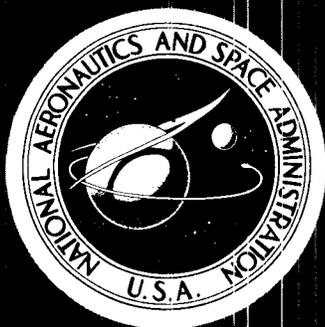


*National Aeronautics  
and Space Administration*

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**BUDGET ESTIMATES**

**FISCAL YEAR 1968**  
Volume IV

ADMINISTRATIVE OPERATIONS

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

FISCAL YEAR 1968 ESTIMATES

ADMINISTRATIVE OPERATIONS

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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

## ADMINISTRATIVE OPERATIONS

### GENERAL STATEMENT

The Administrative Operations appropriation provides for personnel, travel, and other institutional support services at NASA installations, including Headquarters. These installations are institutionally administered by the Associate Administrator having primary responsibility for the Research and Development programs conducted at each installation under his cognizance. The Associate Administrator for Manned Space Flight is responsible for the Kennedy Space Center, Manned Spacecraft Center, and the Marshall Space Flight Center; the Associate Administrator for Space Science and Applications is responsible for Goddard Space Flight Center and Wallops Station; and the Associate Administrator for Advanced Research and Technology is responsible for the Ames Research Center, the Electronics Research Center, the Flight Research Center, the Langley Research Center, the Lewis Research Center, and the Space Nuclear Propulsion Office. The Associate Deputy Administrator is the institutional director for Headquarters.

The organization and operation of a NASA installation are largely products of its prime missions and research responsibilities. For example, the installations under the cognizance of the Associate Administrator for Manned Space Flight are engaged primarily in the development, procurement and launching of large launch vehicles and manned spacecraft systems, and their auxiliary equipment. In addition, they are responsible for the mission planning and operations during the mission. These activities require a large contractor effort which must be directed, monitored, and coordinated by senior professional NASA personnel located at contractor plants, launch and tracking sites, and at NASA installations. The support required for the manned program activity is large in comparison to other installations because of the scope of the technical objectives and the diversity of effort.

The installations under the cognizance of the Associate Administrator for Advanced Research and Technology are mainly engaged in in-house research and monitoring of relatively small research contracts with universities, industry and non-profit institutions. These installations utilize installation laboratories in the intensive pursuit of areas of basic research which require support of a different type than the large project undertakings although these installations have important flight project responsibilities. The size of the Administrative Operations budget at each installation is, therefore, determined by the objectives and characteristics of the research and development mission.

### FY 1967 OPERATING PLAN

The FY 1967 operating plan has been established at \$647,483,000. In the FY 1967 budget estimate, \$663,900,000 was requested for this account, of which \$655,900,000 was authorized and \$640,000,000 appropriated. The increase

in the operating plan over the amount appropriated was financed by a transfer from the Research and Development appropriation. Included in the FY 1967 operating plan is the absorption by NASA of the cost of the 1966 Federal Employees Pay Act in the amount of \$10 million. The FY 1967 operating plan is \$18.4 million lower than the amount authorized, as adjusted for the pay raise. The program will be accomplished within the reduced amount by directed reductions in overtime and in personnel, and by financing only the minimum essential operating requirements.

#### FY 1968 BUDGET ESTIMATE

For FY 1968, \$671,300,000 is being requested for the Administrative Operations appropriation. This is \$23.8 million more than the FY 1967 operating plan. The increases requested included \$6.9 million at the Kennedy Space Center and \$2.6 million at the Manned Spacecraft Center which reflect their heavy involvement in the Apollo program, \$7 million for the Electronics Research Center which represents the FY 1968 increment of the installation's buildup, and \$5 million for the Langley Research Center resulting from additional manpower and the FY 1968 increment of its phased computer installation. Other installations will remain at approximately the same funding level as in FY 1967.

#### FY 1968 MANPOWER PROGRAM

The FY 1968 request for civil service manpower totals 34,126 employees in permanent positions. This is an increase of 400 over FY 1967 employment. The FY 1967 budget estimate for permanent personnel as of June 30, 1967, was 34,339. This level was subsequently reduced by 613 to a total of 33,726, the number actually employed on July 31, 1966, in accordance with the government-wide hiring restrictions. The increase in FY 1968 will provide 300 positions for the new Electronics Research Center and 100 for the Langley Research Center, the latter primarily being to support the Voyager program and additional effort in aeronautics. The total ceiling for other installations will be held to the employment level planned for the end of FY 1967.

#### DESCRIPTION BY ACTIVITY

The FY 1968 budget estimate for Administrative Operations has been organized to display the activities which it sustains and supports. The largest activity, the personnel program, provides for the salaries, benefits, and other related expenses of Government personnel. The other activities into which the Administrative Operations requirement is subdivided are Travel, Automatic Data Processing, Facilities Services, Technical Services, and Administrative Support. The following table indicates the distribution of the total appropriation by function:

Funding by Function

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Personnel.....	\$383,214,000	\$413,304,000	\$422,790,000
Travel.....	17,845,000	18,601,000	19,021,000
Automatic data processing...	40,309,000	36,067,000	40,792,000
Facilities services.....	102,852,000	109,570,000	117,494,000
Technical services.....	23,939,000	24,551,000	25,091,000
Administrative support.....	<u>43,027,000</u>	<u>45,390,000</u>	<u>46,112,000</u>
 Total.....	 <u>\$611,186,000</u>	 <u>\$647,483,000</u>	 <u>\$671,300,000</u>

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

FISCAL YEAR 1968 ESTIMATES

ADMINISTRATIVE OPERATIONS

SUMMARY OF OBLIGATIONS BY INSTALLATION

	<u>Fiscal Year</u> 1966	<u>Fiscal Year</u> 1967	<u>Fiscal Year</u> 1968
<u>MANNED SPACE FLIGHT</u>			
John F. Kennedy Space Center, NASA.....	\$81,952,000	\$92,658,000	\$99,575,000
Manned Spacecraft Center.....	86,543,000	94,989,000	97,636,000
Marshall Space Flight Center....	128,441,000	127,753,000	126,289,000
<u>SPACE SCIENCE AND APPLICATIONS</u>			
Goddard Space Flight Center.....	64,365,000	71,211,000	72,240,000
Wallops Station.....	9,337,000	10,011,000	10,188,000
<u>ADVANCED RESEARCH AND TECHNOLOGY</u>			
Ames Research Center.....	33,211,000	33,739,000	33,954,000
Electronics Research Center.....	6,346,000	12,252,000	19,264,000
Flight Research Center.....	9,380,000	9,485,000	9,630,000
Langley Research Center.....	63,529,000	63,302,000	68,265,000
Lewis Research Center.....	66,383,000	66,283,000	66,996,000
Space Nuclear Propulsion Office.	1,822,000	2,039,000	2,091,000
<u>SUPPORTING OPERATIONS</u>			
NASA Headquarters.....	<u>59,877,000</u>	<u>63,761,000</u>	<u>65,172,000</u>
<u>TOTAL</u> .....	<u>\$611,186,000</u>	<u>\$647,483,000</u>	<u>\$671,300,000</u>

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

FISCAL YEAR 1968 ESTIMATES

ADMINISTRATIVE OPERATIONS

NUMBER OF PERMANENT POSITIONS BY INSTALLATION

	<u>Fiscal Year</u> 1966	<u>Fiscal Year</u> 1967	<u>Fiscal Year</u> 1968
<u>MANNED SPACE FLIGHT</u>			
John F. Kennedy Space Center, NASA.....	2,589	2,720	2,720
Manned Spacecraft Center.....	4,737	4,634	4,634
Marshall Space Flight Center.....	7,271	7,030	7,030
<u>SPACE SCIENCE AND APPLICATIONS</u>			
Goddard Space Flight Center.....	3,712	3,782	3,782
Wallops Station.....	518	518	518
<u>ADVANCED RESEARCH AND TECHNOLOGY</u>			
Ames Research Center.....	2,223	2,171	2,171
Electronics Research Center.....	510	741	1,041
Flight Research Center.....	603	590	590
Langley Research Center.....	4,233	4,136	4,236
Lewis Research Center.....	4,819	4,676	4,676
Space Nuclear Propulsion Office.	117	117	117
<u>SUPPORTING OPERATIONS</u>			
NASA Headquarters.....	<u>2,592</u>	<u>2,611</u>	<u>2,611</u>
<u>TOTAL PERMANENT POSITIONS.....</u>	<u>33,924</u>	<u>33,726</u>	<u>34,126</u>
<u>POSITIONS OTHER THAN PERMANENT</u>	<u>2,182</u>	<u>2,182</u>	<u>2,182</u>
<u>TOTAL POSITIONS.....</u>	<u>36,106</u>	<u>35,908</u>	<u>36,308</u>

SUM 2

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

FISCAL YEAR 1968 ESTIMATES

ADMINISTRATIVE OPERATIONS

DISTRIBUTION OF OBLIGATIONS BY FUNCTION  
BY INSTALLATION

FUNCTION	TOTAL NASA	SUBTOTAL OMSF	J. F. KENNEDY SPACE CENTER, NASA	MANNED SPACECRAFT CENTER	MARSHALL SPACE FLIGHT CENTER	SUBTOTAL OSS/A	GOODARD SPACE FLIGHT CENTER	Wallops STATION	SUBTOTAL DART	AMES RESEARCH CENTER	ELECTRONICS RESEARCH CENTER	FLIGHT RESEARCH CENTER	LANGLEY RESEARCH CENTER	LEWIS RESEARCH CENTER	SPACE NUCLEAR PROPULSION OFFICE	HEADQUARTERS
<b>Personnel</b>																
1966	\$383,214,000	\$168,083,000	\$29,848,000	\$51,718,000	\$86,517,000	\$47,300,000	\$42,436,000	\$4,864,000	\$132,726,000	\$24,027,000	\$4,070,000	\$6,923,000	\$44,434,000	\$51,719,000	\$1,553,000	\$35,105,000
1967	413,304,000	181,582,000	33,579,000	59,287,000	88,716,000	52,017,000	46,748,000	5,269,000	142,526,000	25,684,000	7,574,000	7,116,000	46,539,000	53,864,000	1,749,000	37,179,000
1968	422,790,000	183,862,000	35,476,000	60,623,000	87,763,000	52,340,000	46,989,000	5,351,000	148,211,000	25,811,000	11,375,000	7,224,000	47,716,000	54,293,000	1,792,000	38,377,000
<b>Travel</b>																
1966	17,845,000	8,256,000	340,000	4,238,000	2,170,000	2,557,000	2,454,000	105,000	4,144,000	703,000	238,000	227,000	1,474,000	1,310,000	192,000	2,788,000
1967	18,601,000	8,713,000	1,059,000	4,519,000	3,135,000	2,701,000	2,535,000	166,000	4,266,000	718,000	300,000	216,000	1,529,000	1,296,000	207,000	2,921,000
1968	19,021,000	8,733,000	1,079,000	4,519,000	3,135,000	2,805,000	2,661,000	144,000	4,544,000	718,000	580,000	216,000	1,529,000	1,294,000	207,000	2,939,000
<b>Automatic Data Processing</b>																
1966	40,309,000	18,069,000	948,000	7,008,000	10,113,000	6,990,000	6,876,000	114,000	14,307,000	2,751,000	454,000	97,000	8,442,000	2,563,000	---	943,000
1967	36,067,000	17,875,000	1,330,000	6,296,000	10,249,000	7,869,000	7,807,000	62,000	9,059,000	1,943,000	1,071,000	23,000	5,741,000	281,000	---	1,264,000
1968	40,792,000	17,708,000	1,342,000	6,209,000	10,157,000	8,942,000	8,866,000	76,000	12,993,000	2,095,000	2,098,000	24,000	8,576,000	200,000	---	1,149,000
<b>Facilities Services</b>																
1966	102,852,000	69,313,000	42,678,000	11,937,000	14,698,000	10,148,000	6,996,000	3,152,000	21,690,000	4,563,000	957,000	1,290,000	6,567,000	8,313,000	---	1,701,000
1967	109,570,000	74,021,000	47,874,000	13,373,000	12,774,000	11,469,000	8,148,000	3,321,000	22,627,000	4,252,000	1,830,000	1,354,000	6,799,000	8,392,000	---	1,453,000
1968	117,494,000	80,178,000	52,639,000	14,839,000	12,700,000	11,204,000	7,794,000	3,410,000	24,490,000	4,163,000	2,870,000	1,376,000	7,534,000	8,547,000	---	1,622,000
<b>Technical Services</b>																
1966	23,939,000	8,852,000	31,000	2,938,000	5,883,000	1,074,000	1,008,000	66,000	1,145,000	320,000	146,000	191,000	333,000	79,000	76,000	12,868,000
1967	24,551,000	8,102,000	---	2,608,000	5,494,000	1,409,000	1,297,000	112,000	1,307,000	177,000	569,000	84,000	327,000	70,000	80,000	13,733,000
1968	25,091,000	7,786,000	8,000	2,596,000	5,182,000	1,278,000	1,169,000	109,000	2,086,000	207,000	1,127,000	82,000	357,000	224,000	89,000	13,941,000
<b>Administrative Support</b>																
1966	43,027,000	24,263,000	7,607,000	8,604,000	8,052,000	5,633,000	4,595,000	1,038,000	6,659,000	847,000	481,000	652,000	2,279,000	2,399,000	1,000	6,472,000
1967	45,390,000	25,107,000	8,816,000	8,906,000	7,385,000	5,757,000	4,676,000	1,081,000	7,315,000	965,000	908,000	692,000	2,367,000	2,380,000	3,000	7,211,000
1968	46,112,000	25,233,000	9,031,000	8,850,000	7,352,000	5,859,000	4,761,000	1,098,000	7,876,000	960,000	1,214,000	708,000	2,553,000	2,438,000	3,000	7,144,000
<b>Total</b>																
1966	\$611,186,000	\$296,936,000	\$81,952,000	\$86,543,000	\$128,441,000	\$73,702,000	\$64,365,000	\$9,337,000	\$180,671,000	\$33,211,000	\$6,346,000	\$9,380,000	\$63,529,000	\$66,383,000	\$1,822,000	\$59,877,000
1967	647,483,000	315,400,000	92,658,000	94,989,000	127,753,000	81,222,000	71,211,000	10,011,000	187,100,000	33,739,000	12,252,000	9,485,000	63,302,000	66,283,000	2,039,000	63,761,000
1968	671,300,000	323,500,000	99,575,000	97,636,000	126,289,000	82,428,000	72,240,000	10,188,000	200,200,000	33,954,000	19,266,000	9,430,000	68,265,000	66,986,000	2,091,000	65,172,000

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
 FISCAL YEAR 1968 ESTIMATES  
 ADMINISTRATIVE OPERATIONS  
 DISTRIBUTION OF FUNCTIONS BY OBJECT CLASSIFICATION

Object Classification	Total NASA	Personnel	Travel	Automatic Data Processing	Facilities Services	Technical Services	Administrative Support
<b>FISCAL YEAR 1966</b>							
Personnel compensation	\$354,155,000	\$354,155,000	---	---	---	---	---
Personnel benefits	25,577,000	25,577,000	---	---	---	---	---
Benefits for former personnel	2,000	2,000	---	---	---	---	---
Travel & transp. of persons	19,466,000	258,000	\$17,845,000	---	---	---	\$1,363,000
Transportation of things	4,480,000	624,000	---	---	---	---	3,856,000
Rents, communications, and utilities	47,259,000	---	---	\$19,777,000	\$15,571,000	---	11,911,000
Printing and reproduction	6,169,000	---	---	---	---	---	6,169,000
Other services	97,679,000	1,669,000	---	11,243,000	54,815,000	\$20,958,000	8,994,000
Services of other agencies	14,067,000	929,000	---	---	10,441,000	1,727,000	970,000
Supplies and materials	19,089,000	---	---	---	11,627,000	---	7,462,000
Equipment	17,854,000	---	---	9,289,000	5,140,000	1,254,000	2,171,000
Lands and structures	5,258,000	---	---	---	5,258,000	---	---
Grants, subsidies & contributions	---	---	---	---	---	---	---
Insurance claims and indemnities	131,000	---	---	---	---	---	131,000
<b>Totals</b>	<b>\$611,186,000</b>	<b>\$383,214,000</b>	<b>\$17,845,000</b>	<b>\$40,309,000</b>	<b>\$102,852,000</b>	<b>\$23,939,000</b>	<b>\$43,027,000</b>
<b>FISCAL YEAR 1967</b>							
Personnel compensation	\$379,868,000	\$379,868,000	---	---	---	---	---
Personnel benefits	29,274,000	29,274,000	---	---	---	---	---
Benefits for former personnel	37,000	37,000	---	---	---	---	---
Travel & transp. of persons	20,619,000	471,000	\$18,601,000	---	---	---	\$1,547,000
Transportation of things	5,435,000	908,000	---	---	---	---	4,527,000
Rents, communications, and utilities	50,742,000	---	---	\$19,333,000	\$18,517,000	---	12,892,000
Printing and reproduction	6,623,000	---	---	---	---	---	6,623,000
Other services	105,661,000	2,053,000	---	13,818,000	58,773,000	\$21,765,000	9,252,000
Services of other agencies	14,063,000	693,000	---	14,000	10,494,000	1,826,000	1,036,000
Supplies and materials	19,482,000	---	---	---	12,015,000	---	7,467,000
Equipment	11,169,000	---	---	2,902,000	5,349,000	960,000	1,958,000
Lands and structures	4,422,000	---	---	---	4,422,000	---	---
Grants, subsidies & contributions	50,000	---	---	---	---	---	50,000
Insurance claims and indemnities	38,000	---	---	---	---	---	38,000
<b>Totals</b>	<b>\$647,483,000</b>	<b>\$413,304,000</b>	<b>\$18,601,000</b>	<b>\$36,067,000</b>	<b>\$109,570,000</b>	<b>\$24,551,000</b>	<b>\$45,390,000</b>
<b>FISCAL YEAR 1968</b>							
Personnel compensation	\$388,561,000	\$388,561,000	---	---	---	---	---
Personnel benefits	30,106,000	30,106,000	---	---	---	---	---
Benefits of former personnel	2,000	2,000	---	---	---	---	---
Travel & transp. of persons	20,987,000	444,000	\$19,021,000	---	---	---	\$1,522,000
Transportation of things	5,269,000	711,000	---	---	---	---	4,558,000
Rents, communications, and utilities	56,586,000	---	---	\$21,929,000	\$21,346,000	---	13,311,000
Printing and reproduction	6,529,000	---	---	---	---	---	6,529,000
Other services	109,764,000	2,270,000	---	13,544,000	62,561,000	\$21,924,000	9,465,000
Services of other agencies	15,718,000	696,000	---	16,000	11,730,000	2,207,000	1,069,000
Supplies and materials	19,841,000	---	---	---	12,344,000	---	7,497,000
Equipment	13,674,000	---	---	5,303,000	5,339,000	960,000	2,072,000
Lands and structures	4,174,000	---	---	---	4,174,000	---	---
Grants, subsidies, and contributions	50,000	---	---	---	---	---	50,000
Insurance claims and indemnities	39,000	---	---	---	---	---	39,000
<b>Totals</b>	<b>\$671,300,000</b>	<b>\$422,790,000</b>	<b>\$19,021,000</b>	<b>\$40,792,000</b>	<b>\$117,494,000</b>	<b>\$25,091,000</b>	<b>\$46,112,000</b>

