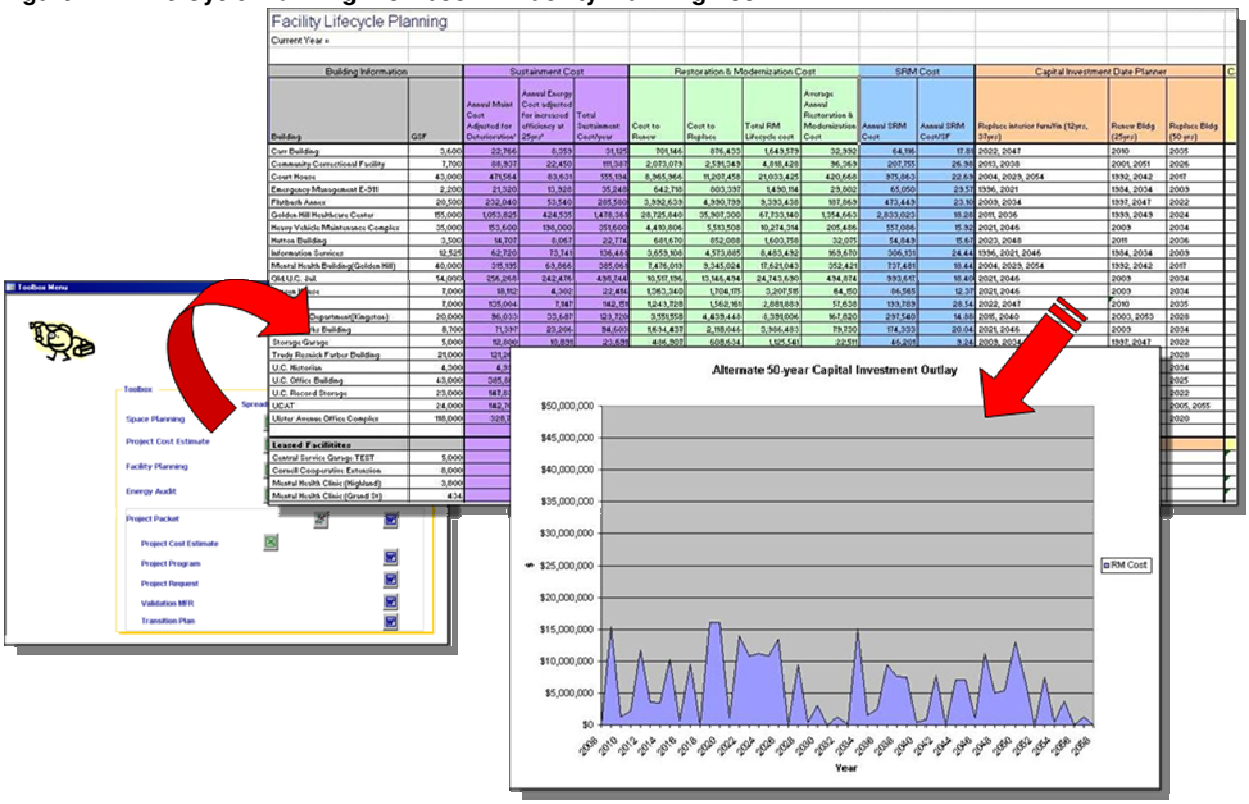
Administrative Areas

SPACE DESCRIPTION	CURRENT GUIDELINES				RECOMMENDED STD				COMMENTS
	#staff	Qty.	NSF	Total	Staff	Qty.	NSF	Total	
Offices									
Office, elected officials and County Administrator: Chairman, County Clerk, Treasurer, Sheriff, Judge, DA, County Administrator, Commissioner	1	1	200	200	1	1	240	240	
Office, Department Heads (grades A & B)	1	1	150	150	1	1	120	120	
Office, Department Heads (grades C & D, and staff grade 16 and above)	1	1	100	100	1	1	64	64	
Work area, technical and supervisors (grades 11-15)	1	1	80	80	1	1	64	64	
Work area, clerical and field (workers)	1	1	50	50	1	1	64	64	
Common Space									
Team Area	0	0	120	0	0	1	120	120	one per 25 members
Conference room, large	0	0	400	0	0	1	400	400	one per each area serving at least 16 professional staff (grades D or higher); replaces one medium conference room; one additional room for each full increment of 16
Conference room, medium	0	0	300	0	0	1	300	300	one per area serving at least 13 professional staff (grades D or higher); replaces one small conference room; one additional room for each full increment of 13
Conference room, small	0	0	200	0	0	1	200	200	one per area serving up to 8 professional staff (grades D or higher)
Break area	0	0	100	0	0	1	50	50	one per conference room (can be combined); min one per facility;
Document Scan area / copier / printer	0	0	0	0	0	1	100	100	to support electronic file based ops
Storage room, equipment & supplies	0	0	100	0	0	1	60	60	one per conference room (can be combined); min one per facility
Reception/waiting		0	100	0		1	100	100	one per secretary or assistant whose duties include reception/control; can be combine with other departments/areas to create central reception
Classroom/training room		0	0	0		1	600	600	as required; seats up to 50; includes 200sf lectern area

2.3.3.3 Target life cycle

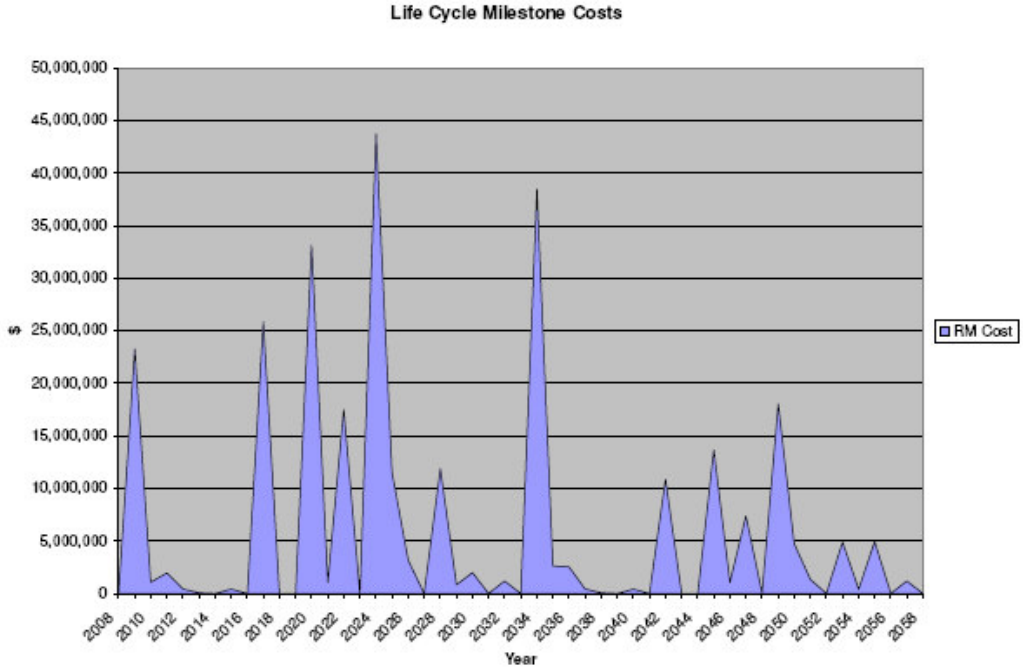
C&S developed a target facility lifecycle to formulate the true cost of building ownership, and model capital outlay. The lifecycle planning workbook is part of the facility planning tool in the FM&D database (Fig 2-14).

