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**SUMMARY HISTORY: AIR FORCE
MISSILE AND SPACE DEVELOPMENT FACILITIES
LOS ANGELES, CALIFORNIA**

1954 - 1964



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SUMMARY HISTORY
AIR FORCE MISSILE AND SPACE DEVELOPMENT FACILITIES
LOS ANGELES, CALIFORNIA - 1954-1964

prepared by
Space Systems Division Historical Office
January 1965

6-1919

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FOREWORD

This paper was prepared by the Space Systems Division historical office in answer to one of many requests for historical information about the chain of events leading to the establishment of Los Angeles Air Force Station. Although this summary account does not represent a comprehensive history of these activities, it is fully documented and complete within the strictures of the summary format. The paper has proved to be quite useful as an internal reference source and publication in this form has been chosen to make it available for use on a wider scale.

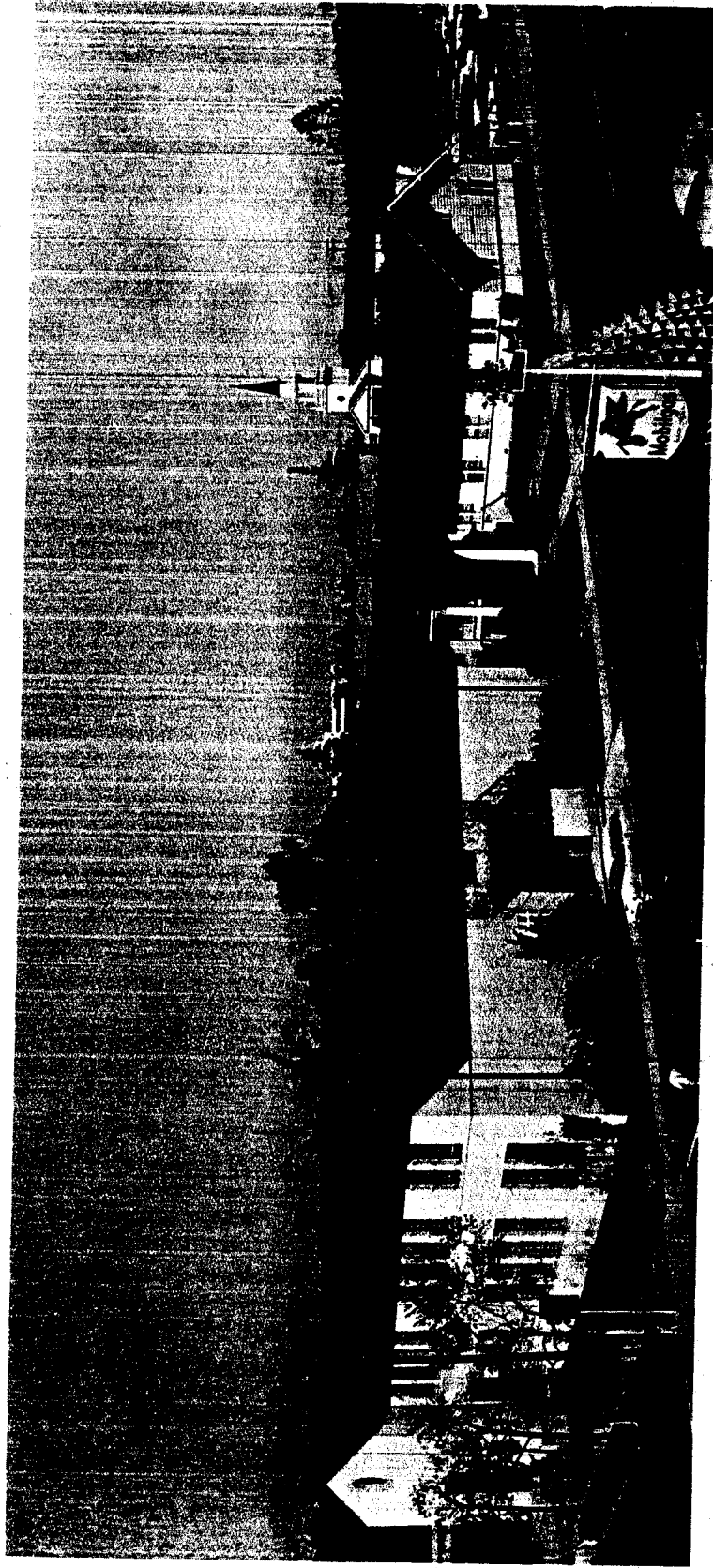
All documents cited in the footnotes are located in the archives of the Historical Division, Office of Information, Space Systems Division, Air Force Systems Command, at Los Angeles Air Force Station.