SUM 4

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

FISCAL YEAR 1968 ESTIMATES

ADMINISTRATIVE OPERATIONS

DISTRIBUTION OF OBLIGATIONS BY OBJECT CLASSIFICATION  
BY INSTALLATION

OBJECT CLASSIFICATION	TOTAL NASA	J. F. KENNEDY SPACE CENTER NASA	PLANNED SPACECRAFT CENTER	MARSHALL SPACE FLIGHT CENTER	WOODWARD SPACE FLIGHT CENTER	Wallops STATION	AMES RESEARCH CENTER	ELECTRONICS RESEARCH CENTER	FLIGHT RESEARCH CENTER	LANGLEY RESEARCH CENTER	LEWIS RESEARCH CENTER	SPACE NUCLEAR PROPULSION OFFICE	HEADQUARTERS
<b>FISCAL YEAR 1966</b>													
Personnel compensation	\$35,155,000	\$27,764,000	\$47,906,000	\$80,178,000	\$39,105,000	\$4,483,000	\$22,252,000	\$3,738,000	\$6,424,000	\$41,199,000	\$44,089,000	\$1,432,000	\$31,585,000
Personnel benefits	25,577,000	1,844,000	3,332,000	5,720,000	2,949,000	307,000	1,654,000	262,000	455,000	3,118,000	5,490,000	117,000	2,429,000
Benefits for former personnel	7,000	---	---	---	---	---	---	---	---	---	---	---	2,000
Travel & transp. of persons	12,466,000	1,853,000	4,806,000	3,314,000	2,521,000	169,000	719,000	245,000	231,000	1,490,000	1,321,000	192,000	2,805,000
Transportation of things	4,480,000	1,383,000	615,000	215,000	1,287,000	73,000	48,000	39,000	24,000	295,000	229,000	3,000	269,000
Rents, communications, and utilities	4,259,000	6,159,000	8,505,000	8,442,000	7,375,000	388,000	4,420,000	736,000	282,000	5,285,000	5,080,000	---	2,587,000
Printing and reproduction	3,169,000	1,543,000	801,000	973,000	477,000	41,000	27,000	44,000	8,000	160,000	74,000	---	2,021,000
Other services	9,679,000	29,533,000	15,229,000	19,861,000	6,811,000	1,124,000	1,651,000	706,000	1,510,000	3,142,000	4,347,000	77,000	13,688,000
Services of other agencies	10,067,000	8,212,000	714,000	2,343,000	194,000	70,000	161,000	153,000	19,000	70,000	127,000	1,000	2,003,000
Supplies and materials	19,089,000	1,857,000	2,335,000	5,094,000	2,162,000	1,484,000	756,000	177,000	288,000	2,467,000	1,820,000	---	649,000
Equipment	11,854,000	1,070,000	1,410,000	1,053,000	1,116,000	419,000	1,112,000	244,000	113,000	5,962,000	2,517,000	---	1,838,000
Lands and structures	3,258,000	719,000	1,089,000	1,245,000	367,000	673,000	410,000	2,000	25,000	440,000	288,000	---	---
Grants, subsidies & contributions	---	---	---	---	---	---	---	---	---	---	---	---	---
Insurance claims and indemnities	131,000	15,000	1,000	3,000	1,000	106,000	1,000	---	1,000	1,000	1,000	---	1,000
<b>Totals</b>	<b>\$61,186,000</b>	<b>\$81,952,000</b>	<b>\$98,543,000</b>	<b>\$128,441,000</b>	<b>\$64,365,000</b>	<b>\$9,337,000</b>	<b>\$33,211,000</b>	<b>\$6,346,000</b>	<b>\$9,380,000</b>	<b>\$63,529,000</b>	<b>\$66,383,000</b>	<b>\$1,822,000</b>	<b>\$59,877,000</b>
<b>FISCAL YEAR 1967</b>													
Personnel compensation	\$37,868,000	\$30,492,000	\$34,539,000	\$81,497,000	\$42,860,000	\$4,811,000	\$23,797,000	\$6,847,000	\$6,587,000	\$43,105,000	\$49,970,000	\$1,573,000	\$31,389,000
Personnel benefits	29,274,000	2,308,000	4,171,000	6,534,000	3,330,000	360,000	1,770,000	512,000	488,000	3,209,000	3,716,000	163,000	2,113,000
Benefits for former personnel	37,000	---	---	---	---	---	---	---	---	---	26,000	---	11,000
Travel & transp. of persons	20,619,000	2,300,000	4,775,000	3,270,000	2,703,000	250,000	731,000	345,000	220,000	1,551,000	1,310,000	209,000	2,555,000
Transportation of things	3,435,000	1,920,000	685,000	210,000	1,407,000	100,000	39,000	80,000	30,000	382,000	256,000	8,000	324,000
Rents, communications, and utilities	50,742,000	8,405,000	8,614,000	8,125,000	7,852,000	409,000	4,326,000	1,655,000	274,000	5,203,000	3,216,000	---	2,661,000
Printing and reproduction	6,623,000	1,760,000	700,000	975,000	434,000	50,000	27,000	95,000	20,000	160,000	60,000	---	2,342,000
Other services	10,661,000	32,191,000	16,555,000	18,705,000	9,039,000	1,279,000	1,956,000	1,642,000	1,287,000	3,443,000	3,957,000	80,000	15,429,000
Services of other agencies	10,063,000	8,150,000	695,000	2,420,000	160,000	75,000	170,000	276,000	21,000	21,000	130,000	6,000	1,839,000
Supplies and materials	19,482,000	2,425,000	2,650,000	4,550,000	1,918,000	1,570,000	690,000	371,000	350,000	2,467,000	1,850,000	---	641,000
Equipment	11,169,000	1,195,000	955,000	800,000	819,000	480,000	150,000	425,000	131,000	3,320,000	1,497,000	---	1,397,000
Lands and structures	4,422,000	902,000	645,000	662,000	689,000	626,000	82,000	---	76,000	440,000	300,000	---	---
Grants, subsidies & contributions	50,000	---	---	---	---	---	---	---	---	---	---	---	50,000
Insurance claims and indemnities	38,000	10,000	5,000	5,000	---	1,000	1,000	4,000	1,000	---	1,000	---	10,000
<b>Totals</b>	<b>\$64,433,000</b>	<b>\$92,658,000</b>	<b>\$94,989,000</b>	<b>\$127,753,000</b>	<b>\$71,211,000</b>	<b>\$10,011,000</b>	<b>\$33,739,000</b>	<b>\$12,252,000</b>	<b>\$9,485,000</b>	<b>\$63,302,000</b>	<b>\$66,283,000</b>	<b>\$7,039,000</b>	<b>\$61,761,000</b>
<b>FISCAL YEAR 1968</b>													
Personnel compensation	\$38,561,000	\$32,794,000	\$55,807,000	\$80,631,000	\$43,139,000	\$4,879,000	\$23,835,000	\$10,305,000	\$6,692,000	\$44,162,000	\$50,342,000	\$1,600,000	\$34,375,000
Personnel benefits	30,106,000	2,426,000	4,309,000	6,547,000	3,397,000	363,000	1,813,000	740,000	493,000	3,311,000	3,792,000	176,000	2,839,000
Benefits for former personnel	2,000	---	---	---	---	---	---	---	---	---	---	---	2,000
Travel & transp. of persons	20,987,000	2,300,000	4,775,000	3,270,000	2,789,000	210,000	731,000	655,000	220,000	1,551,000	1,310,000	209,000	2,967,000
Transportation of things	3,269,000	1,800,000	615,000	210,000	1,347,000	100,000	39,000	130,000	40,000	397,000	250,000	11,000	330,000
Rents, communications, and utilities	50,586,000	9,300,000	8,665,000	8,125,000	9,547,000	420,000	4,633,000	3,088,000	274,000	6,190,000	3,480,000	---	2,874,000
Printing and reproduction	6,529,000	1,760,000	700,000	975,000	337,000	50,000	27,000	130,000	25,000	160,000	60,000	---	2,305,000
Other services	10,674,000	35,841,000	17,121,000	18,176,000	8,404,000	1,477,000	1,782,000	1,852,000	1,214,000	4,141,000	3,975,000	89,000	15,352,000
Services of other agencies	11,718,000	8,420,000	1,695,000	2,390,000	160,000	78,000	170,000	633,000	21,000	21,000	135,000	6,000	1,989,000
Supplies and materials	15,841,000	2,750,000	2,510,000	4,355,000	1,988,000	1,500,000	690,000	555,000	350,000	2,640,000	1,850,000	---	643,000
Equipment	11,674,000	1,165,000	840,000	750,000	819,000	480,000	150,000	1,171,000	200,000	5,142,000	1,501,000	---	1,436,000
Lands and structures	4,174,000	1,009,000	594,000	655,000	313,000	630,000	83,000	---	100,000	440,000	300,000	---	---
Grants, subsidies & contributions	50,000	---	---	---	---	---	---	---	---	---	---	---	50,000
Insurance claims and indemnities	39,000	10,000	5,000	5,000	---	1,000	1,000	5,000	1,000	---	1,000	---	10,000
<b>Totals</b>	<b>\$67,300,000</b>	<b>\$99,575,000</b>	<b>\$97,636,000</b>	<b>\$126,289,000</b>	<b>\$72,240,000</b>	<b>\$10,188,000</b>	<b>\$33,954,000</b>	<b>\$19,264,000</b>	<b>\$9,630,000</b>	<b>\$68,265,000</b>	<b>\$66,996,000</b>	<b>\$7,091,000</b>	<b>\$65,172,000</b>

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

FISCAL YEAR 1968 ESTIMATES

ADMINISTRATIVE OPERATIONS

ANALYSIS OF REQUIREMENTS FOR PASSENGER-CARRYING MOTOR VEHICLES

The appropriation language provides for the acquisition of 23 passenger motor vehicles, all of which are for replacement purposes only. All vehicles scheduled for replacement meet, or will meet, the criteria established by the General Services Administration for replacement of vehicles due either to age, mileage, or a combination of these factors.

A summary analysis of the planned acquisitions by type of vehicle in FY 1968 is as follows:

	<u>Total</u>	<u>Medium Sedans</u>	<u>Other Sedans</u>	<u>Station Wagons</u>	<u>Ambulances</u>	<u>Buses</u>
Planned fleet, July 1, 1967.	187	1	42	116	13	15
Number to be purchased in FY 1968.....	23	-	10	11	1	1
Number of disposals planned:	-23	-	-7	-14	-1	-1
To be replaced by identical vehicle type.....	(20)	(-)	(7)	(11)	(1)	(1)
To be replaced by another vehicle type.....	<u>(3)</u>	<u>(-)</u>	<u>(-)</u>	<u>(3)*</u>	<u>(-)</u>	<u>(-)</u>
Planned fleet, June 30, 1968	187	1	45	113	13	15

\*Three station wagon disposals will be replaced with "Other Sedans" (also, note the difference of 3 between the purchases and replacements for "Other Sedans.")

ADMINISTRATIVE OPERATIONS

FISCAL YEAR 1968 ESTIMATES

PERSONNEL

	1966	1967	1968	Change in 1968
Personnel.....	\$383,214,000	\$413,304,000	\$422,790,000	+\$9,486,000

DESCRIPTION:

The estimate for personnel and related costs includes the regular pay, overtime, holiday, Sunday and nightwork differential pay, of personnel in permanent, temporary, part-time and intermittent positions engaged in NASA work, and the cost of military personnel detailed to NASA and personnel of other agencies assigned to NASA. It also includes the Government's contribution to the Civil Service Retirement Fund for permanent employees, the contribution to social security for other than permanent employees, the Government's share of the cost of employees' life insurance and health benefits, incentive awards and the cost of severance pay of employees. The estimate provides for the cost of travel to initial duty station, travel incident to permanent changes of station and the cost of shipment of household goods and personal effects for transferred employees. Reimbursement to the Civil Service Commission for security investigations and examining services and payments to other agencies and non-government institutions for personnel training are also included in this activity.

DISTRIBUTION OF FUND REQUIREMENTS BY INSTALLATION:

	1966	1967	1968
Kennedy Space Center.....	\$29,848,000	\$33,579,000	\$35,476,000
Manned Spacecraft Center.....	51,718,000	59,287,000	60,623,000
Marshall Space Flight Center...	86,517,000	88,716,000	87,763,000
Goddard Space Flight Center....	42,436,000	46,748,000	46,989,000
Wallops Station.....	4,864,000	5,269,000	5,351,000
Ames Research Center.....	24,027,000	25,684,000	25,811,000
Electronics Research Center....	4,070,000	7,574,000	11,375,000
Flight Research Center.....	6,923,000	7,116,000	7,224,000
Langley Research Center.....	44,434,000	46,539,000	47,716,000
Lewis Research Center.....	51,719,000	53,864,000	54,293,000
Space Nuclear Propulsion			
Office.....	1,553,000	1,749,000	1,792,000
NASA Headquarters.....	35,105,000	37,179,000	38,377,000
Total.....	\$383,214,000	\$413,304,000	\$422,790,000

BASIS OF FUND REQUIREMENTS:

The planned end of year employment for NASA civil service personnel includes 33,726 permanent employees in 1967 and 34,126 permanent employees in 1968. The additional allocation for nonpermanent employees is 2,182 in 1967 and 2,182 in 1968. The total complement, therefore, is 35,908 positions in 1967 and 36,308 positions in 1968. The distribution of the permanent positions by installation is as follows:

DISTRIBUTION OF POSITIONS BY INSTALLATION

	<u>1966</u>	<u>1967</u>	<u>1968</u>
<u>Permanent Positions</u>			
Kennedy Space Center.....	2,589	2,720	2,720
Manned Spacecraft Center.....	4,737	4,634	4,634
Marshall Space Flight Center.....	7,271	7,030	7,030
Goddard Space Flight Center.....	3,712	3,782	3,782
Wallops Station.....	518	518	518
Ames Research Center.....	2,223	2,171	2,171
Electronics Research Center.....	510	741	1,041
Flight Research Center.....	603	590	590
Langley Research Center.....	4,233	4,136	4,236
Lewis Research Center.....	4,819	4,676	4,676
Space Nuclear Propulsion Office.....	117	117	117
Headquarters.....	<u>2,592</u>	<u>2,611</u>	<u>2,611</u>
Subtotal	33,924	33,726	34,126
<u>Nonpermanent Positions</u>			
Total.....	<u>2,182</u>	<u>2,182</u>	<u>2,182</u>
Total.....	<u>36,106</u>	<u>35,908</u>	<u>36,308</u>

The number of permanent positions planned for 1967 is 613 fewer than included in the plan for 1967 a year ago. The reduction resulted from a Government-wide policy to limit full-time employment in permanent positions in most agencies to the number actually employed on July 31, 1966. At that time, NASA had 33,726 full-time employees in permanent positions on the rolls. This reduction of 613 permanent positions is in addition to the target reduction of 400 related to the 1965 retirement legislation and described in the 1967 budget submission.

The total retrenchment of 1,013 positions was accomplished by reassessing program priorities and reducing the planned allocations of new positions and by not filling certain vacated positions.

In addition to changes necessitated by the reduction of 613 positions, there have been changes in installation allocations because of modifications

in agency structure and mission emphasis. For example, the Voyager program will require an increase of 100 positions for the establishment of a project office. The final location of this office has not been determined; the positions are shown as part of the Headquarters' complement pending a final decision. Also, in order to improve organizational responsibility, 39 field auditor positions were taken from field center allocations and transferred to the rolls of Headquarters. This realignment, which does not change the location of the employees in the field, places the employees in the Headquarters complement to which they report. In addition, the Goddard Space Flight Center staff was increased above the level indicated in the 1967 budget plan in order to augment the capability in the project management area.

The final example of a major change is the Western Operations Office which was abolished and its functions realigned into three field extensions of Headquarters: the NASA Pasadena Office, which is responsible for operation of the contract at the Jet Propulsion Laboratory (JPL); the NASA Office at Downey, California, which provides support to the Apollo effort at North American Aviation Corporation; and the Western Support Office at Santa Monica, California, which provides general administrative support in the Southern California area. The NASA Pasadena Office, which is responsible for negotiation and administration of the NASA contract with the California Institute of Technology for the operation of JPL, reports to the Associate Administrator for Space Science and Applications. The other two offices report to the Assistant Administrator for Industry Affairs. A small number of employees, formerly assigned to the Western Operations Office, whose work was entirely related to particular centers were transferred to those installations whose program they supported.

The following table summarizes the changes for 1967 in permanent position allocations to Institutional Directors from the 1967 budget to the current plan.

CHANGES IN THE 1967 PERMANENT POSITION PLAN

<u>Institutional Director</u>	<u>Plan in 1967 Budget</u>	<u>Internal NASA Realignments</u>	<u>Government-wide Reduction</u>	<u>Plan in 1968 Budget</u>
Manned Space Flight.....	14,718	-72	-262	14,384
Space Science and Applications.....	4,277	+61	-38	4,300
Advanced Research and Technology.....	12,828	-130	-267	12,431
Supporting Operations.....	<u>2,516</u>	<u>+141</u>	<u>-46</u>	<u>2,611</u>
Total.....	<u>34,339</u>	<u>-0-</u>	<u>-613</u>	<u>33,726</u>

### Permanent Positions

In 1968, NASA is requesting an increase of 400 permanent positions. An increase of 100 positions is proposed for Langley to provide capability for support of the new Voyager program and expanded aeronautics activity. The remaining 300 positions are for the continuation of the growth at the Electronics Research Center (ERC), bringing employment there to 1,041 by the end of the year.

### Nonpermanent Positions

The plan for 1967 requires an increase of 1,582 nonpermanent positions over the plan shown in the 1967 budget. The increase in end of year positions provides for the NASA summer employment program. NASA hires college students and high school and college faculty members during the summer to augment its work force at the peak vacation period and to provide these people exposure to the NASA technical effort. The benefits to the participants are numerous, and the education and training they receive is considered as a national asset. A portion of the nonpermanent positions is used for NASA's participation in the President's Youth Opportunity Campaign. This program presents underprivileged youths the opportunity to work at summer jobs at NASA's installations, when unskilled personnel can be effectively used.

In addition, 258 positions have been reserved to provide for the agency's participation in the Back-to-School part of the campaign. This program continues during the school year, and the underprivileged youths are employed at a variety of unskilled tasks during a work-week limited to not more than 15 hours.

As in the past, the agency continues to provide significant training opportunities for technically oriented college students participating in the cooperative training program throughout the year. The student employed under a cooperative training agreement works for a term at a NASA installation and then spends a term in regular study at his college. This program combines practical experience with theory and has been an outstanding recruitment source for NASA.

Experts and consultants are also included under nonpermanent positions. They are usually employed for a few days at a time when their expertise is needed.

### Manpower Utilization

The largest part of the civil service effort will continue to be applied to the manned space flight programs. By the end of 1967, the effort on the Gemini program will be substantially completed. The Apollo program effort will peak in 1967 and decline during 1968. Available staff will be phased into the Apollo Applications program.

The buildup associated with the Voyager program will offset minor reductions in other Space Science and Applications programs. The buildup at Electronics Research Center is responsible for the increase in the effort applied to the Advanced Research and Technology activity. Other programs, as well as supporting effort, remain at about the same level in 1968 as in 1967. The distribution of permanent positions by program is as follows:

DISTRIBUTION OF PERMANENT POSITIONS BY PROGRAM

<u>Program</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
<u>Direct Positions</u>			
<u>Manned Space Flight</u>			
Gemini.....	1,130	33	---
Apollo.....	9,348	9,787	8,993
Apollo applications.....	160	398	1,100
Advanced missions.....	268	322	327
 <u>Space Science and Applications</u>			
Physics and astronomy.....	1,364	1,360	1,356
Lunar and planetary exploration.....	300	310	236
Voyager.....	---	295	521
Sustaining university program.....	76	73	73
Launch vehicle development.....	132	91	----
Launch vehicle procurement.....	510	536	627
Bioscience.....	273	288	298
Space applications.....	437	493	507
 <u>Advanced Research and Technology</u>			
Basic research.....	1,234	1,348	1,395
Space vehicle systems.....	1,502	1,339	1,367
Electronics systems.....	1,182	1,173	1,230
Human factor systems.....	354	375	420
Space power and electric propulsion systems.....	902	897	910
Nuclear rockets.....	676	372	372
Chemical propulsion.....	459	438	447
Aeronautics.....	1,775	2,065	2,147
Tracking and Data Acquisition	1,041	1,073	1,056
Technology Utilization	<u>57</u>	<u>57</u>	<u>57</u>
Subtotal Direct Positions.....	23,180	23,123	23,439

	<u>1966</u>	<u>1967</u>	<u>1968</u>
<u>Support Positions</u>			
Director and staff.....	1,148	1,120	1,126
Administrative support.....	5,203	5,105	5,165
R&D support.....	<u>4,393</u>	<u>4,378</u>	<u>4,396</u>
 Total, permanent positions.....	 <u>33,924</u>	 <u>33,726</u>	 <u>34,126</u>

The distribution of permanent positions by installation identifies where the effort is being applied and the distribution of permanent positions by program relates the staff to principal areas of work. Another aspect of agency employment is the composition of the work force by major skill as follows:

COMPOSITION OF PERMANENT STAFF BY OCCUPATIONAL GROUP

<u>Occupational Group</u>	<u>1966</u>		<u>1967</u>		<u>1968</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Professional sci- entists and engineers.....	13,845	40.8	14,197	42.1	14,562	42.7
Technicians.....	4,313	12.7	4,051	12.0	4,026	11.8
Wage board.....	5,572	16.4	5,296	15.7	5,289	15.5
Professional admin- istrative.....	4,226	12.5	4,265	12.6	4,423	13.0
Clerical.....	<u>5,968</u>	<u>17.6</u>	<u>5,917</u>	<u>17.6</u>	<u>5,826</u>	<u>17.0</u>
 Total.....	 <u>33,924</u>	 <u>100.0</u>	 <u>33,726</u>	 <u>100.0</u>	 <u>34,126</u>	 <u>100.0</u>

As reflected above, professional scientists and engineers comprise over forty-two percent of the NASA work force. Technicians and technically oriented wage board employees, who work in direct support of the professional technical staff, make up another twenty-seven percent of the complement. The types of positions included in each category are described below:

Professional scientists and engineers includes professional Aerospace Technologist positions engaged in aerospace research, development, operations, and related work, including the development and operation of specialized facilities and supporting equipment. In addition, positions in the medical and biological sciences are included. In general, positions in this group require a college degree as a basic qualification.

Technician positions include scientific and engineering aides, salaried shop superintendents, quality assurance specialists, production planners and inspectors, technicians in drafting, photography, and related positions.

Wage board positions include trade, craft and general laboring positions (both non-supervisory and supervisory) which are compensated on the basis of prevailing local wage rates.

Professional administrative positions include professional management positions in the fields of financial management, procurement contracting, personnel, security, library and editorial work, and related fields for which a college degree or the equivalent, and specialized training and experience are basic qualifications.

Clerical positions include secretarial, specialized and general clerical, administrative assistant, and related positions, the qualification requirements for which are clerical training and experience or specialized non-professional experience in the areas of supply, fiscal, management analysis or related activities.