Figure 2-14 Life Cycle Planning Workbook in Facility Planning Tool



The lifecycle planning tool models capital outlay by graphing the total cost of RM investments across the facility inventory for each year. The following chart shows RM investments over the next 50 years based on the 50 year model.

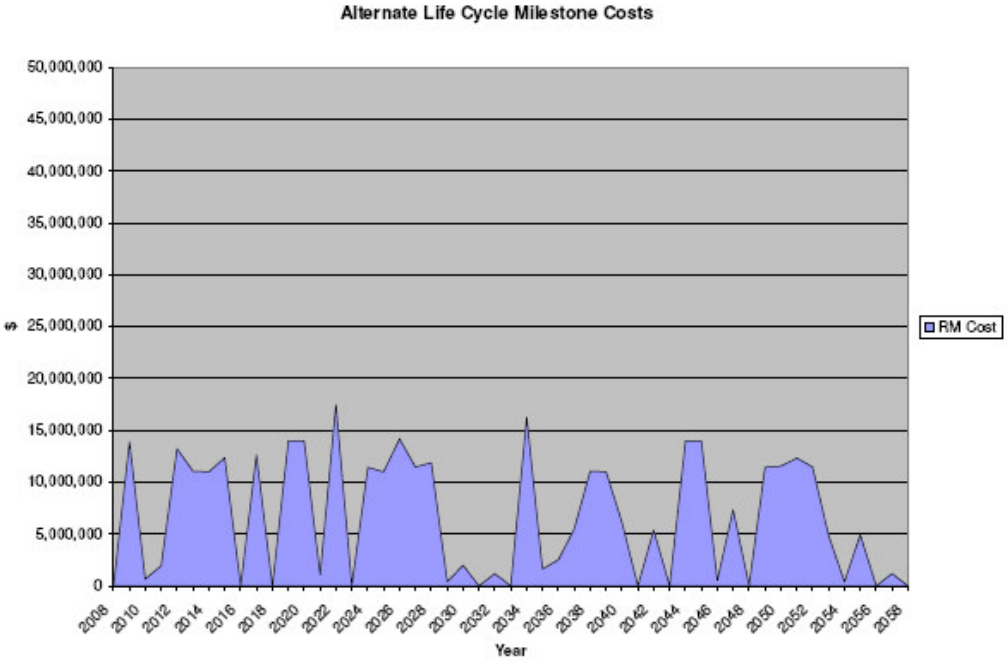
Figure 2-15 Capital Outlay Chart



If significant peaks and valleys in capital outlay posses an funding issue, the facility planner could use the modeling tool to view the effects of different courses of action. C&S made the following RM milestone adjustments in the modeling program and figure 2-16 shows the resulting chart:

- Move Carr cycle back 6 years
- Move Courthouse cycle up 5 years
- Move UC Office Building replacement up from 2025 to 2015
- Phase GH Healthcare Center renewal and replacement projects over 4 years
- Phase Ulster Avenue Office Complex renewal and replacement projects over 2 years
- Move Old UC Jail renewal & replacement projects back 4 years and phase over 2 years

Figure 2-16 Capital Outlay showing effect of adjusting milestones for some buildings



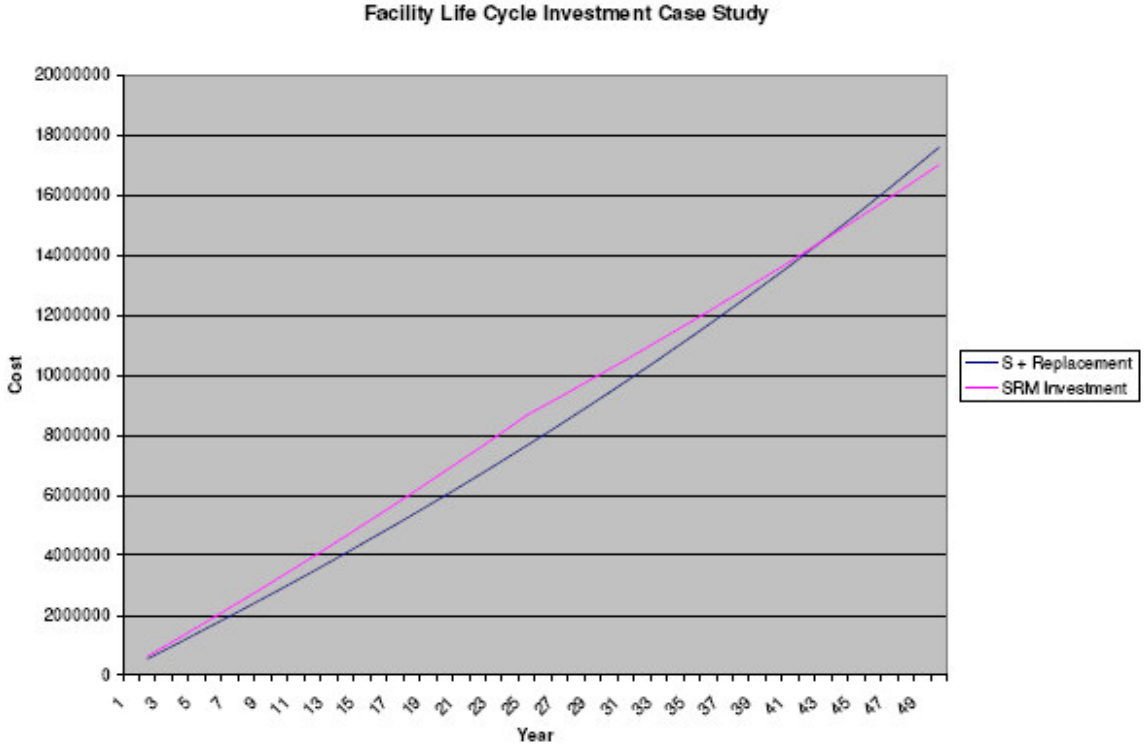
Next C&S sought to determine if executing restoration and modernization investments during the 50 year life cycle would provide a financial advantage over just funding sustainment operations. To accomplish this, C&S conducted a case study using UCAT to compare a funding strategy focused primarily on sustainment operations with one focused on SRM investments. The case study showed that deterioration and technology played key roles in validating the SRM investment strategy as a method to reduce lifecycle costs over a 50 year life cycle.

Building materials and systems deteriorate. Evidence has shown that this rate ranges from 2-10% annually. As they deteriorate, the cost to maintain the building increases proportionately. Unless capital investment projects replace systems at key milestones, the cost of maintenance continues to compound to a point at which it exceeds the cost of the capital investment projects.

Advances in technology, also can potentially impact lifecycle costs. Past experience has shown that over a 25 year period, advances in technology produce mechanical systems that are 20% more efficient. By replacing systems at the end of their efficient life spans, decreased energy cost can be realized.

The chart below compares a sustainment only strategy to a SRM lifecycle strategy. The chart shows that at year 42, the increasing cost of maintenance and the unrealized decrease in energy costs causes sustainment focused strategy to exceed the cost of the SRM investment strategy. Since C&S used a conservative deterioration rate of 2%, higher rates would result in higher lifecycle cost savings. The case study indicated that the SRM lifecycle strategy offers a potential 3.28% cost savings over a sustainment-only strategy.

Figure 2-17 Comparison of sustainment-focused funding to lifecycle-focused funding



2.3.4 Findings

2.3.4.1 Space Standard

- Costs associated with adopting the GSA space guidelines would include: cost to reconfigure offices, and initial resistance to change by employees.
    - Up front education of the staff on the benefits of the changes could mitigate resistance to change.

