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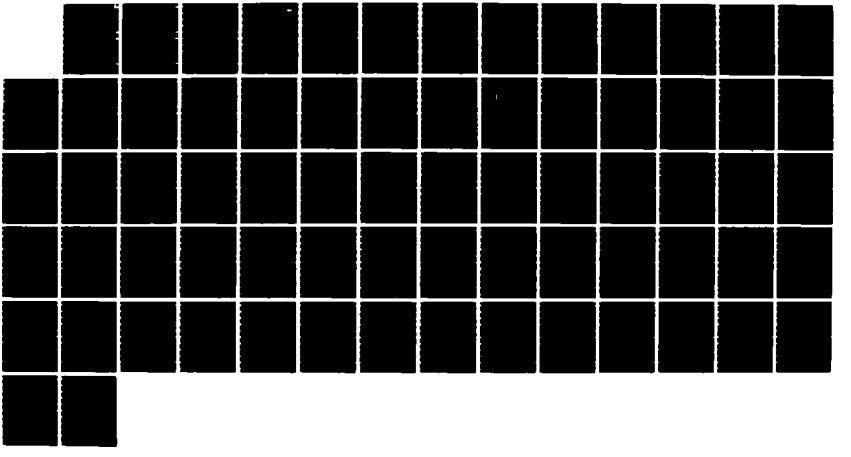

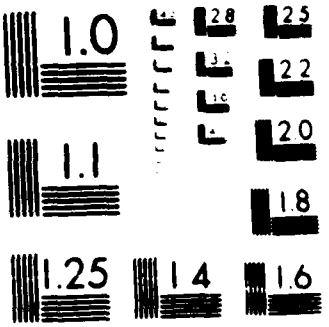
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INTEGRATED FACILITIES MANAGEMENT PLAN

April 1984

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In the preparation of this Facilities Management Plan, LMI required a great amount of data on organizations and facilities and extensive information on missions and requirements. The data and information have been willingly provided by personnel throughout the Aeronautical Systems Division (ASD) of the Air Force Systems Command (AFSC). LMI sincerely appreciates the cooperation of all ASD staff personnel involved in supporting this effort.

The data gathering effort by the Civil Engineering Directorate at ASD (ASD/DE) is especially appreciated. This massive effort required the accumulation of data from five different sources and building-by-building updating of records and drawings. The finished product not only provided LMI with a data base for this study but also provided ASD for the first time with a consolidated data base that can be expanded and improved for future facilities planning All those involved can take pride in that accomplishment. LMI wishes to offer special thanks to Mr. Thomas J. Ridel who coordinated the data effort both within ASD/DE and with the other organizations involved. We also wish to thank Lt. Col. R. V. Christiansen, USAF, Director of Programs Division, Civil Engineering Directorate, for his interest, support, and guidance throughout the project.

LMI

Executive Summary

INTEGRATED FACILITIES MANAGEMENT PLAN

The Aeronautical Systems Division (ASD) of the Air Force Systems Command provides technological support for and management of aeronautical weapons systems development, including research, development, systems engineering, and evaluation. The growing complexity of aircraft systems and the rapid rate of change in technology have resulted in expanding missions for ASD, especially in the area of systems integration. This trend is expected to continue well into the 1990s as ASD enters the era of automated aircraft.

To support its mission, ASD houses almost 10,000 employees in some 160 facilities throughout Area "B," Wright-Patterson Air Force Base, Ohio. Many of these facilities are old and in marginal-to-poor condition. Most were not designed for modern technical work and are unsuitable to support today's ASD mission. The facilities are small and scattered, and have splintered the organization. As a result, interaction and technology transfer have been severely limited. The total space available to ASD is barely adequate to accommodate today's needs, and the deficiency will become worse as ASD's mission continues to grow.

To overcome these problems, we have developed an integrated Facilities Management Plan whose major goals are:

- To provide modern facilities that satisfy the functional support requirements of the technical mission;
- To improve communication and the transfer of technology to support systems engineering and integration; and
- To provide the flexibility needed for growth and change of the ASD mission.

In order to meet those goals, we recommend the following basic strategies:

- Maximize the utilization of existing facilities;
- Consolidate functional organizations within zones;
- Systematically replace aging and unsuitable facilities and dispose of facilities no longer needed.

To support those strategies, some military construction will be required. We evaluated and modified existing construction proposals and recommend three major projects:

- A 68,000 square foot, $9.7 million addition to Building 485 for the Deputy for Engineering, including an 8,000 square foot alteration;
- A 133,500 square foot, $16.5 million addition to Building 620 for the Avionics Laboratory;
- A 400,000 square foot, $60 million Systems Management Engineering Facility to be constructed in two or three phases.

Those construction projects should be complemented by relocations, modifications, and demolitions that support the planning strategies.

The Facilities Management Plan is not a static document; rather, it is a starting point -- a baseline from which detailed and continued planning should proceed. ASD must now organize its facility planning staff to ensure that it develops the internal capability to implement the Plan. ASD must also conduct follow-through planning for short-term and long-term needs and must coordinate all aspects of the Facilities Management Plan with the host command and tenant commands.

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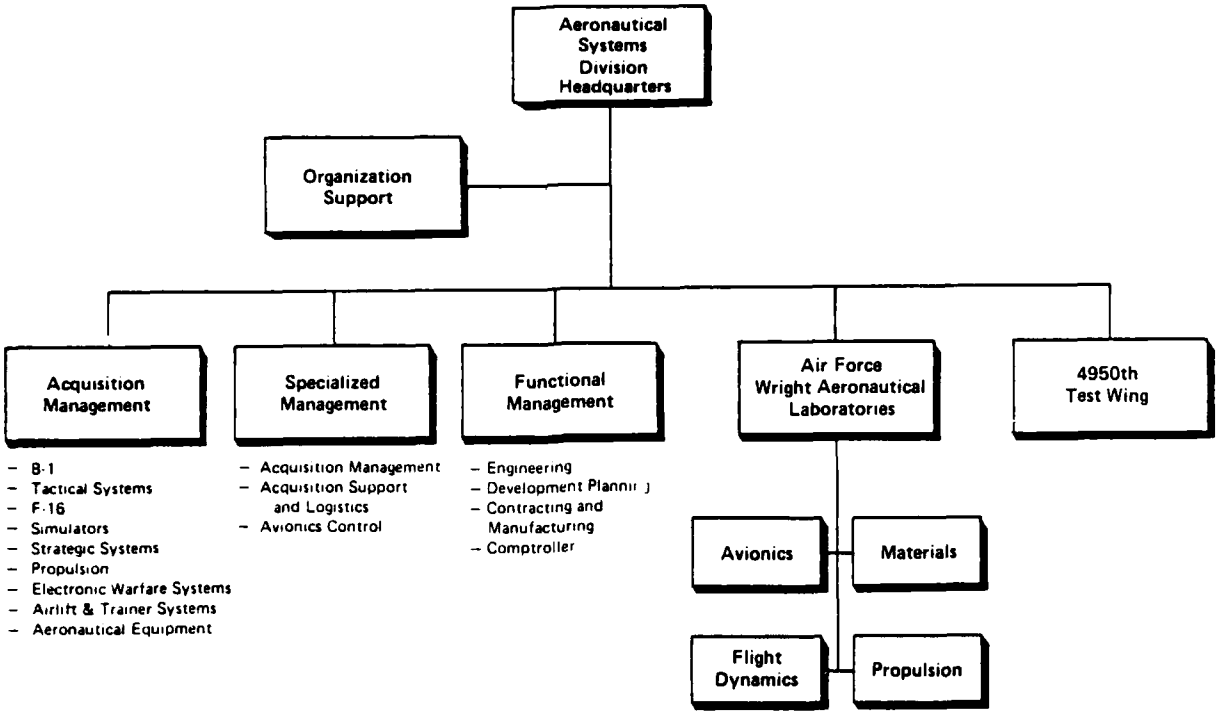
1. INTRODUCTION

The mission of the Aeronautical Systems Division (ASD) of the Air Force Systems Command (AFSC) is to provide technological support for the development of aircraft weapons systems, including research, development, systems engineering, and evaluation. These ASD functions are carried out by the seven organizational groupings shown in Figure 1-1. The Headquarters group, of course, provides management and control of the overall program and with the help of the Organizational Support group, performs all the normal command type functions and services. The Acquisition Management or Systems Program Office (SPO) group is directly involved in the development and procurement of aeronautical systems and is directly supported by the Specialized Management and Functional Management groups. In the latter group, the Deputy for Engineering (EN) has specific responsibilities in the area of systems engineering and integration. The Air Force Wright Aeronautical Laboratories (AFWAL) and the four component laboratories have the major responsibility for research and development (R&D) and are involved also in evaluating potential usefulness of new technologies. AFWAL has only recently (1983) been placed under ASD, and this major organizational change has affected both program and support requirements.

Six ASD organizational groups are located in Area "B" of Wright-Patterson Air Force Base; most of the 4950th Test Wing is located elsewhere. Wright-Patterson is an Air Force Logistics Command (AFLC) installation, which makes ASD a tenant even though it occupies a majority of the space within Area "B." Other major tenants in Area "B" include the Air Force Institute of Technology (AFIT), the Air Force Museum, the Aerospace Medical Division, and several AFLC organizations.

FIGURE 1-1. FUNCTIONAL ORGANIZATION OF AERONAUTICAL SYSTEMS DIVISION



Area "B," the former Wright Field, is a 2,401 acre area containing more than 200 major buildings. Although the organizations and names have changed throughout the years, Area "B" has always been the home of aircraft weapons systems development. Construction of this part of the base began in the 1920s, and some of the original facilities are still in use today. Most buildings were built during World War II, giving ASD facilities an average age of 38 years. The buildings for systems management are even older, averaging 53 years. Aircraft and weapons systems technology have changed drastically in that time as have the R&D techniques used for developing modern aircraft systems, and the changes continue today at an ever-increasing pace. Because of the dynamic nature of aircraft R&D, many organizations are housed in facilities that do not adequately support their current technical needs. The

growing complexity of aircraft systems and the resulting expansion in ASD's systems engineering and integration mission will place an even greater burden on these outmoded facilities in the years to come.

These problems have been recognized by various ASD organizations, and they have attempted to correct the deficiencies through facility modernization and new construction. However, many of the improvements have been only cosmetic, and the construction projects have addressed only a portion of the needs of individual organizations rather than the overall needs of ASD. This situation has resulted in the piecemeal development of competing projects that are difficult to justify individually.

An integrated facility management plan is needed to provide a framework for sound, coordinated decisions as the basis for improving the overall condition of ASD facilities. Such a plan will support systematic facilities planning and encourage the best possible utilization of all current and projected facilities.

This report discusses the current ASD facilities and their problems (Chapter 2). A tabulation of the facilities and organizations for which these problems exist is given in Appendix A. It then presents a specific Facilities Management Plan to meet ASD facility requirements through 1991 (Chapter 3). This Plan is a hybrid of five proposed alternatives that are briefly stated in Chapter 3 and are discussed in more detail in Appendix B along with the evaluation methodology used to develop the Plan. The implementation of the Plan is discussed in Chapter 4.

2. EXISTING CONDITIONS AND FACILITY REQUIREMENTS

In evaluating existing conditions and assessing ASD facility requirements, we considered the following major criteria:

- Adequate Space: square footage required to house the function;
- Condition: building integrity;
- Suitability: appropriateness for the mission; and
- Proximity: closeness to other buildings/functions, ease of travel/interaction, and ease of technology transfer.

The existing conditions at ASD, insofar as each of these characteristics is concerned, may be summarized as follows:

- Adequate Space: some overcrowding and deficiency exist and will increase as ASD's mission grows;
- Condition: overall, facilities are marginal and becoming worse with age;
- Suitability: many facilities are not adequate for the current mission; and
- Proximity: segments of many key organizations are scattered, limiting interaction and technology transfer.

The combination of these problems presents a picture of less-than-adequate facilities that are already adversely affecting ASD mission capabilities. The situation will worsen as facilities age, missions expand, and technology changes. More details on the current state of each characteristic are presented in the following sections.

ADEQUATE SPACE

ASD currently occupies approximately three million net square feet in Area "B." That space is distributed by type as shown in Table 2-1. ASD's space problems fall in two general categories: (1) office/administration and (2) special purpose, which includes R&D, storage, shop, and other. Office and

administrative support space is discussed first since the requirements are based on number of personnel and are generally more straightforward.

TABLE 2-1. ASD FLOOR AREA DISTRIBUTION

TYPE	AREA (SQ. FT.)	PERCENTAGE OF TOTAL
Office	1,060,595[a]	36.2
Admin. Support	98,085	3.3
Special Purpose	326,303	11.1
R&D	1,033,426	35.3
Shop	205,106	7.0
Storage	125,004	4.3
Other	82,516	2.8
TOTAL	2,931,035	100

[a]Since 460,841 square feet (43%) of this is SPO area, only 599,754 square feet (20.5%) is actually classified as office space.

Standards for office space and administrative support space are set forth in Air Force Manual 86-2, and depicted in Table 2-2. As shown, the total for office space and administrative support space must lie within the range of 115 to 130 square feet per person. The lower number is applied for newer buildings with net-to-gross efficiency ratings in the neighborhood of 80 percent. The ASD buildings in Area "B" are old and were designed in an era when efficiency rates were much lower. Additionally, many of the buildings currently in use as offices were originally designed for other purposes, which also lowers the efficiency rates. The overall average efficiency rate for ASD buildings in Area "B" is about 72 percent, the average for systems management spaces is even lower. If the net floor area efficiency is the same as total building efficiency, the ASD requirements for net floor area are well above 130 square feet per person as shown in Table 2-3. Using the maximum allowable

TABLE 2-2. AIR FORCE STANDARDS FOR OFFICE AND ADMINISTRATIVE SUPPORT SPACE

	MINIMUM (SQ.FT.)	MAXIMUM (SQ.FT.)
Net Floor Area P.B.O.[a]	115	130
Net Office Area P.B.O.	80	90
Administrative Support for 80 sq. ft. office[b]	35	50
Administrative Support for 90 sq. ft. office	25	40

[a]P.B.O. - Per building occupant.

[b]Net Floor Area - Net Office Area = Administrative Support Space.

