

Forging the Strategic Linkage Between Facilities Management and the Corporation - Production of a Sites Comprehensive Plan

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Overview/Introduction

In 1996, Sandia National Laboratories (SNL) undertook a major effort to develop, produce, and execute a Sites Comprehensive Plan. Fundamentally, this document is intended to serve as a tool to clarify the strategic link between 1) current and future mission needs and responsibilities, and 2) the condition, capacity, and required amount of facilities space and infrastructure. It documents the Facilities Group's response to programmatic requests for capability and makes the case for the required facilities investments through integrated master plans that document SNL's short- and long-range needs.

This paper outlines the history and business environment that led to the writing of the plan, the organizations and committees involved, the steps required to develop and produce it, the challenges encountered in "selling" it, both internally and externally, and the issues involved in executing the proposed actions set forth in the plan. The paper also articulates the benefits gained by Facilities Management (FM) and the corporation, as well as the lessons learned in producing the plan. SNL has concluded that the Sites Comprehensive Plan was a worthwhile effort in terms of retained facilities investment funding, increased awareness of facility needs, and other measures, despite the significant effort and cost required to produce it.

Background

To put the SNL Sites Comprehensive Plan in context, it is important to know something about the size, scope, and history of the Laboratories. SNL is operated by Lockheed Martin Corporation for the U.S. Department of Energy (DOE). It is one of three national laboratories that form part of the Nuclear Weapons Complex (NWC), a compendium of research, development, and production facilities located throughout the U.S. that are responsible for design, maintenance, surety, and security of the nation's nuclear weapons stockpile. More specifically, SNL is a multi-program research and development (R&D) laboratory whose primary missions are non-nuclear component design and manufacturing, systems integration, and safeguards and security for nuclear weapons, with a secondary program thrust in the energy and environment business sector.

SNL employs approximately 8,000 staff on two principal sites in Albuquerque, New Mexico, and Livermore, California. The New Mexico campus accommodates the majority of employees in more than 550 major buildings for a total of 5 million square feet on 17,000 acres. The California site is substantially smaller, with 54 major buildings on 413 acres to house approximately 1,200 employees. The types of facilities range from state-of-the-art physical science laboratories to specialized environmental test facilities. Along with this unique collection of highly specialized R&D facilities, offices and other support spaces are needed to accommodate the scientists, engineers, technicians, administrators, and support staff who work at SNL. Laboratory and office space each accounts for 30 to 35 percent of the total space, while the remainder comprises administrative, storage, conference/classroom, computer, or shop space.

The New Mexico site, and to some extent the California site, presents a mixed picture. Aging, temporary, and substandard facilities, erected over a period of more than 40 years, make up a significant proportion of the square footage. Sandia initially sprang up rapidly at the conclusion of World War II as a spin-off of the Manhattan Project. Through the years, urgent mission needs and the politics of capital funding spawned sporadic bursts of new construction, the most recent of which peaked in the early 1990s. This led to inconsistent campus design and little or no master planning. The lack of an integrated sites plan yielded an eclectic mix of temporary and permanent buildings ranging from excellent to poor condition, resulting in awkward adjacencies. These incongruities create some difficult challenges for facilities planners.

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At SNL, Facilities Management is organized in two centers, but operates as one business unit. The two center directors work in tandem, with one center providing planning and development services that address strategic space management, and the other focusing primarily on O&M activities and project execution to maintain existing space. Total staff for both centers numbers about 560 and includes engineers of all disciplines, architects, craftspeople of many trades, and business and administrative personnel. The majority of design and all major construction is outsourced, and internal staff performs planning, development, limited design, and small-scale construction and modifications. Two voluntary reductions in staff over two years have decremented the internal resource pool, not only decreasing operating costs but in-house capability as well.

The point of reviewing this background material is to reinforce the notion that SNL has some distinct differences from private industries and faces some special issues compared with private corporations of comparable size. However, it is operated by Lockheed Martin Corporation for a fee which is dependent upon its operating performance, and many of the issues SNL faces are analogous to problems in the corporate for-profit arena. For example, many large corporations face the problems of accelerating change, corporate consolidation and divestiture of assets, market uncertainty, shortened production cycles, and facility obsolescence due to rapidly changing technology. In addition, poor strategic linkage between FM planning and corporate planning, decreases in Operations and Maintenance (O&M) funding for support services, and inconsistent campus architecture can be seen at most companies. Therefore, much of the discussion in this paper about the prerequisite business environment; the development, production, and marketing of the plan; and the lessons learned could apply to any large company.

Setting the Stage

Several important precursors created a business environment that set the stage for the genesis and selling of the idea of a Sites Comprehensive Plan at SNL. A discussion of these precursors provides an understanding of this requisite environment and its importance in garnering management support.