WDP
January 1965

When Western Development Division was organized in July 1954 to accelerate the ballistic missile program, a handful of officers and civilians worked in temporary offices in a former parochial school building in the heart of downtown Inglewood, California. Ramo-Wooldridge Corporation technical specialists and the Air Materiel Command's Special Project Office shared the same offices with Western Development Division's project officers. This physical proximity was required by the unconventional nature of the management techniques to be utilized. The Air Force itself, in accordance with the advice of the von Neumann Committee, had assumed responsibility for system integration traditionally delegated to the prime contractor. To assure valid systems engineering and technical direction of associate contractor effort in the extremely complex program, the Air Force employed the scientific and engineering capability of the Ramo-Wooldridge Corporation. Air Force officers, civil service employees, procurement specialists and contractor engineers sat side by side--or in adjacent offices--to direct the nation's most important weapons development effort. "Collocation" was essential to this massive technical undertaking.

As the scope of the program expanded and the organization grew, the limited quarters became extremely crowded. The Ramo-Wooldridge Corporation, acting in accordance with its contract to furnish materials and service support as well as systems engineering and technical direction, acquired larger and more efficient facilities. Thus, early in 1955 the first of two buildings under construction on Arbor Vitae Street, a few blocks west of Inglewood's city limits, was completed and occupied.

Buildings Three and Four, constructed in close sequence to One and Two (see accompanying map), were first leased by the Air Force but the high cost of leasing led to government purchase in the summer of 1955. Later that year, the Ramo-Wooldridge Corporation purchased approximately 40 acres on the southeast corner of El Segundo and Aviation Boulevards. Although this location was about three miles south of the Arbor Vitae Street offices, it was the closest practicable site available. Beginning in mid-1956,