SOURCE: "Civil Engineering Programming, Standard Facility Requirements," Air Force Manual 86-2, Department of the Air Force, 1 March 1973.

TABLE 2-3. ASD AREA "B" BUILDING EFFICIENCY RATIOS

	BUILDING EFFICIENCY[a]	NET FLOOR AREA (SQ.FT. P.B.O.)
Air Force Standard	0.80 to 0.85	115 to 130
ASD Average	0.72	128 to 153 (140 avg.)

[a]Net floor area/gross floor area.

figure of 130 square feet per person and current total personnel numbers,[1] the ASD requirement for office and administrative space, as shown in Table 2-4, is 1.28 million square feet. A comparison of this requirement with the current

[1]Personnel figures include ASD straight-line and other government personnel such as TAC, MAC, SAC, LOG Command, Army, Foreign Liaison, etc.

ASD figure for office and administrative space from Table 2-1 shows a shortage of about 120,000 square feet. ASD is rapidly moving into the era of office automation, and the time is coming when a large percentage of ASD personnel will have terminals at the individual work stations, which will serve to increase office square footage requirements even more.

TABLE 2-4. OFFICE AND ADMINISTRATIVE SUPPORT SPACE REQUIREMENTS

AREA	SQUARE FEET
Current Space:	
ASD Total	2,930,806
Office and Admin. Support	1,158,670
Required Space:[a]	
8544 ASD Personnel	1,162,720
874 Above-Line Personnel[b]	113,620
9818 ASD Total	1,276,340
Deficiency	117,670

[a]Based on 130 square feet per person Air Force standard.

[b]Includes AFAL, TAC, SAC, other government personnel, cooperatives, and contractor personnel (estimated at 15 percent).

Thus far, only office and administrative requirements have been discussed. Special-purpose space is provided on an as-needed basis and it is often assumed to be adequate. However, significant and numerous shortages in special-purpose space were also noted in evaluations of the various organizations. Appendix A, Section I, tabulates the specific facilities by organization that have space problems.

Conference room space is another area of serious concern. Under the standards, conference room space is included under the administrative support category. However, ASD's unique teamwork approach in support of its systems

engineering and integration mission makes extra conference room space a necessity. The security aspects of ASD's work imposes a need for classified conference rooms, which places this requirement in the special-purpose category.

CONDITION

The condition of ASD buildings, as reported by the Base Civil Engineer, is based on a three-level condition code outlined in Table 2-5. The Real Property Inventory Report compiled in September 1983 shows less than three percent of the ASD Area "B" inventory as Condition Code 3 (forced use). From that report, it appears that the condition of ASD assets is generally good. However, the Base Civil Engineer makes the condition assessment primarily on the adequacy of the building structure. Interior condition and adequacy of electrical, heating, cooling, ventilation systems, and energy efficiency do not appear to have a major impact. However, the environment within a building, especially the condition of electromechanical systems, is of great concern to ASD because of the technical nature of the R&D mission. Some significant problems in specific ASD facilities are shown in Appendix A, Section II.

The Real Property Inventory Report shows that most ASD facilities are in Condition Code 2, indicating some work is required to bring the buildings up to Code 1. In some cases, the work required is substantial. Through the FOCUS program, ASD has developed projects to upgrade various facilities at a total cost of more than $75 million. Most of that money is to be invested in 40-year-old buildings that are approaching the limits of their useful life. The proposed projects may extend the life of those buildings for some limited time, but they cannot remove the need for eventual replacement. As is the case at most bases, Wright-Patterson Air Force Base has a large block of buildings built during the 1940s; in order to avoid block replacement in the

TABLE 2-5. AIR FORCE CONDITION CODE DEFINITIONS

The Air Force real property condition codes define the physical condition and structural adequacy of facilities for meeting current mission requirements.[a] The condition codes are:

Code 1: Usable -- Class A
Generally meets criteria and can house the mission with reasonable maintenance and without major alteration or reconstruction.

Code 2: Usable -- Class B
Upgrading is required and is practical. Although structurally sound, upgrading is required to be classified Code 1.

Code 3: Force Use
Cannot practically be raised to meet Code 1 standards but, by necessity, must be continued in use for a short duration until a suitable facility can be obtained. Facility cannot be justifiably or economically improved or upgraded.

[a]Three other codes; 4, 5, and 6, exist but are not applicable to this project.

1990s, ASD must begin now to plan for the systematic replacement of aging, marginal structures. This, then, is the ASD situation with regard to facilities condition: (1) specific problems in certain facilities, as shown in Appendix A, must be remedied immediately; (2) the overall condition is probably worse than the Base Civil Engineer's report indicates; and (3) the facility condition problem will become increasingly critical throughout the 1990s, requiring systematic replacement of a significant percentage of ASD facilities.

SUITABILITY

The condition of a building addresses only its physical characteristics. A building can be in good condition and still be inadequate for a particular mission. For example, many ASD facilities were originally designed as hangars

and warehouses, and although the building condition may be good, it is not an adequate facility for sophisticated technical work. In many buildings, the layout, environmental systems, flexibility, and other specialized requirements are not adequate to support today's ASD mission. Even some of the facilities that were originally designed for laboratory or R&D uses are inadequate because of the rapid change of technology in recent years. Procedures and functions are not the same as they were 20, 30, or 40 years ago.

This suitability issue is, by far, the most serious facility problem experienced by ASD today, and it is one that directly affects the mission capabilities of the organization. It is a problem more important than overcrowding or physical deterioration of facilities. Appendix A, Section III, tabulates the facilities in which suitability problems are experienced by the various ASD organizations. Unsuitability was mentioned twice as often as any other problem by ASD managers in a survey of facilities concerns. It is a problem that cannot be corrected by short-term modifications or rehabilitations; it will require new construction. Improvements in this area can be expected to result in increased productivity of workers, better and faster transfer of technology, and improved morale and retention of skilled employees. Those benefits will yield real dollar payoffs in terms of better weapons systems delivered faster and at lower costs.

PROXIMITY

The final category considered in establishing facility requirements is proximity. Several ASD organizations, including the Deputy for Engineering, the Avionics Laboratory, and the Flight Dynamics Laboratory are operating in fractionated and scattered facilities throughout Area "B." The splintering of these organizations severely restricts interaction and the transfer of technology both within the individual organizations and throughout ASD as a

whole. The control and management of the technical programs is also effectively reduced because of this situation. Appendix A, Section IV, lists those facilities and organizations detrimentally affected by proximity problems.

The proximity problem cannot be accepted as a condition that must be tolerated since it has a real and growing impact on ASD's ability to perform its systems engineering and integration mission. As the Air Force enters the era of automated aircraft, that mission will become more and more important and integrated facilities to support the mission will also gain in importance. The ASD organizations must be brought together in centralized facilities that can house all those working on a specific technology. As in the case of problems with building conditions, this proximity problem requires new construction, and that construction must begin soon in order to support the ASD mission of the 1990s.

CONCLUSION

ASD's current facilities problems require an integrated approach to improvements which must include:

- Additional and more efficient space;
- Systematic replacement of aging and deteriorating facilities;
- Provisions of modern technical facilities that meet basic functional requirements for today's technology;
- Consolidation of organizations in zones to allow better interaction within organizations and thereby stimulation of interaction between organizations;
- Flexibility to accommodate the growth and change that are inherent in the weapons systems acquisition process.

The plan described in the next chapter is based on a quantitative evaluation of five proposals to alleviate current facility problems (Appendix B). It provides a framework for long-term ASD facilities planning.

3. ASD FACILITIES MANAGEMENT PLAN

We evaluated five proposed alternatives were evaluated to develop a facilities management plan that would provide solutions to the current ASD facilities problems through 1991. Four of the alternatives involved some degree of construction, and the fifth consisted of improvements to existing facilities with no new construction. This no-construction alternative was rejected as a stand-alone solution because it failed to overcome the problems cited in Chapter 2. The four construction alternatives were:

- Consolidation of EN functions in an enlarged building;
- An addition to the Avionics Laboratory;
- An addition to the Flight Dynamics Structures Test Facility;
- Construction of a Systems Management Engineering Test Facility (SMEF).

To evaluate these alternatives, LMI developed a method for quantifying the projected benefits of each. The alternatives were then compared to find the best combination of projects, and the results of the comparison were used to formulate the Facilities Management Plan presented in this chapter.

The ASD Facilities Management Plan is based on an evaluation of current and projected facility and mission requirements. It is not intended as a static prescription to solve all ASD facility problems, but rather, it should be viewed as a framework for future planning action. The details of the Plan may and should change as requirements, missions, funding, manning, etc., change. However, the concepts upon which the plan is based and the direction suggested by it will serve ASD for the next decade or longer.

The Plan contains three elements: long-term goals, planning strategies, and specific actions. The specific actions recommended include new

construction, relocations, and disposals. This chapter describes the long-term goals and planning strategies and details the construction, relocations, and disposals required to support the Plan. The alternatives and the methodology and analyses used in formulating the Plan are discussed in Appendix B.

LONG-TERM GOALS AND PLANNING STRATEGIES

A study of ASD's mission requirements and current facilities situation suggests the following long-term goals:

- Provide modern facilities that meet functional requirements to support the technical mission;
- Improve interaction and the transfer of technology to support systems engineering and integration;
- Reduce facility-related costs that are draining R&D dollars;
- Provide the flexibility needed for growth and change of the ASD mission.

To meet these goals, basic strategies or approaches are needed. These strategies must be comprehensive enough to encompass the broad goals but specific enough to define a clear course of action. Additionally, the strategies must take into account existing constraints or obstacles. For example, new construction is often looked on as an ideal solution to facility problems. However, the real-world constraints of funding availability and dollar investment in existing facilities mean that construction must be limited. With these constraints and the previously defined goals in mind, we developed the following planning strategies for ASD:

- Maximize utilization of existing facilities;
- Consolidate organizations within zones to improve efficiency and strengthen research integration; and
- Systematically replace aging and unsuitable facilities and dispose of facilities no longer needed.

The first of these strategies is based on common sense, funding limitations, and recognition of the fact that existing facilities in Area "B" could support

the mission better through improved utilization, change of occupants, etc. For example, R&D space is currently being used for offices. This inefficient use of space does not properly support the mission and adds to total facilities costs.

The zone concept -- clustering major organizations together for better interaction -- was developed to support the goals of improving communications, integrating research, and facilitating technology transfer. Currently, ASD organizations are fragmented even at the lowest organizational level. The zone concept, as illustrated in Figure 3-1, is the first building block for improving technology transfer throughout ASD. This strategy also will improve flexibility by providing buffer or expansion zones for each organization. Currently, the only ways to accommodate change or growth at ASD are to "bump" another organization or accept overcrowded conditions. Either alternative degrades mission effectiveness. Constant moves and the required modifications add to facilities costs and are almost always funded from R&D dollars.

The replacement of outmoded facilities will not only improve the ability of ASD to support the technical mission but should also improve communication and flexibility. New facilities are generally more efficient and need less maintenance, which will reduce facility costs. If the replacements are coupled with demolition of unusable facilities, the cost savings would be even greater, and the land made available through demolition will provide room for later expansions and reduce congestion. Replacement of facilities will also support the zone concept by allowing relocations.

These strategies then provide the basic guidelines along which the following plan was formed.

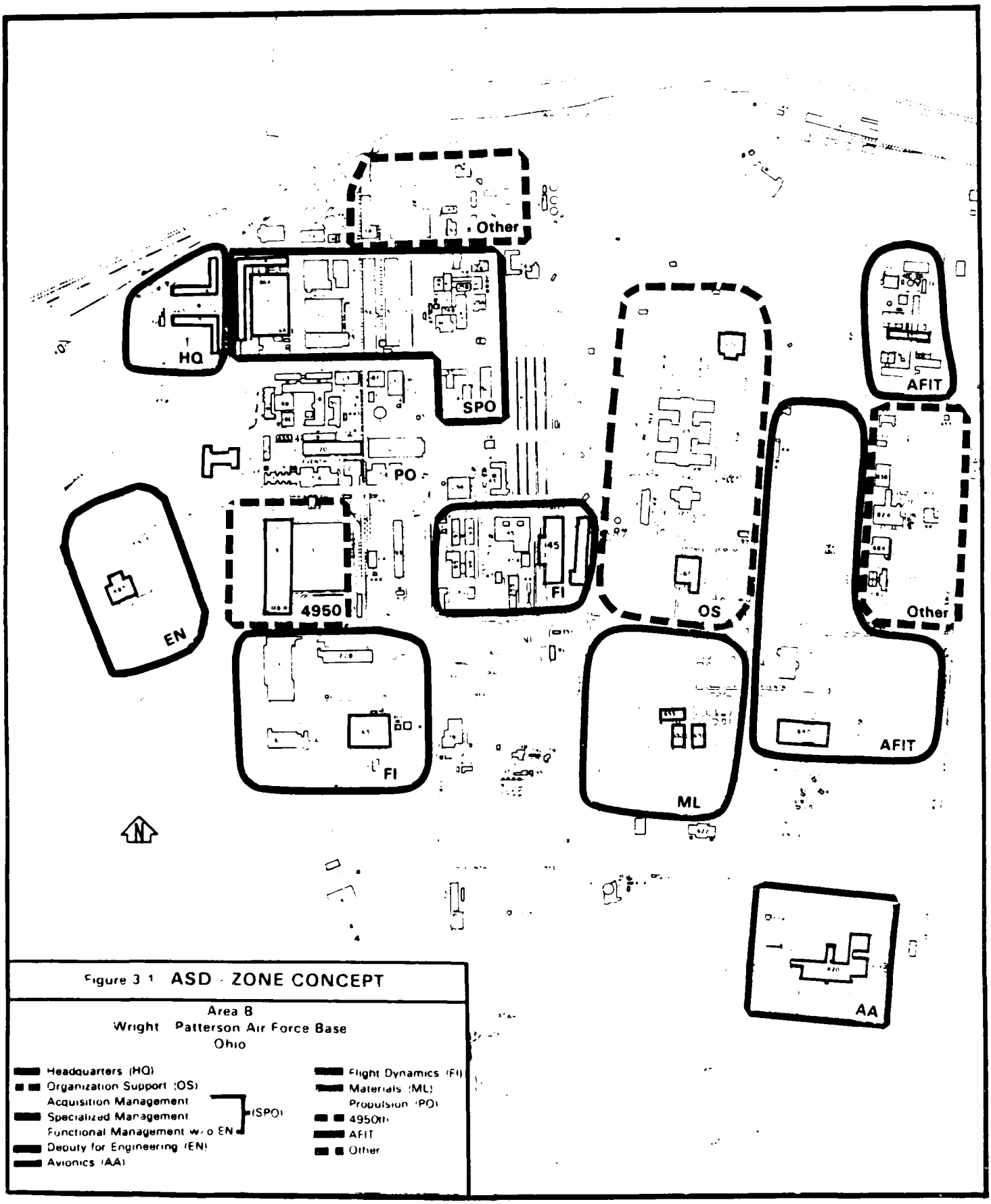


Figure 3-1 ASD - ZONE CONCEPT

Area B
Wright - Patterson Air Force Base
Ohio

- Headquarters (HQ)
- Organization Support (OS)
- Acquisition Management
- Specialized Management
- Functional Management w/o EN
- (SPO)
- Deputy for Engineering (EN)
- Avionics (AA)
- Flight Dynamics (FI)
- Materials (ML)
- Propulsion (PO)
- 4950th
- AFIT
- Other

NEW CONSTRUCTION

The recommended Plan requires three major construction projects in the FY87-FY90 timeframe. They are:

- An addition to Building 485 for EN functions;
- An addition to Building 620 for the Avionics Laboratory; and
- Construction of a new SMEF on current sites of Buildings 32, 51, and 56.