Evolving Mission

First of all, DOE's (and by extension SNL's) evolving mission need forced it to reevaluate its programmatic thrust and direction, which directly affected Facilities strategic planning. As the Cold War ended, budgets for the DOE, especially for the NWC, began to decline. SNL and other key players in the NWC needed to seek ways to maintain an aging nuclear stockpile of reduced size and type more efficiently and effectively than in the past. DOE was also mandated by the President to retain the capabilities necessary to respond quickly to requested increases in existing as well as new mission needs even as the NWC began to shrink and consolidate.

Revised Sites Planning Principles

A previous initiative to transfer technology developed within the Complex out to the private sector had led to a significant effort to open up the NWC sites to potential academic and industry partners. However, as the mission evolved and budgets declined, there was a decreased focus on outreach to these potential partners. This shift impacted previous facility plans to provide a more open campus with unclassified facilities on the periphery of the site. Instead, a renewed focus on our traditional mission dictated looking at site redevelopment and reuse of existing assets primarily within the boundaries of our existing limited-access areas. A new set of sites planning principles was established and became the underpinning for future facility planning. These principles underscored our commitment to redevelopment, reuse, overall reduction of space, and life-cycle-based facilities decision-making.

Reduced Operating Budget

In the meantime, Lockheed Martin Corporation assumed SNL's operating contract, with the promise to DOE to dramatically reduce operating costs. Pursuant to this goal, in 1995 SNL invited a "Red Team" of industry experts to evaluate our FM practices and make recommendations for reduction of operating costs. Their most significant finding was that we should reduce our total square footage, since "space costs money". They also pointed out that building new facilities on undeveloped peripheral sites without removing corresponding amounts of obsolete or substandard space increases maintenance, infrastructure, and other support costs, whereas refurbishment of existing facilities may actually reduce operating costs through enhanced energy efficiency and improved maintainability.

Changing Customer Requirements

Concurrent with the above, DOE's internal reengineering efforts resulted in the issuance of new orders and guidance that established a performance-based (vs. compliance-based) approach to facilities management. In the facilities planning areas, a heavy emphasis was placed on life-cycle-based cost effectiveness analysis for project alternatives early in the planning phase. It was the Sites Planning Department's hope that these new orders and guidance would provide the impetus to eliminate several prescriptive documents and databases that weren't integrated or useful. SNL had received some criticism from DOE regarding consistency in its planning processes and documentation in the past, and FM wanted to show that it could rise to the challenge and be the leader in implementing life-cycle-based decision-making early in the planning process.

Competition for Reduced Project Funding

The above conditions led to significant issues, both for Facilities and the corporation as a whole. At the corporate level there was confusion and disagreement over corporate priorities and the appropriate trade-offs between mission needs and site stewardship responsibilities. On the financial side, with traditional DOE capital project funding sources being slashed, there was intense competition for the remaining dollars. Consequently, review and approval for projects became increasingly dependent on demonstration of strong technical justification and fit with strategic and programmatic needs. In addition, the line organizations began to express a growing concern that mission capability needs were not adequately integrated into sites and facilities planning.

Internal Process Issues

There were also troubling issues internal to Facilities. Coordination issues between the various projects and programs arose all too often. A recently repaved street might be trenched to replace a pipe, or a building scheduled for demolition might receive new communications upgrades. Also, in recent years, a corporate backlash against the taxation of R&D programs to finance overhead costs for support services led to a financial restructuring of Facilities as a primarily direct-funded cost center. Business processes had to be revised to accommodate the change, and everyone had to adjust to a different mindset and way of doing business. And in a global sense, the Facilities directors were still struggling with the issue of how to become full partners in corporate strategic planning, instead of merely providing services as requested.

Taking the First Step

All of the factors described above--evolving mission, reduced budgets, new DOE requirements, a shift in sites planning principles, the drive to reduce operating costs, and struggles with internal change and

coordination—exerted tremendous pressure on the FM organizations over the past several years. This pressure prompted the Facilities Directors to take action.

Traditional Corporate Decision-Making

The traditional group for making corporate decisions on Facilities-related issues is the Building and Facilities Planning Committee (B&FPC). This committee is composed of division vice-presidents and chaired by the vice-president of the Laboratories Services Division, who also functions as the Sites Manager. The Sites Manager has responsibility for all sites, facilities, and infrastructure and the integration of DOE and SNL strategic and operational plans with mission capability needs. In addition, she is charged with integration of resource requirements and the budget to execute these activities.