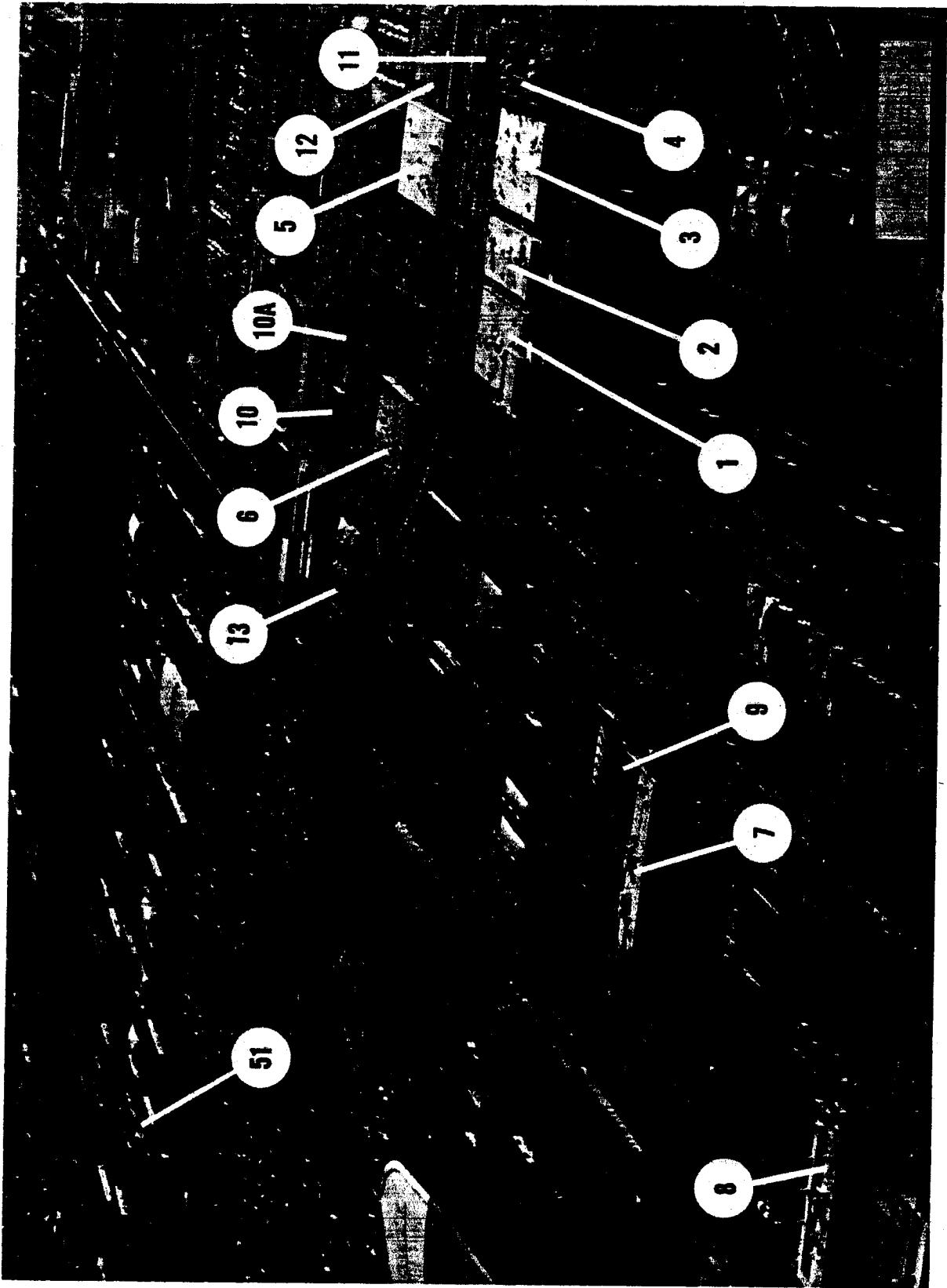
First Western Development Division Offices
Formerly St. John's School, Inglewood, California

the facility called the Research and Development Center was constructed there.

The decision to build additional facilities in El Segundo implied no weakening in the policy of collocation of critical management elements. It was, rather, a response to a rapidly increasing demand for more office and laboratory space. Increasing numbers of military and civilian management and contracting personnel, a parallel increase in systems engineering and technical direction manpower, and expanding liaison offices located within the complex--through 1957 this was the Arbor Vitae location--taxed existing facilities to their limits. As mission assignments increased in number and ballistic missile development moved into operational planning and early site activation activity, additional buildings were leased in the Arbor Vitae area.

During 1957, Buildings One through Eight in the Arbor Vitae complex were occupied by the various Air Force organizational elements, the Ramo-Wooldridge Corporation, and its Guided Missile Research Division (renamed Space Technology Laboratories during 1957). Western Development Division (renamed Air Force Ballistic Missile Division on 1 June 1957) had headquarters offices in Building Three, while the materiel command's Ballistic Missiles Office made its headquarters in Building Four. Buildings Six and Eight were completely occupied by Ramo-Wooldridge personnel who also made up the major population of Buildings One and Two.

The Air Force Ballistic Missile Division's Deputy Commander for Weapon Systems, responsible for the missile system program offices, had major offices spread throughout Buildings Four and Five with the supporting engineering and procurement contingents located in adjacent offices. The Deputy Commander for Resources occupied Building Seven and the offices of the Deputy Commander for Operations were divided between Buildings Two and Four. Building Five was also utilized by Ramo-Wooldridge technical people and the Air Force guidance specialists. Through 1957 the division's installations group, growing rapidly as preparations advanced for missile site selection and construction, utilized Building Seven until Building Nine was acquired in December.



Arbor Vitae Complex - February 1962

Other essential services and their offices were scattered about the complex and there was a fairly constant movement of people and office locations as new programs were assigned and the necessary new people added to the population.

