



Facility Report

Facility Management & Development Program,
Ulster County, New York

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1.0 Executive Summary

1.1 FM&D Purpose

In 2007, Ulster County commissioned C&S Engineers to create a facility planning and management program. As its overarching objective, the Facility Management & Development Program sought to provide Ulster County with a better way to plan for and develop new owned or leased space as well as maintain existing buildings to extend their useful life and functionality. 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. This final technical report summarizes the research, analysis and recommendations detailed in the 5 technical reports, which document the effort associated with each work area.

1.2 FAQs

Q - Where do the cost estimates come from?

A – RSM means cost estimating manuals formed the basis of the cost estimate.

Q - Why does the FM&D recommend replacing a building at 50 years, if X bldg is fine at 70?

A - The facility planning tool uses a 50-year target lifecycle because that lifespan has proven to offer cost savings if key capital investments are made along the way. Establishing a target lifecycle enables capital requirements to be forecasted for a facility inventory. The Strategy Matrix in the Toolbox area of the FM&D database offers a tool for determining at any point along or after the target lifecycle if it would be cost effective to continue investing capital funds into the building or to select a different facility solution.

Q – After this project is completed, how does the FM&D get updated to reflect changing conditions in Ulster County?

A – Keeping the information current will ensure the FM&D remains a useful tool. Some parts of the FM&D are designed to allow data to be easily updated. The non-shaded cells in the Excel spreadsheet tools designate data that can be updated. Most of the shaded cells receive data from links to other spreadsheets, or through formulas. These areas should only be modified by someone who understands the logic behind the link or formula. We recommend checking links and formulas annually, updating RSM means cost data annually and re-assessing building conditions every 5 years.

Q – Who should use the FM&D?

A – Anyone who needs, and is authorized access to facility information and planning tools. Working copies should be used for general access to information and modeling tools. A master copy should be maintained by Buildings & Grounds or the Planning Department. The master copy would be the version that is used to develop strategic and capital plans. Revised working copies of the master should be issued at regular intervals.

Q – The FM&D identifies a sustainment cost of X for building Y, but we know that we have only spent Z over the last two years.

A - The lifecycle planning tool looks at total costs over the building life span and then averages those costs over 50 years. Deterioration increases maintenance cost at a rate of 2% each year.

Q – Why should we change from how we fund our facilities?

A - The current rate of funding sustainment, restoration and modernization has resulted in a maintenance backlog of \$47M in deficiencies. Only by adopting a lifecycle approach to capital investment can an organization select funding strategies that would prevent being entrapped by compounding deterioration and ensure decisions are cost effective across the lifespan of the asset.

1.3 Recommendations

1.3.1 Current Situation

- Develop a capital investment program that seeks to address red and yellow rated building deficiencies over the next ten years (by 2018).
- Use the FM&D Program to prioritize requirements, and target critical systems first.
- Re-assess building conditions every 5 years

1.3.2 Space Forecast

- Develop plans to address significant 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

1.3.3 Design, Space & Lifecycle Planning Standards

- Adopt the GSA based space guidelines to enable better communication, increase performance, enhance flexibility of spaces, and reduce lifecycle costs.
- Adopt 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.
- Adopt a 50-year target facility lifecycle and invest regularly in the restoration and modernization milestones. Doing so will facilitate capital investment planning and reduce facility life cycle costs

1.3.4 Facility Management Practices

- 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.
- Use \$11.5M as an annual budget for the facilities covered by this study. Ulster County should consider this total as a planning figure for operations and capital investment costs. Some years the budget may need to be more to address specific capital investment projects. In other years, the total requirements could be less. Planning around the \$11.5M 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.

1.3.5 Priority of Effort and Building Strategy Decision Tools

- 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).
- Use the facility ownership strategy matrix in conjunction with regular reviews of business plans and strategic plans to select the facility inventory platforms needed to meet goals. This tool highlights the most cost effective methods for providing facility space.

1.3.6 FM&D Program Use & Maintenance

- Update the FM&D on a regular basis. The full potential of the FM&D can only be realized if the data is kept current. Update RSMeans cost data annually and re-assess building conditions every 5 years.
 - Limit the number of people with access to input data to the master copy of the FM&D in order to enhance quality control, and facilitate the tracking of changes.
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- Provide working copies of the FM&D at sites within Ulster County as needed. Issue updated working copies 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.

1.4 Process, Products & Findings

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.

1.4.1 Work Area 1 – Assess Current Situation (see Section 2.1 for more information)

1.4.1.1 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.