  - Cost of reconfiguring offices would be negligible if accomplished during normal interior renovation cycles.
- Two case studies (Flatbush Annex and UC Office Building) verified that the adoption of the space guidelines would not result in a need for more space.

- Based on our research, we identified the following benefits that Ulster County could realize by adopting the GSA guidelines:
  - Fewer walls and disassociation of space with rank promotes communication and teamwork.
  - Providing views to the exterior for most employees offers increased performance rates.
  - Maximizing open office space and using movable furniture increases flexibility to task organize, make the spaces adaptable to change, and decreases life cycle costs.

2.3.4.2 Target Life cycle

- Moving to a lifecycle focused capital investment strategy would enable Ulster County to predict capital investment spending.
- Projected average annual SRM under 50 yr lifecycle would be $12.7M (2007 $). See Section 2.4.4.2 for more discussion on the lifecycle SRM budget.
- Projected Savings Going to 50 Year Lifecycle Investment Strategy: 3.28%, $21.5M total, or $431K annually. This does not including functional efficiencies gained by gutting building at 25 yr mark and reconfiguring to meet current operations.

2.3.5 Recommendations

- Given the potential for enabling better communication, increasing performance, enhancing flexibility, and reducing life cycle costs with minimal risks, C&S recommends that Ulster County adopt the GSA based space guidelines.
- C&S recommends the adoption of design guidelines found in Chapters 2, 3, 5 and 6 of GSA's "Facility Standards for the Public Buildings Service" as standards for the site, architectural, mechanical/plumbing, and electrical aspects of Ulster County facilities. Using these guidelines will give Ulster County facilities a more unified quality level, improve aesthetical presence, lower life cycle costs and lengthen component life spans.
- C&S recommends that Ulster County adopts a 50 year target life cycle and invests regularly in the restoration and modernization milestones. Doing so will facilitate capital investment planning and reduce facility life cycle costs

2.4 Work Area 4

2.4.1 Goals

The fourth phase of the project (Work Area 4) involved the examination of existing facility management practices. The study focused on energy usage rates, capital program management techniques, and capital budget development. The effort produced a snapshot of energy utilization, an energy usage auditing tool, suggested techniques for enhancing the process of managing capital planning, and a sustainment/restoration/modernization SRM planning budget.

2.4.2 Process

2.4.2.1 Energy Usage Analysis

The County tracks energy usage in their facilities. The availability of this historical data provided an opportunity to demonstrate how that information could be leveraged as another filter for refining targets for capital investment. C&S examined 2005 and 2006 energy usage rates for 21 Ulster County facilities, and compared them to U.S. Department of Energy (DOE) rates for similar building types.

2.4.2.2 Capital Program Management

We investigated the procedures used by Ulster County to manage the facility capital investment planning process. Ulster County has an established a means of managing, reviewing and

approving capital projects at the corporate level, however, the process leading up to the approval level has a less formalized structure. Unwritten procedures are used to develop and manage the program. In order to provide better continuity of capital program management across changes in staffing, create a tool for informing staff on the programming process, and increase efficiency of the process, C&S developed a facility capital investment program for Ulster County to consider.

2.4.2.3 SRM Planning Budget

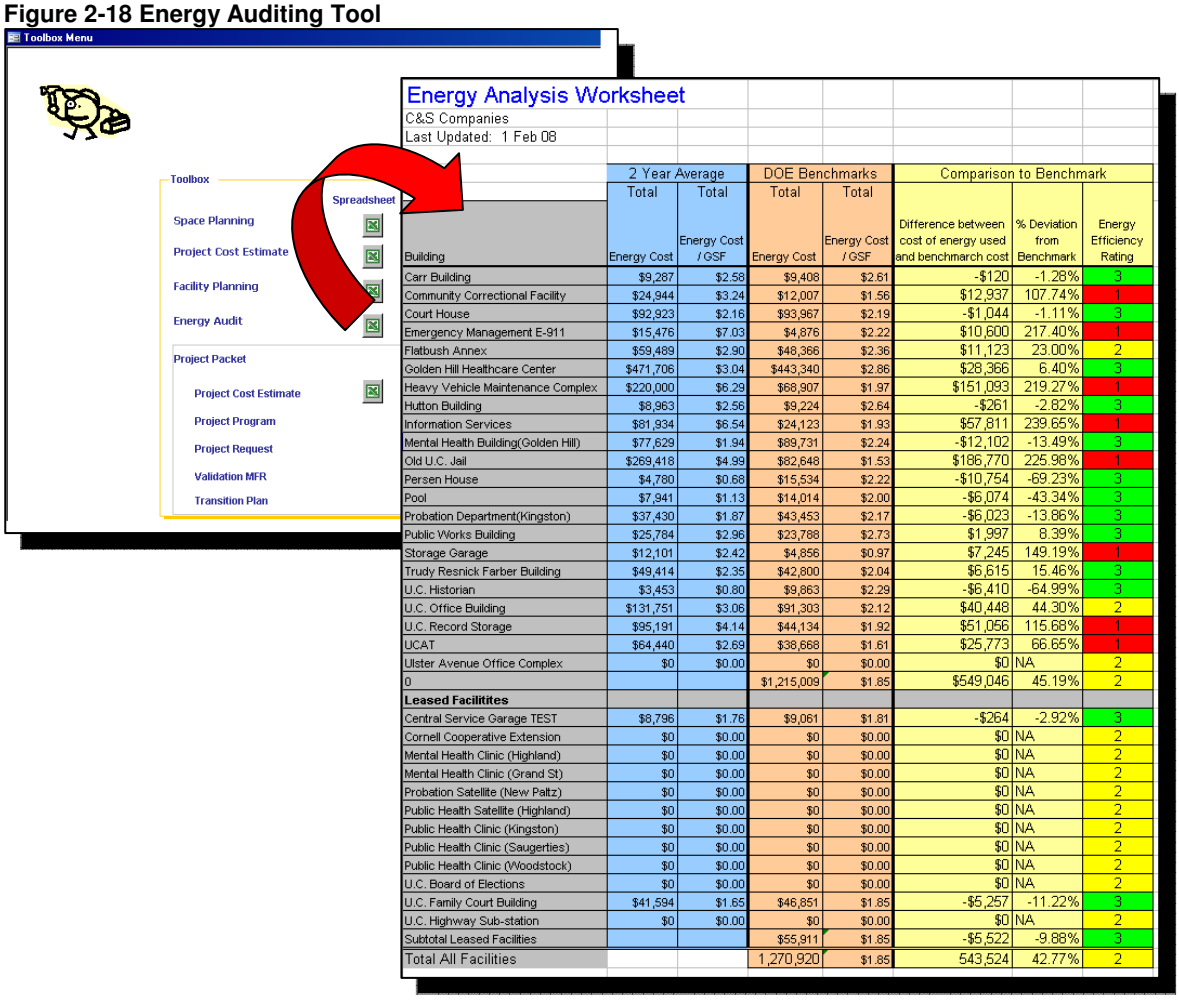
C&S analyzed the resulting data from the lifecycle planning tool (Work Area 3), space utilization and historical SRM spending to develop a SRM budget for facilities. This budget reflects the total cost of operating, maintaining and improving the facility inventory (SRM cost). It provides a planning figure for annual budget development and strategic planning. C&S formulated the suggested annual budget based on the 50 year facility lifecycle recommended in Work Area 3.