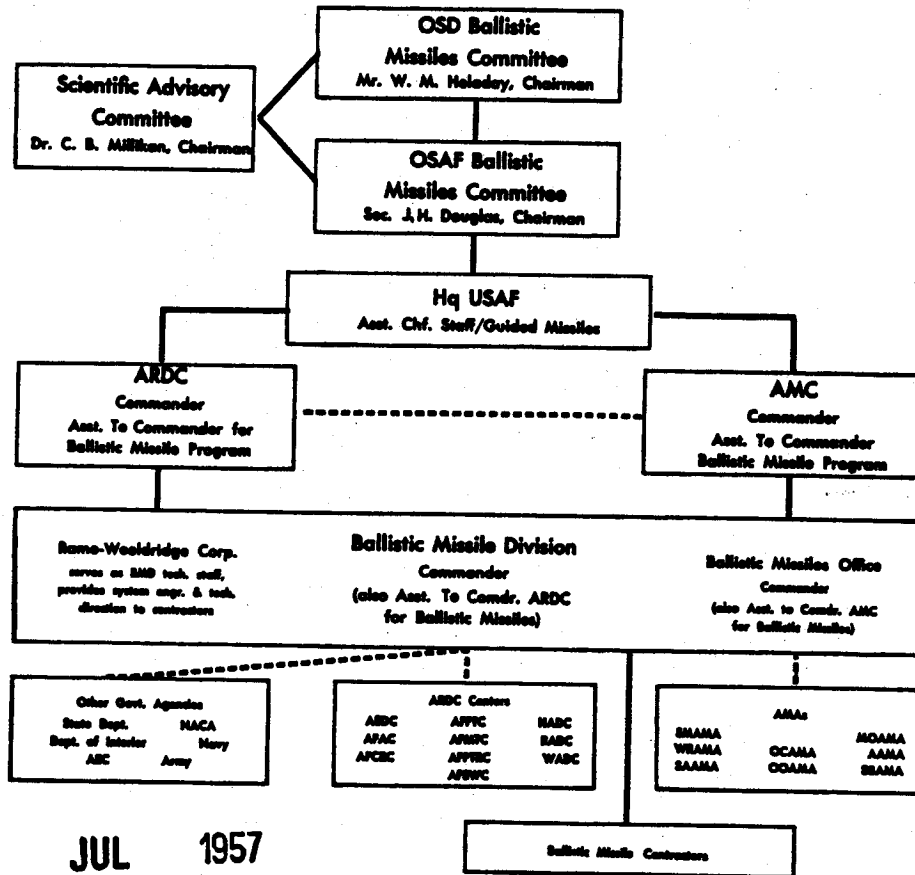
The national shock induced by the Russian Sputniks in late 1957 accelerated the pace of change. In January 1958 the Air Force Ballistic Missile Division was relieved of operational planning for ballistic missiles and responsibility for initial operational capability with the missiles in the field. These tasks were assigned to the Strategic Air Command and the division Deputy Commander for Operations, with his entire staff, was integrated with the Strategic Air Command liaison office to form a new organization designated SAC/MIKE. Fortunately, construction of the new "R&D Center" was far enough advanced to permit Space Technology Laboratories to move its staff from Building Eight to the new El Segundo offices and SAC/MIKE established its headquarters in the vacated building.

The R&D Center was completed in the Fall of 1958 and, although the movement of some Space Technology Laboratories technical people to their new offices temporarily relieved the extreme congestion in the Arbor Vitae complex, it placed a strain on the principle of collocation. The problem was solved by some Air Force offices moving into the R&D Center while, at the same time, special care was taken to assure that system program offices retained their BMD/STL/BMO/SAC/MIKE integrated management organization.

During 1958 Building 11 was built by the Air Force to house medical and dental services and a cafeteria, and Building 12 was leased to accommodate the comptroller, technical library and Space Technology Laboratories technical people. In 1959, Building Ten was leased as a warehouse and the installations work of the division had increased so that it was necessary to lease Building 13--the last acquired in the immediate Arbor Vitae vicinity.