1.4.1.2 Products

The team rated building conditions using a red/yellow/green rating scheme and building condition index (BCI) formula. 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.

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.

1.4.1.3 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, most of the inventory is in the later half of its expected efficient lifecycle.

1.4.2 Work Area 2 – Forecast Future Space Requirements (see Section 2.2 for more information)

1.4.2.1 Process

The second phase of the project (Work Area 2) had the objective to develop a forecast of future space requirements. 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

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. Both can be found in the FM&D database.

1.4.2.2 Products

Space Planning Tool

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 specific staff positions 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 Toolbox area of the FM&D database.

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 spreadsheet to present the same relationships. 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. Both can be found in the Reports area of the FM&D Information Center.

1.4.2.3 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.

1.4.3 Work Area 3 – Update Facility Standards (see Section 2.3 for more information)

1.4.3.1 Process

In the third phase of the project (Work Area 3), 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.

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 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 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.

A facility lifecycle encompasses the series of milestone events that occur during the lifespan of a building. Understanding when capital investment milestones occur during the lifecycle 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
- 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

1.4.3.2 Products

Design Standards

C&S selected design guidelines found in Chapters 2, 3, 5 and 6 of GSA's "Facility Standards for the Public Buildings Service" as beneficial standards for the site, architectural, mechanical/plumbing, and electrical aspects of Ulster County facilities. 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.

Space Standards

We developed revisions to existing space guidelines based on research of GSA space planning guidelines. The space standards are located 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 in the comments column 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).

Target Facility Lifecycle & Lifecycle Planning Tool

C&S developed a target facility lifecycle to formulate the true cost of building ownership, and model capital outlay. 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.

Understanding when capital investment milestones occur during the lifecycle enables a planner to look across a facility inventory to identify the pattern of capital outlay. The lifecycle planning worksheet is part of the facility planning tool in the FM&D database.

1.4.3.3 Findings

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 would promote communication and teamwork.
 - Providing views to the exterior for most employees would increase performance rates.
 - Maximizing open office space and using movable furniture would increase flexibility to task organize, make the spaces adaptable to change, and decrease life cycle costs.

Target 50-year Lifecycle

- Moving to a lifecycle focused capital investment strategy would enable Ulster County to predict capital investment spending.
- Projected average annual operation and capital investment budget would be \$11.5M (2007 \$).
- Projected savings: 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.

1.4.4 Work Area 4 – Assessment of Facility Management Practices (see Section 2.4 for more information)

1.4.4.1 Process

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.

1.4.4.2 Products

Energy Audit Tool

To present the results of the 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 Department of Energy benchmark. With this rating scheme the energy audit tool creates a visual scorecard for each building. The energy modeling tool can be found in the Toolbox area of the FM&D database.

1.4.4.3 Findings

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 energy audit tool can be used to highlight buildings where improvements could potentially offer significant cost savings to Ulster County.

SRM Planning Budget

- Projected average annual SRM cost under 50 yr lifecycle would be \$12.7M (2007 \$).
- 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.

1.4.5 Work Area 5 - Priority of Effort and Building Strategy Decision Tools (see Section 2.5 for more information)

1.4.5.1 Process

The method of selecting the best use of limited capital investment funds to provide facility space involves two decision points. The first establishes 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.

The priority matrix uses the following input: building condition, functionality, space forecast, energy utilization, and building importance to develop a score for each building. Buildings with lower scores have higher priority.

We designed the building strategy matrix to formulate a cost based comparison of the following six (6) ownership strategies.

- 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

1.4.5.2 Products

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. The sum of the values for building importance, condition, functionality, space requirements, and energy utilization create a score for each building. Comparing the scores creates the prioritized list. The building with the lowest score would be the building with the highest priority for capital planning. The spreadsheet resides in the facility planning workbook, which is located in the Toolbox area of the FM&D database.

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 matrix develops a cost per square foot for each of the six building strategies based on average annual life cycle cost, building condition, 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. By comparing the costs in the columns, one can determine which option provides the most cost effective solution. The spreadsheet resides in the facility planning workbook, which is located in the Toolbox area of the FM&D database.

1.4.5.3 Findings

- Priority Matrix shows that the top three priorities for capital investment action consist of the following buildings:
 - Emergency Management
 - Information Services
 - Court House
- Strategy Matrix shows that the following are the most cost effective solutions for the top 3 priorities
 - Renovate and add space to emergency services
 - Lease space for Information Services
 - Build a new court system facility

1.4.6 Work Area 6 – Assemble the FM&D Program (see Section 2.6 for more information)

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.