A New Forum for Evaluation and Decision-Making

In an effort to respond and align more closely with the evolving mission needs of the R&D organizations, the Facilities directors asked the Sites Manager and the B&FPC for authority to establish a council of director-level personnel representing all divisions, selected on the basis of their responsibilities, both programmatic and strategic. An additional criterion for membership was the extent to which a program's activities required current and future use of the facilities and infrastructure. This group, known as the integrated Sites Planning Council (ISPC), began meeting monthly for briefings on facilities-related issues and to help establish strategies to make Facilities more integrally linked with the mission requirements of SNL. Their charter was to review and make decisions and provide recommendations to the B&FPC and Sites Manager on strategic facilities issues that affect the entire corporation. The B&FPC would then review actions and recommendations from the ISPC and provide support to the Sites Manager with recommendations on strategic and operational issues related to the sites, facilities, and infrastructure. Among its several roles, ISPC was to serve as an evaluation and decision-making body for facilities plans and projects. For example, the group established criteria for evaluating the relative importance of proposed capital-funded construction projects and used those criteria to prioritize the projects in an overall corporate context. This was a critical step in countering criticism from DOE that our project proposals were not well coordinated and didn't optimally address mission need. Other issues brought to the attention of the ISPC and B&FPC included reports on current facilities status including information on O&M and project backlogs, a proposed model for facilities and infrastructure management to ensure better alignment with the programmatic needs of the corporation, and proposed processes to support that alignment. The simplified diagram in Figure 1 illustrates the FM Organizational structure and the products which make up the Sites Comprehensive Plan.

Increased Awareness of Facilities Issues

The result of the first several months of meetings and interactions with senior management was an increase in their level of confidence. The Sites Planning Department's input and recommendations on these very important issues were recognized and acted upon. These recommendations also fostered the growing awareness of the true extent and complexity of issues facing the Facilities organizations and the importance of resolving these issues in conjunction with the rest of the corporation.

A Vehicle to Address the Issues

Puzzling over the issues of integration with the R&D organizations, internal and external management issues, and a shift in emphasis from prescriptive to performance-based compliance with DOE orders and guidance, the Facilities directors were poised to embrace the concept of a Sites Comprehensive Plan. They viewed the ISPC as a vehicle to help move toward an integrated solution and they knew ISPC would

support the plan; however, they knew that the support of this body was not enough to resolve all of the issues in a global sense. Comprehensive planning had been discussed on several levels at professional associations and conferences, but no one in the DOE NWC had tried to implement the concept. Yet it seemed to have the potential to provide the backdrop for the integrated approach desired. If nothing else, it would document the link between programmatic capability and the facilities and infrastructure necessary to establish the case for the facilities investments required to support current and future mission need. Convinced that a comprehensive plan was the right approach to address the many issues facing the FM organization, the Facilities directors decided to apply resources to the development of a SNL Sites Comprehensive Plan, and began the process of "selling" the concept to ISPC and SNL senior management. Based on the high level of confidence ISPC had developed in FM's grasp of Facilities issues, that body enthusiastically recommended the concept to B&FPC and the Sites Manager, who subsequently granted approval to proceed with development of the plan.