### COMPENSATION, BENEFITS AND SUPPORTING COSTS

The following table summarizes the funding necessary to support the personnel function:

	1966	1967	1968
<b>A. <u>Compensation and benefits</u></b>			
<b>1. <u>Compensation</u></b>			
Permanent positions....	\$331,945,000	\$359,784,000	\$368,874,000
Nonpermanent positions.	5,277,000	5,291,000	5,279,000
Reimbursable details...	2,522,000	3,981,000	3,596,000
Overtime and holiday pay.....	14,019,000	10,431,000	10,431,000
Other compensation.....	392,000	381,000	381,000
Subtotal.....	354,155,000	379,868,000	388,561,000
<b>2. <u>Benefits</u>.....</b>	<b>25,579,000</b>	<b>28,284,000</b>	<b>28,981,000</b>
Subtotal.....	379,734,000	408,152,000	417,542,000

	<u>1966</u>	<u>1967</u>	<u>1968</u>
<b>B. <u>Supporting personnel costs</u></b>			
Movement of personnel.....	\$882,000	\$2,476,000	\$2,382,000
Civil Service Commission services.....	708,000	408,000	500,000
Personnel training.....	<u>1,890,000</u>	<u>2,268,000</u>	<u>2,366,000</u>
Subtotal.....	<u>3,480,000</u>	<u>5,152,000</u>	<u>5,248,000</u>
<b>Total, Personnel.....</b>	<b><u>\$383,214,000</u></b>	<b><u>\$413,304,000</u></b>	<b><u>\$422,790,000</u></b>
	<u>1966</u>	<u>1967</u>	<u>1968</u>
Compensation.....	\$354,155,000	\$379,868,000	\$388,561,000

Cost of Permanent Positions

The largest segment of cost is for the compensation of NASA personnel in permanent positions, which amounts to \$368,874,000 in 1968, an increase of \$9.1 million over 1967. Other elements remain at about the same level as in 1967. The estimate is based upon the position structure at the start of each year, as modified by the addition of new positions, within grade advances, career development, etc. After these modifications, the year-end position structure is established and the cost effect for the year is calculated based on the estimated time these modifications are in effect. The derivation of the cost for personnel in permanent positions is detailed below:

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Cost of position structure - beginning of the year.....	\$325,818,000	\$351,378,000	\$367,802,000
Cost of additions to the structure:			
New positions.....	9,152,000	4,467,000	3,910,000
Salary legislation and pay raises.....	10,321,000	10,394,000	1,035,000
Within grade advances.....	5,024,000	5,293,000	5,513,000
Career development.....	5,941,000	5,101,000	4,732,000
Structure changes.....	242,000	420,000	83,000
Abolished positions.....	---	-5,567,000	---
Effect of separation replacement policy.....	<u>-5,120,000</u>	<u>-3,684,000</u>	<u>-5,608,000</u>
Cost of position structure - end of year.....	\$351,378,000	\$367,802,000	\$377,467,000
Offsets:			
Lapse of new positions.....	-6,425,000	-2,300,000	-994,000

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Delay in filling vacancies...	\$-9,193,000	\$-7,597,000	\$-5,955,000
Lapse on salary legislation and pay raises .....	-2,833,000	-769,000	-622,000
Lapse on within grade advances.....	-2,125,000	-2,269,000	-2,342,000
Lapse on career development increases.....	-3,296,000	-2,142,000	-2,019,000
Partial year funding of abolished positions.....	---	+3,247,000	---
Partial year funding of separations.....	+2,560,000	+1,831,000	+2,792,000
Terminal leave payments.....	+1,043,000	+1,049,000	+997,000
Work days in excess of 52 weeks.....	+1,345,000	+1,412,000	---
Reimbursement received from other government agencies for personnel detailed by NASA.....	<u>-509,000</u>	<u>-480,000</u>	<u>-450,000</u>
Net cost of permanent positions	<u>\$331,945,000</u>	<u>\$359,784,000</u>	<u>\$368,874,000</u>

Development of Salary Structure and Cost Estimate

The cost of new positions represents the salary requirements for additional positions to be allocated during the year. The salary level projected is slightly less than the projected agency average salary.

The increased costs due to salary legislation and pay increases are the result of Congressional action and the periodic wage surveys for NASA Wage Board employees. The 1966 increased cost for Excepted and General Schedule positions relates to the Federal Employees Pay Act of 1965 approved in October 1965. The Federal Employees Pay Act of 1966 was approved early in 1967 and made retroactive to the first full pay period of the year. The area wage surveys which form the basis for Wage Board increases are performed independently region by region at different times throughout the year.

The calculations for within grade advances, career development, and the effect of the separation replacement policy savings are the product of the NASA Position Management System, which was established in the agency in 1966. The system is an outgrowth of the computer-assisted program developed as part of the NASA Human Resources Study which was conducted over a six-month period in 1965 and provides an accurate profile and analysis of the existing agency position structure as a basis for budget projections.

The changing character of work patterns and distribution of effort between in-house and out-of-house result in annual shifts in the position structure through conversion of Wage Board to General Schedule positions. These structure changes differ in each installation and the associated costs are derived on a center by center basis.

The offset item, cost of abolished positions, is the annual salary cost of the position reduction directed for the agency. The effect of separation replacement policy is the savings in annual salaries resulting from the agency policy of replacing two-thirds of the separations in professional positions at the entrance level rather than at the grade of the separated employee.

The cost of the position structure at the end of the year and the net cost, that is compensation actually paid, differ because the end year structure carries all salaries on an annual salary basis, and does not include such costs as terminal leave payments and work days in excess of 52 weeks. The differences from the salary structure are generally characterized as lapse items, and may be either deductive or additive to the schedule, depending upon the type of action.

The lapse on new positions represents the savings on additional positions becoming available to the agency at the beginning of, or during the fiscal year. It is estimated that the time required to place employees in these positions will result in a savings of twenty-five percent of the annual salary for the positions.

Delays in filling vacancies represents the saving in annual salaries for the interval between the time an employee leaves the agency, and the time a replacement is placed on the rolls. This time period averages 10 weeks. Since NASA has been required to end the year at the employment level existing on July 31, 1966, it is expected that 1968 will begin with all positions essentially filled. This will result in a lower lapse savings than in 1966 and 1967, when the agency's growth in authorized positions carried unfilled positions into the beginning of those years.

The savings from lapse on salary legislation and pay increases represents the difference between the increased salaries and salaries existing prior to the increases. The savings in 1966 for salaried employees represents a three months' difference, since the act was effective in October, while the 1967 savings for these employees was for only one day. Since wage board employees' increases are established at various times during the year, and vary by geographical location, the savings amount represents center by center experience.

Lapses on within grade advances and career development increases represent the savings for the period that employees were paid at salaries lower than those held at the end of the year. Partial year funding of

abolished positions represents the cost of these positions before they were abolished. Partial year funding of separations is the cost of positions at the higher rate, which subsequently are filled at a lower grade because of the separation replacement policy.

Terminal leave payments are for accrued annual leave due separating employees and are an offset against the salary savings realized by the separation. The estimate is based upon prior experience.

Reimbursement received from other government agencies for personnel detailed by NASA reflects expected payments, chiefly from the Environmental Sciences Services Administration, for work performed by NASA.

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Cost of nonpermanent positions.....	\$5,277,000	\$5,291,000	\$5,279,000

The cost of the compensation of temporary positions does not vary significantly from year to year and the estimates for 1968 are based upon costs in 1967 and 1966 as adjusted for local variances. The cost by category is as follows:

<u>Category</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
Temporary employment (including co-ops, summer students and others).....	\$3,511,000	\$3,438,000	\$3,313,000
Participation in the President's Youth Opportunity Campaign.....	990,000	1,017,000	1,080,000
Experts, consultants, and other intermittent employment.....	<u>776,000</u>	<u>836,000</u>	<u>886,000</u>
Total.....	<u>\$5,277,000</u>	<u>\$5,291,000</u>	<u>\$5,279,000</u>

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Reimbursable Details.....	\$2,522,000	\$3,981,000	\$3,596,000

The cost of reimbursable details is reduced in 1968 because there will be fewer detailees than in 1967. The reason for the reduction is the beginning of the phasing out of the military officers originally detailed to the Manned Spacecraft Center (MSC) to support the Gemini flight operations. These officers originally became available to MSC in 1966 because the phase-out of the Titan I and Atlas missile systems occurred at the time of greatest need for their skills in the manned space effort.

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Overtime and Holiday Pay.....	\$14,019,000	\$10,431,000	\$10,431,000

The planned cost for overtime and holiday pay is constant from 1967 to 1968. The planned cost for these two years is \$3.6 million lower than 1966. The large decrease is a result of the NASA effort to reduce its overtime and holiday pay costs in 1967 by twenty-five percent. It appears that this management target can be attained and the 1968 estimate has been made on this basis.

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Other Compensation.....	\$392,000	\$381,000	\$381,000

Other compensation costs provide for cost of living allowances, the cost of nightwork differential in which any employee whose regular tour of duty includes time between 6:00 P.M. and 6:00 A.M. receives ten percent additional compensation, and for Sunday work under which any employee whose regular scheduled work includes Sunday receives an increase of twenty-five percent for each day which includes Sunday work. The costs are relatively stable over the three years.

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Benefits.....	\$25,579,000	\$28,284,000	\$28,981,000

In addition to compensation, NASA makes an employer's contribution to personnel benefits as authorized and required by law. The following table indicates the costs of personnel benefits by the major subcategories:

Cost of Personnel Benefits

<u>Category of Cost</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
Contribution to the Civil Service Retirement Fund.....	\$21,517,000	\$23,391,000	\$23,963,000
Contribution for employee life insurance.....	1,028,000	1,127,000	1,162,000
Contribution for employee health insurance.....	2,131,000	2,597,000	2,672,000
Contribution to FICA.....	198,000	197,000	210,000
Incentive awards.....	400,000	452,000	473,000
Other personnel benefits.....	305,000	520,000	481,000
<b>Total.....</b>	<b><u>\$25,579,000</u></b>	<b><u>\$28,284,000</u></b>	<b><u>\$28,961,000</u></b>

The largest portion of the personnel benefits cost is the the agency's contribution to the Civil Service Retirement Fund. NASA contributes an amount equal to six and one-half percent of each permanent employee's salary to the fund. This contribution matches the amount contributed by the employee. The increase in 1968 is directly related to the increase in personnel compensation.

The agency contribution toward the cost of employee life and health insurance is based upon experience related to the expected employee participation. FICA or social security contributions are for nonpermanent employees who are not covered by the Civil Service Retirement Act.

The cost of the incentive awards program and other personnel benefits is relatively stable from 1967 to 1968. The incentive awards program provides for cash awards for outstanding contributions to NASA, superior employee performance and for suggestions for improvement of the agency's operations. Other personnel benefits provide for such items as uniform allowances and a special commuting allowance for personal at the Space Nuclear Propulsion Office in Nevada.

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Supporting personnel costs.....	\$3,480,000	\$5,152,000	\$5,248,000

Supporting personnel costs provide for the expenses of moving employees employed by the government either to their initial duty station or reassignment, of security investigations and of maintaining and expanding the skills of our employees. The following table subdivides supporting personnel costs into the major subcategories:

	<u>1966</u>	<u>1967</u>	<u>1968</u>
<u>Movement of personnel</u>			
Travel expenses.....	\$258,000	\$471,000	\$444,000
Movement of household goods.....	624,000	899,000	869,000
Other moving expenses.....	<u>---</u>	<u>1,106,000</u>	<u>1,069,000</u>
Subtotal.....	<u>882,000</u>	<u>2,476,000</u>	<u>2,382,000</u>
<u>Civil Service Commission services</u>			
Security investigations.....	696,000	250,000	250,000
Interagency boards of examiners program.....	<u>12,000</u>	<u>158,000</u>	<u>250,000</u>
Subtotal.....	<u>708,000</u>	<u>408,000</u>	<u>500,000</u>
<u>Personnel training</u>			
Through other government agencies.....	462,000	701,000	685,000
Through nongovernment agencies.....	<u>1,428,000</u>	<u>1,567,000</u>	<u>1,681,000</u>
Subtotal.....	<u>1,890,000</u>	<u>2,268,000</u>	<u>2,366,000</u>
Total.....	<u>\$3,480,000</u>	<u>\$5,152,000</u>	<u>\$5,248,000</u>

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Movement of personnel.....	\$882,000	\$2,476,000	\$2,382,000

The estimate is based upon analysis at each installation of new hires and reassignments for the past few years. The increased cost for personnel movements in 1967 and 1968 results from legislation approved during calendar year 1966. That legislation provided for greatly increased benefits to be paid to employees whose moves were in the interest of the government. Some of these increased benefits are the expenses of the sale of a house, the cost of one trip to the new duty station for the purpose of securing new housing and an increased weight allowance on the shipment of household goods. The decreased cost in 1968 is based on the reduction in new hires.

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Civil Service Commission services...	\$708,000	\$408,000	\$500,000

The cost of security investigations is a function of two variables, the number of investigations to be conducted and the charge made by the Civil Service Commission responsible for conducting the investigations. Compila-

tion of center estimates of the number to be conducted and the projected charge for each year is the basis for the cost estimate. In addition to these services, the Civil Service Commission has modernized its system of recruiting and staffing the civil service by the establishment of a network of Interagency Boards of Examiners to assume the examining process formerly carried out through the operations of 661 separate agency boards of examiners and the Commission's 11 examining offices. The boards will be financed on a pro-rata basis as authorized by law. NASA's proportionate share for a full year will amount to \$250,000 in 1968.

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Personnel training.....	\$1,890,000	\$2,268,000	\$2,366,000

The maintenance and expansion of the skills of NASA personnel is essential to an organization such as NASA which is charged with the responsibility for complex technical programs. Such training is provided within the framework of the Government Employees Training Act of 1958. The training cost paid to other government agencies is for NASA employee participation in training programs conducted by other agencies. Using training courses provided by other agencies, NASA is able to benefit from existing programs. The cost of training through nongovernment sources is for tuition, fees and related costs for training at colleges, universities, technical institutes and related institutions, and for the cost of seminars and workshops in which groups of NASA employees receive training in courses of agency-wide interest. Such training is used to keep and to expand NASA employee skills. The increase in 1968 relates to increases in tuition rates expected during the year.

ADMINISTRATIVE OPERATIONS

FISCAL YEAR 1968 ESTIMATES

TRAVEL

	<u>1966</u> -	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Travel.....	\$17,845,000	\$18,601,000	\$19,021,000	\$+420,000

DESCRIPTION:

The estimates include the cost of transportation, per diem, and incidental costs required for employee travel for the purpose of direction and coordination of Research and Development, and Construction of Facilities and for administrative management programs; for travel for the purpose of contract monitoring, flight mission support, and travel to launching sites and tracking stations. It also includes the cost of travel to NASA sponsored meetings and conferences as well as meetings sponsored outside NASA when such travel is in the interest of the agency, of travel by non-NASA employees (31 USC 22a), and of travel by unpaid members of research advisory committees. Charter, contract, or lease of passenger aircraft and the cost of local transportation by taxi, bus, or private automobile, for which the employee is reimbursed are included in the estimate. Costs for travel to initial duty station and for permanent change of station are excluded from this estimate and included under Personnel and Related Costs, while the costs of motor pool operations are included under Administrative Support Services.

DISTRIBUTION OF FUND REQUIREMENTS BY INSTALLATION:

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Kennedy Space Center.....	\$840,000	\$1,059,000	\$1,079,000
Manned Spacecraft Center....	4,338,000	4,519,000	4,519,000
Marshall Space Flight Center	3,178,000	3,135,000	3,135,000
Goddard Space Flight Center..	2,454,000	2,535,000	2,661,000
Wallops Station.....	103,000	166,000	144,000
Ames Research Center.....	703,000	718,000	718,000
Electronics Research Center..	238,000	300,000	580,000
Flight Research Center.....	227,000	216,000	216,000
Langley Research Center.....	1,474,000	1,529,000	1,529,000
Lewis Research Center.....	1,310,000	1,296,000	1,294,000
Space Nuclear Propulsion Office.....	192,000	207,000	207,000
NASA Headquarters.....	<u>2,788,000</u>	<u>2,921,000</u>	<u>2,939,000</u>
Total.....	<u>\$17,845,000</u>	<u>\$18,601,000</u>	<u>\$19,021,000</u>

BASIS OF FUND REQUIREMENTS:

	<u>Amount for Travel by Major Subfunction</u>			<u>Change in 1968</u>
	<u>1966</u>	<u>1967</u>	<u>1968</u>	
<u>Program Related Travel</u>				
Direction and coordination of Research and Development and Construction of Facilities program activities.....	\$7,124,000	\$7,128,000	\$7,305,000	+\$177,000
Contract monitoring	3,647,000	3,904,000	3,997,000	+93,000
Flight mission support.....	<u>1,969,000</u>	<u>2,209,000</u>	<u>2,248,000</u>	<u>+39,000</u>
Subtotal.....	<u>\$12,740,000</u>	<u>\$13,241,000</u>	<u>\$13,550,000</u>	<u>+\$309,000</u>
<u>Overseas Travel to Launch and Tracking Sites.....</u>				
	<u>\$735,000</u>	<u>\$994,000</u>	<u>\$1,006,000</u>	<u>+\$12,000</u>
<u>Meetings and Technical Societies</u>				
Government:				
sponsored meetings.....	\$781,000	\$715,000	\$738,000	+\$23,000
Other than government sponsored meetings and technical societies.....	<u>942,000</u>	<u>949,000</u>	<u>1,018,000</u>	<u>+69,000</u>
Subtotal.....	<u>\$1,723,000</u>	<u>\$1,664,000</u>	<u>\$1,756,000</u>	<u>+\$92,000</u>
<u>Administrative Travel</u>				
Direction and coordination of administrative program activities.....	\$2,195,000	\$2,210,000	\$2,175,000	-\$35,000
Local transportation and rental of vehicles.....	\$262,000	\$314,000	\$354,000	+40,000
Travel of non-NASA employees.....	<u>190,000</u>	<u>178,000</u>	<u>180,000</u>	<u>+2,000</u>
Subtotal.....	<u>\$2,647,000</u>	<u>\$2,702,000</u>	<u>\$2,709,000</u>	<u>+\$7,000</u>
Total, Travel.....	<u>\$17,845,000</u>	<u>\$18,601,000</u>	<u>\$19,021,000</u>	<u>+\$420,000</u>

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Direction and coordination of programs....	\$7,124,000	\$7,128,000	\$7,305,000	+\$177,000

The travel most directly related to Research and Development activities is included above under program related travel and overseas travel to launch and tracking sites. The amount for these purposes accounts for over 70% of the travel requirements in FY 1968. The largest individual item is for direction and coordination of Research and Development and Construction of Facilities activities. Because of the complexity of the NASA programs and the distribution of NASA contract and subcontractor effort throughout the entire United States, coordination of activities requires frequent examination by personnel responsible for the NASA program. In FY 1968, funds required for this travel increases by \$177 thousand over the amount for FY 1967. The largest part of the increase is for the Electronics Research Center, reflecting the buildup and increased responsibilities for direction and coordination of the electronics research effort. Another significant increase occurs at the Marshall Space Flight Center as a result of its part in the Apollo Applications and Voyager programs. The total travel for Marshall Space Flight Center, however, does not increase since the increase for this purpose is offset by decreases in other requirements for travel.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Contract monitoring.....	\$3,647,000	\$3,904,000	\$3,997,000	+\$93,000

A parallel effort to program coordination and direction is the monitoring of contracts placed by NASA with industry, universities and other contractors. Since these contractors are located throughout the country and must be visited frequently to assure that the terms and specifications of the contract are being followed, the cost for this purpose is significant. Since the contractual effort is about the same in FY 1968 as in FY 1967, travel required for contract monitoring is only slightly higher in FY 1968 than in FY 1967. The increase reflects intensified effort at Goddard Space Flight Center with respect to the monitoring of contracts for the Nimbus project, the Orbiting Astronomical Observatory, and other Physics and Astronomy projects. In addition, the increase at the Electronics Research Center is due to the larger number of contracts for which they will be responsible in FY 1968.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Flight mission support..	\$1,969,000	\$2,209,000	\$2,248,000	+\$39,000

As projects reach the flight stage, support is required for pre-launch, launch and post-launch activities. The amount of travel required for this purpose is related to both the quantity and the complexity of launches.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Overseas travel.....	\$735,000	\$994,000	\$1,006,000	+\$12,000

Overseas travel to launch and tracking sites includes travel required for instrumentation of the tracking sites, inspection of the sites prior to launch, and the cost of travel of additional personnel required during launches. The estimate for travel related to this activity remains about the same in FY 1968 as in FY 1967.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Meetings and technical societies.....	\$1,723,000	\$1,664,000	\$1,756,000	+\$92,000

Travel to meetings and technical societies permits NASA employees engaged in program activities to participate at both government sponsored and non-government sponsored meetings and technical societies with outstanding representatives of the aerospace community. This participation allows NASA personnel to benefit from exposure to advances in the field arising outside NASA, as well as allowing NASA personnel to present both accomplishments and problems to their associates. Many of the government sponsored meetings are made up of working panels convened to solve certain problems for the benefit of the government. Authorization to attend any meetings of the types described is granted only after assurance that the meeting attendance will be in the interest of NASA. The estimate for this travel in FY 1968 is \$92 thousand over the FY 1967 estimate. The increase over FY 1967 is related to the growth in numbers of professional scientific and technical personnel in NASA, as well as the increased amount of technical information and technical problems associated with the NASA program.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Administrative travel...	\$2,647,000	\$2,702,000	\$2,709,000	+\$7,000

Administrative travel includes travel for the direction and coordination of internal matters. It provides for travel by functional managers in such areas as personnel, financial management, and procurement, to assure that agency policies and procedures are being implemented and carried out properly throughout the agency. In addition, travel by senior officials

to review center requirements and operations and the travel of center officials to Headquarters is provided for in this category. This category also provides for travel in and around the vicinity of the centers, including bus and taxi services and rental of motor vehicles, and travel of unpaid members of research advisory committees. The slight reduction in FY 1968 for travel related to direction and coordination of administrative activities reflects a reduction in aircraft charters because of the planned aircraft purchases in FY 1968. The increase in local travel reflects higher local travel costs incident to the Electronics Research Center buildup.