2.4.3 Products

2.4.3.1 Energy Auditing Tool

To present the results of energy usage audit in a format similar to the rating scheme used in the facility management database, C&S assigned a red/yellow/green rating to ranges of energy usage above the benchmark. Red represents usage greater than 50% of the benchmark. Yellow represents usage greater than 10% of the benchmark. Green represents usage 10% or less than the benchmark. With this rating scheme the following visual scorecard (Fig. 2-18) was produced. Red ratings highlight the buildings which have significantly higher energy usage than DOE benchmarks. The energy modeling tool can be found in the FM&D database Toolbox area.

Figure 2-18 Energy Auditing Tool



Energy Analysis Worksheet
C&S Companies
Last Updated: 1 Feb 08

	2 Year Average		DOE Benchmarks		Comparison to Benchmark		
Building	Total Energy Cost	Total Energy Cost / GSF	Total Energy Cost	Total Energy Cost / GSF	Difference between cost of energy used and benchmarch cost	% Deviation from Benchmark	Energy Efficiency Rating
Carr Building	$9,287	$2.58	$9,408	$2.61	-$120	-1.28%	3
Community Correctional Facility	$24,944	$3.24	$12,007	$1.56	$12,937	107.74%	1
Court House	$92,923	$2.16	$93,967	$2.19	-$1,044	-1.11%	3
Emergency Management E-911	$15,476	$7.03	$4,876	$2.22	$10,600	217.40%	1
Flatbush Annex	$59,489	$2.90	$48,366	$2.36	$11,123	23.00%	2
Golden Hill Healthcare Center	$471,706	$3.04	$443,340	$2.86	$28,366	6.40%	3
Heavy Vehicle Maintenance Complex	$220,000	$6.29	$68,907	$1.97	$151,093	219.27%	1
Hutton Building	$8,963	$2.56	$9,224	$2.64	-$261	-2.82%	3
Information Services	$81,934	$6.54	$24,123	$1.93	$57,811	239.65%	1
Mental Health Building(Golden Hill)	$77,629	$1.94	$89,731	$2.24	-$12,102	-13.49%	3
Old U.C. Jail	$269,418	$4.99	$82,648	$1.53	$186,770	225.98%	1
Persen House	$4,780	$0.68	$15,534	$2.22	-$10,754	-69.23%	3
Pool	$7,941	$1.13	$14,014	$2.00	-$6,074	-43.34%	3
Probation Department(Kingston)	$37,430	$1.87	$43,453	$2.17	-$6,023	-13.86%	3
Public Works Building	$25,784	$2.96	$23,788	$2.73	$1,997	8.39%	3
Storage Garage	$12,101	$2.42	$4,856	$0.97	$7,245	149.19%	1
Trudy Resnick Farber Building	$49,414	$2.35	$42,800	$2.04	$6,615	15.46%	3
U.C. Historian	$3,453	$0.80	$9,863	$2.29	-$6,410	-64.99%	3
U.C. Office Building	$131,751	$3.06	$91,303	$2.12	$40,448	44.30%	2
U.C. Record Storage	$95,191	$4.14	$44,134	$1.92	$51,056	115.68%	1
UCAT	$64,440	$2.69	$38,668	$1.61	$25,773	66.65%	1
Ulster Avenue Office Complex	$0	$0.00	$0	$0.00	$0	NA	2
0			$1,215,009	$1.85	$549,046	45.19%	2
Leased Facilitites							
Central Service Garage TEST	$8,796	$1.76	$9,061	$1.81	-$264	-2.92%	3
Cornell Cooperative Extension	$0	$0.00	$0	$0.00	$0	NA	2
Mental Health Clinic (Highland)	$0	$0.00	$0	$0.00	$0	NA	2
Mental Health Clinic (Grand St)	$0	$0.00	$0	$0.00	$0	NA	2
Probation Satellite (New Paltz)	$0	$0.00	$0	$0.00	$0	NA	2
Public Health Satellite (Highland)	$0	$0.00	$0	$0.00	$0	NA	2
Public Health Clinic (Kingston)	$0	$0.00	$0	$0.00	$0	NA	2
Public Health Clinic (Saugerties)	$0	$0.00	$0	$0.00	$0	NA	2
Public Health Clinic (Woodstock)	$0	$0.00	$0	$0.00	$0	NA	2
U.C. Board of Elections	$0	$0.00	$0	$0.00	$0	NA	2
U.C. Family Court Building	$41,594	$1.65	$46,851	$1.85	-$5,257	-11.22%	3
U.C. Highway Sub-station	$0	$0.00	$0	$0.00	$0	NA	2
Subtotal Leased Facilities			$55,911	$1.85	-$5,522	-9.88%	3
Total All Facilities			1,270,920	$1.85	543,524	42.77%	2

The previous scorecard shows a snapshot of the energy usage based on 2005 and 2006 data. The energy auditing tool in the FM&D database, however will give Ulster County the ability to input future energy rates and adjust benchmark rates. Keeping the information current will give Ulster County another tool for using performance indicators to filter capital investment requirements.

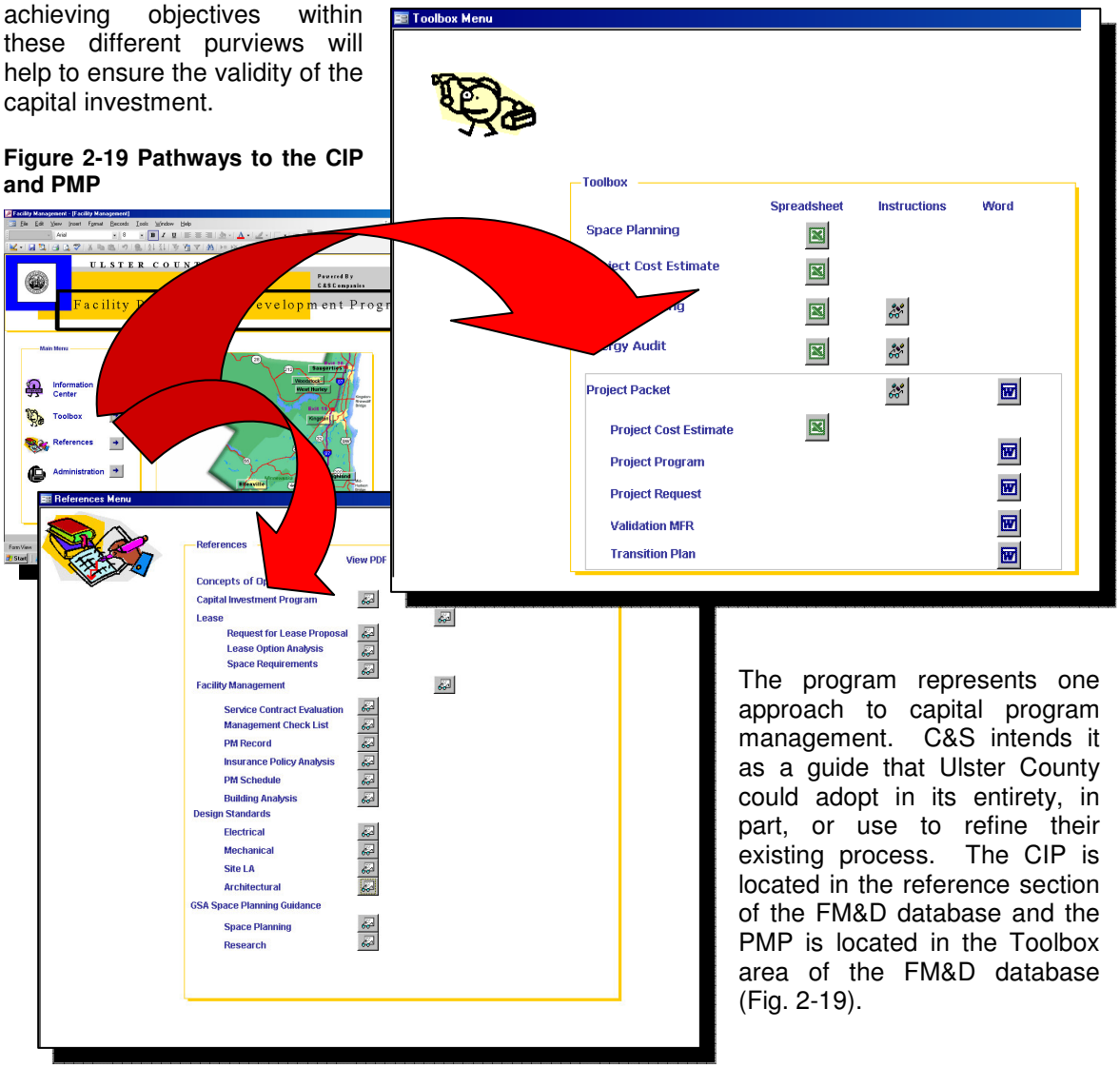
2.4.3.2 Capital Program Management Techniques