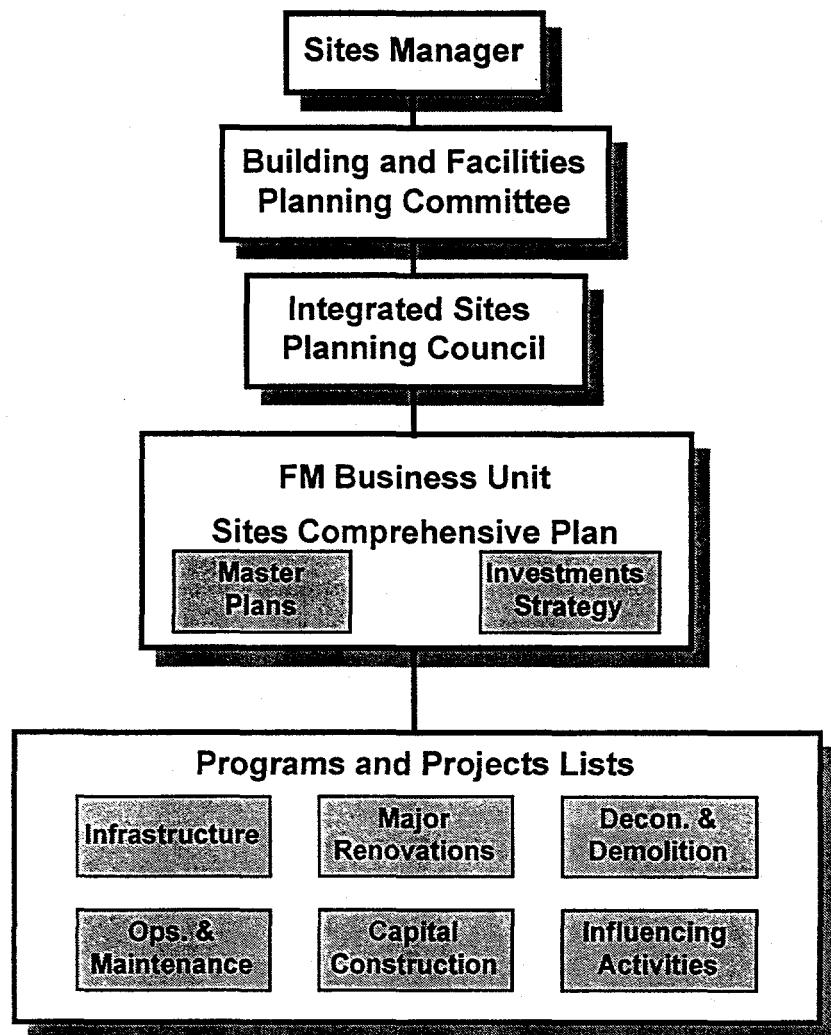


Figure 1. SNL FM Organizational Structure

Development of the Plan

Line of Sight

Having received approval to proceed with the preparation of a Sites Comprehensive Plan, the Sites Planning Department had to choose the best approach to develop a document that could provide a resource internal to SNL management as well as meet the requirements of DOE. As stated earlier, SNL had been criticized for lack of consistency in its planning processes and documentation, and for having little evidence of implementing life-cycle-based decision-making practices. Thus, if the Sites Comprehensive Plan could not illustrate the need for a coordinated and integrated planning process within the corporation, it would be received as another wasted effort conducted simply to fulfill a requirement. Clearly the document would have to demonstrate a line of sight from facilities funding requests to the strategic objectives and successful accomplishment of the SNL missions. This concept of enabling accomplishment of the SNL missions was coupled with the responsibility for site stewardship, or managing the sites as national resources. These two overarching principles, tied with the finding that 1) "space costs money" and 2) overall square footage needs to be reduced, provided the baseline premise from which the Sites Comprehensive Plan was to be developed.

Mission-Based Ground Rules

The first step in the process of preparing the Sites Comprehensive Plan was to become familiar with the Strategic Plans of the DOE's Defense Programs and SNL. The most recent SNL Strategic Plan was written in 1992. Fortunately, at the time the planning personnel were studying the strategic plans, SNL senior management was revisiting these plans and preparing strategic objectives fostered by these plans. The objectives were divided into two categories: *what* SNL's main business is and *how* it is to be accomplished. One of the "how's" is to maintain an agile infrastructure, and although this has a rather broad meaning, the FM organizations interpreted this into an FM objective of creating a Laboratory that works better and costs less. This established ground rules for providing and maintaining efficient, flexible facilities, infrastructure, and sites; a working environment that can help attract and retain the best employees; and sites that are appropriately sized to support our customers' needs and to attain the corporation's strategic objectives. These ground rules were considered in establishing and validating required investments for facilities.

Validating the Planning Principles

From this understanding of the top-level objectives, the planning personnel were able to develop and validate specific planning principles, their implications, and consequent activities. As was mentioned earlier, SNL had been planning significant projects to ease access to and within the site for potential academic and industry partners. However, the primary SNL mission was reemphasized as being stewardship of the nuclear weapons stockpile. This turned the planning emphasis back to the traditional classified programs in which ease of access and high-tech facilities along the perimeter of the site were no longer consistent with the corporation's mission. Instead, existing facilities would be renovated and brought into compliance with applicable codes, and a limited number of new facilities would be planned only to satisfy new capability. Thus the planning principles, which focused on urban renewal, space divestment, and infrastructure upgrades, were validated.

Condition Assessments Document the Current State

This push toward urban renewal required a clear understanding of the existing facilities' condition and capability. Condition assessment surveys had recently been completed for all facilities and infrastructure

at each of the two research and development sites as well as two related test facilities. A huge amount of detailed data now existed for each facility, but there was no summary analysis, nor were the surveys conducted to project future capabilities for these facilities. The next steps were to acquire an understanding of the overall condition of SNL facilities, determine which facilities would be maintained for continuing mission capability and which would not, and then prioritize the decontamination, demolition, or renovation projects resulting from this process. Again, based on the primary mission and strategic objectives of the Laboratories, we were able to identify the core facilities which were vital to the success of the corporation. When compared with the condition ratings of these facilities, the true investment requirements to sustain an agile infrastructure began to unfold.

Revised Master Plans Document Path to Future State

Parallel to evaluating the condition of the facilities was an effort to revisit the sites Master Plans, which had to be revised to show potential future building sites and infrastructure extensions rather than specific, high-tech, high-visibility facilities. In addition, for the first time, potential urban renewal sites were identified, and infrastructure and circulation improvements within the heart of the site were examined. The focus of the Master Plan was redirected from emphasis on expansion at the sites' edges toward analysis of vacant parcels and how to maximize infill possibilities within the existing configuration.