**ADMINISTRATIVE OPERATIONS**

**FISCAL YEAR 1968 ESTIMATES**

**AUTOMATIC DATA PROCESSING**

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Automatic data processing.....	\$40,309,000	\$36,067,000	\$40,792,000	+\$4,725,000

**DESCRIPTION:**

The funds budgeted for in this category provide for the acquisition of automatic data processing equipment by lease or purchase, maintenance of NASA owned equipment, and the procurement of programming and operation services. Both electronic data processing and ancillary electric accounting machine equipments are included. The overall requirement for ADP is divided by appropriation in accordance with the purpose served by the equipment. The Administrative Operations appropriation provides for the general purpose, scientific and business data processing which support the overall installation operations. Other appropriations provide for data processing systems and operations which are dedicated to a specific program or project or are integrated into larger systems. A full discussion of total ADP requirements is found in the special ADP analysis which appears in Volume I of this budget.

**DISTRIBUTION OF FUND REQUIREMENTS BY INSTALLATION:**

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Kennedy Space Center.....	\$948,000	\$1,330,000	\$1,342,000
Manned Spacecraft Center.....	7,008,000	6,296,000	6,209,000
Marshall Space Flight Center.....	10,113,000	10,249,000	10,157,000
Goddard Space Flight Center.....	6,876,000	7,807,000	8,866,000
Wallops Station.....	114,000	62,000	76,000
Ames Research Center.....	2,751,000	1,943,000	2,095,000
Electronics Research Center.....	454,000	1,071,000	2,098,000
Flight Research Center.....	97,000	23,000	24,000
Langley Research Center.....	8,442,000	5,741,000	8,576,000
Lewis Research Center.....	2,563,000	281,000	200,000
NASA Headquarters.....	<u>943,000</u>	<u>1,264,000</u>	<u>1,149,000</u>
Total.....	<u>\$40,309,000</u>	<u>\$36,067,000</u>	<u>\$40,792,000</u>

BASIS OF FUND REQUIREMENTS:

Amounts for ADP by Major Subfunction

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Lease of equipment....	\$19,964,000	\$20,342,000	\$23,016,000	+\$2,674,000
Purchase of equipment.	9,289,000	2,902,000	5,303,000	+2,401,000
Maintenance of equipment.....	<u>1,021,000</u>	<u>1,539,000</u>	<u>1,873,000</u>	<u>+334,000</u>
Subtotal, Equipment.	30,274,000	24,783,000	30,192,000	+5,409,000
Programming and operation services..	<u>10,035,000</u>	<u>11,284,000</u>	<u>10,600,000</u>	<u>-684,000</u>
Total, Automatic data processing.....	<u>\$40,309,000</u>	<u>\$36,067,000</u>	<u>\$40,792,000</u>	<u>+\$4,725,000</u>
	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Lease of equipment.....	\$19,964,000	\$20,342,000	\$23,016,000	+\$2,674,000

The largest part of the funds required for ADP, over one-half, is for the lease of equipment, which increases in FY 1968 by \$2.7 million over FY 1967. The largest part of the increase is at the Goddard Space Flight Center, \$1.3 million, to provide for the overlap of leased peripheral equipment during the final installation of third generation equipment procured in prior years and the phase-out of the second generation equipment. The increase in requirements for lease of equipment is at the Langley Research Center (\$697 thousand) and the Electronics Research Center (\$672 thousand). At Langley, currently owned peripheral equipment which supports the second generation equipment will be replaced by rented equipment to support the third generation equipment purchased in the past two years. The Electronics Research Center is planning to install, in FY 1968, a NASA-owned computer which is being released by the Goddard Space Flight Center, and the increased amount for lease will be to provide peripheral equipment to support this acquisition. The Ames Research Center requirement for leased equipment increases in FY 1968 by \$208 thousand to provide extra shift usage to meet the center's workload created by more complex research investigations. These increases are partially offset by reductions at the Lewis Research Center (\$107 thousand) and at Headquarters (\$44 thousand) which are related to the installation of equipment purchased in FY 1966 and FY 1967. All other installations' fund requirements remain relatively constant in FY 1968.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Purchase of equipment...	\$9,289,000	\$2,902,000	\$5,303,000	+\$2,401,000

The requirement for equipment to be purchased in FY 1968 increases by \$2.4 million. The increase is to provide for additional equipment at the Langley Research Center as part of the procurement of the third generation systems begun in FY 1966. Purchase of equipment was \$5.4 million in FY 1966 and \$2.8 million in FY 1967. The FY 1968 plan includes a \$4.6 million increment. The Langley purchase has been phased over several fiscal years to permit maximum study before each phase of the purchase. The balance of the increase, \$.6 million at the Electronics Research Center, is planned for the establishment of the remote access capability in the various laboratories throughout the center to complement the acquisition of the main computer described above.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Maintenance of equipment.....	\$1,021,000	\$1,539,000	\$1,873,000	+\$334,000

The funds required for ADP maintenance will be greater in FY 1968 than in FY 1967. The rise in maintenance costs is caused by the growing NASA investment in ADP equipment. Maintenance charges are included in lease costs when equipment is rented, but must be paid for separately after the equipment is purchased.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Programming and operational services..	\$10,035,000	\$11,284,000	\$10,600,000	-\$684,000

NASA procures services for ADP program and systems design and for operations to augment in-house capability. In FY 1968 the cost of programming and operation services which are related to the larger, more sophisticated systems in operation are more than offset by the peaking in FY 1967 of costs related to the changeover from one generation of equipment to another. The largest decrease (\$345 thousand) occurs at the Goddard Space Flight Center where the conversion of programs will be largely completed in FY 1967. The other large decrease (\$300 thousand) occurs at the Electronics Research Center because the center will have in being a substantial in-house capability which will perform much of the work performed on contract in the past. All other centers, except the Langley Research Center, are at the FY 1967 level or slightly below in FY 1968. The Langley Research Center shows an increase of \$167 thousand to assist in the conversion from second to third generation systems.

**ADMINISTRATIVE OPERATIONS**

**FISCAL YEAR 1968 ESTIMATES**

**FACILITIES SERVICES**

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Facilities services.....	\$102,852,000	\$109,570,000	\$117,494,000	+\$7,924,000

**DESCRIPTION:**

Facilities services includes the rental of lands and buildings, the procurement of electricity, water, gas, and other utilities; and maintenance of buildings and grounds, and minor construction. It also includes custodial services consisting of security services, janitorial services, cleaning, exterminating and refuse handling, laundry and fire protection. Funds required also provide for the maintenance and repair of general purpose instruments, research equipment, and shop equipment. Requirements for general purpose building materials, hardware, and electronic supplies and materials, as well as procurement of mechanical, laboratory and shop equipment are also included in the estimate. The requirement for major service contractual effort at the Merritt Island Launch Area and reimbursement to the Air Force for services provided to the Kennedy Space Center are also included.

**DISTRIBUTION OF FUND REQUIREMENTS BY INSTALLATION:**

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Kennedy Space Center.....	\$42,678,000	\$47,874,000	\$52,639,000
Manned Spacecraft Center.....	11,937,000	13,373,000	14,839,000
Marshall Space Flight Center.	14,698,000	12,774,000	12,700,000
Goddard Space Flight Center..	6,996,000	8,148,000	7,794,000
Wallops Station.....	3,152,000	3,321,000	3,410,000
Ames Research Center.....	4,563,000	4,252,000	4,163,000
Electronics Research Center..	957,000	1,830,000	2,870,000
Flight Research Center.....	1,290,000	1,354,000	1,376,000
Langley Research Center.....	6,567,000	6,799,000	7,534,000
Lewis Research Center.....	8,313,000	8,392,000	8,547,000
Space Nuclear Propulsion Office.....	---	---	---
NASA Headquarters.....	<u>1,701,000</u>	<u>1,453,000</u>	<u>1,622,000</u>
<b>Total.....</b>	<b><u>\$102,852,000</u></b>	<b><u>\$109,570,000</u></b>	<b><u>\$117,494,000</u></b>

**BASIS OF FUND REQUIREMENTS:****Facilities Services**

The following table summarizes the funding requirements by purpose:

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
<u>Rental of Real Property.....</u>	\$1,841,000	\$1,965,000	\$2,984,000	+\$1,019,000
<u>Utilities</u>				
Electricity.....	8,758,000	9,687,000	10,652,000	+965,000
Water.....	447,000	419,000	443,000	+24,000
Gas.....	<u>1,737,000</u>	<u>2,012,000</u>	<u>2,089,000</u>	<u>+77,000</u>
Subtotal.....	<u>10,942,000</u>	<u>12,118,000</u>	<u>13,184,000</u>	<u>+1,066,000</u>
<u>Maintenance, Repair, Alteration and Operation of Facilities.....</u>	<u>13,038,000</u>	<u>14,086,000</u>	<u>15,178,000</u>	<u>+1,092,000</u>
<u>Minor Construction.</u>	<u>5,258,000</u>	<u>4,422,000</u>	<u>4,174,000</u>	<u>-248,000</u>
<u>Maintenance and Repair of Equipment.....</u>	<u>3,914,000</u>	<u>4,116,000</u>	<u>3,853,000</u>	<u>-263,000</u>
<u>Custodial Services</u>				
Security guard...	3,343,000	3,468,000	3,688,000	+220,000
Janitorial.....	4,933,000	5,083,000	5,247,000	+164,000
Fire protection..	1,269,000	1,221,000	1,278,000	+57,000
Laundry, cleaning, exterminating, refuse handling and other.....	<u>1,532,000</u>	<u>1,691,000</u>	<u>1,747,000</u>	<u>+56,000</u>
Subtotal.....	<u>11,077,000</u>	<u>11,463,000</u>	<u>11,960,000</u>	<u>+497,000</u>
<u>Supplies and Equipment</u>				
Supplies and materials....	11,627,000	12,015,000	12,344,000	+329,000
Equipment.....	<u>5,124,000</u>	<u>5,326,000</u>	<u>5,306,000</u>	<u>-20,000</u>
Subtotal.....	<u>16,751,000</u>	<u>17,341,000</u>	<u>17,650,000</u>	<u>+309,000</u>
<u>Range Operations...</u>	<u>40,031,000</u>	<u>44,059,000</u>	<u>48,511,000</u>	<u>+4,452,000</u>
<u>Total.....</u>	<u>\$102,852,000</u>	<u>\$109,570,000</u>	<u>\$117,494,000</u>	<u>+\$7,924,000</u>

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Rental of real property.....	\$1,841,000	\$1,965,000	\$2,984,000	+\$1,019,000

Rentals of land and property are required to house personnel and provide storage and warehouse space for supplies and materials where space is not available in government-owned facilities. Funds required for this purpose are estimated at \$3.0 million in FY 1968, an increase of \$1.0 million over the FY 1967 estimate. Over half of the total increase, \$653 thousand, is required for the Electronics Research Center to accommodate the increased personnel and equipment planned for FY 1968 until such time as the new facilities for the center are constructed. An additional \$170 thousand will be required at Goddard Space Flight Center for consolidating leased office and warehouse space at a location nearer the center. The other principal increase, \$188 thousand, is for rental space for Headquarters personnel in the Washington, D. C. area to alleviate the existing crowded conditions.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Utilities.....	\$10,942,000	\$12,118,000	\$13,184,000	+\$1,066,000

Funds required for electricity will increase in FY 1968 by \$965 thousand to a total of \$10,652,000. The increase is primarily at the research centers where an additional \$100,000 is required for Ames Research Center, \$361,000 for Lewis Research Center, and \$122,000 for Langley Research Center. The increase at Ames Research Center is required to provide sufficient electrical power to utilize fully the 6' by 6' supersonic wind tunnel and the recently repaired 14' transonic wind tunnel, as well as to operate two new facilities, the Space Flight Guidance Research Facility and the Systems Engineering Facility. The increase at Lewis Research Center is required for increased operation of the 10' by 10' supersonic tunnel, the 8' by 6' wind tunnel, the Propulsion System Laboratory, and the Engine Research Building altitude chambers in support of the supersonic transport development. The additional requirement for Langley Research Center is to operate recently activated facilities, such as the Hypersonic Aerothermal Dynamics Facility, the Dynamics Research Laboratory, the Electronic Instrumentation Laboratory and the Fatigue Research Laboratory.

At Goddard, there is an increase of \$257,000, the bulk of which is required for four new facilities, the Mechanical Test Facility and Quality Assurance Laboratory, the Data Interpretation Laboratory, the Space Science Data Center, and the Network Test and Training Facility, which have become operational, or will become operational in the last half of FY 1967. An increase of \$53,000 is required for MSC for additional facilities becoming available in the last half of FY 1967 and FY 1968. The Atmospheric Re-entry Materials and Structures Building and the Ultra-high Vacuum Space Chamber will become operational in FY 1967 and the Lunar Receiving Laboratory and the Flight Crew Training Facility are scheduled for completion in FY 1968. Increases required for other centers are minor. Changes in other utilities requirements are minor with the exception of an increase of \$50,000 for MSC for the new facilities.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Maintenance, repair, alteration and operation of facilities.....	\$13,038,000	\$14,086,000	\$15,178,000	+\$1,092,000

The amount required for maintenance and repair of buildings and grounds is estimated at \$15,178,000, an increase of \$1,092,000 over FY 1967. This includes an increase of \$1 million related to NASA use of Ellington Air Force Base, which will be transferred from the Air Force to the operational control of the Texas Air National Guard in FY 1968. The transfer will reduce the military activity at the base, and it will be necessary for the Manned Spacecraft Center to pay a share related to its proportionate utilization of the installation. With the exception of Langley Research Center, which increases by \$301,000 because of the expanded facilities and the general aging of the physical plant, the amounts required for other centers are about the same or lower than for FY 1967.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Minor construction....	\$5,258,000	\$4,422,000	\$4,174,000	\$-248,000

This activity provides for additions, modifications, and minor construction of facilities within statutory limitations. These requirements are of a continuing nature which are generated by changes in the research and development program, as well as development of new technology. Each individual project is reviewed by a facilities review board to assure that the work is compatible with the installation master plan. The estimate is reduced in 1968 because of a lower requirement at the Goddard Space Flight Center.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Maintenance and repair of equipment.....	\$3,914,000	\$4,116,000	\$3,853,000	\$-263,000

Maintenance and repair consists of work necessary to keep mechanical, laboratory, and shop equipment operational. The principal reduction in the funds required for maintenance and repair of equipment of \$192 thousand is planned at the Goddard Space Flight Center. Other centers remain at approximately the same level as in FY 1967.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Custodial services.....	\$11,077,000	\$11,463,000	\$11,960,000	\$+497,000

The requirements for custodial services increase by \$497 thousand. The larger increases are at the Manned Spacecraft Center. Increases in visitors during missions, additional facilities and an additional access gate require that security guard services be augmented at an increase of \$41 thousand. Janitorial services at MSC will increase by \$108 thousand because of additional buildings to be occupied late in FY 1967 and during FY 1968. The estimate for Goddard is increased by \$106,000 because of the new buildings. Wallops Station has an estimated increase of \$116,000 to provide an additional five security guards and to add an additional shift for fire protection because of the increased airport usage.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Supplies and equipment.....	\$16,751,000	\$17,341,000	\$17,650,000	\$+309,000

The estimate in FY 1968 for supplies and materials includes an increase of \$215,000 at Kennedy Space Center and an increase of \$163,000 at Electronics Research Center reflecting the increased activity at those centers, and an increase of \$145,000 at Langley Research Center which is necessary to support the maintenance of the expanding and changing physical plant and to fully utilize the unique research facilities there. Other centers will remain at about the same level as in FY 1967.

Equipment requirements increase \$84,000 at Electronics Research Center, \$49,000 at Flight Research Center, \$53,000 at Langley Research Center and \$44,000 at Lewis Research Center for increased equipment requirements at these centers to support the changing and expanding physical plant. At all other centers requirements are reduced in FY 1968.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Range operations.....	\$40,031,000	\$44,059,000	\$48,511,000	\$+4,452,000

Over 40% of the estimate for facilities services relates to services procured at the Kennedy Space Center through major support contractors or for services, utilities, and other support received from the Air Force for which it is reimbursed. Services received through contractors are primarily utilized at the Merritt Island Launch Area. These services are provided by three major support contractors, and cover facilities engineering and planning, maintenance, repair and operation of facilities and utilities, maintenance of roads and grounds, supply operations, fire protection, industrial health services, security, computer operations, publication and graphics support, photography and library services. Reimbursements to the Air Force, except for utilities, are primarily for requirements at the Cape Kennedy Air Force

Station complex, including maintenance and repair of buildings and equipment, security, exterminating, printing, medical services, photography and supply support. For convenience in understanding the requirement, these requirements are consolidated under Facility Services, and not distributed to other functions.

The estimate for range operations in FY 1968 is \$48.5 million, an increase of \$4.5 million over FY 1967. During FY 1967, the effort at the Merritt Island Launch Area and particularly at Launch Complex 39 has been phased in for the first Saturn V launch which is planned for late in the fiscal year. The support contractor employment level attained by the end of FY 1967 is expected to be maintained throughout FY 1968. The following table is a distribution of the estimate by major subfunctions:

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
ADP operations.....	\$2,512,000	\$3,437,000	\$3,437,000	---
Utilities.....	2,788,000	4,434,000	5,178,000	+\$744,000
Maintenance, repair, alteration and operation of facilities.....	17,600,000	17,224,000	20,047,000	+2,823,000
Custodial services.	4,404,000	4,503,000	5,068,000	+565,000
Engineering services.....	1,109,000	1,100,000	1,100,000	---
Support services...	11,618,000	13,361,000	13,681,000	+320,000
<b>Total.....</b>	<b><u>\$40,031,000</u></b>	<b><u>\$44,059,000</u></b>	<b><u>\$48,511,000</u></b>	<b><u>+\$4,452,000</u></b>

Funds required for utilities at KSC will increase by \$744,000. The major portion of this increase is required for electricity and relates to the increased operations planned for FY 1968. As Launch Complex 39 becomes fully operational and the tempo of assembly, testing, and vehicle checkout accelerates, consumption rate of electricity increases. Responsibility for additional facilities will be transferred from the Air Force to NASA during the latter part of FY 1967. Support of these additional facilities contribute to the increased FY 1968 utility requirements.

The total increased cost for other range operations in FY 1968 of \$3,708,000 relates to the financing of additional manyears of effort. During FY 1967, a continued buildup of contractor personnel will be required to attain a level necessary to provide support to the center in the functional areas identified. As the operational activity at KSC increases, the number of stage and spacecraft contractor personnel to be administratively supported will increase. The buildup in manpower providing maintenance, custodial and data retrieval support will peak during FY 1967. Financing to sustain this support staff for a full twelve month period at this level will be required in FY 1968.

ADMINISTRATIVE OPERATIONS

FISCAL YEAR 1968 ESTIMATES

TECHNICAL SERVICES

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Technical services....	\$23,939,000	\$24,551,000	\$25,091,000	+\$540,000

DESCRIPTION:

The estimate for technical services provides for the costs of: engineering services; scientific and technical information and educational/informational programs; and management services. Included in engineering services are the cost of facilities design for minor construction, reliability and quality assurance studies such as integrated testing, system design trade-off analyses, and reliability methodology guidelines. The scientific and technical information programs which furnish up-to-date reporting of NASA scientific and technical programs, provide for the acquisition and dissemination of scientific and technical literature, for the support of the technical libraries located at various NASA installations and for educational/informational programs. Included under the technical services category are costs for management services for visual aid preparation, art and graphic services.