C&S developed the Facilities Capital Investment Program (CIP) to provide a proactive, organized, standard process for identifying, developing, recommending, and managing capital investment projects within Ulster County. It includes a system for managing the overall facilities capital program, and a procedure for developing individual projects.

While the Capital Investment Program manages the overall process of issuing guidance, identifying and recommending projects, developing strategic courses of action and managing capital projects from a corporate level, the Project Management Plan (PMP) sets the framework for developing individual projects.

The primary objective of the PMP is to identify and scope project requirements based on County strategic plan, organizational business plan, and facility's master plan (which includes the life cycle investment strategies). Involving the leaders who have responsibility for setting and achieving objectives within these different purviews will help to ensure the validity of the capital investment.

Figure 2-19 Pathways to the CIP and PMP



The program represents one approach to capital program management. C&S intends it as a guide that Ulster County could adopt in its entirety, in part, or use to refine their existing process. The CIP is located in the reference section of the FM&D database and the PMP is located in the Toolbox area of the FM&D database (Fig. 2-19).

2.4.4 Findings

2.4.4.1 Energy Usage Analysis

Ulster County buildings in general use 42% more energy than an inventory made up of similar building types using the benchmark rates. This equates to additional energy costs of $544K each year. The results highlight a couple of buildings where improvements could potentially offer significant cost savings to Ulster County. The chart below (Fig. 2-20) shows the buildings with energy consumption rates that significantly exceed the benchmarks.

Figure 2-20 Energy Audit Tool showing buildings with red ratings

	2 Year Average		DOE Benchmarks		Comparison to Benchmark		
Building	Total Energy Cost	Total Energy Cost / GSF	Total Energy Cost	Total Energy Cost / GSF	Difference between cost of energy used and benchmarch cost	% Deviation from Benchmark	Energy Efficiency Rating
Community Correctional Facility	$24,944	$3.24	$12,007	$1.56	$12,937	107.74%	1
Emergency Management E-911	$15,476	$7.03	$4,876	$2.22	$10,600	217.40%	1
Heavy Vehicle Maintenance Complex	$220,000	$6.29	$68,907	$1.97	$151,093	219.27%	1
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Storage Garage	$12,101	$2.42	$4,856	$0.97	$7,245	149.19%	1
U.C. Record Storage	$95,191	$4.14	$44,134	$1.92	$51,056	115.68%	1
UCAT	$64,440	$2.69	$38,668	$1.61	$25,773	66.65%	1

2.4.4.2 SRM Planning Budget

- Projected average annual SRM cost under 50 yr lifecycle would be $12.7M (2007 $) (Fig. 2-21).
- Ulster County has averaged $2.7M in annual RM costs over last 7 years. If added to annual average sustainment cost of $6.7M, the total annual SRM expenses average around $9.4M.
- The current rate of sustainment funding has resulted in a backlog of deferred maintenance totaling around $47M. That would equate to $.94M per year if averaged over 50 years.
- True cost to Ulster County to own/lease their facilities is the sum of SRM expenses plus the deferred maintenance, which is $9.4M + $.94M = $10.3M
- 71,000 GSF of unused space represents $1.2M of the total SRM cost. By taking unused space out of the inventory, the annual SRM cost would drop to $11.5M.
- To gain the lifecycle cost savings offered by following a 50-yr lifecycle capital investment strategy (see Work Area 3), Ulster County would need to increase average annual SRM funding by $1.2M. If compared to the projected annual cost savings of $.43M under the 50-yr lifecycle strategy, this increase may seem counter productive. The current rate of SRM spending, however, does not account for the compounding cost of deterioration. The analysis in Work Area 3 illustrated that compounding deterioration cost would ultimately outpace the higher rate capital investment in year 42 of a 50-year target life span.

2.4.5 Recommendations

- Ulster County should perform a detailed energy survey of the buildings with red energy utilization ratings to determine the potential for cost savings and identify pay-back periods associated with remediation efforts.
- C&S recommends using $11.5M as an annual capital budget for the facilities covered by this study. Ulster County should consider this total as a planning figure. Some years the budget may need to be more to address specific RM projects. Other years, the total requirements could be less. Planning around the $1.5M figure will position Ulster County to make appropriate capital investments, which will earn long term cost savings while providing efficient and functional buildings for County operations.

Figure 2-21 Part of Lifecycle Planning Worksheet showing SRM total

Building	Total Sustainment Cost/year	Average Annual Restoration & Modernization Cost	Annual SRM Cost
Carr Building	31,125	32,992	64,116
Community Correctional Facility	111,387	96,369	207,755
Court House	555,194	420,668	975,863
Emergency Management E-911	35,248	29,802	65,050
Flatbush Annex	285,580	187,869	473,449
Golden Hill Healthcare Center	1,478,361	1,354,663	2,833,023
Heavy Vehicle Maintenance Complex	351,600	205,486	557,086
Hutton Building	22,774	32,075	54,849
Information Services	136,461	169,670	306,131
Mental Health Building(Golden Hill)	385,061	352,421	737,481
Old U.C. Jail	498,744	494,874	993,617
Persen House	22,414	64,150	86,565
Pool	142,151	57,638	199,789
Probation Department(Kingston)	129,720	167,820	297,540
Public Works Building	94,603	79,730	174,333
Storage Garage	23,691	22,511	46,201
Trudy Resnick Farber Building	165,732	185,021	350,753
U.C. Historian	8,100	39,407	47,506
U.C. Office Building	504,441	371,898	876,339
U.C. Record Storage	233,504	311,569	545,073
UCAT	200,698	145,705	346,403
Ulster Avenue Office Complex	328,717	1,081,391	1,410,108
Leased Facilitites			
Central Service Garage TEST	42,917	2,000	44,917
Cornell Cooperative Extension	104,000	6,400	110,400
Mental Health Clinic (Highland)	44,802	3,040	47,842
Mental Health Clinic (Grand St)	4,774	347	5,121
Probation Satellite (New Paltz)	18,312	1,046	19,358
Public Health Satellite (Highland)	44,800	2,560	47,360
Public Health Clinic (Kingston)	28,290	1,561	29,851
Public Health Clinic (Saugerties)	18,900	1,260	20,160
Public Health Clinic (Woodstock)	4,202	490	4,692
U.C. Board of Elections	29,260	2,341	31,601
U.C. Family Court Building	527,147	20,226	547,373
U.C. Highway Sub-station	159,033	6,058	165,091
	$6,771,741	$5,951,057	$12,722,798

2.5 Work Area 5

2.5.1 Goals

The method of selecting the best use of limited capital investment funds to provide facility space involves two decision points. The first involves establishing priority of need. The second consists of determining which facility platform strategy provides the most cost effective solution. Work Area 5 focused on developing the tools that would provide direction for these two decisions.