In revisiting the Master Plans, the effects on the independent activities influencing the planning efforts such as security, environmental restoration, risk management, and community involvement also had to be revisited. It was recognized that the priorities had probably changed and we needed to verify that each discipline's activities would be complementary and cost-effective with other activities.

Current/Future State Drives Investment Strategy

The findings of the two evaluation processes, condition assessment and revision of master plans, provided a stronger, justifiable premise for the investment strategy. By revising the Master Plans to ensure better alignment with the mission and strategic plans, the gaps identified between the current state and desired future state unfolded into project lists that were more integrated and made a stronger case for the funding levels being requested. Although the emphasis had turned to reducing overall square footage, a few new facilities were still included in the investment plan. The criteria for these facilities were that they were critical to achieving the stockpile stewardship mission and would provide capability not attainable through renovation of an existing facility. To demonstrate that alternative analyses were conducted, three funding scenarios were presented, and each included discussion of the resulting capabilities, overall facility condition, and deviations from the targeted end state. The ISPC was presented with the alternatives and decided which funding level should be recommended to the B&FPC. Although the ISPC had been involved throughout the process, it had been primarily on an information-sharing basis rather than a decision basis. However, the information previously presented provided them with the assumptions and baseline from which their recommendation was to be based. This provided a logic check throughout the process to ensure an integrated and justifiable product. Upon receiving their decision, we had developed a logical and defensible Master Plan and investment strategy to be forwarded through the B&FPC to the DOE.

Producing the Plan

Project Execution Plan

A project execution plan that identified the resource requirements, schedule milestones, and budget for preparation was essential to guide and support production of the plan. The project execution plan served

as the reference document in negotiations with immediate management, and supported them in their efforts to "sell" the concept and project to senior management. In fact, negotiations for budget and personnel were initiated as soon as the project execution plan was in draft form and resource-loaded. The approved project execution plan was essential in final negotiations for people's time and reinforced the priority they placed on their deliverables to the Sites Comprehensive Plan.

Guidelines and Editorial Review

Recognizing that the Sites Comprehensive Plan would contain the input of several organizations, all of whom wrote from their specific interests and viewpoints and at various levels of quality, the issues of consistency and continuity of style would need to be addressed. The core team met initially and developed a series of guidelines for style, content, and graphics which was presented and agreed to by the contributors. Guidelines on page layout and numbering were also developed for information presented graphically, such as maps, illustrations, tables, and figures. For example, maps illustrating utility systems were broken down by condition and capacity and illustrated by a three-color scheme, both for current and proposed future use. As material came in it was reviewed in draft by the core team for content and accuracy, and then passed back to the contributor for update. The updated drafts were then passed on to a technical writer, with final guidance from the core team, for review and rewrite. This consistency of voice and writing style ensured that the document read as if it were written by one person.

Anticipated Audience

The form and content of the plan were highly dependent on the audience and the envisioned final use of the plan. It was recognized early on that with the potential audience ranging from senior management to FM planners and personnel, information suitable to facilities and senior-level management could well be proprietary when viewed by the staff, the public, or potential competitors. Satisfying this wide range of audiences with one document was quite challenging. Viewing the plan as a hierarchy of documents, each tailored to specific customers, provided the guidance and framework necessary to organize the information.

Plan Intent and Contents

The staff of the Sites Planning Department determined the basic intent for the Sites Comprehensive Plan was to describe 1) the current capacity and condition of SNL sites and facilities, including utilities and infrastructure, 2) the desired future state, and 3) the resources and investments required to achieve that future state. Therefore, the plan was outlined to include the following:

- Executive Summary: This high-level summary of the plan included the results and conclusions of the planning process. Based on an awareness of executive management's time constraints, this was prepared as a separate document, but was also included with the full document. The Executive Summary was limited to approximately forty pages so that it could be pulled from the full document and carried easily.
- Introduction: This section provided a brief background about the corporation and its missions, and described the purpose of the Sites Comprehensive Plan.
- Strategic linkages: This section provided FM's interpretation of the vision of the corporation's future and resulting facility requirements. For example, an objective of the SNL Corporate Strategic Plan is to create an infrastructure that is a competitive advantage for our strategic missions. For the FM organizations, this meant that facilities would be developed and sustained to meet customer needs and assist in attaining their strategic objectives. Therefore, FM is

charged with the maintenance of efficient, flexible facilities and infrastructure, and sites which are appropriately sized to support the corporate missions.