DISTRIBUTION OF FUND REQUIREMENTS BY INSTALLATION:

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Kennedy Space Center.....	\$31,000	---	\$8,000
Manned Spacecraft Center.....	2,938,000	\$2,608,000	2,596,000
Marshall Space Flight Center...	5,883,000	5,494,000	5,182,000
Goddard Space Flight Center....	1,008,000	1,297,000	1,169,000
Wallops Station.....	66,000	112,000	109,000
Ames Research Center.....	320,000	177,000	207,000
Electronics Research Center....	146,000	569,000	1,127,000
Flight Research Center.....	191,000	84,000	82,000
Langley Research Center.....	333,000	327,000	357,000
Lewis Research Center.....	79,000	70,000	224,000
Space Nuclear Propulsion Office	76,000	80,000	89,000
NASA Headquarters.....	<u>12,868,000</u>	<u>13,733,000</u>	<u>13,941,000</u>
Total.....	<u>\$23,939,000</u>	<u>\$24,551,000</u>	<u>\$25,091,000</u>

BASIS OF FUND REQUIREMENTS:

Amount for Technical Services by Major Subfunction

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
<u>Engineering Services</u>				
Reliability and quality assurance..	\$707,000	\$841,000	\$732,000	\$-109,000
Engineering design...	2,637,000	2,254,000	2,701,000	+447,000
Other.....	<u>263,000</u>	<u>363,000</u>	<u>318,000</u>	<u>-45,000</u>
Subtotal.....	<u>3,607,000</u>	<u>3,458,000</u>	<u>3,751,000</u>	<u>+293,000</u>
<u>Scientific and Technical Information and Edu- cational Programs</u>				
Library.....	1,399,000	1,937,000	2,038,000	+101,000
Educational/Infor- mational programs	4,996,000	5,417,000	5,519,000	+102,000
Scientific and technical infor- mation.....	<u>11,265,000</u>	<u>11,556,000</u>	<u>11,764,000</u>	<u>+208,000</u>
Subtotal.....	<u>17,660,000</u>	<u>18,910,000</u>	<u>19,321,000</u>	<u>+411,000</u>
<u>Management Improvement and Presentation Services.....</u>				
	<u>2,672,000</u>	<u>2,183,000</u>	<u>2,019,000</u>	<u>-164,000</u>
Total.....	<u>\$23,939,000</u>	<u>\$24,551,000</u>	<u>\$25,091,000</u>	<u>\$+540,000</u>

The estimate for technical services in 1968 amounts to \$25.1 million, which is \$540 thousand higher than the costs planned for 1967. The detailed descriptions and justifications by major subfunction follow:

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Engineering services.....	\$3,607,000	\$3,458,000	\$3,751,000	\$+293,000

Included in engineering services are the costs required for reliability and quality assurance, engineering design and other related costs. The estimated costs in 1968 are \$3.8 million, which is \$293 thousand higher than in 1967. The largest increase, \$385 thousand, is required at the Electronics Research Center to accommodate its projected growth in 1968. This increase is offset by a net reduction of \$92 thousand throughout the other NASA installations for a net increase of \$293 thousand.

The cost for reliability and quality assurance will be \$732 thousand in 1968. These funds will provide for the operation of the Reliability and Quality Assurance Training School operated by the Marshall Space Flight Center, and the development of reliability methodology guidelines and for studies of integrated testing and system design trade-off analyses.

Engineering design provides for the design of minor construction projects, repair and alteration requirements, special tools, equipment and machine parts. The costs for FY 1968 are \$2.7 million, which represents an increase of \$447 thousand over the \$2.3 million estimated for FY 1967. This increase is largely related to the buildup at the Electronics Research Center. The estimate for other NASA installations are at approximately the FY 1967 level.

Other requirements included in engineering services include special services under contract. The 1968 costs are estimated at \$318 thousand for the agency, which is \$45 thousand less than the estimate for 1967. Typical examples of these smaller contract-type services are the handling and disposal of radioactive wastes at the Nevada test site, civil engineering surveys, radiation control studies, and incentive contract effectiveness studies.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Scientific and technical information and educational programs.....	\$17,660,000	\$18,910,000	\$19,321,000	\$+411,000

Included in these programs are the costs of the NASA technical libraries, educational/informational programs and the scientific and technical information services. The funding required to finance the scientific and technical information and education programs is estimated at \$19.3 million in FY 1968, an increase of \$411 thousand over FY 1967.

**Libraries:**

The cost of the NASA technical libraries in FY 1968 is \$2.0 million, which represents an increase of \$101 thousand over FY 1967. This increased cost will be used to support the Electronics Research Center library and the Western Support Office technical reference library.

**Educational/Informational Programs:**

The educational/informational programs provide for the spacemobile and curriculum assistance programs, the exhibits program, the informational and news services and other costs associated with local or regional educational and informational activities. The estimated cost in FY 1968 for the support of these services is \$5.5 million, an increase of \$102 thousand above the cost for FY 1967. Of the total amount requested for FY 1968, \$4.6 million is required for NASA Headquarters, which has primary

responsibility for the program. The remaining \$878 thousand is distributed throughout the NASA installations to cover the costs associated with local or regional educational and informational activities.

Included in the \$4.6 million required by NASA Headquarters are the educational programs, the exhibits program and the informational and news services.

The educational program, estimated to cost \$1.4 million in FY 1968, covers the costs of the spacemobile and curriculum assistance programs. Last fiscal year, the spacemobile program provided 9,000 lecture-demonstrations; 7,000 in schools, 1,600 for teacher groups, and the remainder for civic groups and television audiences. Curriculum assistance projects are providing space-related supplements and guides in such courses as biology, mathematics, and industrial arts, and an updated bibliography and lexicon for teachers and students. The FY 1968 estimate of \$1.4 million is at the same level as the FY 1967 estimate.

Also included is the exhibit program which requires \$1.6 million of the \$4.6 million requested for educational/informational programs. The costs are associated with the design, procurement and display of three dimensional exhibit material providing current information concerning NASA programs and accomplishments in the exploration of space. The largest part of the cost of the exhibits program is for exhibit design and procurement which will be \$1.3 million in FY 1968. There will be no significant change in FY 1968 from FY 1967. Exhibit management services in FY 1968 are estimated at \$390 thousand, the same level as FY 1967. These costs are associated with the setting up and disassembling of NASA exhibits and minor refurbishment costs resulting from normal wear and tear. The exhibits provide a basic comprehensive description of all aspects of space activity to enhance the understanding of the general public. The agency sponsored 634 exhibits in calendar year 1966, and it is estimated that one-fifth of the population of the United States was exposed to an informed presentation of progress in space through this media.

The informational and news services costs for FY 1968 are estimated at \$1.6 million, the same as for FY 1967. These costs provide current information on the space program via news media. Included are the tapes for a weekly 5-minute radio program of topical interest, a 15-minute monthly audio report, and production of the 5-minute monthly TV program, "Aeronautics and Space Report." These productions highlight projects, current activities, background information, and upcoming events. The programs are used by radio and TV stations in all states. In addition, the funds requested in FY 1968 cover photographic and motion picture news services. Included are the processing and reproducing of still and motion picture photography for documentation of NASA activities and the shooting and preparation of TV news clips of significant space events.

Also, services are required for motion picture laboratory and distribution services to provide the processing, collection, storage, and control of NASA motion picture footage, reference service for motion picture or television production, and the purchase of prints of motion pictures for general distribution.

Scientific and Technical Information:

The scientific and technical information activity includes the cost of the NASA Scientific and Technical Information Facility, documentation services, manuscript preparation, systems development and translation services. These services are estimated to cost \$11.8 million in FY 1968, which is approximately \$200 thousand higher than the FY 1967 estimate of \$11.6 million.

The largest requirement is the NASA Scientific and Technical Information Facility under the cognizance of NASA Headquarters, which will cost \$5.5 million in FY 1968, an increase of \$182,000 over FY 1967. The increase is due to the increased workload related to the additional number of scientific and technical reports becoming available from NASA supported research and development programs. The level of cost for all other information services will remain at the same level as in FY 1967, which includes \$1,780 thousand for the documentation of world-wide aerospace journal literature; \$211 thousand for the preparation of manuscript material, such as handbooks, data compilations, monographs, and technical reviews; \$300 thousand for analyzing, evaluating, and testing new methods and systems in the field of scientific communications to increase the effectiveness of the NASA technical information program; and \$235 thousand for translating foreign language technical books, reports, and journal articles required to meet the needs of NASA and its contractor scientific personnel which are used to keep abreast of world developments in the space sciences and related fields.

The remaining increase of \$26 thousand is required at the Electronics and Langley Research Centers. These additional costs are associated with the continued buildup at the Electronics Research Center, and the additional effort at Langley required in the Voyager and Aeronautics programs.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Management improvements and presentation services....	\$2,672,000	\$2,183,000	\$2,019,000	\$-164,000

The cost of management improvements and presentation services for FY 1968 is \$2.0 million, \$164 thousand less than FY 1967. Management improvements which will cost \$509 thousand in FY 1968, consist of studies and surveys designed to improve the management process within NASA. An example of these studies is the NASA support of the Atomic Energy Commission's efforts leading to the design and conduct of an improved survey of compensation paid scientists and engineers engaged in research and development work.

Management presentation services provide for visual aid preparation, preprinted artwork and graphic art services. These are used in the presentation of status reports, problem areas and management policy to all levels of management within NASA. They are, as a result, an integral part of the internal communication process of presentation of status and problems upward in the organization and the relaying of decisions and solutions downward. The cost for management presentation services will be \$1.5 million in FY 1968, which is the FY 1967 level.

ADMINISTRATIVE OPERATIONS

FISCAL YEAR 1968 ESTIMATES

ADMINISTRATIVE SUPPORT

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Administrative support services.....	\$43,027,000	\$45,390,000	\$46,112,000	+\$722,000

DESCRIPTION:

Included in Administrative Support Services are general services which support overall installation operations. The expenses of administrative communications, printing and reproduction, administrative supplies, materials and equipment, administrative transportation (motor pool, administrative aircraft services and operations, and movements by common carrier) and other administrative services (installation operations, medical services, and related services) are provided for in this section of the budget estimate.

DISTRIBUTION OF FUND REQUIREMENTS BY INSTALLATION:

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Kennedy Space Center.....	\$7,607,000	\$8,816,000	\$9,031,000
Manned Spacecraft Center.....	8,604,000	8,906,000	8,850,000
Marshall Space Flight Center.....	8,052,000	7,385,000	7,352,000
Goddard Space Flight Center.....	4,595,000	4,676,000	4,761,000
Wallops Station.....	1,038,000	1,081,000	1,098,000
Ames Research Center.....	847,000	965,000	960,000
Electronics Research Center.....	481,000	908,000	1,214,000
Flight Research Center.....	652,000	692,000	708,000
Langley Research Center.....	2,279,000	2,367,000	2,553,000
Lewis Research Center.....	2,399,000	2,380,000	2,438,000
Space Nuclear Propulsion Office...	1,000	3,000	3,000
NASA Headquarters.....	<u>6,472,000</u>	<u>7,211,000</u>	<u>7,144,000</u>
Total.....	<u>\$43,027,000</u>	<u>\$45,390,000</u>	<u>\$46,112,000</u>

BASIS OF FUND REQUIREMENTS:

Amounts for Administrative Support Services by Major Subfunction

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
<u>Communications</u>				
Telephone services				
Leased lines.....	\$976,000	\$988,000	\$1,012,000	+\$24,000
Long distance tolls...	3,378,000	3,490,000	3,581,000	+91,000
Local telephone and exchange services...	<u>4,519,000</u>	<u>5,159,000</u>	<u>5,283,000</u>	<u>+124,000</u>
Subtotal.....	<u>8,873,000</u>	<u>9,637,000</u>	<u>9,876,000</u>	<u>+239,000</u>
Other communications....	<u>1,688,000</u>	<u>1,763,000</u>	<u>1,855,000</u>	<u>+92,000</u>
Subtotal.....	<u>10,561,000</u>	<u>11,400,000</u>	<u>11,731,000</u>	<u>+331,000</u>
<u>Printing and Reproduction</u>				
Performed by government agencies.....	2,911,000	3,065,000	2,943,000	-122,000
Performed by commercial services.....	<u>3,258,000</u>	<u>3,558,000</u>	<u>3,586,000</u>	<u>+28,000</u>
Subtotal.....	<u>6,169,000</u>	<u>6,623,000</u>	<u>6,529,000</u>	<u>-94,000</u>
<u>Supplies, Materials and Equipment</u>				
Supplies and materials				
Office supplies and materials.....	5,833,000	5,743,000	5,642,000	-101,000
Other supplies and materials.....	<u>1,629,000</u>	<u>1,724,000</u>	<u>1,855,000</u>	<u>+131,000</u>
Subtotal.....	<u>7,462,000</u>	<u>7,467,000</u>	<u>7,497,000</u>	<u>+30,000</u>
Equipment				
Purchased equipment...	1,418,000	1,289,000	1,382,000	+93,000
Rented equipment.....	<u>1,350,000</u>	<u>1,492,000</u>	<u>1,580,000</u>	<u>+88,000</u>
Subtotal.....	<u>2,768,000</u>	<u>2,781,000</u>	<u>2,962,000</u>	<u>+181,000</u>
Subtotal.....	<u>10,230,000</u>	<u>10,248,000</u>	<u>10,459,000</u>	<u>+211,000</u>
<u>Transportation</u>				
Center support.....	6,924,000	7,366,000	7,336,000	-30,000
Common carrier.....	<u>1,492,000</u>	<u>1,705,000</u>	<u>1,824,000</u>	<u>+119,000</u>
Subtotal.....	<u>8,416,000</u>	<u>9,071,000</u>	<u>9,160,000</u>	<u>+89,000</u>

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
<u>Other Administrative Support</u>				
<u>Services</u>				
Installation support				
services.....	4,885,000	5,113,000	5,375,000	+262,000
Medical services.....	1,288,000	1,360,000	1,393,000	+33,000
Miscellaneous services...	<u>1,478,000</u>	<u>1,575,000</u>	<u>1,465,000</u>	<u>-110,000</u>
Subtotal.....	<u>7,651,000</u>	<u>8,048,000</u>	<u>8,233,000</u>	<u>+185,000</u>
Total, Administrative Support Services.....	<u>\$43,027,000</u>	<u>\$45,390,000</u>	<u>\$46,112,000</u>	<u>+\$722,000</u>

	<u>1966</u>	<u>1967</u>	<u>1969</u>	<u>Change in 1968</u>
Communications.....	\$10,561,000	\$11,400,000	\$11,731,000	+\$331,000

The funds required for communications includes the cost of leased lines, long distance tolls, local telephone exchange services and other communications such as TWX, telegraph and postage. NASA installations and their major subinstallations are located in twelve states and the District of Columbia. In addition, NASA does business with companies and institutions in all the states. Consequently, the cost of communications to integrate these centers of work is large. It should be noted that operational communications related to flight activities and dedicated leased lines are not funded in the Administrative Operations appropriation but are included in the estimates for Research and Development.

The largest segment of the communications estimate is for telephone service. The estimate for leased lines includes the leasing of the circuits and associated equipment for rapid and reliable contact with contractor plants and other key sites. The major portion of the 1968 requirements are at the Manned Space Flight installations (\$478 thousand) and at Headquarters (\$331 thousand). For other installations funds required for leased lines are approximately the same in 1968 as in 1967.

It should be noted that long distance leased lines serve as a supplement to regular long distance facilities. The majority of the funds required for regular long distance facilities is for reimbursement to the General Services Administration for NASA's use of the Federal Telecommunications System, and the balance is for services provided through commercial systems. The Manned Space Flight centers account for more than half of the long distance toll costs due to the nature of their effort which requires constant communication for program direction and coordination.

The funds required for local telephone services at the Kennedy Space Center represent a major portion (\$1,351 thousand) of the estimate due to the large number of personnel, both government and contractors, served by the local exchange. The remaining portion of the estimate is distributed among

the other installations. Other communications provide for cable services TWX services and postage. Overall, the amount required for communications is estimated to increase by \$331 thousand in 1968. This increase is primarily at the Kennedy Space Center to accommodate the increased traffic, a result of the peak workloads and manpower levels planned for 1968. An increase at the Electronics Research Center of \$69 thousand is associated with the increased number of employees and activities conducted at the center. The other increases are minor.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Printing and reproduction...	\$6,169,000	\$6,623,000	\$6,529,000	\$-94,000

Estimates for printing and reproduction include funds for contractual printing and reproduction and the related composition and binding operations whether performed by another government agency, chiefly, the Government Printing Office, or by commercial printers. All common processes of duplicating including photostating, blueprinting, microfilming and other photographic reproduction are paid under this subfunction. In 1968, the costs for printing are slightly lower than in 1967. A minor increase at the Electronics Research Center, which is related to its buildup, is more than offset by a decrease at the Goddard Space Flight Center due to one-time printing in 1966 and 1967 of Goddard Technical Notes covering several past years.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Supplies, materials and equipment.....	\$10,230,000	\$10,248,000	\$10,459,000	\$+211,000

Administrative supplies, materials, and equipment include those items which service the entire installation in a general manner. Excluded are supplies, materials, equipment and related services which are related directly to a specific project (funded in the R&D appropriation) and those that are facility oriented (included in Facilities Services). The amount required, \$7,497 thousand, for supplies and materials is about the same in 1968 as in 1967.

Funds required for the equipment are \$2,962 thousand in 1968, an increase of \$181 thousand over 1967. The largest increase is at the Langley Research Center where a facsimile system will be leased to provide support for the Voyager program. The majority of the balance is programmed for the Electronics Research Center requirements.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Transportation services.....	\$8,416,000	\$9,071,000	\$9,160,000	\$+89,000

Transportation services include local motor pool operations and associated services, center aircraft operations and services, as well as the movement of supplies, materials, equipment and related items by common carrier. Center oriented transportation costs, \$7,336 thousand, are \$30 thousand lower in 1968 than in 1967. The net reduction results from a \$107 thousand decrease at the Kennedy Space Center and \$86 thousand reduction in the purchase of motor vehicles and transportation equipment offset by an increase of \$141 thousand for the procurement of three aircraft which were leased in 1967 and a minor increase at the Electronics Research Center. Transportation provided by common carrier relates to the movement of supplies, materials and equipment procured and to the shipment of other items such as NASA exhibits. Funds required remain about the same in 1968 as in 1967.

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Change in 1968</u>
Other administrative support services.....	\$7,651,000	\$8,048,000	\$8,233,000	\$+185,000

Other support services include: (1) installation operations support services, which cover such services as logistic support, radiation control, supply operations, mail and messenger service, rigging, and related services; (2) medical services which include the installations health units, as well as employee health maintenance programs; and (3) other related services. The estimate for installation support services is \$262 thousand higher in 1968 than in 1967. The cost of additional radiation control support (\$100 thousand) for the operations at the Lewis Research Center's Reactor Facility comprises the largest segment of the increase. The balance is for support at the Electronics Research Center as part of the planned buildup, and at the Goddard Space Flight Center, where new test facilities which became operational in 1967 require additional radiation control support.

The general support services fund requirement is for medical services and other miscellaneous services, mainly at Headquarters. Included are the NASA International Fellowship Program, patent services, the NASA awards program for scientific and technical contributions, the NASA share of the Missile Sites Labor Commission and the Federal Construction Council, and other items of this nature. The estimate for these items is \$115 thousand below the 1967 plan because of several one-time items at Headquarters which will not be required by 1968.

## ADMINISTRATIVE OPERATIONS

### FISCAL YEAR 1968 ESTIMATES

#### JOHN F. KENNEDY SPACE CENTER, NASA

##### MISSION:

The Kennedy Space Center (KSC) was established at Cape Kennedy, Florida, as a separate center within NASA in July 1962. Prior to that time, it had been the Launch Operations Directorate of the Marshall Space Flight Center. It serves as the primary center within NASA for the test, checkout and launch of space vehicles. This presently includes launch of manned vehicles at KSC-Eastern Test Range (ETR), and unmanned vehicles at both ETR and the Western Test Range (WTR). KSC has participated in the flight preparations for Projects Mercury and Gemini; and Saturn vehicle development flights. The center is now concentrating on the Apollo program unmanned and manned launches, as well as scientific unmanned launches. KSC is specifically responsible for:

1. Launch vehicle checkout and preparation.
2. Spacecraft and payload checkout and preparation.
3. Launch facility design, construction, maintenance, and operations.
4. Final integration and integrated checkout of vehicle, spacecraft and launch facilities, and the conduct of actual launch operations.
5. Operation and coordination of supporting facilities, ground support equipment, and tracking and data acquisition and logistics support required for operation of all NASA activities at ETR and WTR.

In fulfilling its assigned programs, the Kennedy Space Center has developed into a highly flexible "space port" capable of handling a wide variety of launch activities for present and future manned and unmanned space activities.

##### DESCRIPTION:

The Kennedy Space Center is adjacent to the National Eastern Test Range launch area. It is situated approximately 50 miles east of Orlando, Florida, in northeast Brevard County.

The total land area occupied by the installation is approximately 87,800 acres, including 84,303 acres owned by NASA. In addition to the land area occupied, the state of Florida has dedicated to the United States exclusive use rights to some 53,563 acres of state-owned submerged lands. Included in the NASA-owned lands are 3,300 acres of producing citrus groves, situated in the buffer zone, which are out-leased.

In addition to the operation and maintenance of all facilities at the Kennedy Space Center, the center is responsible for certain facilities within the National Eastern Test Range launch area. The capital investment as of June 30, 1966, was \$808,549,000.