Thus, thirteen buildings (ten leased and three government owned) were acquired during the period of temporary solutions. The urgency

Management Structure AF Ballistic Missile Program

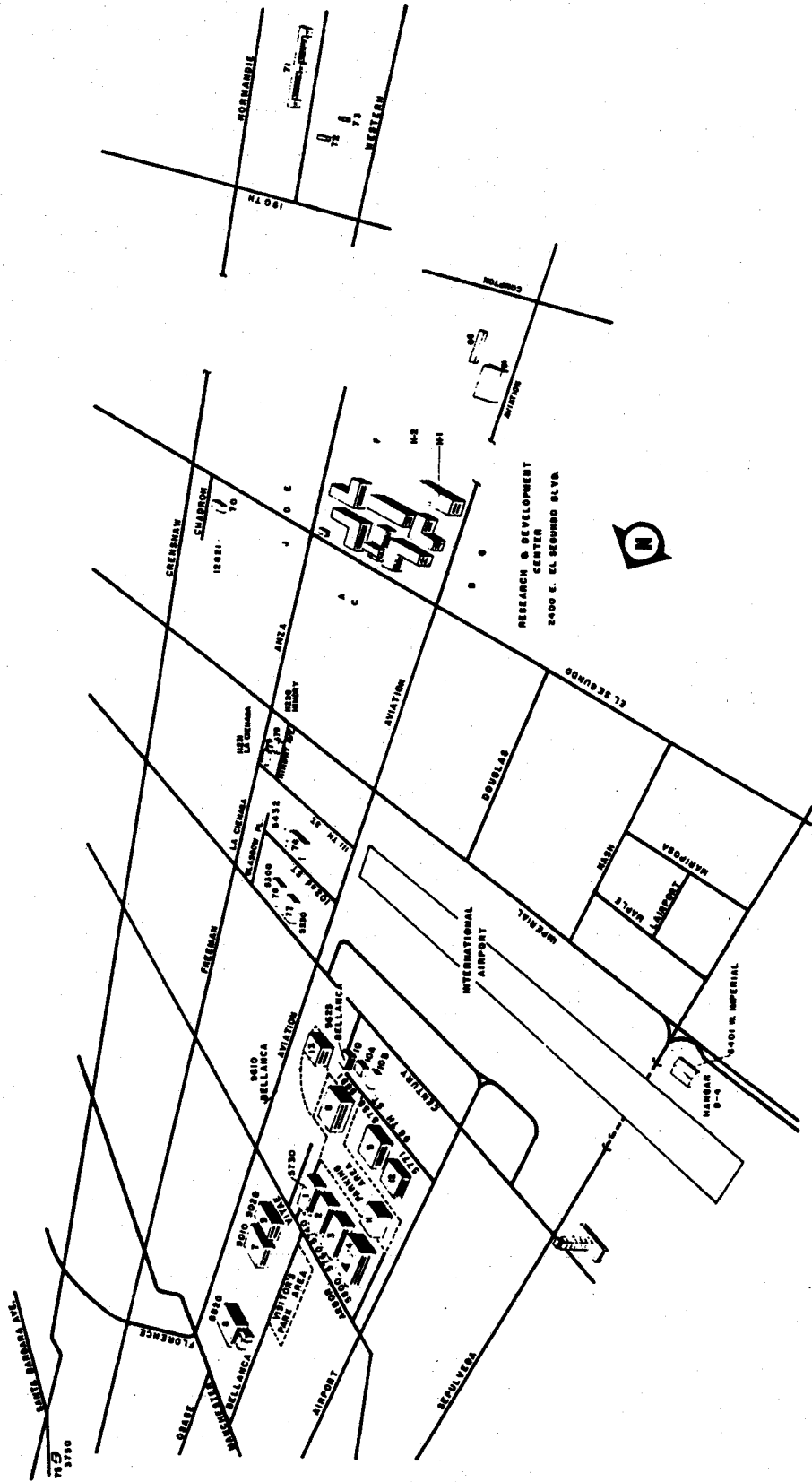


JUL 1957

of the mission assignment demanded office and laboratory space. It was difficult, however, to visualize a long term solution to the housing problem due to uncertainty as to the scope or duration of the ballistic missile and space missions. Meanwhile costs and inefficiencies associated with scattered facilities mounted. The yearly leased facilities budget reached nearly \$800,000 in 1960 and was scheduled to exceed \$1,000,000. Of necessity the principle of collocation was now frequently breached. Although the highest priority programs were managed by tightly integrated cadres of responsible project officers, engineering specialists, and procurement experts, the normal day-to-day business was subjected to greater stress. Communication between offices and people was hampered by an increasing number of impediments, an intra division bus system operated between the far flung offices, special communications lines were necessary, and an augmented guard force was necessary to maintain security, all adding to increased costs and accumulated delays.¹