- Summary of company goals and objectives: The interpretation of company goals and objectives provided guidance for FM (the implementation/strategies and guidelines listed below).
- Regulatory Guidance: This section included a Facilities interpretation of essential requirements at all levels, including local, state, and federal.
- Guidelines for implementation of the Sites Comprehensive Plan, for example:
 - Planning Assumptions - These described how the corporate missions were interpreted into facilities-related planning assumptions. These assumptions led to the planning principles which helped prioritize the planning activities. It was important to describe the implications of prioritizing planning activities so that the effects of budget could be understood.
 - Campus Design Guidelines - These SNL-developed guidelines were a set of principles and detailed design guidance that provided a framework for the physical development and redevelopment of the sites. Sections on vehicular and pedestrian movement, architectural style, landscape, and signage were included.
- Strategies for resource allocation: With the declining budget, the overall condition of SNL's facilities has also declined. Recognizing that not all facilities can be maintained at 100%, the SNL investment strategy was aimed at bringing 80% of the facilities up to good condition and then maintaining this as an average. In order to accomplish this 80% good status, the buildings had to be prioritized according to their criticality in supporting the achievement of the corporate missions. A tiered-service method has been introduced in which these critical buildings will be maintained at 80% to 100%, and the remaining facilities will be maintained at a lower level as resources allow.
- Master Plans for the sites, buildings, utilities and infrastructure: These included graphics and narrative.
- Investment requirements: This section provided a description of how project lists roll up into the master plans, which in turn roll up into the strategic plans. Included were facilities background information such as history, attributes, influencing factors and activities, and condition information.
- Condition and capacity of the utility systems: The discussion indicated the capability of the utilities to handle planned and proposed additional capacity.
- Processes used to develop investment strategies and resulting project lists and descriptions: These described what criteria were used to determine which projects would be pursued and the methods used to prioritize them. The investment strategies also discussed alternative methods to executing proposed projects.

Publishing the Plan

Schedule for Publication

It was important to establish a schedule for publication based on an analysis and understanding of the plan's readership and needs. For example, publication might be timed to provide data and support to the annual budget cycle, or for inclusion either in whole or in summary form as part of an annual report. In SNL's case, publication was timed to the end of the Federal Government's fiscal year and helped provide a roadmap for budget and resource allocation for the annual appraisal of performance conducted by DOE.

Plan Distribution

Another important issue in publication was determining distribution for the printed document. Depending on the number and quality of the finished document, costs for printing can be very high, running into tens of thousands of dollars. Therefore it was very important to precisely determine who needed a copy and who didn't. Sites Planning considered the following groups and individuals as mandatory recipients:

- Key stakeholders and customers.
- Strategic staff, both within Facilities and at the corporate level.
- Facilities managers up through senior management.
- Budget and Finance management and personnel involved in the capital budget cycle.

Contracting with a Printer

Contracting with a reliable printer early in the process was another key element of success. Providing clear and explicit direction and oversight during the printing process prevented misunderstandings and potentially unrecoverable schedule delays.

Developing a Web Site

SNL took advantage of its World Wide Web site, with home pages for the individual business sectors, as a forum for publishing the plan that permitted easy access to facilities information. The use of hot links to create direct linkages with the other internal business sectors is also a subtle way of placing Facilities on an equal footing with the rest of the corporation. Finally, having the plan on the Web significantly reduced printing costs. It was particularly useful in dealing with additional inquiries for hard copies of the plan as its existence became more widely known.

Cost Associated with the Sites Comprehensive Plan

Resources Required

Production of a Sites Comprehensive Plan, especially one with sufficient detail that its conclusions and recommendations are supportable and taken seriously, is a daunting task. At SNL it involved considerable time and effort and required substantial staff and budget resources. The effort required investigation of existing sites and facilities, including condition and capacity of the physical assets and infrastructure, and integration of physical plant capability with the company's strategic and operational plans. In addition, the effort required creation and documentation of accurate projections of investment strategies to implement the envisioned future state. This consumed the equivalent of several full-time personnel, including significant effort on the part of senior management.

Value of Cost Tracking

A separate cost center was set up to track the costs associated with the project. An authorized and funded cost structure was quite useful when negotiating with management, stakeholders, and potential sponsors for their and their personnel's participation and support. In addition, incorporating the planning effort and its metrics into the standard cost tracking and evaluation processes lent credence to the planning effort. It also provided a funded charging case for personnel working on the plan, an important incentive when negotiating for input and deliverables. Accurate cost tracking provided:

- True costs associated with the planning effort.
- Benchmarking data, both within the corporation and to share with similar industries.
- Data to support the annual request for site planning and its associated activities as a line-item cost in the budget.
- An accurate history of costs, especially when budgeting for future updates and rewrites.