SUMMARY OF RESOURCES REQUIREMENTS:

<u>Functions</u>	<u>FUNDS</u>		
	<u>1966</u>	<u>1967</u>	<u>1968</u>
Personnel.....	\$29,848,000	\$33,579,000	\$35,476,000
Travel.....	840,000	1,059,000	1,079,000
Automatic data processing.....	948,000	1,330,000	1,342,000
Facilities services.....	42,678,000	47,874,000	52,639,000
Technical services.....	31,000	---	8,000
Administrative support.....	<u>7,607,000</u>	<u>8,816,000</u>	<u>9,031,000</u>
Total, fund requirements.....	<u>\$81,952,000</u>	<u>\$92,658,000</u>	<u>\$99,575,000</u>

PERSONNEL

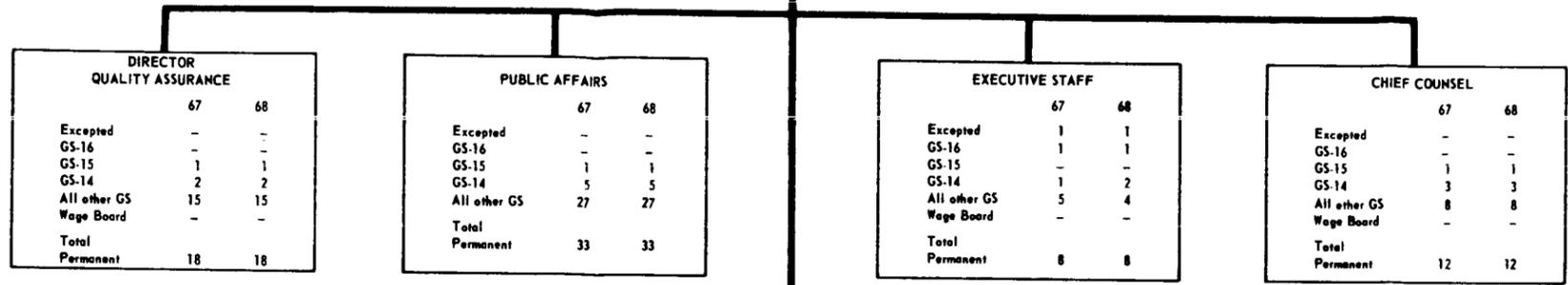
	<u>1966</u>	<u>1967</u>	<u>1968</u>
1. <u>Permanent positions by program:</u>			
<u>Manned Space Flight</u>			
Gemini.....	193	---	---
Apollo.....	1,216	1,484	1,453
Apollo applications.....	---	---	40
<u>Space Science and Applications</u>			
Voyager.....	---	2	3
Launch vehicle procurement.....	<u>126</u>	<u>126</u>	<u>116</u>
Subtotal, positions by program....	1,535	1,612	1,612
2. <u>Support positions:</u>			
Director and staff.....	54	61	61
Administrative support.....	552	550	550
Research and development support.....	<u>448</u>	<u>497</u>	<u>497</u>
Subtotal, support positions.....	<u>1,054</u>	<u>1,108</u>	<u>1,108</u>
Total, permanent positions.....	<u>2,589</u>	<u>2,720</u>	<u>2,720</u>

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
ORGANIZATION AND STAFFING CHART  
JOHN F. KENNEDY SPACE CENTER, NASA

STAFFING SUMMARY		
	67	68
Excepted	25	25
GS-16	14	14
GS-15	127	156
GS-14	209	247
All other GS	2,339	2,272
Wage Board	6	6
Total		
Permanent	2,720	2,720

NOTE: Includes 34 Permanent Positions assigned to Daytona Beach Operations, not functionally part of Kennedy Space Center

DIRECTOR		
	67	68
Excepted	3	3
GS-16	-	-
GS-15	2	2
GS-14	-	-
All other GS	3	3
Wage Board	-	-
Total		
Permanent	8	8



DIRECTOR QUALITY ASSURANCE		
	67	68
Excepted	-	-
GS-16	-	-
GS-15	1	1
GS-14	2	2
All other GS	15	15
Wage Board	-	-
Total		
Permanent	18	18

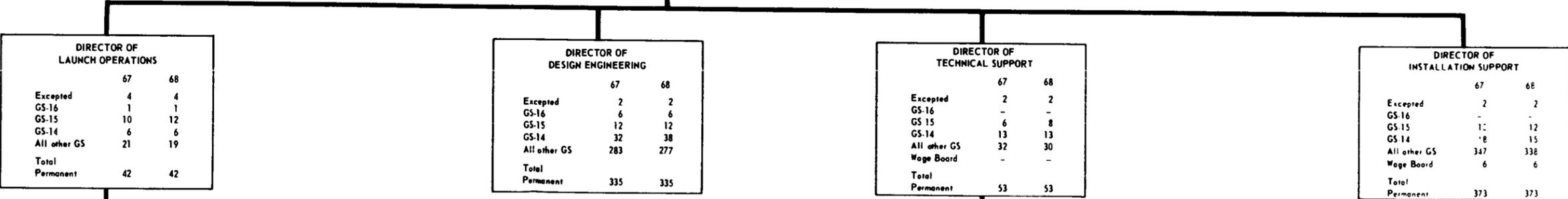
PUBLIC AFFAIRS		
	67	68
Excepted	-	-
GS-16	-	-
GS-15	1	1
GS-14	5	5
All other GS	27	27
Total		
Permanent	33	33

EXECUTIVE STAFF		
	67	68
Excepted	1	1
GS-16	1	1
GS-15	-	-
GS-14	1	2
All other GS	5	4
Wage Board	-	-
Total		
Permanent	8	8

CHIEF COUNSEL		
	67	68
Excepted	-	-
GS-16	-	-
GS-15	1	1
GS-14	3	3
All other GS	8	8
Wage Board	-	-
Total		
Permanent	12	12

MANAGER APOLLO PROGRAM		
	67	68
Excepted	3	3
GS-16	-	-
GS-15	17	20
GS-14	14	19
All other GS	109	101
Total		
Permanent	143	143

DIRECTOR OF ADMINISTRATION		
	67	68
Excepted	3	3
GS-16	-	-
GS-15	10	15
GS-14	22	35
All other GS	336	318
Wage Board	-	-
Total		
Permanent	371	371

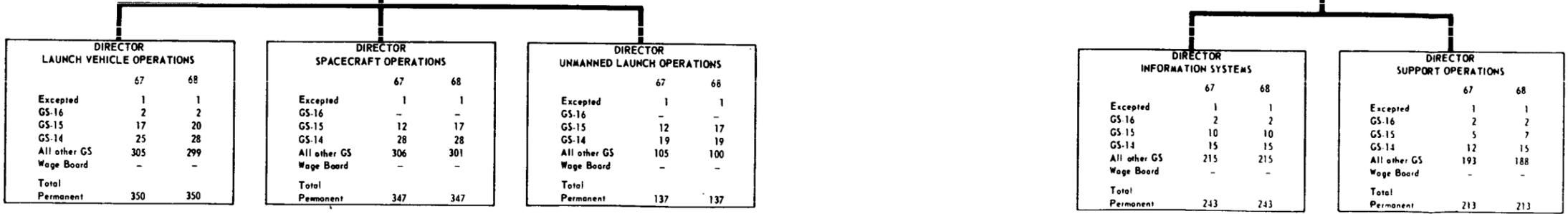


DIRECTOR OF LAUNCH OPERATIONS		
	67	68
Excepted	4	4
GS-16	1	1
GS-15	10	12
GS-14	6	6
All other GS	21	19
Total		
Permanent	42	42

DIRECTOR OF DESIGN ENGINEERING		
	67	68
Excepted	2	2
GS-16	6	6
GS-15	12	12
GS-14	32	38
All other GS	283	277
Total		
Permanent	335	335

DIRECTOR OF TECHNICAL SUPPORT		
	67	68
Excepted	2	2
GS-16	-	-
GS-15	6	8
GS-14	13	13
All other GS	32	30
Wage Board	-	-
Total		
Permanent	53	53

DIRECTOR OF INSTALLATION SUPPORT		
	67	68
Excepted	2	2
GS-16	-	-
GS-15	1	12
GS-14	18	15
All other GS	347	338
Wage Board	6	6
Total		
Permanent	373	373



DIRECTOR LAUNCH VEHICLE OPERATIONS		
	67	68
Excepted	1	1
GS-16	2	2
GS-15	17	20
GS-14	25	28
All other GS	305	299
Wage Board	-	-
Total		
Permanent	350	350

DIRECTOR SPACECRAFT OPERATIONS		
	67	68
Excepted	1	1
GS-16	-	-
GS-15	12	17
GS-14	28	28
All other GS	306	301
Wage Board	-	-
Total		
Permanent	347	347

DIRECTOR UNMANNED LAUNCH OPERATIONS		
	67	68
Excepted	1	1
GS-16	-	-
GS-15	12	17
GS-14	19	19
All other GS	105	100
Wage Board	-	-
Total		
Permanent	137	137

DIRECTOR INFORMATION SYSTEMS		
	67	68
Excepted	1	1
GS-16	2	2
GS-15	10	10
GS-14	15	15
All other GS	215	215
Wage Board	-	-
Total		
Permanent	243	243

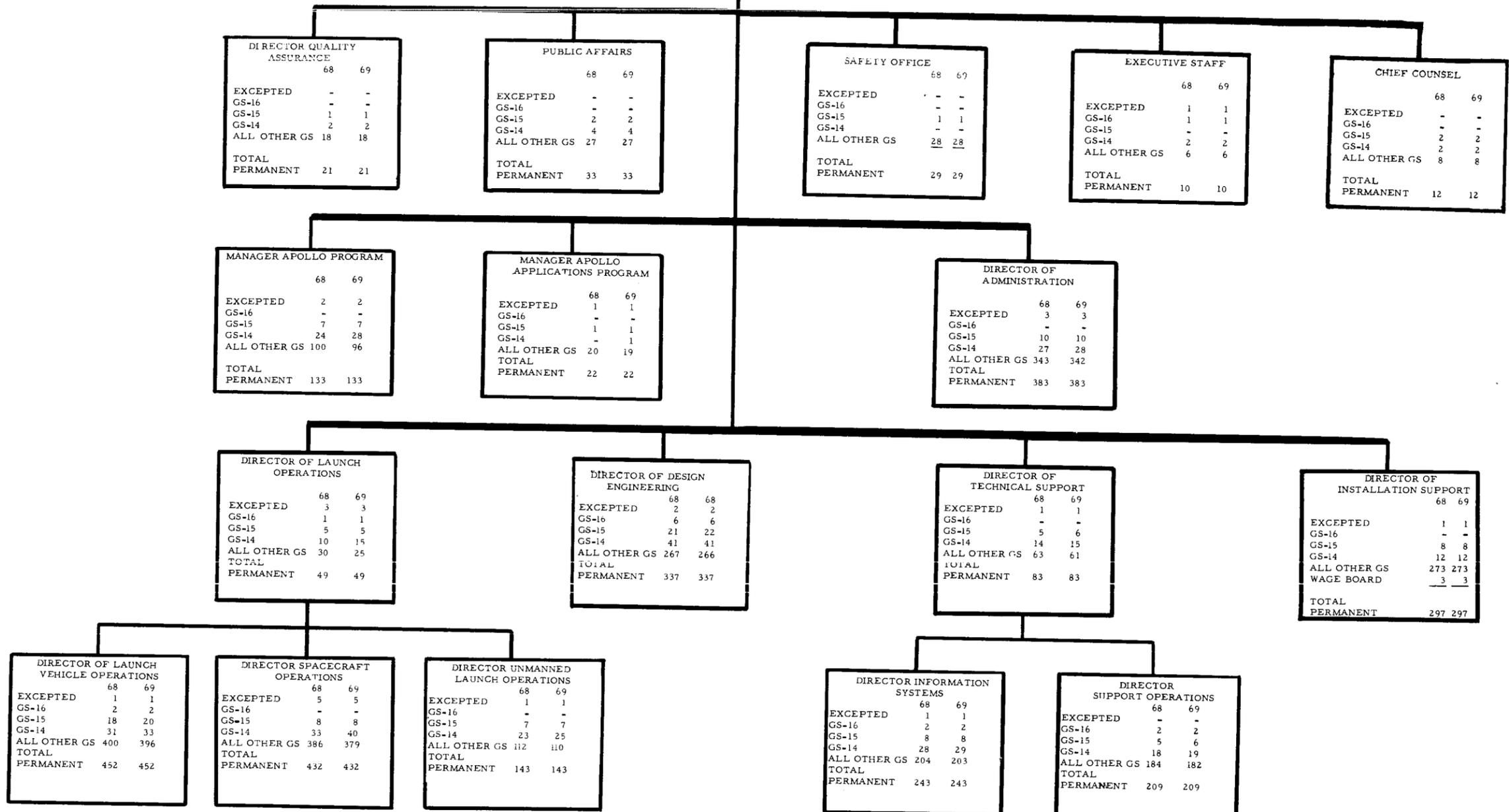
DIRECTOR SUPPORT OPERATIONS		
	67	68
Excepted	1	1
GS-16	2	2
GS-15	5	7
GS-14	12	15
All other GS	193	188
Wage Board	-	-
Total		
Permanent	213	213

STAFFING SUMMARY			
	68	69	
EXCEPTED	25	25	
GS-16	14	14	
GS-15	111	116	
GS-14	275	300	
ALL OTHER GS	2,503	2,473	
WAGE BOARD	3	3	
TOTAL			
PERMANENT	2,931*	2,931*	
TEMPORARY	65	65	
	2,996	2,996	

\*NOTE: Includes 34 permanent positions assigned to Daytona Beach operations, not functionally part of Kennedy Space Center and not reflected on Organizational Chart.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
ORGANIZATIONAL & STAFFING CHART  
JOHN F. KENNEDY SPACE CENTER, NASA

DIRECTOR			
	68	69	
EXCEPTED	3	3	
GS-16	-	-	
GS-15	1	1	
GS-14	-	-	
ALL OTHER GS	5	5	
TOTAL			
PERMANENT	9	9	



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JOHN F. KENNEDY SPACE CENTER, NASA

FISCAL YEAR 1969 ESTIMATES

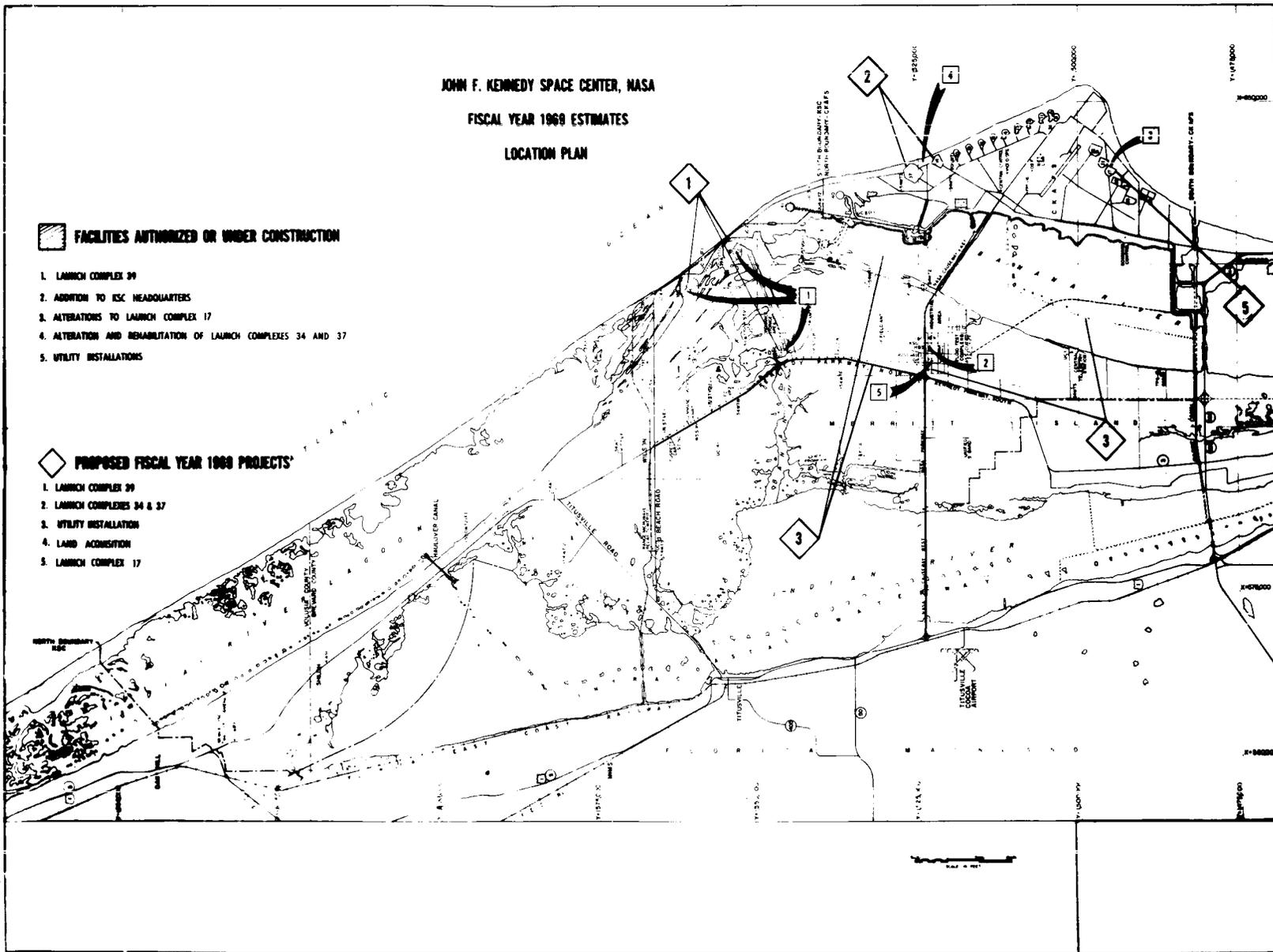
LOCATION PLAN

 FACILITIES AUTHORIZED OR UNDER CONSTRUCTION

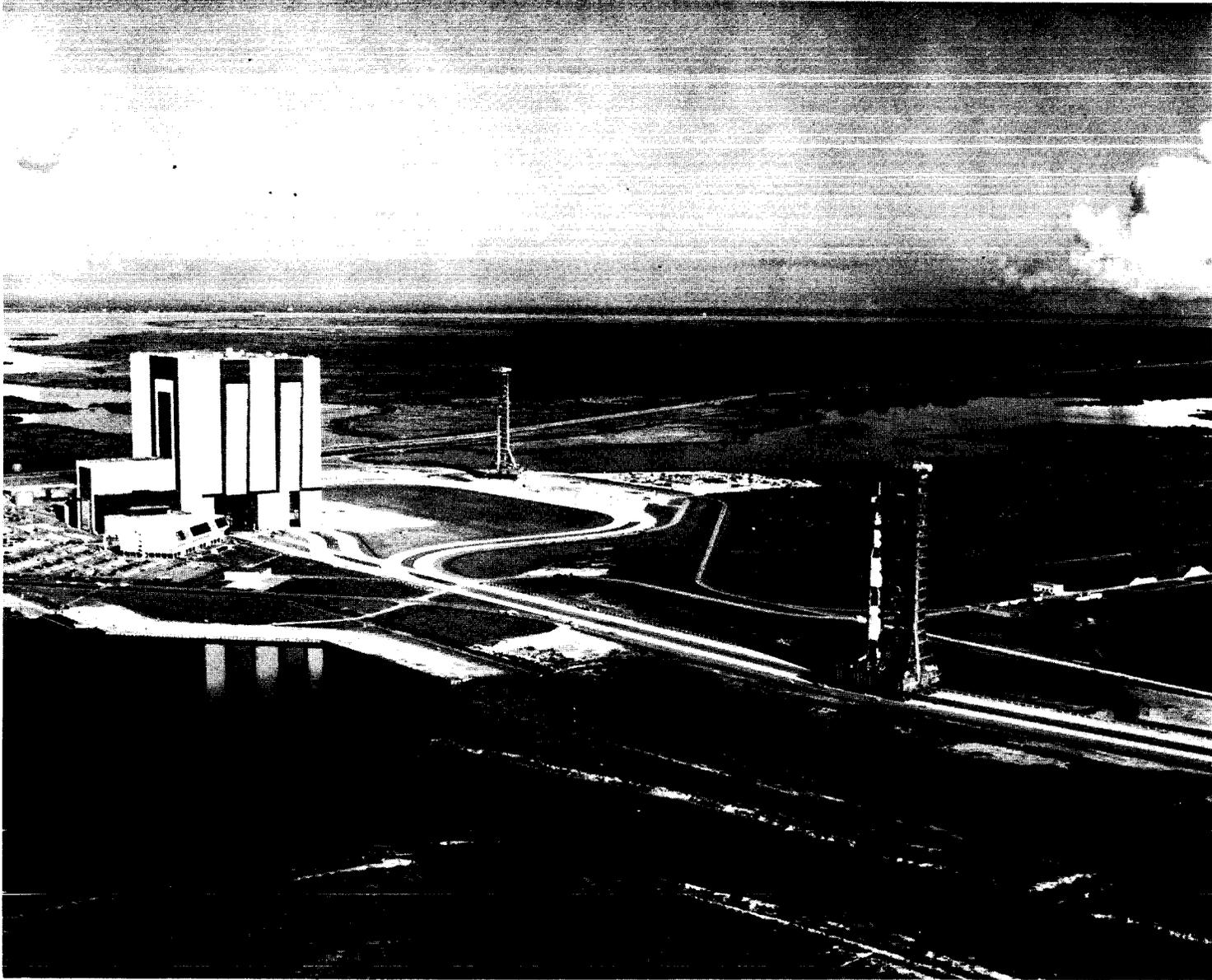
- 1. LAUNCH COMPLEX 39
- 2. ADDITION TO KSC HEADQUARTERS
- 3. ALTERATIONS TO LAUNCH COMPLEX 17
- 4. ALTERATION AND REHABILITATION OF LAUNCH COMPLEXES 34 AND 37
- 5. UTILITY INSTALLATIONS

 PROPOSED FISCAL YEAR 1969 PROJECTS

- 1. LAUNCH COMPLEX 39
- 2. LAUNCH COMPLEXES 34 & 37
- 3. UTILITY INSTALLATION
- 4. LAND ACQUISITION
- 5. LAUNCH COMPLEX 17