The facilities difficulty may be emphasized in another way by noting manpower totals illustrated in the accompanying charts. Rapid growth in the number of people engaged in the ballistic missile development enterprise was not matched by a corresponding expansion of facilities. On 1 January 1959 ballistic missile division personnel at work totaled 1,213; the materiel command's contracting and logistic planning force numbered 378; and there were 145 people in the planning office of the strategic command for a total of 1,736 Air Force personnel. In addition, 3,080 Space Technology Laboratories engineering and support personnel were housed in the various offices.²

In the spring of 1959, realizing that long term planning offered the only hope for a permanent solution, the commander appointed a committee to investigate the division's facility requirements. The committee conducted a thorough review of the problem but, due to some temporarily unsettling mission assignments, had to leave its work unfinished. A fresh start was made in the fall of 1959 with the appointment of a full time Long Range Facility Committee to study and recommend a future permanent location for the ballistic and space development division on the assumption



Area Map - February 1962

Manning Summary -- 1961

DEPUTY COMMANDER FOR AEROSPACE SYSTEMS

Organization	OFFICERS				AIRMEN				CIVILIANS				TOTAL	
	Authorized		On Duty		Authorized		On Duty		Authorized		On Duty			
	1 Apr	31 Dec	31 Dec	31 Dec	1 Apr	31 Dec	31 Dec	31 Dec	1 Apr	31 Dec	31 Dec	31 Dec		
DCAS Staff	29	28	29	-	-	-	-	5	5	5	4	34	33	33
6592d Support Wg	160	155	150	239	221	222	318	314	329	329	329	717	690	701
Hq Space Sys Div	559	555	546	5	4	4	419	411	395	395	395	983	970	945
6594th Aerospace Test Wing (Sunnyvale, Calif)	275	282	295	1037	1055	926	80	80	79	79	79	1392	1417	1300
6593d Test Group (Edwards AFB)	113	120	117	217	221	183	420	522	507	507	507	750	863	807
6595th Aerospace Test Wing (Vandenberg AFB)	120	125	169	255	294	376	31	31	29	29	29	406	450	574
SSD Totals	1067	1082	1127	1514	1574	1489	950	1044	1010	1010	1010	3531	3700	3626
Hq Ballistic Sys Div (in Los Angeles)	402	410	428	14	15	19	538	536	528	528	528	954	961	975
BSD Operating Locations (Norton AFB & SATEAFs)	486	471	462	169	193	174	371	371	336	336	336	1026	1035	972
6555th Aerospace Test Wing (Patrick AFB)	100	100	96	423	423	396	71	71	67	67	67	594	594	559
BSD Totals	988	981	986	606	631	589	980	978	931	931	931	2574	2590	2506
DCAS TOTALS	2244	2246	2292	2359	2426	2300	2253	2341	2274	2274	2274	6856	7013	6866

that an Air Force development organization would remain on the West Coast. Several locations were studied, recommended, and eventually rejected--a process that occasionally reached the Air Force secretariat level. Sites that were promising but unacceptable for one reason or another included Los Alamitos Naval Air Station (since the Air Force was planning to close down a number of active bases it seemed very unlikely that approval could be obtained to acquire a new base), located a few miles east of Long Beach, California; Navy owned property and buildings located on the northwest corner of El Segundo and Aviation Boulevards; and 80 acres of vacant land located near the southwest corner of the same intersection. On 26 August 1960, while search and study continued, the Air Force Ballistic Missile and Space Committee reviewed the Los Angeles facilities problem and suggested that the division consider Norton Air Force Base at San Bernardino, California, and March Air Force Base at Riverside, California (both about 70 miles east of Los Angeles) as possible permanent home sites. The local committee concluded that in each instance base facilities were unsuitable to house all the ballistic missile and space program management offices.