The first project will provide an area of approximately 68,000 square feet additional space and alteration of 8,000 square feet for the Deputy for Engineering, which will house five simulators for systems integration. This critical technical function will be removed from Building 156, a substandard, 40-year-old, temporary building. The additional space will also allow partial consolidation of EN functions. The estimated cost of the project in FY87 would be approximately $9.7 million.

The $16.5 million addition to Building 620 will provide about 134,000 square feet of additional space for the Avionics Laboratory to house a new consolidated electro-optics laboratory and new laboratory space for the electronic combat digital evaluation system. The additional office space provided as part of the project will release laboratory space in the existing building which is currently being used to house scientists and engineers. It will also allow consolidation of Avionics Laboratory program management and most of its personnel. A large amount of usable space will be vacated as a result of this move. Follow-on use for that space after the FY89-91 construction is discussed in the next section.

The third project recommended is construction of a SMEF. The exact size of this project has yet to be determined; it is, however, in the range of 300,000 to 400,000 square feet. The project could be completed in two phases in the FY89-FY90 period at a total cost of around $60 million. The SMEF will

provide adequate and suitable space for all SPOs, thereby releasing space for supporting organizations. Substantial demolition also would accompany this project.

The follow-on aspects of the Facilities Management Plan -- relocations and demolition -- are discussed in the following sections.

RELOCATIONS

Many ASD functional groups can be relocated as a result of the construction projects recommended in this Plan. The relocations should support the construction projects in following the basic strategies for ASD; specifically, they should adhere to the zone concept and ensure optimum utilization of existing facilities to support the mission. Table 3-1 lists the relocations associated with the Military Construction Projects (MCPs) proposed by this Plan. The EN and Flight Dynamics Laboratory (FI) relocations will both support the zone concept and result in more suitable facilities for those organizations. The relocations associated with the SMEF project are required because of the siting of that project. However, those relocations also support the zone concept and will provide better facilities for the organizations vacating the buildings recommended for demolition.

In addition to relocations resulting from the MCPs, other moves can be made in support of the overall plan. These moves, set forth in Table 3-2, are primarily for purposes of consolidation or better utilization of existing facilities.

Many of these proposed relocations, such as the FI moves out of the Building 24/25 complex, will open the way for demolition of unsuitable facilities.

TABLE 3-1. RELOCATION ACTIONS ASSOCIATED WITH FACILITIES MANAGEMENT PLAN MCP'S

BUILDING	VACATE	OCCUPY
1. ADDITION TO BUILDING 485		
6	EN	FI
20	EN	Pers.Ofc.
28A	EN	Dispose
156	EN	Dispose
2. ADDITION TO BUILDING 620		
22	AA[a]	FI
22B	AA	FI
24B	FI	Dispose[b]
24C	FI	Dispose[b]
450	FI	Dispose (Partial)
622	AA	Storage
Area C	FI	AFLC

BUILDING	VACATE	OCCUPY
3. SMEF CONSTRUCTION		
11	SMEF	EN
16	SMEF	EN
17	SMEF	Dispose
32	ML	Dispose
39	SMEF	Dispose
51	ML	Dispose
56	SMEF/ML	Dispose
57	SMEF/ML	Dispose
91	SMEF	Dispose
125	EN/ Source Selec.	Tech.Lib. AFIT, DISAM
126	EN	Pers.Ofc.
167	Pers.Ofc.	Source Selec.
654	New Bldg.	ML
655	New Bldg.	ML

[a]AA: Avionics Laboratory; FI: Flight Dynamics Laboratory; DISAM: Defense Institute of Security Assistance Management; ML: Materials Laboratory.

[b]Cleared area to be used to construct SMEF.

DEMOLITION

Before considering the specific demolition actions recommended as part of the Plan, a brief discussion about how demolition fits into the overall plan is required. If new facilities are built on the justification that existing facilities are inadequate or unsuitable, it appears obvious that the old facilities should be torn down. Yet this seldom happens. The argument is often made, sometimes correctly, that an abandoned building can be used for other or temporary purposes. However, the impact of this line of reasoning over a period of years is that numerous inefficient, costly buildings are kept

TABLE 3-2. OTHER POSSIBLE RELOCATIONS IN SUPPORT OF FACILITIES MANAGEMENT PLAN

BUILDING	ACTION
254	Rehabilitate for Gas Dynamics or other.
4A	Move 4950th personnel out.
821	Assign Avionics Laboratory personnel from Building 4A.
450	Assign to AFIT for "low observables".
22	Move Technical Library out.
125	Assign to Technical Library. Turn remainder of building over to AFIT or DISAM.
45	Move AFWAL out.
11	Install AFWAL.

on the books. In addition to the outright cost, keeping old buildings makes it very difficult to justify construction of modern facilities to support the mission. This situation exists in Area "B" at the present time. Old warehouses and hangars are being used to house technical functions simply because the space is there. The only way to overcome this problem is to include an aggressive demolition plan as part of the Facilities Management Plan.

Table 3-3 lists recommended demolitions for Area "B" through 1991. As indicated, many of these demolitions are tied to MCPs as a means for ensuring the resolve and funding necessary for the demolitions. Many other demolitions will require local funding, which should be programmed as part of the facilities budget.

CONCLUSION

The Plan presented here is integrated in that it is based on total ASD requirements rather than on the needs of individual organizations; it is also integrated in that it includes construction, relocation, and demolition. The recommended actions are mutually supportive and significantly increase the benefits of the construction projects as shown in Appendix B. The details of

TABLE 3-3. AREA "B" BUILDINGS RECOMMENDED FOR DEMOLITION

CONSTRUCTION PROJECT	BUILDINGS TO BE DEMOLISHED
EN addition	28A,156
Avionics Laboratory Addition	24B,24C,450(P)[b],739
SMEF Construction	17,32,36,38,39, 51(P),56,57,91
Not related to Construction	29,30,42,50-A,55,59, 190,192,193,194,195, 196,197,198,434

[a]Partial list; does not include minor structures, trailers, etc.

[b](P): Partial building demolition.

the Plan will change, but any changes must be based on an integrated systematic approach to facilities planning. This approach is possible only through a centralized facilities planning capability, which is discussed in more detail in Chapter 4.

4. IMPLEMENTATION

The Facilities Management Plan outlined in Chapter 3 provides a framework for ASD facilities management planning through the 1990s. The three MCPs are the most visible aspect of the Plan, but they are only a part of it. Relocations, rehabilitation, and demolition also must fit into the Plan, and all these actions must be carefully coordinated and scheduled. For those reasons, implementation of the Plan is a major concern, no less important than its formulation. This chapter discusses three major aspects of the implementation: organization, coordination, and follow-through.

ORGANIZATION

One of the most important steps in implementing the Facilities Management Plan is the establishment of a centralized facilities management capability. Currently, ASD facilities management is handled by 18 personnel working in six offices in different branches of the organization. Such a structure makes systematic planning and coordination almost impossible. There are two approaches to solving this problem:

- Develop a central facilities management office; and/or
- Maintain separate offices but coordinate actions through improved interaction.

Each approach has advantages and disadvantages. A central office would provide very tight control, but the decentralized approach might be more responsive to customer needs.

Probably the best solution is a combination of the two approaches, in which ASD organizations would maintain their own facilities staffs but be responsible to a common facilities resource manager. In order for this concept to work, all those involved must have a means for communicating data

on requirements, utilization, facility capacities, condition, etc., in a timely manner. This capability is not yet available at ASD; however, the data base compiled for this study provides a starting point.[1] The next step should be some kind of simple microcomputer system for recording the data. Terminals should be available at all facilities offices to ensure access to data and provide a means for timely updating of information. The system does not have to be sophisticated, and no high-level software will be required. Any commercial data base management/spreadsheet package could be used. Of course, as personnel use the system and become more adept, many possibilities for enhancement would present themselves.

The processes of organizing and systematizing go hand-in-hand and will give ASD the internal capabilities needed for implementing the Facilities Management Plan. However, the ASD Plan cannot be implemented in isolation. The next section discusses the need for coordination with other organizations.

COORDINATION

It is extremely important that ASD as a tenant on an Air Force Logistics Command (AFLC) base coordinate any facility changes with the host. AFLC is responsible for all utilities, transportation, energy and environmental concerns, and facilities maintenance, as well as for the Base Comprehensive Plan (BCP). During this study, LMI contacted base personnel for general information on those items and briefed them on the general scope of this Plan. ASD/DE has done some follow-up, but detailed coordination on construction projects and demolitions will be required for final implementation of the Plan. Close coordination between ASD and AFLC can only serve to strengthen the Plan as the planning process continues.

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[1] Douglas K. Ault, John H. Cable, and William V. Woodring, Building Inventory Data Base.

ASD must also coordinate its Plan with the other Area "B" tenants. AFIT, the Air Force Museum, 2750th, and the two AMD organizations all have MCPs scheduled for the FY85-89 period. ASD must become aware of how those projects will affect land use, utilities, and demolitions.

Finally, ASD must coordinate with the AFSC to ensure that the Facilities Management Plan developed for Area "B" is consistent with AFSC's long-term plans and command programs. As missions and emphases change, ASD will have to adapt its Plan to conform to the changing requirements. For that reason, the last step in implementation -- the follow-through -- is very important.

FOLLOW-THROUGH

The Facilities Management Plan will be of little use without appropriate follow-through. As stated earlier, the Plan outlined in this report is not a static one; rather, it is a starting point for future facilities planning. Requirements will change, details on siting, scope, etc., must be worked out, and follow-on projects must be developed. All of these actions will require a continuous planning effort. This report does not and cannot offer answers to all the questions and problems that will be encountered in the next five years since aircraft weapons systems development moves too fast for any document to cover all the concerns. The only answer is follow-through -- continued planning both short-term and long-term. Dr. Thomas Saaty states, "The object of planning is not to produce plans for others to use but to engage the users in their formulation and application. Effective planning cannot be done for individuals or organizations, it must be done by them."[2] With this definition in mind, this project has provided an impetus: the planning process has been put in motion. The action can only be completed by effective follow-through.

[2] Dr. Thomas L. Saaty and Luis G. Vargas, The Logic of Priorities.

Only then can ASD ensure adequate and suitable facilities to support the mission of the 1990s and beyond.

APPENDIX A

CURRENT ASD FACILITY PROBLEMS

This appendix presents by organization a tabulation of the current Aeronautical Systems Division (ASD) facilities that were found to be poor or marginal, i.e., were assigned grades of 1 or 2 on the scale given in Figure B-8 of Appendix B. The tabulation here lists those ASD facilities in Area "B" of Wright-Patterson Air Force Base for which adequate space (Section I), condition (Section II), suitability (Section III), and proximity (Section IV) problems exist. The criteria categories are defined in Table B-6 of Appendix B; the organizational acronyms are defined in a glossary at the end of this appendix.