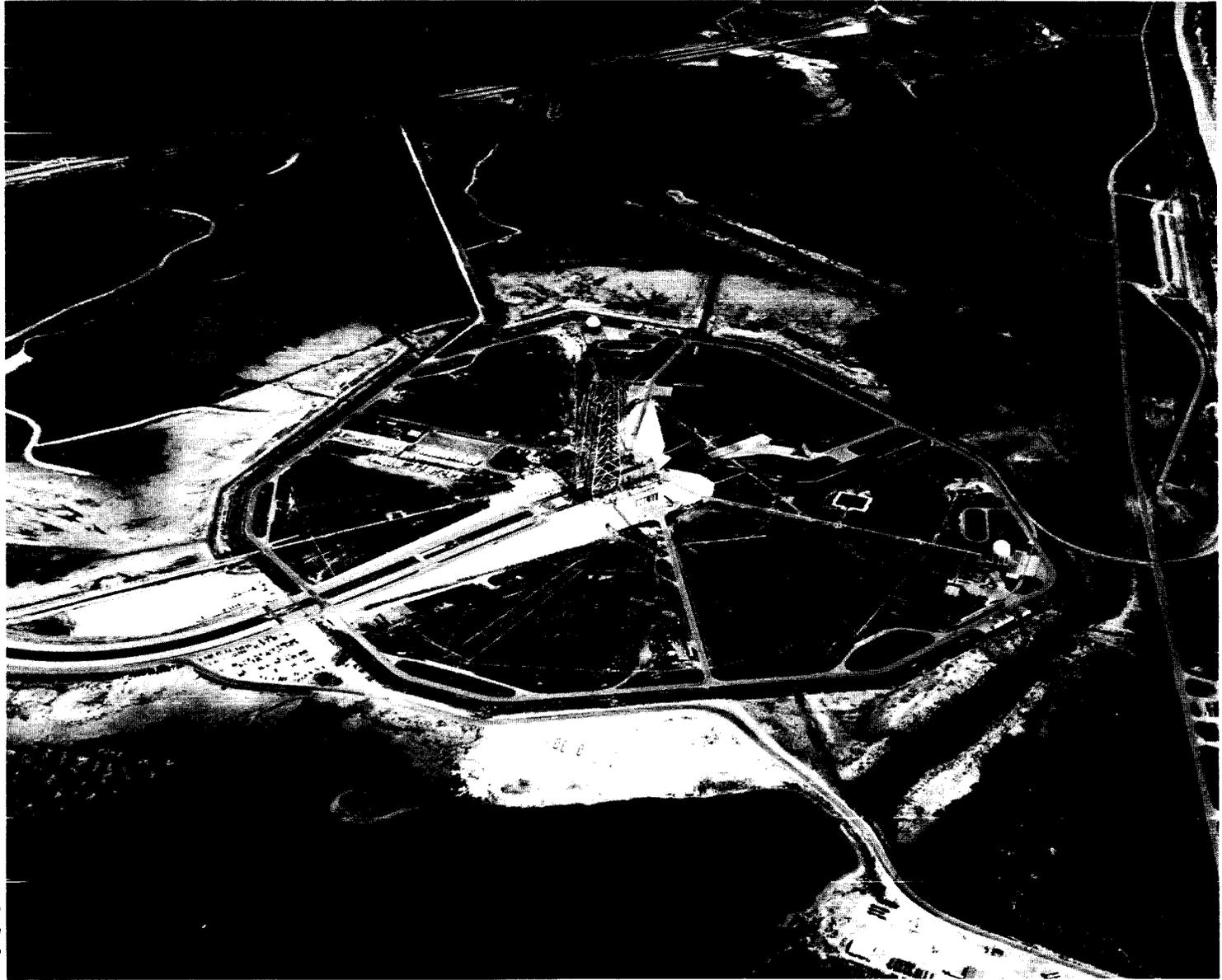
John F. Kennedy Space Center, NASA



AO 2-7

Vertical Assembly Building

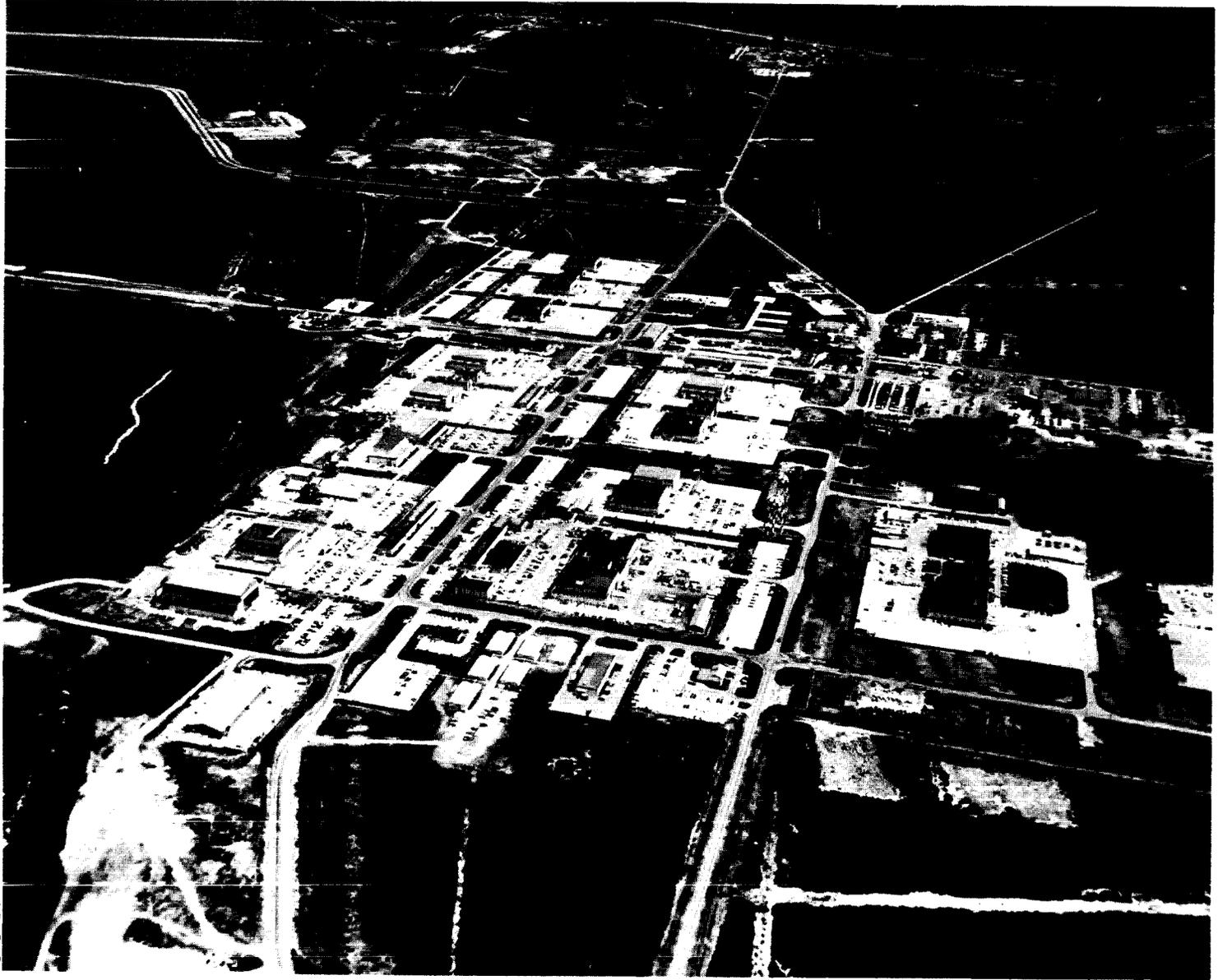
John F. Kennedy Space Center, NASA



AO 2-8

Pad 39A

John F. Kennedy Space Center, NASA



AO 2-9

Industrial Area

John F. Kennedy Space Center, NASA



Headquarters Building

John F. Kennedy Space Center, NASA



AO 2-11

Visitor Information Center

ADMINISTRATIVE OPERATIONS  
FISCAL YEAR 1969 ESTIMATES  
MANNED SPACECRAFT CENTER

MISSION:

The Manned Spacecraft Center was established in November 1961 at Houston, Texas, as NASA's primary Center for the design, development, and manufacture of manned spacecraft, and for selection and training of astronaut crews and the conduct of space flight missions. Manned Spacecraft Center and its predecessor organization, the NASA Space Task Group, have completed two major programs: (1) the Mercury program, which was the United States' pioneering venture into manned space flight; and (2) the Gemini program, which extended manned flight capability in space in many significant ways. Manned Spacecraft Center is now heavily engaged in the Apollo program and is also proceeding with necessary program planning and technical analysis of the Apollo Applications program and other post-Apollo activities.

The Apollo program utilizes the capabilities of the Manned Spacecraft Center in several ways. This Center is responsible for:

1. The design, development, and fabrication of the Apollo spacecraft, including the command and service modules, and the lunar module.
2. Over-all program management and control of the spacecraft including module integration, testing, and qualification.
3. Conduct of a program of spacecraft environmental testing.
4. Selection and training of astronauts and preparation of primary and backup crews for each mission.
5. Operation of the Mission Control Center and control of the space flight missions from lift-off to recovery.
6. Development of scientific experiments to be flown on Apollo flights.
7. Operation of the Lunar Receiving Laboratory, which provides a central complex where samples of materials brought to earth by lunar exploration teams may be received, quarantined, processed, undergo limited experiments, and be distributed to the scientific community for further analysis.

The longer duration flights planned for the Apollo Applications missions will make it necessary to use the experienced personnel of this Center to upgrade spacecraft and lunar module subsystems. This Center is also responsible for the development of earth sensor experiment modules and biomedical,

bioscience, and behavioral experiment modules to be flown on Apollo Applications missions.

DESCRIPTION:

The Manned Spacecraft Center is located two miles east of the town of Webster, Texas. The site is approximately 20 miles southeast of downtown Houston and 25 miles northwest of Galveston, Texas. Total NASA-owned land consists of 1,620 acres. The Center also holds an additional 55,880 acres under use agreement at the White Sands Test Facility. The total capital investment of the Manned Spacecraft Center, including work in progress, contractor-held facilities at various locations, and the White Sands Test Facility, as of June 30, 1967, is \$351,469,000.

SUMMARY OF RESOURCES REQUIREMENTS:

<u>Functions</u>	<u>FUNDS</u>		
	<u>1967</u>	<u>1968</u>	<u>1969</u>
Personnel.....	\$59,664,000	\$63,672,000	\$64,747,000
Travel.....	4,433,000	4,093,000	4,093,000
Automatic data processing.....	6,430,000	6,843,000	6,843,000
Facilities services.....	12,647,000	10,861,000	11,047,000
Technical services.....	1,256,000	834,000	834,000
Administrative support.....	<u>11,229,000</u>	<u>9,605,000</u>	<u>9,532,000</u>
Total, fund requirements.....	<u>\$95,659,000</u>	<u>\$95,908,000</u>	<u>\$97,096,000</u>

PERSONNEL

	<u>1967</u>	<u>1968</u>	<u>1969</u>
1. <u>Permanent positions by program:</u>			
<u>Manned Space Flight</u>			
Gemini.....	29	---	---
Apollo.....	2,981	2,935	2,403
Apollo applications.....	221	286	798
Advanced missions.....	114	114	114

	<u>1967</u>	<u>1968</u>	<u>1969</u>
<u>Space Science and Applications</u>			
Physics and astronomy.....	---	18	23
Lunar and planetary.....	---	12	16
Space applications.....	26	26	35
<u>Advanced Research and Technology</u>			
Space vehicle systems.....	4	8	10
Electronics systems.....	4	4	4
Human factor systems.....	8	8	8
Space power and electric propulsion systems.....	3	3	3
Chemical propulsion.....	2	2	2
<u>Technology Utilization</u>	<u>5</u>	<u>5</u>	<u>5</u>
Subtotal, positions by program.....	3,397	3,421	3,421
2. <u>Support positions:</u>			
Director and staff.....	93	93	93
Administrative support.....	1,019	856	856
Research and development support.....	<u>195</u>	<u>209</u>	<u>209</u>
Subtotal, support positions.....	<u>1,307</u>	<u>1,158</u>	<u>1,158</u>
Total, permanent positions.....	<u>4,704</u>	<u>4,579</u>	<u>4,579</u>

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
ORGANIZATION AND STAFF SUMMARY  
MANNED SPACECRAFT CENTER

STAFFING SUMMARY

Executed	48	69
GS-16	35	35
GS-15	30	30
GS-14	202	242
All other GS	232	212
Wage Board	165	162
Total personnel	439	437
Temporarily	156	156
Total positions	472	473

OFFICE OF THE DIRECTOR

Executed	10	10
GS-16	8	8
GS-15	0	0
GS-14	1	1
All other GS	0	0
Wage Board	0	0
Total	19	19

PUBLIC AFFAIRS OFFICE

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	4	4
All other GS	14	14
Wage Board	0	0
Total	86	86

FLIGHT SAFETY OFFICE

Executed	68	69
GS-16	1	1
GS-15	2	2
GS-14	11	11
All other GS	11	11
Wage Board	1	1
Total	94	96

LEGAL OFFICE

Executed	67	68
GS-16	0	0
GS-15	0	0
GS-14	4	4
All other GS	16	16
Wage Board	0	0
Total	87	88

NASA REGIONAL AUDIT OFFICE

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	0	0
All other GS	0	0
Wage Board	0	0
Total	68	69

NASA REGIONAL INSPECTOR

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	0	0
All other GS	0	0
Wage Board	0	0
Total	68	69

APOLLO SPACECRAFT PROGRAM OFFICE

Executed	68	69
GS-16	8	8
GS-15	54	54
GS-14	9	9
All other GS	281	284
Wage Board	0	0
Total	370	374

APOLLO APPLICATIONS PROGRAM OFFICE

Executed	68	69
GS-16	2	2
GS-15	15	15
GS-14	18	18
All other GS	58	58
Wage Board	0	0
Total	93	92

DIRECTOR OF ENGINEERING AND DEVELOPMENT

Executed	68	69
GS-16	3	3
GS-15	0	0
GS-14	6	6
All other GS	18	18
Wage Board	0	0
Total	31	30

DIRECTOR OF SCIENCE AND APPLICATIONS

Executed	68	69
GS-16	1	1
GS-15	2	2
GS-14	4	4
All other GS	4	4
Wage Board	0	0
Total	21	21

DIRECTOR OF MEDICAL RESEARCH AND OPERATIONS

Executed	68	69
GS-16	2	2
GS-15	1	1
GS-14	1	1
All other GS	15	15
Wage Board	0	0
Total	20	20

DIRECTOR OF FLIGHT CREW OPERATIONS

Executed	68	69
GS-16	0	0
GS-15	1	1
GS-14	1	1
All other GS	2	2
Wage Board	0	0
Total	4	4

DIRECTOR OF FLIGHT OPERATIONS

Executed	68	69
GS-16	1	1
GS-15	3	3
GS-14	3	3
All other GS	14	14
Wage Board	0	0
Total	21	21

DIRECTOR OF ADMINISTRATION

Executed	68	69
GS-16	2	2
GS-15	1	1
GS-14	3	3
All other GS	20	20
Wage Board	0	0
Total	26	26

ADVANCED SPACECRAFT TECHNOLOGY DIVISION

Executed	68	69
GS-16	1	1
GS-15	8	8
GS-14	17	17
All other GS	66	66
Wage Board	0	0
Total	92	92

INFORMATION SYSTEMS DIVISION

Executed	68	69
GS-16	0	0
GS-15	2	2
GS-14	5	5
All other GS	13	13
Wage Board	0	0
Total	20	20

SPACE PHYSICS DIVISION

Executed	68	69
GS-16	1	1
GS-15	3	3
GS-14	1	1
All other GS	48	48
Wage Board	0	0
Total	53	53

LUNAR AND EARTH SCIENCE DIVISION

Executed	68	69
GS-16	2	2
GS-15	3	3
GS-14	7	7
All other GS	45	45
Wage Board	0	0
Total	57	57

PREVENTIVE MEDICINE OFFICE

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	2	2
All other GS	3	3
Wage Board	0	0
Total	5	5

ASTRONAUT OFFICE

Executed	68	69
GS-16	1	1
GS-15	5	5
GS-14	20	20
All other GS	16	16
Wage Board	0	0
Total	42	42

FLIGHT SUPPORT DIVISION

Executed	68	69
GS-16	0	0
GS-15	4	4
GS-14	8	8
All other GS	168	168
Wage Board	0	0
Total	280	280

RESOURCES MANAGEMENT DIVISION

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	11	11
All other GS	142	142
Wage Board	0	0
Total	163	163

PROCUREMENT AND CONTRACTS DIVISION

Executed	68	69
GS-16	0	0
GS-15	5	5
GS-14	20	20
All other GS	222	222
Wage Board	0	0
Total	247	247

CREW SYSTEMS DIVISION

Executed	68	69
GS-16	2	2
GS-15	7	7
GS-14	27	27
All other GS	139	139
Wage Board	0	0
Total	175	175

COMPUTATION AND ANALYSIS DIVISION

Executed	68	69
GS-16	0	0
GS-15	1	1
GS-14	7	7
All other GS	120	120
Wage Board	0	0
Total	128	128

LUNAR SURFACE PROJECT OFFICE

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	15	15
All other GS	0	0
Wage Board	0	0
Total	15	15

APPLICATIONS RESEARCH OFFICE

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	15	15
All other GS	25	25
Wage Board	0	0
Total	40	40

PROPHETIC RESEARCH OFFICE

Executed	68	69
GS-16	1	1
GS-15	1	1
GS-14	6	6
All other GS	19	19
Wage Board	0	0
Total	27	27

AIRCRAFT OPERATIONS OFFICE

Executed	68	69
GS-16	0	0
GS-15	1	1
GS-14	2	2
All other GS	12	12
Wage Board	0	0
Total	15	15

MISSION PLANNING AND ANALYSIS DIVISION

Executed	68	69
GS-16	0	0
GS-15	1	1
GS-14	7	7
All other GS	161	161
Wage Board	0	0
Total	176	176

PERSONNEL DIVISION

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	5	5
All other GS	68	68
Wage Board	0	0
Total	73	73

MANAGEMENT SERVICES DIVISION

Executed	68	69
GS-16	0	0
GS-15	1	1
GS-14	6	6
All other GS	70	70
Wage Board	0	0
Total	77	77

INSTRUMENTATION AND ELECTRONIC SYSTEMS DIVISION

Executed	68	69
GS-16	2	2
GS-15	20	20
GS-14	141	141
All other GS	0	0
Wage Board	0	0
Total	163	163

DISTANCE AND CONTROL DIVISION

Executed	68	69
GS-16	1	1
GS-15	17	17
GS-14	23	23
All other GS	0	0
Wage Board	0	0
Total	41	41

TEST AND OPERATIONS OFFICE

Executed	68	69
GS-16	0	0
GS-15	1	1
GS-14	12	12
All other GS	0	0
Wage Board	0	0
Total	13	13

ADVANCED STATE LABORATORY

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	3	3
All other GS	0	0
Wage Board	0	0
Total	3	3

MEDICAL OPERATIONS

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	6	6
All other GS	0	0
Wage Board	0	0
Total	6	6

FLIGHT CREW SUPPORT DIVISION

Executed	68	69
GS-16	1	1
GS-15	4	4
GS-14	17	17
All other GS	242	242
Wage Board	1	1
Total	275	275

FLIGHT CONTROL DIVISION

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	16	16
All other GS	141	141
Wage Board	0	0
Total	167	167

ADMINISTRATIVE SERVICES DIVISION

Executed	68	69
GS-16	0	0
GS-15	1	1
GS-14	1	1
All other GS	346	346
Wage Board	52	52
Total	411	411

TECHNICAL SERVICES DIVISION

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	1	1
All other GS	95	95
Wage Board	0	0
Total	104	104

PREPAREDNESS DIVISION

Executed	68	69
GS-16	1	1
GS-15	1	1
GS-14	20	20
All other GS	112	112
Wage Board	0	0
Total	144	144

STRUCTURAL MECHANISMS DIVISION

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	23	23
All other GS	115	115
Wage Board	0	0
Total	138	138

OPERATIONAL ANALYSIS OFFICE

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	2	2
All other GS	0	0
Wage Board	0	0
Total	2	2

WORLD WIDE RESEARCH OFFICE

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	0	0
All other GS	0	0
Wage Board	0	0
Total	0	0

FLIGHT CREW TRAINING DIVISION

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	0	0
All other GS	0	0
Wage Board	0	0
Total	0	0

FLIGHT CREW SUPPORT DIVISION

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	0	0
All other GS	0	0
Wage Board	0	0
Total	0	0

TRAINING AND RECOVERY DIVISION

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	0	0
All other GS	0	0
Wage Board	0	0
Total	0	0

ENCLOSURE DIVISION

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	11	11
All other GS	0	0
Wage Board	0	0
Total	11	11

PHOTOGRAPHIC TECHNOLOGY LABORATORY

Executed	68	69
GS-16	0	0
GS-15	0	0
GS-14	2	2
All other GS	92	92
Wage Board	0	0
Total	94	94

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## ADMINISTRATIVE OPERATIONS