But the necessity to do something about obtaining additional quarters was approaching a crisis. On 9 July 1960, the Air Force had responded to acute missile site activation problems by assigning the responsibility for all site activation work to the materiel command. After July 1960 the ballistic missile division retained executive management responsibility for development of the systems while the materiel command's Ballistic Missiles Center, sharing the same total office space with the division, was responsible for site activation. The most significant impact of this change on the facilities problem was the addition of about 800 more workers to the missile development complex, which by now was barely able to contain the 7,600 people already there.³

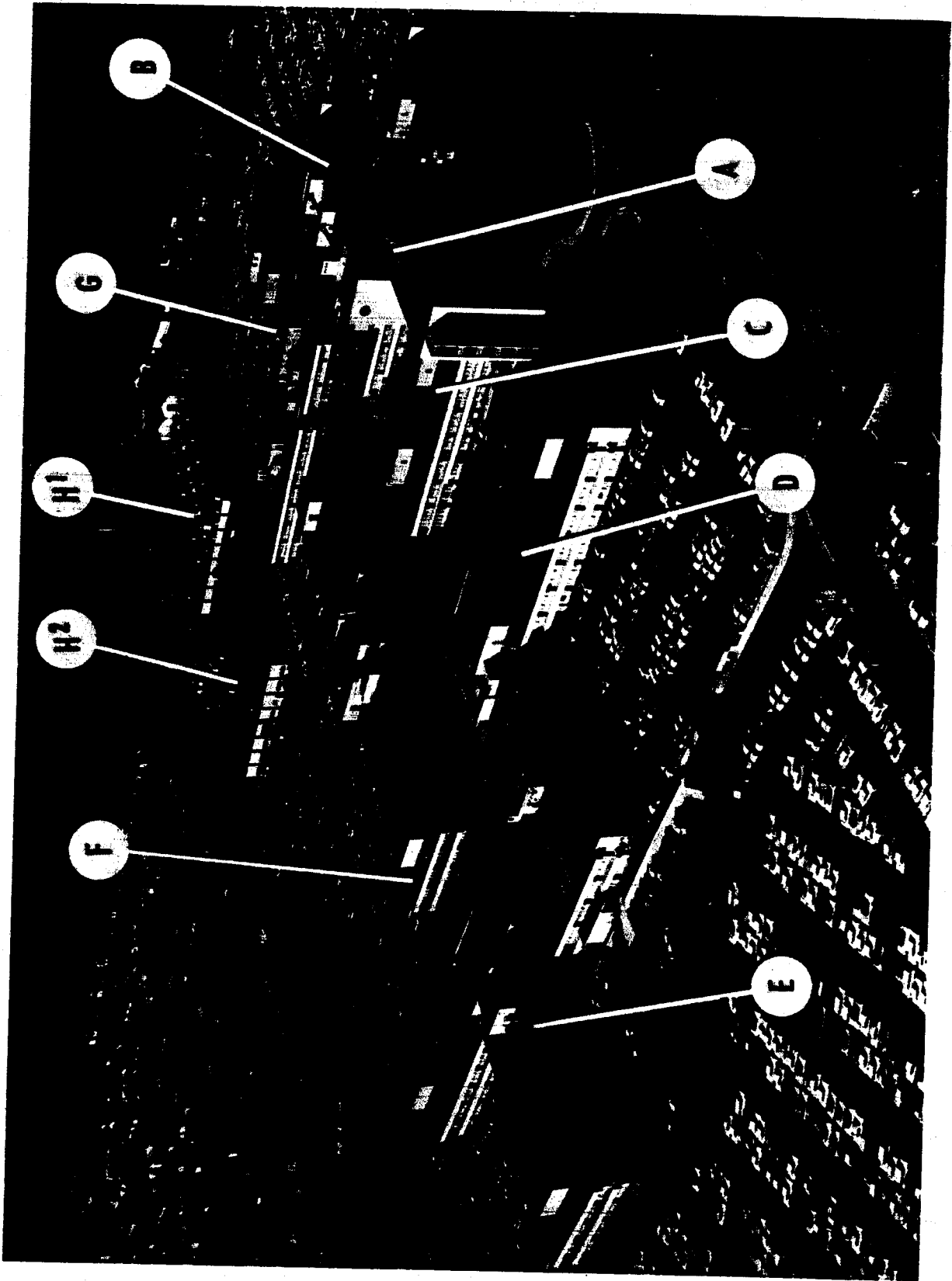
Moreover, the new responsibility for the Ballistic Missiles Center of the materiel command created for the first time ". . . two management missions of highest national urgency within the complex, which though related involve separate organizations which are competing for management