2.5.2 Process

2.5.2.1 Priority Matrix

The priority matrix uses the following input: building condition, functionality, space forecast, energy utilization, and building importance. Work Area 1 produced the building condition index (BCI), Work Area 2 produced the space forecast and functionality rating, and Work Area 4 produced the energy efficiency factor. The only factor that still needed to be quantified was building importance.

The importance of a building to an organization's operations provides a key filter for prioritizing capital projects. To build this tool into the decision making process, C&S added an "Operational Importance" field to the priority matrix. The following descriptions designate the 3 categories of building importance:

Critical (1): building provides services that multiple departments must have on an uninterrupted basis in order to continue operating; building provides services that if interrupted or damaged could cause risk to life, health or safety of occupants, customers, or general public; building houses materials or equipment that if destroyed would result in high cost to tax-payers or can't be replaced

Priority (2): building does not meet requirements for a critical rating; building provides services that are essential to County regular operations, but which the County could operate without on a temporary basis until services are restored or services could relocate to another site, or building provides services that would be difficult to move to another location

Routine (3): building does not meet requirements for a priority rating; building provides space required to house County operations that do not affect multiple departments, or which could be readily relocated to another site

Based on a general understanding of County operations, we provided an initial importance rating for each building. C&S intends the ratings to serve as means to show how building importance can further focus capital planning. Ulster County will be able to adjust the following importance ratings in the database to achieve the most accurate reflection of its operations.

- Carr Building – Routine (3)
- Central Service Garage – Routine (3)
- Community Correctional Facility – Priority (2)
- Cornell Cooperative Extension – Routine (3)
- Court House – Priority (2)
- Emergency Management E-911 – Critical (1)
- Fairgrounds – Routine (3)
- Flatbush Annex – Routine (3)
- Flatbush Carpenters Shop – Routine (3)
- Flatbush Maintenance Shop – Routine (3)
- Flatbush Storage Barn – Routine (3)
- Golden Hill Healthcare Center – Priority (2)
- Heavy Vehicle Maintenance Complex – Priority (2)
- Hutton Building – Routine (3)
- Information Services – Critical (1)
- Mental Health Building(Golden Hill) – Routine (3)

- Mental Health Clinic (Highland) – Routine (3)
- Mental Heath Building (Grand St) – Routine (3)
- Old U.C. Jail – Routine (3)
- Persen House – Priority (due to historical value) (1)
- Pool – Routine (3)
- Probation Department (Kingston) – Routine (3)
- Probation Department(New Paltz) – Routine (3)
- Public Health Satellite Office (Highland) – Routine (3)
- Public Health (Kingston) – Routine (3)
- Public Health(Saugerties) – Routine (3)
- Public Health(Woodstock) – Routine (3)
- Public Works Building – Routine (3)
- Storage Garage – Routine (3)
- Trudy Resnick Farber Building – Priority (due to lack of availability of equivalent space in area) (2)
- U.C. Board of Elections – Routine (3)
- U.C. Family Court Building – Priority (2)
- U.C. Highway Sub-Station – Routine (3)
- U.C. Historian (17 Pearl Street) – Routine (3)
- U.C. Office Building – Priority (2)
- U.C. Record Storage – Critical (1)
- UCAT – Priority (2)
- Ulster Avenue Office Complex - Routine (3)

The priority matrix develops a score for each building based on the following formula: Building Importance Factor + Building Condition Index (multiplied by a factor to increase the BCI to a magnitude comparable with the other input factors) + functionality rating + space forecast (from the space planning tool) + Energy Efficiency Factor (from the energy audit tool) = Priority of Effort Score. Buildings with lower scores have higher priority.

2.5.2.2 Strategy Matrix

We designed the building strategy matrix to compare six (6) ownership strategies, which consist of the following:

- continue to own and maintain the current facility
- replace facility at same site (this would involved the demolition of the existing facility and construction of a new facility)
- construct a new facility at a different site
- lease space for the County activities currently housed in the existing facility
- purchase an existing facility and renovate it for County operations
- sale & lease-back of building

The following notes identify key aspects about the logic behind the building strategy matrix:

- Average annual life cycle cost makes up the primary factor used in the development of cost for multiple strategies. C&S generated the average annual life cycle cost for each facility in Work Area 3 and presented it in Technical Report: Updating Facility Standards. The variables that affect the strategy cost include the level to which life cycle investments have been met, resale value of the property, availability and cost of similar buildings in the area, age of the building and cost of land in the area.
- Construction costs are derived from RS Means, and are based on square foot costs associated with the building type.
- All costs are shown in 2007 U.S. dollars without adjustment of inflation.
- CBRE provided estimates for lease rates, property values, and sale/lease-back rates.
- C&S and CBRE intend the estimates to reflect average costs associated with the various factors. The rough order of magnitude estimates provide a level of detail appropriate for

the comparison of ownership strategies at the planning level. Final costs will be affected by the following factors that have the potential to fluctuate: real estate market, location, site, cost of materials and labor, and condition of the site.

- Most of the fields in the matrix are filled via links to other spreadsheets or formulas

We made the following assumptions when developing the decision logic:

- Ulster County adopts the 50 year life cycle approach to facility capital investment and management recommended by C&S in Work Area 3. The recommended life cycle sets up a cyclical schedule of sustainment, restoration and modernization investment over the life span of the building. The timing and scope of the investments result in cost savings over the life of the building (50 years).
- Lease strategies involve long term contracts. Considering all the lease options as long term allows a comparison between traditional lease arrangements and sale/lease-back arrangements.
- Ulster County funds the replacement of interior finishes and furniture every 12 years at long term lease sites. Making this assumption enables a more equitable comparison between lease options and ownership options. In general, a considerable difference in quality exists between lease space and County-owned space. Landlords are not investing in their properties at the same rate at Ulster County. Ulster County should have one standard for the quality of the facilities from which the County delivers services. Attributing additional cost to the lease rates to reflect County funded restoration projects accounts for additional investment landlords should be making to meet County facility standards.