Production and Publication Costs

Estimating the true cost of producing the Sites Comprehensive Plan proved challenging. In addition to obvious costs such as personnel and printing, there are hidden costs to be considered, such as travel and required equipment and software upgrades. The most difficult cost to track was personnel time. Not everyone accurately charged their time, and often it wasn't feasible to obtain hours and chargeable costs per hour for senior-level management. The cost categories identified included:

- Personnel
- Materials and Equipment
- Publishing Costs:
- Travel

Total Project Cost

The final cost for researching and producing the Sites Comprehensive Plan totaled several hundred thousand dollars, with publishing costs amounting to approximately \$20,000.

Marketing and Executing the Plan

Approval Process

Throughout the document preparation phase, preliminary draft sections were presented for review and guidance at the monthly ISPC meetings. When the draft was finalized, a three-day offsite meeting was scheduled for final review—a section-by-section presentation of the plan by the subject matter experts. The ISPC and a representative of DOE reviewed each section, provided final guidance, and then voted to accept or reject the section. The importance of regular draft presentations throughout the year was demonstrated during the offsite. The plan's contents, processes, program and project lists, and required investment strategies were accepted by ISPC with only very minor revisions. With incorporation of their final comments the plan was complete and ready for submittal to DOE, senior level management and other stakeholders.

Submittal to DOE and Senior Management

The next step was to submit the plan to DOE. This completed our deliverable agreement with them and paved the way for submittal to senior management. A series of presentations, summarizing the plan's contents and recommendations for approval from the ISPC and DOE, was then scheduled. These discussions primarily centered around the investment strategies and proposed schedule for execution. Again, with very minor revisions, the plan was approved, with commitment to seek the necessary funding for the investments outlined in the plan.

Marketing the Plan

Having obtained approval at the senior management level, the next step was to begin marketing the plan. These efforts took place within DOE, the NWC, and SNL. Several presentations were given at DOE field operations and at their regional conferences. A major presentation was also provided at the annual DOE Complex-Wide Facilities Managers conference. Additionally, an announcement of the plan's Web site was placed on Sandia's home page, and finally, a series of presentations to Facilities management and staff was held. The purpose of these meetings was to explain the content of the plan and its recommendations for action. By laying out the plan in the context of programmatic need, required facilities support, and

associated investments, managers and staff could envision a line of sight clearly showing their roles and responsibilities within the larger context of Facilities and their role within the corporation and the NWC. This effort served the important purpose of garnering buy-in and support for the plan.

Executing the Plan

Having secured acceptance by DOE, senior management, and Facilities, the Sites Planning Department began executing the Sites Comprehensive Plan's strategies, programs, and project lists. Multi-year schedules for project authorization, design, and construction have been implemented and virtually all work is now referenced and executed in relationship to the plan and its programs and initiatives.

Conclusions

Measuring Success

Creating measures to track the success of a Sites Comprehensive Plan is substantially more difficult than using standard measures appropriate for project management and construction. Obviously, a fundamental metric to measure success for any plan is the amount of funding provided for its proposed programs and activities. A standard metric used within the Facilities arena is percentage of total budget allocated for O&M and reinvestment based on Replacement Plant Value (RPV). Benchmarks indicate that within related companies, spending for the physical plant and infrastructure should range from 1.5% to 3% of RPV. After several years of shrinking budgets, SNL is currently at the lower end of this range and trending downward. Therefore, presenting a plan which requested very significant funding increases was bound to be difficult to sell, and success here has been mixed. The proposed budget for next fiscal year is approximately 40% less than the plan's requested amount; however, it is actually an increase over what had been planned prior to presentation of the Sites Comprehensive Plan. In addition, the plan's implementation and long-term funding strategy are now listed as strategic goals for the corporation. Another significant measure is the degree to which the plan is referenced when decisions are made. In this respect, the Sites Comprehensive Plan is a success. It is the major negotiated deliverable to DOE for appraisal of Facilities performance, and it serves as the first point of reference when new programs and initiatives are proposed within the corporation and to DOE. Perhaps most significantly, there is now an approved and widely disseminated document outlining Facilities roles and responsibilities and providing a framework for planning program allocations and project expenditures, from major construction projects down to routine operations and maintenance. There is even a dawning realization of the implications of providing less than appropriate funding levels for sites and infrastructure.

Benefits Gained

Considering the cost and effort required to produce the Sites Comprehensive Plan, as well as its mixed success in tangible terms, it is important to reflect on the benefits gained to validate the value of the plan. At SNL, the consensus is that FM and the corporation have unquestionably benefited from producing a Sites Comprehensive Plan.