attention and resources. " The inevitable result was "serious organization tensions. . . aggravated by the lack of physical space to accommodate the rapid buildup of personnel for the overall site activation task. "4

In anticipation of this difficulty the Air Force vice chief of staff had directed the materiel and research commands to thresh out the problem and come up with a plan to relocate those elements of the complex that did not require close coordination with Space Technology Laboratories. A plan of action was to be worked out by 26 September 1960, a deadline that allowed little time to solve a problem which had defied solution for nearly two years. Under the circumstances the choice of Norton AFB as an alternate location gained increasing support. In early September, Brigadier General W. E. Leonhard, the missile division's deputy commander for facilities, presented to members of the air staff a plan for moving certain elements of the ballistic division and procurement functions to the San Bernardino base. 5

As more thought was given to the relocation problem, the advantages of the proposed move to Norton Air Force Base became increasingly attractive. General Schriever, in a letter to the Air Force chief of staff on 23 September 1960, clearly stated that such a separation offered the opportunity to restore ". . . the singleness of purpose and cohesiveness of management. . . mandatory for the aggressive translation of technology into space capabilities of importance to national security. . . ." Schriever endorsed the proposal that contemporary ballistic missile programs be moved from the Inglewood complex to San Bernardino "as rapidly as possible. " Furthermore, said Schriever, program management responsibility should be assigned to the materiel command as the programs were transferred. 6

Action was not long in coming. On 29 September the Air Force vice chief of staff ordered the site activation management task ". . . immediately relocated to San Bernardino where the current ballistic missile program can be accommodated on a phased basis, " adding that the Inglewood complex would ultimately ". . . become the permanent focal point and be strongly identified as the USAF military space development agency. "7



Research and Development Center

Air Force acquisition of title to the R&D Center was a more prolonged effort. Agreement was reached on a price of \$23,500,000 and Aerospace Corporation leased the R&D Center from STL for a negotiated sum of \$185,800 per month until title finally passed to the Air Force (December 1960). In return, STL was furnished space at the R&D Center for its people who were still working on Air Force programs while moving quickly to vacate several R&D Center buildings, lease other office space and begin planning construction of a new center.⁹

It was the hope--soon patently clear a hope that was not to be realized-- that all of the development management effort could be housed at the R&D Center or at the Arbor Vitae location. As early as the fall of 1960 the pressure for additional room was building up. Although the plan to move some elements to Norton Air Force Base had been approved, the base was not yet prepared to accept significant numbers of people and the problem of their support was not fully resolved. Immediate solutions were necessary and in the fall of 1960 additional buildings were leased, a maximum of 12 additional buildings by mid-1961. In addition 90 large trailers were rented and parked at the two complexes to furnish additional office space. By this time, buildings were scattered throughout a 56 square mile area in Inglewood, Hawthorne, Lawndale, Torrance, and southwest Los Angeles. Inefficient use of technical personnel and degraded supervision of development programs resulted and, except for the highest priority programs, the principle of collocation could no longer be practiced.

At the beginning of 1961 the solution of facilities problems had reached a plateau for the moment through temporary expedients combined with plans for moving elements of the missile development complex to Norton AFB. There remained, however, complex considerations which delayed any significant movement to Norton Air Force Base for another year and a half. Development management activity and procurement actions had been carried on in close proximity in Los Angeles, utilizing accelerated decision making procedures designed to shorten acquisition time. Movement of contractual and procurement functions to San Bernardino