TABLE A-1. FACILITY PROBLEMS: HEADQUARTERS

ADEQUACY OF SPACE

CATEGORY	BUILDING	ORGANIZATION
OFFICE		
ADMIN SPT	14	ASDCA
		ASDCC
		ASDCM
		ASDCY
		ASDCZ
	188	ASDTA
SPEC PURP		
CONF ROOM	188	ASDTA
STORAGE	14	ASDCA
		ASDCC
		ASDCM
		ASDCS
		ASDCY
		ASDCZ
	188	ASDTA

CONDITION

CATEGORY	BUILDING	ORGANIZATION
GEN STRUCT		
ELEC/MECH		
ECON LIFE	14	ASDCA
		ASDCC
		ASDCM
		ASDCS
		ASDCY
		ASDCZ
	188	ASDTA
ENERGY	188	ASDTA

SUITABILITY

CATEGORY	BUILDING	ORGANIZATION
FORM/FIT		
FLEXIBILITY	14	ASDCA
		ASDCC
		ASDCM
		ASDCS
		ASDCY
		ASDCZ
	188	ASDTA
ENVIRONMENT	188	ASDTA
SERVICEABILITY		
SPEC RQMTS		

PROXIMITY

CATEGORY	BUILDING	ORGANIZATION
INTERORG	188	ASDTA
INTRAORG	188	ASDTA
PER SUP SVS	188	ASDTA

TABLE A-2. FACILITY PROBLEMS: ACQUISITION MANAGEMENT

ADEQUACY OF SPACE

CATEGORY	BUILDING	ORGANIZATION
OFFICE	5	ASDPH
	14	ASDPH
	16	ASDPH
		ASDIE
	47	ASDIE
	14	ASDEE
	126	ASDEE
	156	ASDEE
ADMIN SPT	11,11A	ASDIE
	14	ASDAC
	16	ASDPH
		ASDIE
	22	ASDPH
	125	ASDPH
	6	ASDEE
	14	ASDEE
	16	ASDEE
	20,20A	ASDEE
	22	ASDEE
	46	ASDEE
	125	ASDEE
	126	ASDEE
	156	ASDEE
	485	ASDEE
SPEC PURP	125	ASDPH
	126	ASDEE
	156	ASDEE
	485	ASDEE
CONF ROOM	5	ASDPH
	7	ASDPH
	16	ASDPH
		ASDIE
	22	ASDPH
	125	ASDPH
	6	ASDEE
	14	ASDEE
	16	ASDEE
	20,20A	ASDEE
	22	ASDEE
	46	ASDEE
	125	ASDEE
	126	ASDEE
	156	ASDEE
	485	ASDEE
STORAGE	5	ASDPH
	7	ASDPH
	11,11A	ASDAC
		ASDIE
	14	ASDAC
		ASDPH
		ASDIE
	16	ASDPH
		ASDIE
	22	ASDPH
	125	ASDPH
	6	ASDEE
	14	ASDEE
	16	ASDEE
	20,20A	ASDEE
	22	ASDEE
	46	ASDEE
	125	ASDEE
	126	ASDEE
	156	ASDEE
	485	ASDEE

CONDITION

CATEGORY	BUILDING	ORGANIZATION
GEN STRUCT	6	ASDEE
	156	ASDEE
ELEC/MECH	5	ASDPH
	125	ASDPH
	6	ASDEE
	22	ASDEE
	20A	ASDEE
	125	ASDEE
	156	ASDEE
ECON LIFE	5	ASDPH
	7	ASDPH
	11,11A	ASDAC
		ASDIE
	14	ASDAC
		ASDPH
		ASDIE
	16	ASDPH
		ASDIE
	22	ASDPH
	47	ASDIE
	125	ASDPH
	6	ASDEE
	14	ASDEE
	16	ASDEE
	20,20A	ASDEE
	22	ASDEE
	20A	ASDEE
	125	ASDEE
	126	ASDEE
	156	ASDEE
SHEROT	5	ASDPH
	7	ASDPH
	11,11A	ASDAC
		ASDIE
	47	ASDIE
	125	ASDPH
	6	ASDEE
	20,20A	ASDEE
	22	ASDEE
	20A	ASDEE
	125	ASDEE
	126	ASDEE
	156	ASDEE

SUITABILITY

CATEGORY	BUILDING	ORGANIZATION
PORM/FIT	6	ASDEE
	22	ASDEE
	126	ASDEE
	156	ASDEE
FLEXIBILITY	14	ASDAC
		ASDPH
		ASDIE
	22	ASDPH
	6	ASDEE
	16	ASDEE
	20,20A	ASDEE
	22	ASDEE
	126	ASDEE
	156	ASDEE
ENVIRONMENT	5	ASDPH
	7	ASDPH
	20,20A	ASDEE
	22	ASDEE
	156	ASDEE
SERVICEABILITY	6	ASDEE
	22	ASDEE
	126	ASDEE
SPEC RQMTS	5	ASDPH
	7	ASDPH
	125	ASDPH
	20,20A	ASDEE
	125	ASDEE
	126	ASDEE
	156	ASDEE

PROXIMITY

CATEGORY	BUILDING	ORGANIZATION
INTERORG	5	ASDPH
	7	ASDPH
	22	ASDPH
	47	ASDIE
	125	ASDPH
	6	ASDEE
	22	ASDEE
	125	ASDEE
	126	ASDEE
	156	ASDEE
INTRAORG	5	ASDPH
	7	ASDPH
	14	ASDPH
	16	ASDPH
	22	ASDPH
	125	ASDPH
	6	ASDEE
	14	ASDEE
	16	ASDEE
	20,20A	ASDEE
	22	ASDEE
	20A	ASDEE
	46	ASDEE
	125	ASDEE
	126	ASDEE
	156	ASDEE
	485	ASDEE
PER SUP SYS	5	ASDPH
	7	ASDPH
	22	ASDPH
	47	ASDIE
	125	ASDPH
	6	ASDEE
	22	ASDEE
	125	ASDEE
	126	ASDEE
	156	ASDEE

TABLE A-3. FACILITY PROBLEMS: FUNCTIONAL MANAGEMENT

ADEQUACY OF SPACE

CATEGORY	BUILDING	ORGANIZATION
OFFICE	16	ASDTZ
	50A	ASDTT
	55	ASDAE
ADMIN SPT	11,11A	ASDTW
	12	ASDTP
	16	ASDTT
	17	ASDAF
	28	ASDBW
	46	ASDTZ
	50	ASDTT
	50A	ASDTT
	52	ASDB1
	56	ASDAF
	57	ASDAE
	91	ASDAF
SPEC PURP		
CONF ROOM	11,11A	ASDTW
	16	ASDTA
	17	ASDAF
	22	ASDAE
	46	ASDTZ
	50	ASDTT
	50A	ASDTT
	52	ASDB1
	55	ASDAE
	56	ASDAF
	57	ASDAE
	91	ASDAF
	193	ASDTT
STORAGE	11,11A	ASDTW
	12	ASDTP
	16	ASDTA
		ASDTT
		ASDTZ
	17	ASDAF
	22	ASDAE
	28	ASDBW
	46	ASDTZ
	50	ASDTT
	50A	ASDTT
	52	ASDB1
	55	ASDAE
	56	ASDAF
	57	ASDAE
	91	ASDAF
	193	ASDTT

CONDITION

CATEGORY	BUILDING	ORGANIZATION
GEN STRUCT	50A	ASDTT
	52	ASDB1
	55	ASDAE
	193	ASDTT
	739	ASDAE
ELEC/MECH	12	ASDTP
	22	ASDAE
	28	ASDBW
	50	ASDTT
	57	ASDAE
	193	ASDTT
	739	ASDAE
ECON LIFE	11,11A	ASDTW
	12	ASDTP
	15	ASDTA
	16	ASDTA
		ASDTT
		ASDTZ
	17	ASDAF
	22	ASDAE
	28	ASDBW
	50	ASDTT
	50A	ASDTT
	52	ASDB1
	55	ASDAE
	56	ASDAF
	57	ASDAE
	91	ASDAF
	193	ASDTT
	739	ASDAE
ENERGY	12	ASDTP
	17	ASDAF
	22	ASDAE
	28	ASDBW
	50	ASDTT
	50A	ASDTT
	52	ASDB1
	55	ASDAE
	56	ASDAF
	57	ASDAE
	91	ASDAF
	193	ASDTT
	739	ASDAE

SUITABILITY

CATEGORY	BUILDING	ORGANIZATION
FORM/FIT	12	ASDTP
	17	ASDAF
	22	ASDAE
	46	ASDTZ
	50	ASDTT
	50A	ASDTT
	55	ASDAE
	56	ASDAF
	57	ASDAE
	91	ASDAF
	193	ASDTT
FLEXIBILITY	11,11A	ASDTW
	12	ASDTP
	16	ASDTA
		ASDTT
	28	ASDBW
	50A	ASDTT
	52	ASDB1
	55	ASDAE
	56	ASDAF
	57	ASDAE
	91	ASDAF
	193	ASDTT
	739	ASDAE
ENVIRONMENT	17	ASDAF
	22	ASDAE
	50A	ASDTT
	55	ASDAE
	56	ASDAF
	57	ASDAE
	91	ASDAF
	193	ASDTT
SERVICEABILITY	50A	ASDTT
SPEC RQMTS	12	ASDTP
	16	ASDTA
		ASDTT
		ASDTZ
	17	ASDAF
	22	ASDAE
	46	ASDTZ
	50	ASDTT
	50A	ASDTT
	52	ASDB1
	55	ASDAE
	193	ASDTT
	739	ASDAE

PROXIMITY

CATEGORY	BUILDING	ORGANIZATION
INTERORG	22	ASDAE
	55	ASDAE
	739	ASDAE
INTRAORG	22	ASDAE
	55	ASDAE
	57	ASDAE
	739	ASDAE
PER SUP SYS	22	ASDAE
	55	ASDAE
	193	ASDTT
	739	ASDAE

TABLE A-4. FACILITY PROBLEMS: SPECIALIZED MANAGEMENT

ADEQUACY OF SPACE

CATEGORY	BUILDING	ORGANIZATION
OFFICE		
ADMIN SPT	14	ASDAV
	16	ASDAW
		ASDWE
	56	ASDAI
SPEC PURP		
CONF ROOM	14	ASDAV
	16	ASDAW
	39	ASDAL
	56	ASDAI
STORAGE	14	ASDAV
	16	ASDAW
		ASDWE
	39	ASDAL
	56	ASDAI

CONDITION

CATEGORY	BUILDING	ORGANIZATION
GEN STRUCT		
ELEC/MECH		
ECON LIFE	14	ASDAV
	16	ASDAW
		ASDWE
	39	ASDAL
	56	ASDAI
ENERGY	39	ASDAL
	56	ASDAI

SUITABILITY

CATEGORY	BUILDING	ORGANIZATION
FORM/FIT	56	ASDAI
FLEXIBILITY	14	ASDAV
	16	ASDAW
	39	ASDAL
	56	ASDAI
ENVIRONMENT	16	ASDAW
	39	ASDAL
	56	ASDAI
SERVICEABILITY	16	ASDAW
		ASDWE
	39	ASDAL
SPEC RQMTS	16	ASDWE

PROXIMITY

CATEGORY	BUILDING	ORGANIZATION
INTERORG		
INTRAORG		
PER SUP SVS		

TABLE A-5. FACILITY PROBLEMS: ORGANIZATION SUPPORT

ADEQUACY OF SPACE

CATEGORY	BUILDING	ORGANIZATION
OFFICE	8	ASDDE
	11,11A	ASDDC
ADMIN SPT	8	ASDDE
		ASDIG
		ASDSP
	11,11A	ASDDC
	14	ASDPA
		ASDIO
	16	ASDDA
		ASDHO
	167	ASDDP
	676	ASDAD
SPEC PURP	167	ASDDP
	676	ASDAD
CONF ROOM	8	ASDDE
		ASDIG
		ASDSP
	11,11A	ASDDC
		ASDIO
	14	ASDPA
		ASDIO
	16	ASDDA
		ASDHO
	125	ASDDP
		ASDIO
	167	ASDDP
	676	ASDAD
STORAGE	8	ASDIG
	11,11A	ASDDC
		ASDIO
	16	ASDDA
		ASDHO
	70	ASDSE
	125	ASDDP
		ASDIO
	167	ASDDP

CONDITION

CATEGORY	BUILDING	ORGANIZATION
GEN STRUCT	167	ASDDP
	195	ASDDA
ELEC/MECH	70	ASDSE
	125	ASDDP
		ASDIO
	167	ASDDP
	195	ASDDA
ECON LIFE	8	ASDDE
		ASDIG
		ASDSP
	11,11A	ASDDC
		ASDIO
	14	ASDPA
		ASDIO
	16	ASDDA
		ASDHO
	70	ASDSE
	125	ASDDP
		ASDIO
	167	ASDDP
	195	ASDDA
ENERGY	8	ASDDE
		ASDIO
		ASDSP
	70	ASDSE
	125	ASDDP
		ASDIO
	167	ASDDP
	195	ASDDA

SUITABILITY

CATEGORY	BUILDING	ORGANIZATION
FORM/FIT	167	ASDDP
FLEXIBILITY	70	ASDSE
	167	ASDDP
	676	ASDAD
ENVIRONMENT	70	ASDSE
	167	ASDDP
SERVICEABILITY	16	ASDDA
		ASDHO
	70	ASDSE
SPEC RQMTS	16	ASDDA
		ASDHO
	125	ASDDP
		ASDIO

PROXIMITY

CATEGORY	BUILDING	ORGANIZATION
INTERORG	8	ASDDE
		ASDIG
		ASDSP
	125	ASDDP
		ASDIO
	167	ASDDP
	195	ASDDA
	676	ASDAD
INTRAORG	8	ASDDE
		ASDIG
		ASDSP
	125	ASDIO
	195	ASDDA
PER SUP SYS	8	ASDDE
		ASDIG
		ASDSP
	125	ASDDP
		ASDIO
	167	ASDDP
	195	ASDDA
	676	ASDAD

TABLE A-6. FACILITY PROBLEMS: LABORATORIES

ADEQUACY OF SPACE

CATEGORY	BUILDING	ORGANIZATION
OFFICE	22B	WALAA
	620	WALAA
	622	WALAA
	26	WALFI
	31	WALFI
	450	WALNL
	18,18A,B,C,D,E,G	WALPO
	21	WALPO
	450	WALPO
ADMIN SPT	4A,B,F	WALAA
	22	WALAA
	22B	WALAA
	23	WALAA
	450	WALAA
	620	WALAA
	622	WALAA
	821	WALAA
	24,24A,B,C	WALFI
	25,25A,B,C,D	WALFI
	26	WALFI
	31	WALFI
	63	WALFI
	255	WALFI
	51	WALNL
	450	WALNL
	651	WALNL
	652	WALNL
	653	WALNL
	18,18A,B,C,D,E,G	WALPO
	21	WALPO
	490	WALPO
	45	AFWAL
SPEC PURP	22B	WALAA
	450	WALAA
	620	WALAA
	622	WALAA
	25A	WALFI
	461	WALFI
	450	WALNL
	71	WALPO
	450	WALPO
CONF ROOM	4A,B,F	WALAA
	22	WALAA
	22B	WALAA
	23	WALAA
	450	WALAA
	620	WALAA
	622	WALAA
	821	WALAA
	24,24A,B,C	WALFI
	25,25A,B,C,D	WALFI
	26	WALFI
	31	WALFI
	63	WALFI
	65,65A	WALFI
	25A	WALFI
	255	WALFI
	450	WALFI
	32	WALNL
	51	WALNL
	56	WALNL
	450	WALNL
	18,18A,B,C,D,E,G	WALPO
	21	WALPO
	450	WALPO
	490	WALPO