While the resulting commitment of corporate FM funding does not meet the investment requirements outlined in the plan, the growing awareness among senior management of the critical link between strategic capability and facility availability has prevented a worst-case funding scenario. In addition, there are several other less tangible goals which the plan has helped FM make significant progress toward. For instance, it forced FM to debate and articulate a specific set of planning principles which not only guided the contents of the plan but also clarified, both for the corporation and for Facilities, its role in supporting corporate mission needs. This helped FM gain credibility and a seat at the corporate strategic planning

table as partners, not just service providers. Achieving better alignment between mission need and facility requirements was also critical to improving and maintaining credibility with DOE, and will give Facilities a better chance at obtaining capital funds in times of reduced budget.

Documentation of investment requirements to reach a desired future condition was a valuable tool to defuse politically-charged internal debates over funding. Furthermore, a factual plan based on sound and defensible principles provided a great deal of flexibility to respond to such discussions with little rework. As budget scenarios changed, the line was simply drawn further up or down on the project lists, and the condition of space was shown to improve or deteriorate with increases or decreases in the investments and O&M budgets, respectively. There was no need for elaborate reprioritization processes applied reactively or emotional rhetoric predicting the effects of the reduced budgets. The plan laid out the expected results in an irrefutable, matter-of-fact way and proactively predicted the effect of various budget scenarios. Again, awareness of the link between FM issues and ability to respond to mission need was underscored and reinforced in this process, and the resulting budgets were higher than the original budget submission.

Another very encouraging benefit is the fact that the plan has served as a focal point within the Facilities organizations to promote more interaction and interdependence among various departments, addressing some of the internal coordination difficulties they were experiencing. Building managers and operations personnel familiar with building and infrastructure condition give feedback to the planning department to update the investment plan each year.

Finally, even though producing the plan cost hundreds of thousands of dollars, it saved a substantial amount of money previously spent annually on fulfilling proscriptive requirements to produce several planning documents and databases that were neither integrated nor useful. Those funds have now been applied more effectively to support the planning effort.

Lessons Learned

Throughout the process of preparing, publishing, and implementing the SNL Sites Comprehensive Plan, the FM staff at Sandia realized several important points. One is that the document and process are evolutionary, and the initial publication of the plan is only the first step. The transition from a learning process to a sophisticated and empowering mode of operation should be expected to take years, and a mechanism should be created and maintained to track unresolved issues needing to be addressed in subsequent cycles. Finally, the charter should be referenced frequently when the document is being reviewed or when inclusions or deletions of content are requested.

The importance of having a thorough, well developed project execution plan warrants reemphasizing. It supports the comprehensive planning charter by outlining the steps required within each cycle to achieve the overall objectives and can help identify those which need to carry over into the next cycle. When a well detailed, resource-loaded project execution plan is developed, reviewed, and approved, it provides a useful tool to which the documentation/production cycle can be scheduled, managed, and measured. This tool can also help in negotiations with managers for resources and staff dedicated to the project.

Between documentation cycles, the FM planning staff needed to make a significant effort to communicate the fact that the plan was available and then obtain feedback on the plan and garner support and information from the independent organizations whose activities influence the planning processes. In conducting this exercise, we received guidance on additional information needed to make the plan more useful to senior management and to present more of a corporate perspective to FM, rather than a Facilities plan for the corporation.

One point that was inherent but that had to be occasionally reinforced throughout the documentation cycle was that comprehensive planning is a continuous process with a periodic product. Concern that information will be outdated by the time the plan is printed can really slow progress, so cutoff dates must be negotiated and adhered to. Some elements of the plan change rapidly, such as investment strategies in response to budget, while others, such as the strategic vision, may only change every several years. Reviewing and reprinting the document annually can quickly absorb resources needed elsewhere. Depending on how the document is structured, parts of it may need to be reviewed and updated quarterly, or as infrequently as when events occurring within the company are of such significance that the Master Plans need to be revisited. The SNL Sites Comprehensive Plan is now being rearranged into a hierarchy of documents. This hierarchy extends from a general vision for the sites to specific project development processes. The goal of the process is to produce a document which increases management and stakeholder confidence in the information provided, supports critical decision-making in regard to resource allocation, and enables FM to influence resource allocation decisions. The benefits realized by creating a hierarchy of information include allowing different elements of the plan to be directed at specific audiences and enabling clarification of line of sight between the various planning activities and the corporate missions.

Summary

Although SNL is only in the second cycle of preparing a Sites Comprehensive Plan, it has been perceived as a worthwhile effort. The plan for the sites, facilities, and infrastructure has provided the critical link between strategic capability and facility availability. By documenting and communicating the vision for the physical plant, the plan has allowed the FM organizations to respond proactively to quick and frequent changes. It enabled the FM staff to focus on the desired future state and has provided stability in these turbulent times. Regardless of the size of the corporation, communication between the organizations is vital. A well developed, integrated, and approved Sites Comprehensive Plan that outlines the facility investments required to achieve the corporate mission and vision will enable the FM organization to be a contributor in the corporation's success.

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