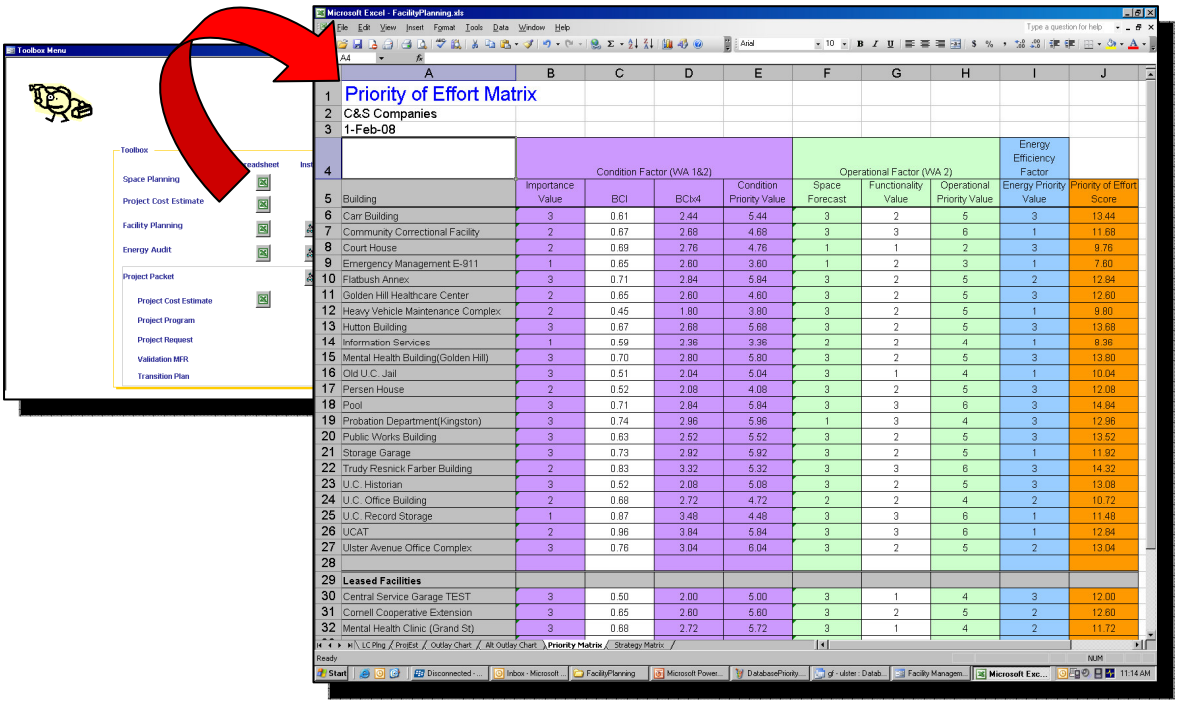
Cost of each facility strategy provides the basis for the comparison.

2.5.3 Products

2.5.3.1 Priority Matrix

The priority of effort matrix draws on information gathered and conclusions developed in the first 4 work areas. A MS Excel worksheet forms the platform of the matrix and resides in the facility planning workbook, which is located in the Toolbox area of the FM&D database (Fig. 2-22).

Figure 2-22 Priority of Effort Matrix in Facility Planning Tool



The following table shows a close up of the priority matrix. Sorting the data according to the Priority of Effort Score will place the buildings in order of priority. The building with the lowest score would be the building with the highest priority for capital planning.

Figure 2-23 Close-up of priority matrix

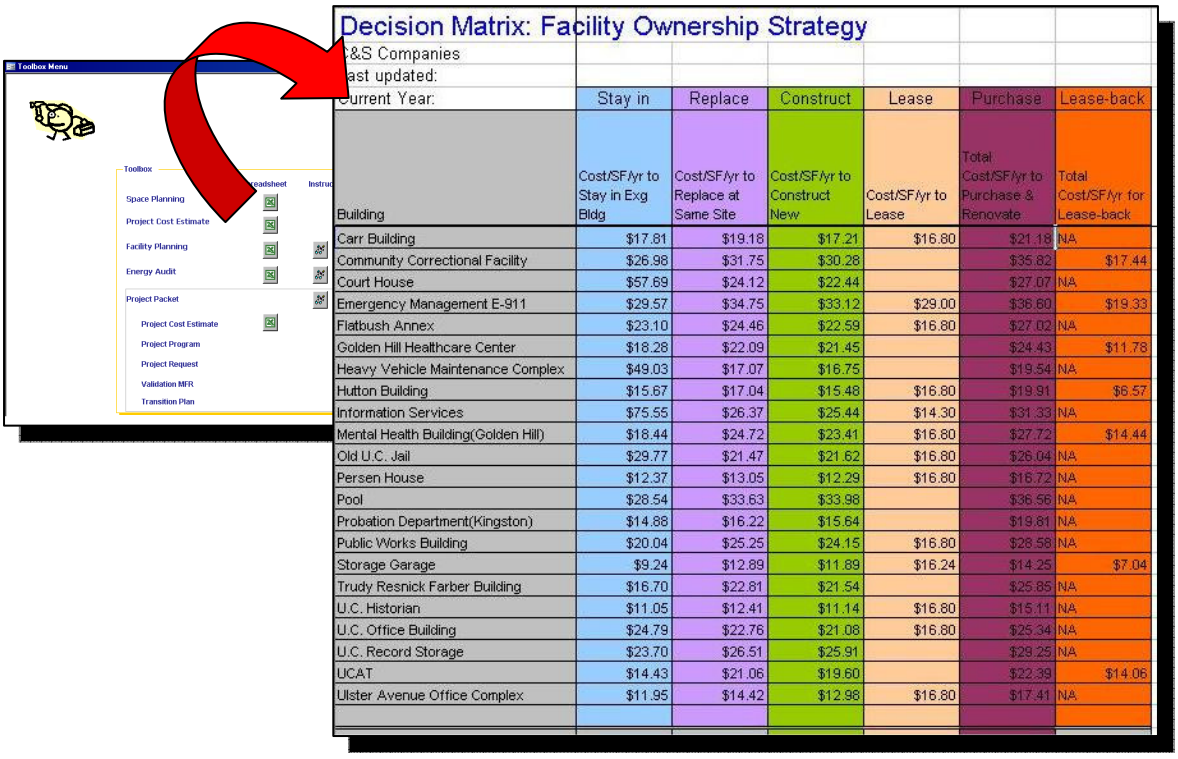
	Condition Factor (WA 1&2)				Operational Factor (WA 2)			Energy Efficiency Factor	
Building	Importance Value	BCI	BCIx4	Condition Priority Value	Space Forecast	Functionality Value	Operational Priority Value	Energy Priority Value	Priority of Effort Score
Emergency Management E-911	1	0.65	2.60	3.60	1	2	3	1	7.60
Information Services	1	0.59	2.36	3.36	2	2	4	1	8.36
Court House	2	0.69	2.76	4.76	1	1	2	3	9.76

2.5.3.2 Strategy Matrix

The building strategy matrix draws on information gathered and conclusions developed throughout the five work areas of this project. A MS Excel worksheet forms the platform of the matrix. The spreadsheet resides in the facility planning workbook, which is located in the Toolbox area of the FM&D database.

The following figure (Fig.2-224) shows a condensed version of the decision matrix (see Section 4: Tools for instructions on use of the matrix).

Figure 2-24 Facility Ownership Strategy Matrix in Facility Planning Tool



Decision Matrix: Facility Ownership Strategy

C&S Companies

Last updated:

Current Year:	Stay in	Replace	Construct	Lease	Purchase	Lease-back
Building	Cost/SF/yr to Stay in Exg Bldg	Cost/SF/yr to Replace at Same Site	Cost/SF/yr to Construct New	Cost/SF/yr to Lease	Total Cost/SF/yr to Purchase & Renovate	Total Cost/SF/yr for Lease-back
Carr Building	$17.81	$19.18	$17.21	$16.80	$21.18	NA
Community Correctional Facility	$26.98	$31.75	$30.28		$35.82	$17.44
Court House	$57.69	$24.12	$22.44		$27.07	NA
Emergency Management E-911	$29.57	$34.75	$33.12	$29.00	$36.60	$19.33
Flatbush Annex	$23.10	$24.46	$22.59	$16.80	$27.02	NA
Golden Hill Healthcare Center	$18.28	$22.09	$21.45		$24.43	$11.78
Heavy Vehicle Maintenance Complex	$49.03	$17.07	$16.75		$19.54	NA
Hutton Building	$15.67	$17.04	$15.48	$16.80	$19.91	$6.57
Information Services	$75.55	$26.37	$25.44	$14.30	$31.33	NA
Mental Health Building(Golden Hill)	$18.44	$24.72	$23.41	$16.80	$27.72	$14.44
Old U.C. Jail	$29.77	$21.47	$21.62	$16.80	$26.04	NA
Persen House	$12.37	$13.05	$12.29	$16.80	$16.72	NA
Pool	$28.54	$33.63	$33.98		$36.56	NA
Probation Department(Kingston)	$14.88	$16.22	$15.64		$19.81	NA
Public Works Building	$20.04	$25.25	$24.15	$16.80	$28.58	NA
Storage Garage	$9.24	$12.89	$11.89	$16.24	$14.25	$7.04
Trudy Resnick Farber Building	$16.70	$22.81	$21.54		$25.85	NA
U.C. Historian	$11.05	$12.41	$11.14	$16.80	$15.11	NA
U.C. Office Building	$24.79	$22.76	$21.08	$16.80	$25.34	NA
U.C. Record Storage	$23.70	$26.51	$25.91		$29.25	NA
UCAT	$14.43	$21.06	$19.60		$22.39	$14.06
Ulster Avenue Office Complex	$11.95	$14.42	$12.98	$16.80	$17.41	NA