CONDITION

CATEGORY	BUILDING	ORGANIZATION
GEN STRUCT	24,24A,B,C	WALFI
	59,59A,B,C	WALFI
	93	WALFI
	192	WALFI
	32	WALNL
	59,59A,B,C	WALPO
ELEC/MECH	4A,B,F	WALAA
	18F	WALAA
	22	WALAA
	23	WALAA
	450	WALAA
	821	WALAA
	24,24A,B,C	WALFI
	25,25A,B,C,D	WALFI
	26	WALFI
	45	WALFI
	59,59A,B,C	WALFI
	65,65A	WALFI
	25A	WALFI
	450	WALFI
	461	WALFI
	20,20A	WALNL
	51	WALNL
	71A	WALNL
	450	WALNL
	18,18A,B,C,D,E,G	WALPO
	20,20A	WALPO
	59,59A,B,C	WALPO
	71	WALPO
	71A	WALPO
	71B	WALPO
	252	WALPO
	450	WALPO
	45	AFWAL
	450	AFWAL
ECON LIFE	4A,B,F	WALAA
	18F	WALAA
	22	WALAA
	22B	WALAA
	23	WALAA
	821	WALAA
	24,24A,B,C	WALFI
	25,25A,B,C,D	WALFI
	26	WALFI
	31	WALFI
	45	WALFI
	59,59A,B,C	WALFI
	63	WALFI
	65,65A	WALFI
	93	WALFI
	192	WALFI
	20,20A	WALNL
	32	WALNL
	51	WALNL
	56	WALNL
	71A	WALNL
	18,18A,B,C,D,E,G	WALPO
	20,20A	WALPO
	21	WALPO
	59,59A,B,C	WALPO
	71	WALPO
	71A	WALPO
	71B	WALPO
	71D	WALPO
	252	WALPO
	45	AFWAL

CATEGORY	BUILDING	ORGANIZATION
ENERGY	4A,B,F	WALAA
	18F	WALAA
	22	WALAA
	23	WALAA
	450	WALAA
	620	WALAA
	821	WALAA
	24,24A,B,C	WALFI
	25,25A,B,C,D	WALFI
	26	WALFI
	31	WALFI
	45	WALFI
	59,59A,B,C	WALFI
	63	WALFI
	65,65A	WALFI
	93	WALFI
	191	WALFI
	192	WALFI
	255	WALFI
	450	WALFI
	20,20A	WALNL
	32	WALNL
	51	WALNL
	56	WALNL
	450	WALNL
	18,18A,B,C,D,E,G	WALPO
	20,20A	WALPO
	21	WALPO
	59,59A,B,C	WALPO
	71D	WALPO
	252	WALPO
	450	WALPO
	450	AFWAL

TABLE A-6. FACILITY PROBLEMS: LABORATORIES (Continued)

SUITABILITY

CATEGORY	BUILDING	ORGANIZATION
FORM/FIT	22	WALAA
	22B	WALAA
	450	WALAA
	622	WALAA
	63	WALFI
	192	WALFI
	254	WALFI
	450	WALFI
	56	WALNL
	450	WALNL
	252	WALPO
	450	WALPO
FLEXIBILITY	18F	WALAA
	22B	WALAA
	23	WALAA
	450	WALAA
	622	WALAA
	24,24A,B,C	WALFI
	25,25A,B,C,D	WALFI
	26	WALFI
	31	WALFI
	45	WALFI
	59,59A,B,C	WALFI
	63	WALFI
	191	WALFI
	192	WALFI
	255	WALFI
	450	WALFI
	20,20A	WALNL
	32	WALNL
	51	WALNL
	56	WALNL
	71A	WALNL
	450	WALNL
	18,18A,B,C,D,E,G	WALPO
	59,59A,B,C	WALPO
	71	WALPO
	71A	WALPO
	71D	WALPO
	252	WALPO
	450	WALPO
	450	AFWAL
ENVIRONMENT	4A,B,F	WALAA
	22	WALAA
	450	WALAA
	821	WALAA
	24,24A,B,C	WALFI
	25,25A,B,C,D	WALFI
	31	WALFI
	59,59A,B,C	WALFI
	63	WALFI
	93	WALFI
	191	WALFI
	192	WALFI
	20,20A	WALNL
	32	WALNL
	56	WALNL
	450	WALNL
	18,18A,B,C,D,E,G	WALPO
	59,59A,B,C	WALPO
	71	WALPO
	71A	WALPO
	252	WALPO
SERVICEABILITY	18F	WALAA
	22B	WALAA
	450	WALAA
	622	WALAA
	25,25A,B,C,D	WALFI
	26	WALFI
	31	WALFI
	59,59A,B,C	WALFI
	254	WALFI
	51	WALNL
	71A	WALNL
	18,18A,B,C,D,E,G	WALPO
	71D	WALPO
SPEC RQMTS	22	WALAA
	22B	WALAA
	450	WALAA
	63	WALFI
	93	WALFI
	192	WALFI
	254	WALFI
	56	WALNL
	71A	WALNL
	252	WALPO

PROXIMITY

CATEGORY	BUILDING	ORGANIZATION
INTERORG	4A,B,F	WALAA
	22	WALAA
	22B	WALAA
	450	WALAA
	620	WALAA
	622	WALAA
	821	WALAA
	24,24A,B,C	WALFI
	25,25A,B,C,D	WALFI
	26	WALFI
	63	WALFI
	65,65A	WALFI
	191	WALFI
	450	WALFI
	450	WALNL
	651	WALNL
	652	WALNL
	653	WALNL
	450	WALPO
	45	AFWAL
INTRAORG	4A,B,F	WALAA
	18F	WALAA
	22	WALAA
	22B	WALAA
	23	WALAA
	450	WALAA
	821	WALAA
	24,24A,B,C	WALFI
	25,25A,B,C,D	WALFI
	26	WALFI
	31	WALFI
	59,59A,B,C	WALFI
	63	WALFI
	65,65A	WALFI
	191	WALFI
	450	WALFI
	461	WALFI
	20,20A	WALNL
	32	WALNL
	51	WALNL
	56	WALNL
	71A	WALNL
	450	WALNL
	450	WALPO
	450	AFWAL
PER SUP SVS	4A,B,F	WALAA
	22	WALAA
	22B	WALAA
	450	WALAA
	620	WALAA
	622	WALAA
	821	WALAA
	24,24A,B,C	WALFI
	25,25A,B,C,D	WALFI
	26	WALFI
	45	WALFI
	63	WALFI
	65,65A	WALFI
	93	WALFI
	185	WALFI
	186	WALFI
	191	WALFI
	192	WALFI
	254	WALFI
	255	WALFI
	450	WALFI
	461	WALFI
	450	WALNL
	651	WALNL
	652	WALNL
	653	WALNL
	450	WALPO
	45	AFWAL
	450	AFWAL

GLOSSARY OF ORGANIZATIONAL COMPONENT ACRONYMS

ASD	Aeronautical Systems Division
WAL	Wright Aeronautical Laboratories
AA	Avionics Laboratory
AC	Comptroller
AD	Computer Center
AE	Deputy for Aeronautical Equipment
AF	Deputy for Airlift and Trainer Systems
AL	Acquisition Logistics
AV	Assistant for Acquisition Management
AW	Deputy for Acquisition Support
AX	Deputy for Avionics Control
B1	Deputy for B-1B
BC	Small and Disadvantaged Business Utilization Office
CA	Equal Employment Opportunity Office
CC	Commander
CM	Senior Enlisted Advisor
CS	Chief of Staff
CV	Vice Commander
CX	Secretariat
DA	Directorate of Administration
DE	Research and Development Civil Engineering
DP	Personnel
EN	Deputy for Engineering
FI	Flight Dynamics Laboratory
HO	History Office
IG	Inspector General
ML	Materials Laboratory
PA	Office of Public Affairs
PM	Deputy for Contracting and Manufacturing
PO	Propulsion Laboratory
RW	Deputy for Reconnaissance/Strike and Electronic Warfare Systems
SE	Safety Office

SP	Security Office
TA	Deputy for Tactical Systems
WE	ASD Staff Meterological Office
XO	Administrative Airlift Plans and Operations Division
XR	Deputy for Development Planning
YP	Deputy for F-16
YW	Deputy for Simulators
YY	Deputy for Strategic Systems
YZ	Deputy for Propulsion

APPENDIX B

EVALUATION OF EXISTING CONSTRUCTION ALTERNATIVES

In seeking solutions to current and future Aeronautical Systems Division (ASD) facility problems, the following five proposed alternatives were considered:

- No construction;
- Building addition to consolidate Deputy for Engineering (EN) functions;
- Addition to the Avionics Laboratory;
- Addition to the Flight Dynamics Structures Test Facility; and
- Construction of a Systems Management Engineering Facility (SMEF).

The construction alternatives were those specified in the five year MCP submittal. In order to evaluate these alternatives, LMI developed a method of quantifying the benefits of each. The alternatives were compared to determine the best combination of projects, and that comparison was used to formulate the final Facilities Management Plan.

This appendix describes each alternative, the evaluation procedure, and the results of the comparison. Two annexes are presented to show the quantitative results of the evaluation.

NO CONSTRUCTION

Many facilities improvements can be made in Area "B" without new construction. Minor construction, alterations, rehabilitations, relocations, and improved utilization will help to moderate the effects of current facility problems at ASD. Table B-1 illustrates only a few of the "no-construction" possibilities. The improvements listed in Table B-1 are worthwhile and should be pursued as part of a comprehensive long-term Facilities Management Plan.

However, in themselves, they are not sufficient to alleviate the overall ASI problems. The additional space required cannot be provided through alterations and relocations alone. The suitability of a 40-year-old warehouse for modern technical research and development (R&D) work cannot be materially effected through rehabilitation projects. Those outmoded facilities, which are 40-, 50-, or 60-years-old, will eventually have to be replaced regardless of how much money is spent upgrading them. Even the proximity issue (described in Chapter 2 of the main text) cannot be solved solely through relocation; there are too many small buildings in Area "B" to allow consolidation, at even the lowest organizational level.

TABLE B-1. SOME "NO-CONSTRUCTION" POSSIBILITIES

BUILDING	ACTION
821	Move Avionics Laboratory (AA) personnel out.
4A	Assign AA personnel from Building 821.
24C, Area"C"	Move Flight Dynamics (FI) personnel out.
1, 9	Assign FI personnel if proposed Air Force Museum Military Construction Project (MCP) is implemented. assign EN personnel from Building 125.
7	Assign EN personnel from Building 125 if Air Force Museum MCP is implemented.
6, 22	Assign FI personnel if Air Force Museum MCP is not implemented.
254	Rehabilitate for Gas Dynamics or other group
167	Move Personnel Office out; assign to Source Selection.
126	Move EN personnel out; install Personnel Office
125	Move Source Selection out; assign to EN personnel.
450	Move Avionics Laboratory (AA) and Material Laboratory (ML) personnel out; building ready for reassignment.
620	Assign AA personnel from Building 450.
652	Assign ML personnel from Building 450

Thus, the "no construction" alternative was judged not feasible as a stand-alone solution. However, several individual modifications, relocations,

etc., were incorporated into the development and evaluation of the four construction alternatives.

DEPUTY FOR ENGINEERING CONSOLIDATION

A $30 million MCP proposed for FY87 would consolidate the EN functions by constructing a 250,000 square foot addition to Building 485. The proposed project would result in consolidation of all EN functions and personnel in one expanded building. As currently scoped, the project would provide a central EN simulation facility for five simulators and 60,000 square feet of special access space for highly classified requirements.

As a result of this project, some space (approximately 123,000 square feet) would become available in Buildings 6, 11, 16, 20, 22, 46, 56, and 125 and Buildings 28A, 126, and 156 would be completely vacated. The proposals for disposition of the vacated space are shown in Table B-2. In the evaluation, the proposed relocations were considered to be a significant benefit of the project.

TABLE B-2. DISPOSITION OF SPACE VACATED BY PROPOSED MCP FOR CONSOLIDATION OF EN FUNCTIONS IN BUILDING 485

BUILDING	ACTION
6	Office space for FI.
11,16,20, 22,46,56	Additional space for special project offices (SPOs) for YY, YZ, TA, AE, and AF[a].
28A, 156	Demolish.
126	Office space for Personnel Office.
125	Office space for Source Selection; short-term quarters for Air Force Institute of Technology (AFIT); space for Defense Institute of Security Assistance Management (DISAM); possible space for technical library.

[a]YY: Deputy for Simulators; YZ: Deputy for Propulsion; TA: Deputy for Tactical Systems; AE: Deputy for Aeronautical Equipment; AF: Deputy for Airlift and Trainer Systems.

AVIONICS LABORATORY ADDITION

The addition to the Avionics Laboratory (Building 620), as proposed for the MCP, would provide 133,537 square feet (gross) of R&D and office space at a cost of $15.9 million. It would house a new consolidated electro-optics laboratory and also provide space for development of combat digital evaluation technology, a recently imposed ASD requirement. In addition to collocating 90 percent of the Avionics Laboratory personnel, the project would improve utilization of existing high-cost laboratory space in Building 620 that must currently be used as office space. This project is currently carried in the FY87 MCP.

The major secondary benefit of the proposed project would be an 87,000 square foot reduction in total Avionics Laboratory inventory and the release of substantial amounts of space in Buildings 22, 22B, 622, and 739. Table B-3 shows the proposed uses for this available space. As with the EN project, the benefits from proposed moves were considered in the evaluation of the Avionics Laboratory addition.

TABLE B-3. DISPOSITION OF SPACE VACATED BY PROPOSED MCP FOR AVIONICS LABORATORY ADDITION

BUILDING	ACTION
22,22B	Vacated by Avionics Laboratory; available to FI personnel from Buildings 24B, 31, 45, 63, 93, 191, 461.
Area "C"	Vacate FI components (Tire Testing Laboratory and Lightning Strike Laboratory).
622	Storage or demolition.
739	Demolition.

STRUCTURES TEST FACILITY ADDITION

The $13.9 million proposed project for an addition to the Flight Dynamics Structures Test Facility would add 64,800 gross square feet to Building 65.

This FY87 MCP would allow consolidation of the Structures and Dynamics Division of the Flight Dynamics Laboratory and provide improved computer capability to support its work.

Because the scope of this project is small, the secondary effects are limited. As shown in Table B-4, some space would become available in Buildings 24C and 461. These effects were considered in the evaluation of this alternative.