The following figure (Fig. 2-25) shows a close up of the matrix. By comparing the costs in the columns, one can determine which option provides the most cost effective solution.

Figure 2-25 Close-up of Facility Ownership Matrix

Current Year:	Stay in	Replace	Construct	Lease	Purchase	Lease-back
Building	Cost/SF/yr to Stay in Exg Bldg	Cost/SF/yr to Replace at Same Site	Cost/SF/yr to Construct New	Cost/SF/yr to Lease	Total Cost/SF/yr to Purchase & Renovate	Total Cost/SF/yr for Lease-back
Court House	$57.69	$24.12	$22.44		$27.07	NA
Emergency Management E-911	$29.57	$34.75	$33.12	$29.00	$36.60	$19.33
Flatbush Annex	$23.10	$24.46	$22.59	$16.80	$27.02	NA
Golden Hill Healthcare Center	$18.28	$22.09	$21.45		$24.43	$11.78
Heavy Vehicle Maintenance Complex	$49.03	$17.07	$16.75		$19.54	NA
Hutton Building	$15.67	$17.04	$15.48	$16.80	$19.91	$6.57
Information Services	$75.55	$26.37	$25.44	$14.30	$31.33	NA

2.5.4 Findings

2.5.4.1 Priority Matrix

- The top three priorities for capital planning consist of the following buildings:
  - Emergency Management
  - Information Services
  - Court House
- The matrix prioritizes the need for capital investment action at the various sites. It does not indicate that capital funds must be committed to the site. For example, the Old Jail falls into the top 5 for priority of effort due to its poor condition, and poor energy efficiency. The Strategy matrix should be used to determine if capital funds should be committed to the Old Jail so Ulster County could continue to use it.

2.5.4.2 Strategy Matrix

- The strategy to remain in County-owned facility provides cost effective ownership solution if facility has been well maintained and modernized at regular intervals, is in middle of its life span, and resale value of property is low or average.

- The strategy to replace a County-owned facility at same site provides a cost effective ownership solution if facility is in poor condition, is toward end of its life cycle and resale value of the property is low.

- The strategy to construct new County-owned building at new site provides a cost effective ownership solution if facility being replaced is in poor condition, is toward end of its life cycle and resale value of the property is high compared to cost of new property.

- The strategy to lease facility space provides cost effective facility solution if lease facility is in good condition, owner provides housekeeping services, owner maintains building (not including the cyclical renovations identified separately), and owner modernizes facility at appropriate intervals.

- As an alternative to a currently owned facility, the strategy to purchase an existing building and renovate it for County use provides a cost effective facility solution if County facility is towards the end of its life cycle and in poor condition, resale value of the County property is high compared to the cost of the new property, and the target facility is in good condition. This strategy provides a good alternative to current lease arrangements, if the lease facility is in poor condition, owner does not provide housekeeping services, County maintains the building (including renovations), owner does not modernizes the facility at appropriate intervals, and target building is in good condition.

- The strategy to sell a County-owned facility and then enter into a long term lease-back arrangement provides a cost effective facility solution if the facility is in good condition, has a high property value, and County activity planned for the building would terminate at the end of the lease period or County would realize enough cost savings over the lease period to finance a follow-on solution for the activity.

- Example: Information Services (County-own facility, poor condition, beyond its life span)
    - Stay option - while high cost of deficiencies make this option unattractive, they do not exceed 50% of what it would cost to build a new facility, thus a penalty is not levied against this option. However, the scope of the deficiencies would require the activity to transition at another location during construction. The transition costs for information services makes this option the least cost effective.
    - Replace in place – this option also has the transition costs, but since it would be a new building the transition costs get averaged over the 50 year life span of the facility. This option includes demolition costs that the other options do not have.
    - Construct new at a new site – this option also has site development cost like that of the replace in place option. It includes a site procurement cost that the first two options don't have. However, this option includes a credit for the sale of the existing property that has the potential to offset the procurement cost. The current real estate market makes this option more attractive, but even without the sale this option would remain the most cost effective of the ownership strategies.
    - Lease space – the availability of lease space that meets the specialized requirements of information services makes this the most cost effective solution.
    - Purchase a building and renovate – this option includes the cost of the building and initial renovation of the building, which the other options don't. Even so, this option would be more cost effective than the stay option since the costs are averaged over the life span of the building (for this study we assume the building is 5-10 years old).
    - Lease-back – this option was not evaluated due to the condition of the building

2.5.5 Recommendations

- C&S recommends that Ulster County use the Priority Matrix to rank the buildings for capital investment action. Immediately develop plans to address the top 3 priorities (Information Services, Emergency Management, and the Court House/court system).
- The facility ownership strategy matrix highlights the most cost effective methods for providing facility space to Ulster County. C&S recommends that Ulster County use this tool in conjunction with regular reviews of business plans and strategic plans to select the facility inventory platforms needed to meet their goals.

2.6 Work Area 6

2.6.1 Goals

The final work area had the primary goal of packaging the database, tools, references and other information gathered during the project into a user friendly program that would facilitate use of the tools and access to the information. Other objectives consisted of presenting the Facility Management & Development (FM&D) Program to the Public Works Committee, and Legislature, and producing a final report that summarizes the entire project.

2.6.2 Process

The following tasks comprised the effort of the final work area:

- Finalize the graphic presentation of information in the FM&D database
- Write user guides for the database and all the tools
- Check formulas in the tools and protect critical cells
- Prepare and deliver presentations to the Public Works Committee and Legislature
- Write a final technical report that summarizes the project goals, process, products, findings and recommendations

- Install the FM&D Program on an Ulster County server

2.6.3 Products

- See Appendix A for slides and the sign-in list from the presentation to the Public Works Committee, 7 Feb 08
- See Appendix B for slides from the presentation to the Legislature, 5 Mar 08
- See Appendix C for user guides for the FM&D Program and tools

2.6.4 Recommendations

- The full potential of the FM&D can only be realize if the data is kept current. Update RSMeans cost data annually and re-assess building conditions every 5 years.
- We developed the FM&D with the assumption that the operator would have a background in facility management and/or planning, and have at least a basic understanding of Microsoft Excel spreadsheets and database tools. The number of people with access to input data to the master copy of the FM&D should be limited to enhance quality control, and facilitate the tracking of changes.
- Provide working copies of the FM&D at sites within Ulster County as needed. Issue updated versions of the master on a regular basis (annually, semi-annually, or quarterly)
- Conduct preventative maintenance, checks and services (PMCS) on FM&D annually to verify integrity of links, formulas and organization.