TABLE B-4. DISPOSITION OF SPACE VACATED BY PROPOSED MCP FOR ADDITION TO FLIGHT DYNAMICS TEST FACILITY

BUILDING	ACTION
24C	Administrative offices available for other FI components.
461	Standby status.
65	Establish central computer facility.

SYSTEMS MANAGEMENT ENGINEERING FACILITY

The SMEF, as originally conceived, would be a new 250,000 square foot facility to house the SPO organizations. This $27 million project was originally proposed as part of the FY88 MCP program. In reviewing requirements and possible alternatives, the size was raised to 330,000 square feet and the cost to $33 million for purposes of evaluation.

The proposed project would provide adequate and suitable space for all SPO organizations in a consolidated facility near the headquarters and support organizations. The new facility would also provide flexibility for accommodating changes in the SPOs without adversely affecting other organizations. Much of the space vacated as a result of this project would be recommended for demolition, which would ease traffic and congestion problems in

Area "B." As shown in Table B-5, some space would also be available for a partial consolidation of EN functions. As with the other alternatives, these secondary effects were considered as part of the benefits for the proposed project.

TABLE B-5. DISPOSITION OF SPACE VACATED BY PROPOSED MCP FOR SMEF CONSTRUCTION

BUILDING	ACTION
11,11A,16	House EN functions.
28	House AMRL (Eliminate FY88 Aerospace Medical Research Laboratory (AMRL) MCP).
126	Office space for Personnel Office.
125	Office space for Source Selection.
17,28A,30, 31,32,36, 38,51,56, 57,156, 190,196, 197,198, 434	Demolish.

EVALUATION PROCEDURE

In order to evaluate the four construction alternatives objectively, a method was needed to quantify the benefits of each for comparative purposes. The first step in this process was the establishment of evaluation criteria. Table B-6 lists the criteria used and gives a brief definition of each. Since some of these criteria are more important than others, values had to be established for the criteria for each ASD functional group. These values were established using the Analytic Hierarchy Process[1] to determine relative priorities or levels of importance. The process is based on pair-wise comparisons of the different criteria from which numerical values or weights are

[1]Dr. Thomas L. Saaty, The Analytic Hierarchy Process (McGraw-Hill, Inc., New York, 1980).

TABLE B-6. DEFINITIONS OF EVALUATION CRITERIA

ADEQUATE SPACE - Square footage required to house the function. Use standards for judgment.

- OFFICE - Space required to house personnel, engineers, scientists, managers, and administrators.
- ADMIN. SUPPORT - Space required to support administrative functions; duplication rooms, central files, reception areas, etc.
- SPECIAL-PURPOSE SPACE - Nonstandard space required by the mission; laboratory, engineering, and test space, shops classified areas, etc.
- CONFERENCE ROOM - Space required for team work sessions, conferences, group discussions, etc.
- STORAGE - General storage space for noncurrent records, consumables supplies, etc.

CONDITION - Building integrity; limitations of buildings system.

- GENERAL/STRUCTURAL - General condition of building envelope, soundness.
- ELEC/MECHANICAL - Condition of standard building power and heating, ventilation, and air conditioning (HVAC) systems.
- ECONOMIC LIFE - Remaining useful life of the building, investment potential, worth.
- ENERGY - Efficiency index of energy usage for the building.

SUITABILITY - Appropriateness for the mission.

- FORM/FIT - Configuration; efficiency of utilization; internal traffic pattern; work flow; structural layout.
- FLEXIBILITY - Ability to accommodate change.
- ENVIRONMENT - Impact of building surroundings on morale; productivity factors.
- SERVICEABILITY - Capability for service; accessibility; parking, etc.
- SPECIAL REQUIREMENT - Nonstandard utilities/equipment/hardware to support mission; safety/security/data/material handling/toxic waste/special power, etc.

PROXIMITY - Closeness to other buildings/functions; ease of travel/interaction; ease of technology transfer.

- INTERORGANIZATIONAL INTERFACES - Position in relation to other units within command and other organizations; geographical location on the base; adjacent buildings; available land; base utilities and traffic.
- INTRAORGANIZATIONAL INTERFACES - Chain of command/management control; organizational integrity/relationships. outside interfaces; ease of communication/technology transfer.
- PERSONNEL SUPPORT SERVICES - Availability of support services, i.e., cafeteria, personnel office, post office, bank exchange, etc.

calculated. Table B-7 shows the average values and ranges of values established for the evaluation criteria. The range reflects the fact that the values were actually set through consultation with managers from the seven major ASD organizational groups located in Area "B" and that the specific values vary among the groups. Annex 1 to this appendix shows the values by organizational group.

TABLE B-7. EVALUATION CRITERIA VALUES

CRITERION	RANGE	AVERAGE
Adequate space	44 - 121	63
Condition	17 - 21	18
Suitability	51 - 118	107
Proximity	7 - 19	72
TOTAL VALUES		200

With criteria and values established, the last step was to measure the effectiveness of each alternative in meeting the criteria. The effectiveness was measured through a scoring process that graded each organization in each facility. A grading scale was established as shown in Table B-8, and each facility was evaluated on the basis of its usefulness to the organizations housed in it. A score was computed by multiplying the criterion value by the grade. Table B-9 illustrates this process for one organization and building. Complete tabulations of the scores for the current situation and each alternative are given in Annex 2 to this appendix.

EVALUATION RESULTS

The results of the evaluation for the four construction alternatives are displayed in Table B-10 along with the score for the base case (the current situation). The numbers across the rows reflect the scores for each

TABLE B-8. GRADING SCALES FOR EVALUATION CRITERIA

	GRADING SCALE				
CRITERION	1	2	3	4	5
ADEQUATE SPACE					
Office	± 20	± 15	± 10	± 5	90
Admin. Support	10	15	20	25	30
Special Purpose	Poor	Marginal	Adequate	Good	Superior
Storage	1%	2.5%	5%	7.5%	10% Gross
Conference Room	Poor	Marginal	Adequate	Good	Superior
CONDITION					
Gen./Struc.	3		2		1
Elec./Mech.	Poor	Marginal	Adequate	Good	Superior
Energy	Poor		Adequate		Superior
Econ. Life	40	30-40	20-30	10-20	New
SUITABILITY					
Form/Fit	Poor	Marginal	Adequate	Good	Superior
Sp. Rqmts.	Poor	Marginal	Adequate	Good	Superior
Serviceability	Poor	Marginal	Adequate	Good	Superior
Flexibility	Poor	Marginal	Adequate	Good	Superior
Environment	Poor	Marginal	Adequate	Good	Superior
PROXIMITY					
Interorg. Interface	Remote from 2&3	Remote from 3s	Near some 3s	Near all 3s	Near 2&3s
Intraorg. Interface	20-30%	15-20%	10-15%	5-10%	5% outside zone
Pers. Suppt. Services	Remote		Average		Near

TABLE B-9. SAMPLE EVALUATION OF ACQUISITION MANAGEMENT ORGANIZATIONS IN BUILDING 11/11A

CATEGORY	VALUE	GRADE	SCORE
Adequate Space			
Office	48	5	240
Administrative Support	52	1	52
Special Purpose	11	3	33
Conference Room	6	2	12
Storage	4	5	20
Condition			
General/Structural	8	3	24
Electrical/Mechanical	11	4	44
Economic Life	1	1	1
Energy	1	2	2
Suitability			
Form/Fit	15	4	60
Flexibility	25	3	75
Environment	3	4	12
Serviceability	4	4	16
Special Requirements	4	4	16
Proximity			
Interorganizational	1	5	5
Intraorganizational	6	4	24
Personnel Support Services	0	5	0
Organization/Building Total	--	--	636
MAXIMUM VALUES	200	5	1000

organizational group for each alternative, while the bottom line shows the average ASD score for each alternative.

The EN project, as expected, has the most significant impact in the Functional Management group with minor improvements in the Acquisition Management, Specialized Management, and Organizational Support. The increase in the overall ASD score for this alternative shows significant improvement.

The Avionics Laboratory project results in significant improvements for both the Avionics Laboratory and the Flight Dynamics Laboratory. This is a

TABLE B-10. RELATIVE BENEFITS OF FOUR CONSTRUCTION ALTERNATIVES

ORGANIZATIONAL GROUP	BASE CASE	EN[a]	AA	FI	SMEF
Headquarters	620	620	620	620	641
Acquisition Management	467	510	481	467	749
Functional Management	572	617	572	572	652
(EN)	(546)	(719)	(546)	(546)	(717)
Specialized Management	533	570	533	533	614
Organizational Support	598	623	598	598	617
Laboratories					
AA	514	514	608	514	514
FI	537	544	567	539	544
ML	613	613	613	613	613
PO	572	579	572	572	577
ASD Average Score	552	574	558	552	621

[a]KEY: EN: MCP for consolidation of EN functions.
AA: MCP for addition to Avionics Laboratory.
FI: MCP for addition to Flight Dynamics Structures Test Facility.
SMEF: MCP for construction of SMEF.

result of the large amounts of space that would become available for Flight Dynamics use as a result of this project. The impacts of the proposed project outside of the laboratories are minor, but the overall increase in the ASD score is a significant improvement for a project of limited size and scope.

The Flight Dynamics alternative reflects limited improvements for the Flight Dynamics Laboratory, and no improvement for any other group or for ASD as a whole. Even in terms of total Flight Dynamics requirements, this project does not offer as much as the Avionics Laboratory alternative. This result

does not mean that the project is not a valid one for the Structures and Dynamics Division. However, it is so limited in scope that it does not have an impact on the larger facilities picture. Furthermore, it appears that the Structures and Dynamics requirements could be accommodated in buildings vacated by the Avionics Laboratory as a result of its proposed MCP. These buildings are adjacent to Building 65 and would offer a viable alternative. However, major modification and improvement would be required.

The SMEF construction offers the largest overall improvement in ASD facilities, while providing major improvements for every organizational grouping except the laboratories. This alternative raises the score for EN almost as much as the EN MCP.

DISCUSSION

Table B-11 shows the relative benefits, or improvements, of each project reflected against the cost of the project. While these figures are important, they do not tell the whole story. In order to put these figures in perspective, it is necessary to review the base case or current situation. Figure B-1 shows the distribution of current scores for the various organizational groups. Acquisition Management has the lowest average score, followed by Avionics Laboratory, Specialized Management, Flight Dynamics Laboratory, and the Deputy for Engineering. Based on these figures, the SMEF project would appear to be a good choice since it would solve the Acquisition Management, Specialized Management, and EN problems. However, it would not address serious problems in the laboratories. The EN alternative would have similar impacts. For these reasons, the laboratory projects may be required as additions or supplements to the EN or SMEF projects.

TABLE B-11. RELATIVE BENEFITS AS A FUNCTION OF COST

	EN	AA	FI	SMEF
MCP Cost ($M)	30.0	15.9	13.4	23.0
Benefit[a]	570(+18)	558(+6)	552(0)	621(+69)
Cost/Benefit ($M)	1.67	2.65	--	0.30

[a]ASD average score (increase over base case).

FIGURE B-1. WPAFB-B/ASD - BASE SCORING SUMMARY

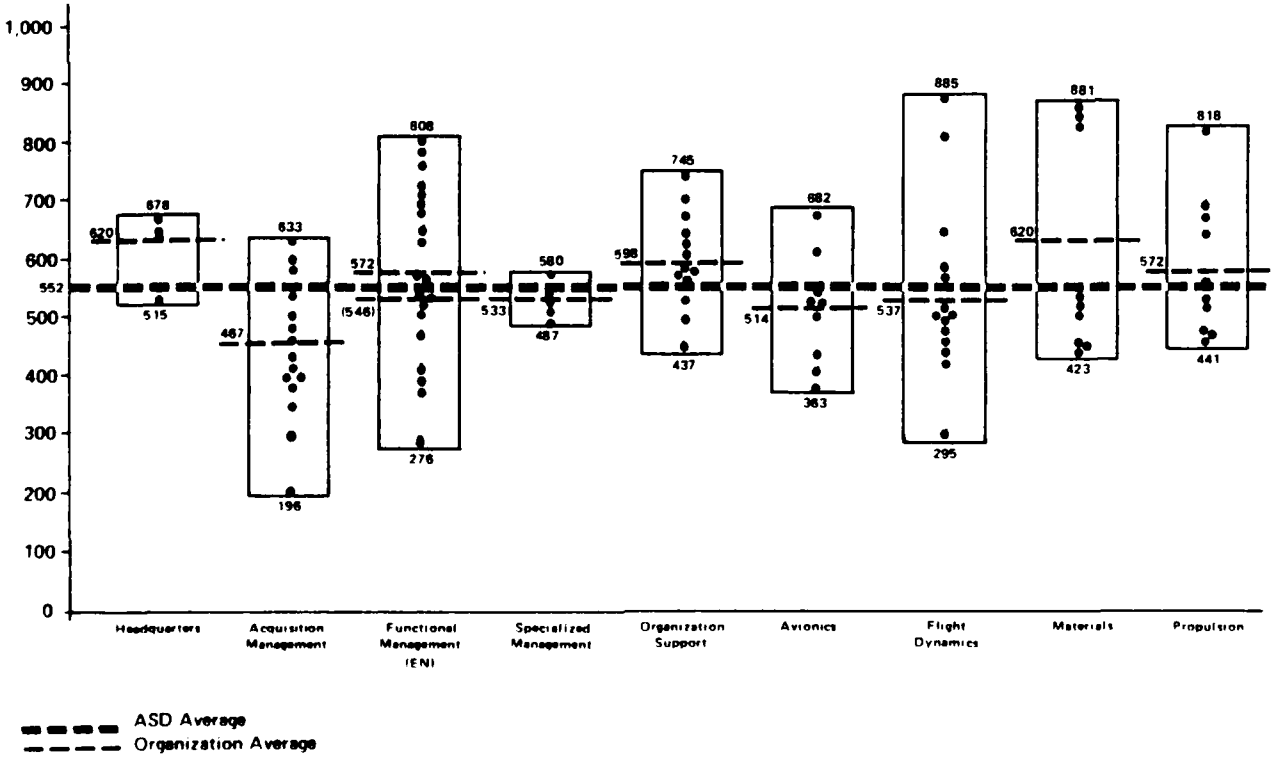

Table B-12 shows scores for the various projects in combination. Since the EN and SMEF projects have considerable overlap in terms of requirements and results they were not considered in combination. The benefits of all other projects were considered to be additive for the purposes of analysis. The analysis shows that the proposed Avionics Laboratory MCP in combination with either the SMEF or EN MCP would be the best alternatives in terms of correcting major ASD deficiencies. Although the Flight Dynamics/SMEF combination scores higher than the EN/Avionics Laboratory combination, this result is artificial because the score would be the same without the Flight Dynamics MCP. As already noted, however, the SMEF MCP cannot stand alone because it leaves too many problems unsolved for the laboratories.

RESULTS

Of the four construction alternatives reviewed, we judged three to be cost-effective for ASD. They are

- Consolidation of EN functions;
- Avionics Laboratory addition;
- SMEF construction.

However, all three MCPs cannot be justified as currently proposed. Because of the overlap between the EN and MCPs, the scope of one or the other or both of these projects needs to be decreased. Since the SMEF MCP has a better payoff than the EN MCP and solves most of the EN problems, it should be left basically unchanged. It could, however, be phased in order to spread the costs over two years. The EN MCP should be substantially reduced in scope to accommodate only those requirements not provided for through the secondary effects of the SMEF project. The Avionics Laboratory MCP is generally acceptable at its current level.

TABLE B-12. RELATIVE BENEFITS OF COMBINING PROJECTS

ORGANIZATIONAL GROUP	BASE CASE	EN/AA[a]	EN/FI	AA/FI	AA/SMEF	FI/SMEF	EN/AA/FI[b]	AA/FI/SMEF
Headquarters	620	620	620	620	641	641	620	641
Acquisition	467	524	510	481	749	749	524	749
Functional Management	572	617	617	572	652	652	617	652
(EN)	(546)	(719)	(719)	(546)	(717)	(717)	(719)	(717)
Spec. Mgt.	533	570	570	533	614	614	570	614
Organizational Support	598	623	623	598	617	617	623	617
AFWAL	514	514	514	514	514	514	514	514
Labs	559	594	563	591	593	563	594	593
(AA)	(514)	(608)	(514)	(608)	(608)	(514)	(608)	(608)
(FI)	(537)	(574)	(546)	(569)	(574)	(546)	(576)	(574)
(ML)	(613)	(613)	(613)	(613)	(613)	(613)	(613)	(613)
(PO)	(572)	(579)	(579)	(572)	(577)	(577)	(579)	(577)
ALL ASD	552	580	574	558	626	621	580	626

[a]KEY: EN: MCP for consolidation of EN functions.
AA: MCP for addition to Avionics Laboratory.
FI: MCP for addition to Flight Dynamics Structures Test Facility.
SMEF: MCP for construction of SMEF.

[b]Combinations including EN and SMEF together were not considered because of the substantial overlap between the projects.

The timing of the projects -- which goes first, second, or third -- is dependent on funding levels and design time. The Avionics Laboratory and EN projects are already in preliminary design, which means they should probably precede the SMEF project.

These three projects form the core of a long-term plan. However, other moves, modifications, demolitions, etc., that support the planning concepts should proceed along with these MCPs. Other MCPs, such as a final consolidation for Flight Dynamics and a replacement for the Propulsion Laboratory should also be considered now as part of a long-term plan.

Details of size, scope, location, occupants, etc., will have to be developed as the planning process proceeds, and adapted as conditions require. However, these MCPs, as revised, provide a solid framework for all future detailed planning.

ANNEX 1

EVALUATION CRITERIA ASSIGNED VALUES

This annex presents the values established for the criteria (given in Table B-6 of this appendix) for each ASD organizational group. A glossary of the organizational acronyms used in this annex is presented at the end of Appendix A.

EVALUATION CRITERIA VALUES BY ORGANIZATIONAL GROUP

ORGANIZATIONAL GROUP	CATEGORY	VALUES	
		ITEM	TOTAL
ASD/ HEADQUARTERS	ADEQUATE SPACE		57
	Office	22	
	Administrative Support	11	
	Special Purpose	3	
	Conference Room	18	
	Storage	3	
	CONDITION		17
	General/Structural	7	
	Electrical/Mechanical	8	
	Energy	1	
	Economic Life	1	
	SUITABILITY		116
	Form/Fit	29	
	Flexibility	4	
	Environment	8	
	Serviceability	71	
	Special Requirements	4	
	PROXIMITY		10
	Interorganizational	3	
	Intraorganizational	7	
	Personnel Support Services	0	
SPECIALIZED MANAGEMENT	ADEQUATE SPACE		58
	Office	24	
	Storage	10	
	Conference Room	1	
	Administrative Support	20	
	Special Purpose	3	
	CONDITION		17
	General/Structural	7	
	Electrical/Mechanical	8	
	Energy	1	
	Economic Life	1	
	SUITABILITY		115
	Form/Fit	28	
	Flexibility	4	
	Environment	8	
	Serviceability	71	
	Special Requirements	4	
	PROXIMITY		10
	Intraorganizational	1	
	Interorganizational	8	
	Personnel Support Services	1	

EVALUATION CRITERIA VALUES BY ORGANIZATIONAL GROUP

ORGANIZATIONAL GROUP	CATEGORY	VALUES	
		ITEM	TOTAL
ACQUISITION MANAGEMENT	ADEQUATE SPACE		121
	Office	48	
	Administrative Support	52	
	Special Purpose	11	
	Conference Room	6	
	Storage	4	
	CONDITION		21
	General/Structural	8	
	Electrical/Mechanical	11	
	Energy	1	
	Economic Life	1	
	SUITABILITY		51
	Form/Fit	15	
	Flexibility	25	
	Environment	3	
	Serviceability	4	
	Special Requirements	4	
	PROXIMITY		7
	Interorganizational	1	
	Intraorganizational	6	
	Personnel Support Services	0	
FUNCTIONAL MANAGEMENT	ADEQUATE SPACE		59
	Office	25	
	Administrative Support	7	
	Special Purpose	3	
	Conference Room	23	
	Storage	1	
	CONDITION		17
	General/Structural	7	
	Electrical/Mechanical	8	
	Energy	1	
	Economic Life	1	
	SUITABILITY		116
	Form/Fit	33	
	Flexibility	58	
	Environment	7	
	Serviceability	10	
	Special Requirements	8	
	PROXIMITY		8
	Interorganizational	1	
	Intraorganizational	7	
	Personnel Support Services	0	

EVALUATION CRITERIA VALUES BY ORGANIZATIONAL GROUP

ORGANIZATIONAL GROUP	CATEGORY	VALUES	
		ITEM	TOTAL
DEPUTY FOR ENGINEERING	ADEQUATE SPACE		44
	Office	8	
	Administrative Support	3	
	Special Purpose	24	
	Conference Room	8	
	Storage	1	
	CONDITION		19
	General/Structural	4	
	Electrical/Mechanical	13	
	Energy	1	
	Economic Life	1	
	SUITABILITY		118
	Form/Fit	13	
	Flexibility	22	
	Environment	4	
	Serviceability	6	
	Special Requirements	73	
	PROXIMITY		19
	Interorganizational	3	
	Intraorganizational	15	
	Personnel Support Services	1	
ORGANIZATIONAL SUPPORT	ADEQUATE SPACE		58
	Office	25	
	Administrative Support	22	
	Special Purpose	3	
	Conference Room	1	
	Storage	7	
	CONDITION		17
	General/Structural	7	
	Electrical/Mechanical	8	
	Energy	1	
	Economic Life	1	
	SUITABILITY		116
	Form/Fit	33	
	Flexibility	58	
	Environment	7	
	Serviceability	10	
	Special Requirements	8	
	PROXIMITY		9
	Interorganizational	1	
	Intraorganizational	8	
	Personnel Support Services	0	

EVALUATION CRITERIA VALUES BY ORGANIZATIONAL GROUP

ORGANIZATIONAL GROUP	CATEGORY	VALUES	
		ITEM	TOTAL
LABORATORIES	ADEQUATE SPACE		45
	Office	6	
	Administrative Support	1	
	Special Purpose	32	
	Conference Room	6	
	CONDITION		18
	General/Structural	3	
	Electrical/Mechanical	13	
	Energy	1	
	Economic Life	1	
	SUITABILITY		118
	Form/Fit	57	
	Flexibility	6	
	Environment	14	
	Serviceability	17	
	Special Requirements	24	
	PROXIMITY		19
	Interorganizational	15	
	Intraorganizational	3	
	Personnel Support Services	1	

ANNEX 2

EVALUATION RESULTS

This annex presents the results of the quantitative evaluation of the effectiveness of each criterion specified in Table B-6 of this appendix. Complete tabulations of the scores for the current situation (base case) and each alternative are given in this annex. The alternatives are:

- Alternative 1: a 250,000 square foot addition to Building 485 for EN functions;
- Alternative 2: a 134,000 square foot addition to Building 620 for the Avionics Laboratory;
- Alternative 3: a 65,000 square foot addition to Building 65 for the Flight Dynamics Laboratory; and
- Alternative 4: a new 250,000 square foot building to house the Systems Program Office (SPO).

A glossary of the organizational acronyms used in this annex is presented at the end of Appendix A.

FACILITY EVALUATION SCORES
FOR THE BASE CASE

ASD AVERAGE SCORE: 552
NUMBER OF ENTRIES: 116

ORGANIZATIONAL GROUP	BUILDING	ORGANIZATION	SCORE
HEADQUARTERS	14	ASDCA	624
	14	ASDCC	633
	14	ASDCM	633
	14	ASDCS	678
	14	ASDCV	633
	14	ASDCX	624
	188	ASDTA	515
ACQUISITION MANAGEMENT	11,11A	ASDIW	500
	12	ASDIP	448
	15	ASDTA	381
	16	ASDTA	633
	16	ASDIX	486
	16	ASDIZ	547
	17	ASDAF	469
	22	ASDAE	588
	28	ASDRW	456
	46	ASDIZ	599
	50	ASDIX	447
	50A	ASDIX	279
	52	ASDB1	441
	55	ASDAE	413
	56	ASDAF	542
	57	ASDAE	473
	91	ASDAF	462
	193	ASDIX	507
	739	ASDAE	196
FUNCTION L MANAGEMENT	5	ASDPM	468
	7	ASDPM	549
	11,11A	ASDAC	683
	11,11A	ASDIR	664
	14	ASDAC	678
	14	ASDPM	623
	14	ASDIR	750
	16	ASDPM	525
	16	ASDIR	532
	22	ASDPM	536
	47	ASDIR	568
	6	ASDEN	542
	14	ASDEN	500
	16	ASDEN	617
	20,20A	ASDEN	379
	22	ASDEN	566
	28A	ASDEN	808
	46	ASDEN	715
	125	ASDEN	412
	126	ASDEN	406
	156	ASDEN	276
	485	ASDEN	781
SPECIALIZED MANAGEMENT	14	ASDAV	580
	16	ASDAW	487
	16	ASDWE	528
	39	ASDAL	539
	56	ASDAX	532

ORGANIZATIONAL GROUP	BUILDING	ORGANIZATION	SCORE
ORGANIZATION SUPPORT	8	ASDDE	512
	8	ASDIG	533
	8	ASDSP	616
	11,11A	ASDBC	563
	11,11A	ASDIO	745
	14	ASDPA	634
	14	ASDXO	699
	16	ASDDA	605
	16	ASDHO	580
	70	ASDSE	566
	125	ASDDP	675
	125	ASDIO	591
	167	ASDDP	437
	195	ASDDA	640
	676	ASDAD	568
LABORATORIES	4A,B,F	WALAA	545
	18F	WALAA	521
	22	WALAA	512
	22B	WALAA	412
	23	WALAA	549
	450	WALAA	363
	620	WALAA	682
	622	WALAA	444
	821	WALAA	598
	24,24A-C	WALFI	510
	25,25A-D	WALFI	496
	26	WALFI	498
	31	WALFI	498
	45	WALFI	557
	59,59A-C	WALFI	521
	63	WALFI	447
	65,65A	WALFI	620
	93	WALFI	524
	145	WALFI	770
	146	WALFI	885
	191	WALFI	503
	192	WALFI	533
	254	WALFI	295
	255	WALFI	559
	450	WALFI	454
	461	WALFI	459
	20,20A	WALML	529
	32	WALML	525
	51	WALML	517
	56	WALML	452
	71A	WALML	423
	450	WALML	427
	651	WALML	881
	652	WALML	868
	653	WALML	881
	18,18A-E,G,H	WALPO	532
	20,20A	WALPO	650
	21	WALPO	686
	59,59A-C	WALPO	524
	71	WALPO	466
	71A	WALPO	542
	71B	WALPO	636
	71D	WALPO	553
	252	WALPO	448
	450	WALPO	441
	490	WALPO	818
	45	AFWAL	496
	450	AFWAL	532

FACILITY EVALUATION SCORES
FOR ALTERNATIVE #1

ASD AVERAGE SCORE: 574
NUMBER OF ENTRIES: 109

ORGANIZATIONAL GROUP	BUILDING	ORGANIZATION	SCORE
HEADQUARTERS	14	ASDCA	624
	14	ASDCC	633
	14	ASDCM	633
	14	ASDCS	678
	14	ASDCV	633
	14	ASDCX	624
	188	ASDTA	515
ACQUISITION MANAGEMENT	11,11A	ASDIW	770
	12	ASDIP	448
	15/16	ASDTA	381
	16	ASDTA	762
	16	ASDIY	710
	16	ASDYZ	701
	17	ASDAF	469
	22	ASDAE	610
	28	ASDRW	456
	46	ASDYZ	844
	50	ASDYY	447
	50A	ASDYY	279
	52	ASDB1	441
	55	ASDAE	413
	56	ASDAF	711
	57	ASDAE	473
	91	ASDAF	462
	193	ASDYY	507
	739	ASDAE	196
FUNCTIONAL MANAGEMENT	5	ASDPM	468
	7	ASDPM	549
	11,11A	ASDAC	683
	11,11A	ASDXR	664
	14	ASDAC	678
	14	ASDPM	623
	14	ASDXR	750
	16	ASDPM	525
	16	ASDXR	532
	22	ASDPM	536
	47	ASDXR	568
	125/167	ASDPM	616
	14	ASDEN	500
	485	ASDEN	939
SPECIALIZED MANAGEMENT	14	ASDAV	580
	16	ASDAW	606
	16	ASDWE	591
	39	ASDAL	539
	56	ASDAX	532
ORGANIZATION SUPPORT	8	ASDDE	512
	8	ASDIG	533
	8	ASDSP	616
	11,11A	ASDBC	563
	11,11A	ASDIO	745
	14	ASDPA	634
	14	ASDXO	699
	16	ASDDA	605
	16	ASDHO	580
	70	ASDSE	566
	125	ASDDP	704
	125	ASDXO	645
	167/126	ASDDP	738
	195	ASDDA	640
	676	ASDAD	568
LABORATORIES	4A,B,F	WALAA	545
	18F	WALAA	521
	22	WALAA	512
	22B	WALAA	412
	23	WALAA	549
	450	WALAA	363
	620	WALAA	682
	622	WALAA	444
	821	WALAA	598
	24,24A-C	WALFI	510
	24C/6	WALFI	630
	25,25A-D	WALFI	496
	26	WALFI	498
	31	WALFI	498
	45	WALFI	557
	59,59A-C	WALFI	521
	63	WALFI	447
	65,65A	WALFI	620
	93	WALFI	524
	145	WALFI	770
	146	WALFI	885
	191	WALFI	503
	192	WALFI	533
	254	WALFI	295
	255	WALFI	559
	450	WALFI	454
	461	WALFI	459
	20,20A	WALML	529
	32	WALML	525
	51	WALML	517
	56	WALML	452
	71A	WALML	423
	450	WALML	427
	651	WALML	881
	652	WALML	881
	653	WALML	881
	18,[illegible]4-E,G,H	WALPO	554
	20,20A	WALPO	682
	21	WALPO	708
	59,59A-C	WALPO	524
	71	WALPO	466
	71A	WALPO	542
	71B	WALPO	636
	71D	WALPO	553
	252	WALPO	448
	450	WALPO	441
	490	WALPO	818
	45	AFWAL	496
	450	AFWAL	532

FACILITY EVALUATION SCORES
FOR ALTERNATIVE #2

ASD AVERAGE SCORE: 565
NUMBER OF ENTRIES: 106

ORGANIZATIONAL GROUP	BUILDING	ORGANIZATION	SCORE
HEADQUARTERS	14	ASDCA	624
	14	ASDCC	633
	14	ASDCM	633
	14	ASDCS	678
	14	ASDCV	633
	14	ASDCX	624
	188	ASDTA	515
ACQUISITION MANAGEMENT	11,11A	ASDIW	500
	12	ASDIP	448
	15	ASDTA	381
	16	ASDTA	633
	16	ASDYI	486
	16	ASDIX	547
	17	ASDAF	469
	22	ASDAE	588
	28	ASDRW	456
	46	ASDYZ	599
	50	ASDYY	447
	50A	ASDYY	279
	52	ASDB1	441
	55	ASDAE	413
	56	ASDAF	542
	57	ASDAE	473
	91	ASDAF	462
	193	ASDYY	507
FUNCTIONAL MANAGEMENT	5	ASDPM	468
	7	ASDPM	549
	11,11A	ASDAC	683
	11,11A	ASDXR	664
	14	ASDAC	678
	14	ASDPM	623
	14	ASDXR	750
	16	ASDPM	525
	16	ASDXR	532
	22	ASDPM	536
	47	ASDXR	568
	6	ASDEN	542
	14	ASDEN	500
	16	ASDEN	617
	20,20A	ASDEN	379
	22	ASDEN	566
	28A	ASDEN	808
	46	ASDEN	715
	125	ASDEN	412
	126	ASDEN	406
	156	ASDEN	276
	485	ASDEN	781
SPECIALIZED MANAGEMENT	14	ASDAV	580
	16	ASDAW	487
	16	ASDME	528
	39	ASDAL	539
	56	ASDAX	532
ORGANIZATION SUPPORT	8	ASDDE	512
	8	ASDIO	533
	8	ASDSP	616
	11,11A	ASDBC	563
	11,11A	ASDXO	745
	14	ASDPA	634
	14	ASDXO	699
	16	ASDDA	605
	16	ASDHO	580
	70	ASDSE	566
	125	ASDDP	675
	125	ASDXO	591
	167	ASDDP	437
	195	ASDDA	640
	676	ASDAD	568
LABORATORIES	4A,B,F	WALAA	545
	18F	WALAA	521
	23	WALAA	549
	620	WALAA	818
	22	WALFI	638
	22B	WALFI	560
	24,24A-C	WALFI	521
	25,25A-D	WALFI	496
	26	WALFI	498
	45	WALFI	557
	65,65A	WALFI	620
	93	WALFI	524
	145	WALFI	770
	146	WALFI	885
	254	WALFI	295
	255	WALFI	559
	450	WALFI	454
	20,20A	WALML	529
	32	WALML	525
	51	WALML	517
	56	WALML	452
	71A	WALML	423
	450	WALML	427
	651	WALML	881
	652	WALML	881
	653	WALML	881
	18,18A-E,G,H	WALPO	532
	20,20A	WALPO	653
	21	WALPO	686
	59,59A-C	WALPO	524
	71	WALPO	466
	71A	WALPO	542
	71B	WALPO	636
	71D	WALPO	553
	252	WALPO	448
	450	WALPO	441
	490	WALPO	818
	45	AFWAL	496
	450	AFWAL	532

FACILITY EVALUATION SCORES
FOR ALTERNATIVE #3

ASD AVERAGE SCORE: 552
NUMBER OF ENTRIES: 116

ORGANIZATIONAL GROUP	BUILDING	ORGANIZATION	SCORE
HEADQUARTERS	14	ASDCA	624
	14	ASDCC	633
	14	ASDCM	633
	14	ASDCS	678
	14	ASDCV	633
	14	ASDCX	624
	188	ASDTA	515
ACQUISITION MANAGEMENT	11,11A	ASDIW	500
	12	ASDIP	448
	15	ASDTA	381
	16	ASDTA	633
	16	ASDYI	486
	16	ASDYZ	547
	17	ASDAF	469
	22	ASDAE	588
	28	ASDBW	456
	46	ASDYZ	599
	50	ASDYI	447
	50A	ASDYI	279
	52	ASDB1	441
	55	ASDAE	413
	56	ASDAF	542
	57	ASDAE	473
	91	ASDAF	462
	193	ASDYI	507
	739	ASDAE	196
FUNCTIONAL MANAGEMENT	5	ASDPM	468
	7	ASDPM	549
	11,11A	ASDAC	683
	11,11A	ASDXR	664
	14	ASDAC	678
	14	ASDPM	623
	14	ASDXR	750
	16	ASDPM	525
	16	ASDXR	532
	22	ASDPM	536
	47	ASDXR	568
	6	ASDEN	542
	14	ASDEN	500
	16	ASDEN	617
	20,20A	ASDEN	379
	22	ASDEN	566
	28A	ASDEN	808
	46	ASDEN	715
	125	ASDEN	412
	126	ASDEN	406
	156	ASDEN	276
	485	ASDEN	781
SPECIALIZED MANAGEMENT	14	ASDAV	580
	16	ASDAW	487
	16	ASDWE	528
	39	ASDAL	539
	56	ASDAI	532
ORGANIZATION SUPPORT	8	ASDDE	512
	8	ASDIG	533
	8	ASDSP	616
	11,11A	ASDBC	563
	11,11A	ASDXO	745
	14	ASDPA	634
	14	ASDXO	699
	16	ASDDA	605
	16	ASDBO	580
	70	ASDSE	566
	125	ASDDP	675
	125	ASDXO	591
	167	ASDDP	437
	195	ASDDA	640
	676	ASDAD	568
LABORATORIES	4A,B,F	WALAA	545
	18F	WALAA	521
	22	WALAA	512
	22B	WALAA	412
	23	WALAA	549
	450	WALAA	363
	620	WALAA	682
	622	WALAA	444
	821	WALAA	598
	24,24A-C	WALFI	500
	25,25A-D	WALFI	496
	26	WALFI	498
	31	WALFI	498
	45	WALFI	557
	59,59A-C	WALFI	521
	63	WALFI	447
	65,65A	WALFI	672
	93	WALFI	524
	145	WALFI	770
	146	WALFI	885
	191	WALFI	503
	192	WALFI	533
	254	WALFI	295
	255	WALFI	559
	450	WALFI	454
	461	WALFI	444
	20,20A	WALML	529
	32	WALML	525
	51	WALML	517
	56	WALML	452
	71A	WALML	423
	450	WALML	427
	651	WALML	881
	652	WALML	881
	653	WALML	881
	18,18A-E,G,H	WALPO	532
	20,20A	WALPO	650
	21	WALPO	686
	59,59A-C	WALPO	524
	71	WALPO	466
	71A	WALPO	542
	71B	WALPO	636
	71D	WALPO	553
	252	WALPO	448
	450	WALPO	441
	490	WALPO	818
	45	APWAL	496
	450	APWAL	532

FACILITY EVALUATION SCORES
FOR ALTERNATIVE #4

ASD AVERAGE SCORE: 626
NUMBER OF ENTRIES: 113

ORGANIZATIONAL GROUP	BUILDING	ORGANIZATION	SCORE
HEADQUARTERS	14	ASDCA	624
	14	ASDCC	633
	14	ASDCM	633
	14	ASDCS	678
	14	ASDCV	633
	14	ASDCX	624
	188/14	ASDTA	661
ACQUISITION MANAGEMENT	11,11A/SMEF	ASDIW	806
	12	ASDIP	448
	15/SMEF	ASDTA	806
	16/SMEF	ASDTA	806
	16/SMEF	ASDII	806
	16/SMEF	ASDIZ	806
	17/SMEF	ASDAF	806
	22/SMEF	ASDAE	806
	28/SMEF	ASDRW	806
	46/SMEF	ASDIZ	806
	50	ASDII	447
	50A/SMEF	ASDII	806
	52	ASDB1	441
	55/SMEF	ASDAE	806
	56/SMEF	ASDAF	806
	57/SMEF	ASDAE	806
	91/SMEF	ASDAF	806
	193/SMEF	ASDII	806
	739/SMEF	ASDAE	806
FUNCTIONAL MANAGEMENT	5	ASDPM	468
	7	ASDPM	549
	11,11A	ASDAC	683
	11,11A	ASDIR	664
	14	ASDAC	678
	14	ASDPM	623
	14	ASDIR	750
	16	ASDPM	525
	16	ASDIR	532
	22	ASDPM	536
	47	ASDIR	568
	125/167	ASDPM	616
	6/16	ASDEN	680
	14/11	ASDEN	633
	16	ASDEN	693
	20,20A/16	ASDEN	538
	22/16	ASDEN	680
	46	ASDEN	771
	125/11	ASDEN	706
	126/46	ASDEN	802
	156/485	ASDEN	829
	485	ASDEN	837
SPECIALIZED MANAGEMENT	14	ASDAV	580
	16	ASDAW	606
	16	ASDWE	645
	39/16	ASDAL	615
	56/16	ASDAX	623

ORGANIZATIONAL GROUP	BUILDING	ORGANIZATION	SCORE
ORGANIZATION SUPPORT	8	ASDDE	512
	8	ASDIG	533
	8	ASDSP	616
	11,11A	ASDBC	563
	11,11A	ASDIO	745
	14	ASDPA	634
	14	ASDXO	699
	16	ASDDA	605
	16	ASDHO	580
	70	ASDSE	566
	125	ASDDP	704
	125	ASDIO	620
	167/126	ASDDP	671
	195	ASDDA	640
	676	ASDAD	568
LABORATORIES	4A,B,F	WALAA	545
	18F	WALAA	521
	22	WALAA	512
	22B	WALAA	412
	23	WALAA	549
	450	WALAA	363
	620	WALAA	682
	622	WALAA	444
	821	WALAA	598
	24,24A-C	WALFI	510
	24C/6	WALFI	630
	25,25A-D	WALFI	496
	26	WALFI	498
	45	WALFI	557
	59,59A-C	WALFI	521
	63	WALFI	447
	65,65A	WALFI	620
	93	WALFI	524
	145	WALFI	770
	146	WALFI	885
	191	WALFI	503
	192	WALFI	533
	254	WALFI	295
	255	WALFI	559
	450	WALFI	454
	461	WALFI	459
	20,20A	WALML	529
	71A	WALML	423
	450	WALML	427
	651	WALML	881
	652	WALML	881
	653	WALML	881
	18,18A-E,G,H	WALPO	554
	20,20A	WALPO	683
	21	WALPO	686
	59,59A-C	WALPO	524
	71	WALPO	466
	71A	WALPO	542
	71B	WALPO	636
	71D	WALPO	553
	252	WALPO	448
	450	WALPO	441
	490	WALPO	818
	45	AFWAL	496
	450	AFWAL	532

APPENDIX C

GLOSSARY OF TERMS

AA	Avionics Laboratory
AFIT	Air Force Institute of Technology
AFLC	Air Force Logistics Command
AFSC	Air Force Systems Command
AFWAL	Air Force Wright Aeronautical Laboratories (also WAL)
AMD	Aerospace Medical Division
ASD	Aeronautical Systems Division
EN	Deputy for Engineering
FI	Flight Dynamics
LOG	Logistics (Command)
MAC	Military Airlift Command
MCP	Military Construction Project
ML	Materials Laboratory
R&D	Research and Development
SAC	Strategic Air Command
SMEF	Systems Management Engineering Facility
SPO	Systems Program Office
TAC	Tactical Air Command
WAL	Wright Aeronautical Laboratories

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17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Facilities Planning, Facilities Management, Military Construction Program, Master Plan, Base Comprehensive Plan

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Report investigates current facility deficiencies and analyzes requirements for the Aeronautical Systems Division at Area B, Wright-Patterson Air Force Base, Ohio. An integrated Facilities Management Plan is presented which includes construction, relocation and demolition requirements. Organizational management actions to support implementation of the plan are also discussed. Appendices to the report present information on decision-support methodologies used in evaluating various facilities alternatives.

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