### FISCAL YEAR 1969 ESTIMATES

#### AMES RESEARCH CENTER

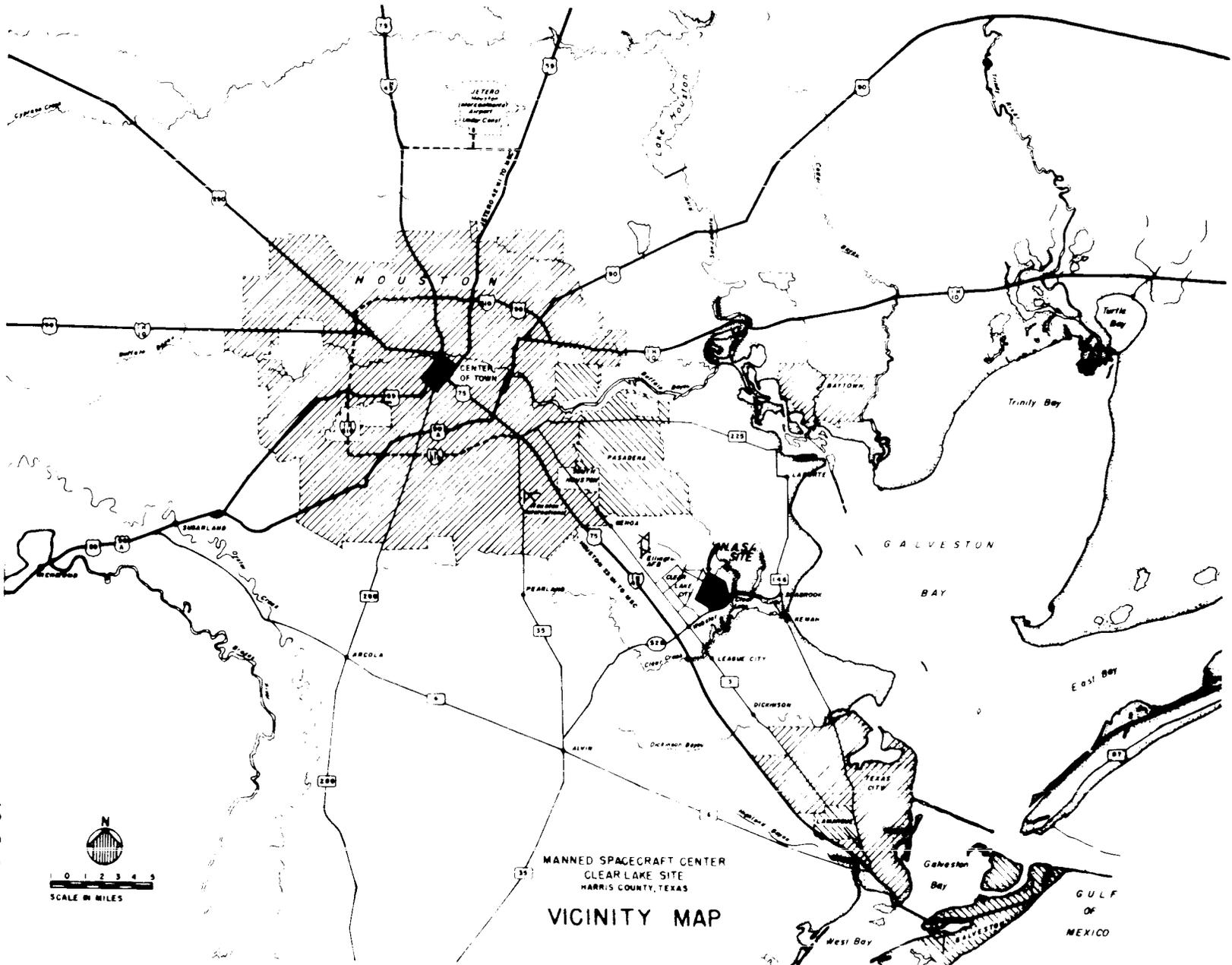
##### MISSION:

Ames Research Center has a major research responsibility in the life sciences and space sciences, a flight project management responsibility, and the operational responsibility for the NASA Convair 990 aircraft to conduct airborne scientific experiments in addition to the traditional research mission in the physical sciences. In the current and budget years, this installation has flight project management responsibility for the Pioneer and Biosatellite projects. Pioneer provides scientific observations of phenomena in interplanetary space from an unmanned spacecraft, and the Biosatellite project explores the biological effects of the space environment on primates and other earth organisms.

Research in the physical sciences includes studies in atmosphere entry and environmental physics, guidance and control systems, and aeronautics. The work in entry and environmental physics includes basic studies of the physics of high-temperature gases, the stability, control, and performance of a wide range of spacecraft configurations, and of materials and structures for spacecraft. In the area of gas physics, particular emphasis is placed on problems associated with flight into earth and other planetary atmospheres. Through this effort, significant contributions have been made to the design of the Mercury, Gemini, and Apollo spacecraft, the design of Mars and Venus entry vehicles, and the design of ballistic missiles.

The work in guidance and control systems is broad in nature and is applicable to manned and unmanned spacecraft, as well as aircraft. Current emphasis in guidance systems is directed mainly at current and follow-on manned missions. This includes an intensive theoretical and experimental effort in the areas of midcourse navigation and terminal guidance with a smaller effort directed at studies involving lunar approach, lunar landing, and rendezvous. The research in control systems is directed at examining various techniques applicable to unmanned satellites and probes and techniques applicable to vertical and short take-off (V/STOL) aircraft, the supersonic transport, and manned spacecraft.

The research program in aeronautics is directed at fundamental studies in aerodynamics, propulsion and operating problems associated with supersonic aircraft with particular emphasis on the supersonic transport, a wide variety of V/STOL vehicles, and hypersonic research aircraft. This includes studies of piloting problems with numerous fixed-base, moving-base, and flight simulators.



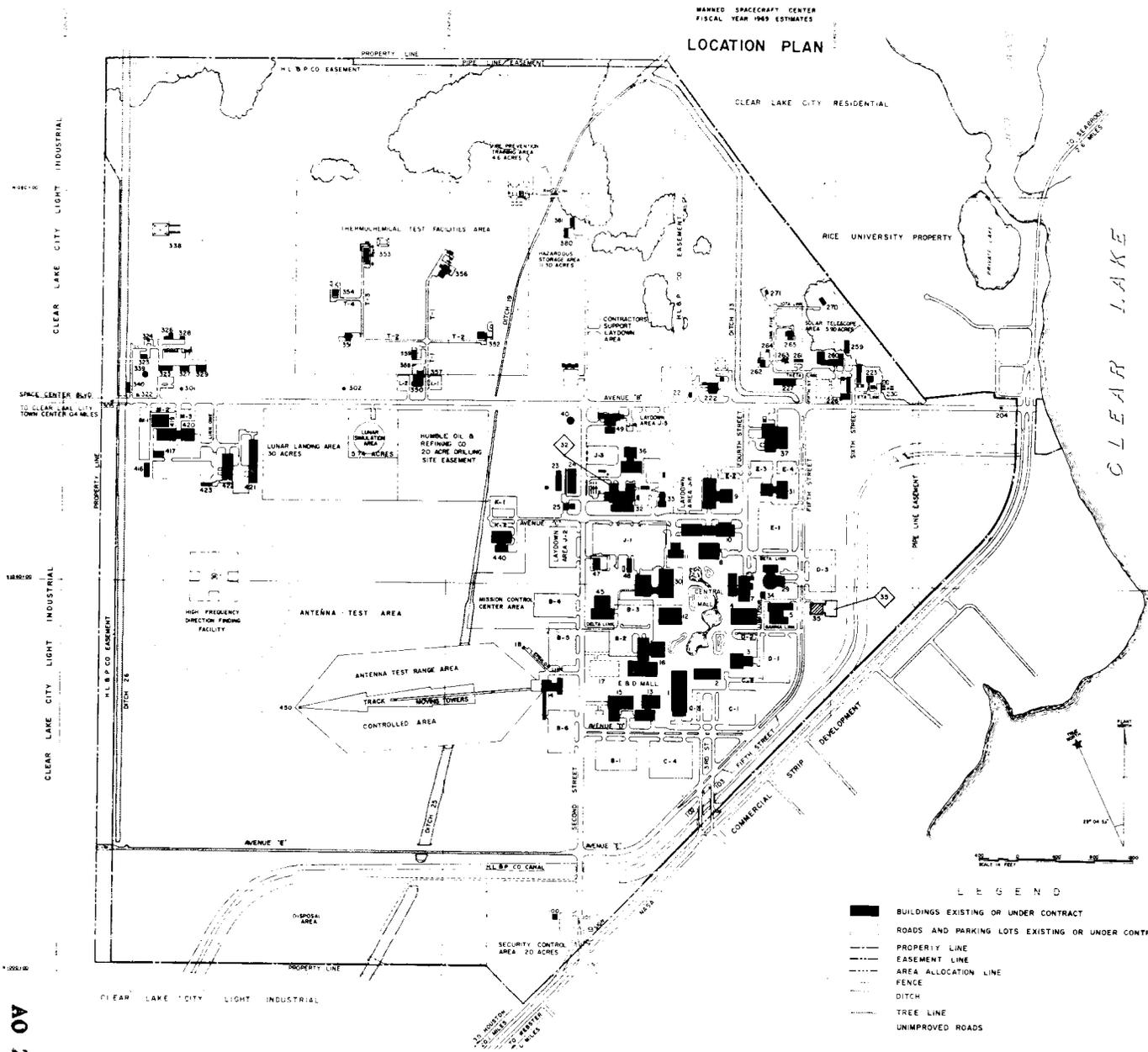
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MANNED SPACECRAFT CENTER  
 CLEAR LAKE SITE  
 HARRIS COUNTY, TEXAS  
 VICINITY MAP

MANNE SPACECRAFT CENTER  
FISCAL YEAR 1969 ESTIMATES

LOCATION PLAN



FACILITY INDEX

FACILITY NO	FACILITY TITLE	FUNDING YEAR
1	AUDITORIUM	62
2	PROJECT MANAGEMENT BUILDING	62
3	CENTRAL CAFETERIA	62
4	FLIGHT OPERATIONS OFFICE	62
5	MISSION SIMULATION AND TRAINING FACILITY	62
6	LIFE SYSTEMS LABORATORY	62,65
7	TECHNICAL SERVICES OFFICE	62
8	TECHNICAL SERVICES FACILITY	62
9	TECHNICAL SERVICES SHOP	62
10	BRANCH CAFETERIA	62
12	CENTRAL DATA OFFICE	62
13	SYSTEMS EVALUATION LABORATORY	62
14	ANEMIC CHAMBER TEST FACILITY	62
15	ANTENNA TEST RANGE CONTROL BUILDING	62
16	SPIN CRAFT RESEARCH OFFICE AND LABORATORY	62,64
18	LEM BORESIGHT RANGE CONTROL BUILDING	64
24	CENTRAL HEATING AND COOLING PLANT	64,65,66,68
25	FIRE STATION	62
29	FLIGHT ACCELERATION FACILITY	62
31	MISSION CONTROL CENTER-HOUSTON	63
33	LUNAR MISSION AND SPACE EXPLORATION FACILITY	62,65
35	SPACE ENVIRONMENT SIMULATION LABORATORY	64
37	ULTRA HIGH VACUUM SPACE CHAMBER FACILITY	64
34	FLIGHT ACCELERATION MOTOR-GENERATOR BUILDING	65
35	FLIGHT CREW TRAINING FACILITY	65
36	CONTRACTOR SUPPORT FACILITY	62
37	LUNAR RECEIVING LABORATORY	67
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45	PROJECT ENGINEERING FACILITY	64,65
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49	VIBRATION AND ACOUSTIC TEST FACILITY	64
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101	GUARDHOUSE	62
102	GUARDHOUSE	62
103	GUARDHOUSE	62
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223	SEWAGE TREATMENT PLANT	62,64
225	SERVICE CONTRACTORS COMPLEX	62,64
227	PRINTING AND REPRODUCTION FACILITY	64
230	CREW SYSTEMS BIOLOGICAL FACILITY	64
239	EQUIPMENT STORAGE BUILDING	66
250	TRANSLATION AND DODGING FACILITY	66
261	RADIOLOGICAL CALIBRATION AND WASTE STORAGE FACILITY	63
262	ARC JET, RADIANT HEATING AND WASTE STORAGE FACILITY	63
263	HEALTH PHYSICS LABORATORY	64
264	BIOLOGICAL INCUBATOR	66
265	RADIATION AND FIELDS ACCELERATOR LABORATORY	63
270	SOLAR TELESCOPE FACILITY	65
271	SOLAR RADIO TELESCOPE FACILITY	66
301	WATER WELL NO 1	62
302	WATER WELL NO 2	62
309	GUARDHOUSE	62
322	WATER TREATMENT	62
323	FILTER CLEANING AND STORAGE FACILITY	65
324	CLASSIFIED WASTE DISINTEGRATOR FACILITY	65
325	MAINTENANCE SHOP FACILITY	65
326	ROADS AND GROUNDS EQUIPMENT MAINTENANCE FACILITY	65
327	M.S.C. WORK CONTROL CENTER	65
328	ROADS AND GROUNDS MATERIALS STORAGE FACILITY	65
329	WAREHOUSE FACILITY	66
336	WATER-LAND IMPACT TEST FACILITY	66
339	GROUND WATER STORAGE TANK	65
340	GAS METERING STATION	62
350	THERMOCHEMICAL TEST FACILITY	63
351	THERMOCHEMICAL SPACE CHAMBER FACILITY	63
352	ELECTRO EXPLOSIVE DEVICES TEST FACILITY	63
353	REACTION CONTROL TEST FACILITY	63
354	SPACE POWER SYSTEMS TEST FACILITY	63
356	COMPONENTS TEST FACILITY	63
357	THERMOCHEMICAL TEST AREA GATE HOUSE	63
358	THERMOCHEMICAL SEWAGE TREATMENT FACILITY	63
359	THERMOCHEMICAL EQUIPMENT STORAGE FACILITY	64
380	HAZARDOUS MATERIAL STORAGE FACILITY	64
381	CENTRAL GAS CYLINDER STORAGE FACILITY	66
416	INTERIM OFFICE SUPPORT FACILITY	65
417	GARAGE	62
419	SUPPORT OFFICE	62
420	SUPPORT SHOP AND WAREHOUSE	62
421	MISSION SUPPORT WAREHOUSE	64
422	LOGISTIC SUPPORT WAREHOUSE	65
423	A.S.C.A.T.S. INTERIM FACILITY	66
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- LEGEND**
- BUILDINGS EXISTING OR UNDER CONTRACT
  - ▨ ROADS AND PARKING LOTS EXISTING OR UNDER CONTRACT
  - PROPERTY LINE
  - - - EASEMENT LINE
  - AREA ALLOCATION LINE
  - FENCE
  - DITCH
  - TREE LINE
  - UNIMPROVED ROADS
  - ▨ FACILITIES AUTHORIZED & UNDER CONSTRUCTION
  - 80 FLIGHT CREW TRAINING FACILITY
  - ◇ PROPOSED FISCAL YEAR 1969 PROJECTS
  - 32 MODIFICATIONS TO THE ENVIRONMENTAL TESTING LAB
  - 35 ADDITION TO FLIGHT CREW TRAINING FACILITY

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NASA  
8-67-20711

Manned Spacecraft Center



AO 2-18

Aerial View

## ADMINISTRATIVE OPERATIONS

### FISCAL YEAR 1969 ESTIMATES

#### GEORGE C. MARSHALL SPACE FLIGHT CENTER

##### MISSION:

The Marshall Space Flight Center became a part of NASA in July 1960, and has served as NASA's primary Center for the design, development, and test of launch vehicles and space transportation systems for manned space flights. Marshall Space Flight Center also includes the Michoud Assembly Facility at New Orleans, Louisiana; the Slidell Central Computer Facility nearby; and the Mississippi Test Facility in southwest Mississippi. Building on the wealth of experience gained through work on Army missile programs, Marshall Space Flight Center has, since its transfer from the Army, successfully completed the Saturn I program, and is now managing:

1. The Saturn IB program which provides a launch vehicle for Apollo spacecraft development and serves as a carrier for large scientific satellite payloads.
2. The Saturn V program which will provide the launch vehicle for actual manned lunar landing missions, planetary missions, and future very large scientific satellite payloads.
3. Selected payloads for Apollo Applications missions, such as the Apollo telescope mount and the S-IVB orbital workshop.

In carrying out its management responsibilities for these programs, Marshall Space Flight Center has developed the capability to:

1. Design, develop, and manufacture large launch vehicle systems, including vehicle systems test and integration.
2. Conduct test programs such as the static testing program for the S-IC and S-II stages at the Mississippi Test Facility.
3. Design, develop, and test large launch vehicle engines such as the H-1, J-2, and F-1 systems.
4. Develop and integrate scientific experiment payload packages to be flown on Saturn-Apollo vehicles or subsequent post-Apollo missions.

In support of its assigned programs, Marshall Space Flight Center also maintains the research and development capability to conduct advanced studies on launch vehicle and space systems, space navigation techniques, astronautics, and space science investigations. Its capability for both research and

for the management of industrial operations give Marshall Space Flight Center a highly flexible base for manned space programs.

DESCRIPTION:

Operations of Marshall Space Flight Center are conducted at three primary locations.

The first location, the main Marshall Space Flight Center site, is near Huntsville, Alabama, on Army property at the Redstone Arsenal. The Center occupies 1,797 acres under a nonrevocable use permit from the Army, and 64 leased acres. The capital investment as of June 30, 1967, is \$551,022,000. Certain facilities such as the Redstone Arsenal Army Air Field and some utilities are used jointly by NASA and the Army. The Huntsville location has deep-water access via the Tennessee, Ohio, and Mississippi Rivers.

The second location, the Michoud Assembly Facility, is located 15 miles east of New Orleans, Louisiana. The main facility occupies 890 acres. The Slidell Central Computer Facility, a satellite facility 20 miles to the northeast, occupies 14 additional acres bringing the total acreage to 904. The capital investment as of June 30, 1967, is \$142,382,000. Michoud Assembly Facility space totals 3,483,862 square feet, including the main assembly plant, covering an area of 43 acres under one roof. The vehicle prime contractors produce the Saturn IB and Saturn V booster stages at this location. The Michoud Assembly Facility is on the Gulf Intra-Coastal Waterway, and has deep-water access via the Mississippi River.

The third location, the Mississippi Test Facility, is in southwest Mississippi, approximately 50 miles northeast of New Orleans, Louisiana. Total land area is 138,870 acres of which 13,428 acres make up the actual test area owned by NASA. The remaining 125,442 acres are held as a buffer zone. In the buffer area, 7,568 acres are owned by NASA, and 117,874 acres are under restrictive easement. Capital investment for the Mississippi Test Facility as of June 30, 1967, is \$233,953,000. Test stands include a dual-position stand for testing the Saturn V first stage (S-IC), and two stands for testing the 1,000,000-pound thrust Saturn V second stage (S-II). The vehicle prime contractors are responsible for conducting tests on the stands. The site has deep-water access for transporting large boosters via the Pearl River and the Intra-Coastal Waterway.

The total capital investment of the Marshall Space Flight Center, including work in progress and contractor-held facilities at various locations, as of June 30, 1967, is \$927,357,000.

SUMMARY OF RESOURCES REQUIREMENTS:

<u>Functions</u>	<u>FUNDS</u>		
	<u>1967</u>	<u>1968</u>	<u>1969</u>
Personnel.....	\$90,259,000	\$91,184,000	\$87,954,000
Travel.....	3,098,000	2,945,000	2,945,000
Automatic data processing.....	10,620,000	9,486,000	9,094,000
Facilities services.....	11,419,000	9,298,000	8,741,000
Technical services.....	4,438,000	2,664,000	2,366,000
Administrative support.....	<u>8,867,000</u>	<u>7,641,000</u>	<u>7,078,000</u>
Total, fund requirements....	<u>\$128,701,000</u>	<u>\$123,218,000</u>	<u>\$113,178,000</u>

PERSONNEL

	<u>1967</u>	<u>1968</u>	<u>1969</u>
1. <u>Permanent positions by program:</u>			
<u>Manned Space Flight</u>			
Apollo.....	4,502	3,015	2,791
Apollo applications.....	526	1,535	1,704
Advanced missions.....	140	150	175
<u>Space Science and Applications</u>			
Physics and astronomy.....	5	9	12
Lunar and planetary.....	61	11	16
Launch vehicle procurement.....	10	8	7
Bioscience.....	1	5	7
Space applications.....	3	4	3
<u>Advanced Research and Technology</u>			
Basic research.....	53	45	59
Space vehicle systems.....	100	97	94
Electronics systems.....	95	90	93
Human factor systems.....	14	14	18
Space power and electric propulsion systems.....	3	11	12

	<u>1967</u>	<u>1968</u>	<u>1969</u>
Nuclear rockets.....	52	24	24
Chemical propulsion.....	14	17	18
<u>Tracking and Data Acquisition.....</u>	4	10	12
<u>Technology Utilization.....</u>	<u>10</u>	<u>7</u>	<u>7</u>
Subtotal, positions by program.....	5,593	5,052	5,052
2. <u>Support positions:</u>			
Director and staff.....	151	137	137
Administrative support.....	714	671	671
Research and development support.....	<u>628</u>	<u>526</u>	<u>526</u>
Subtotal, support positions.....	<u>1,493</u>	<u>1,334</u>	<u>1,334</u>
Total, permanent positions.....	<u><u>7,086</u></u>	<u><u>6,386</u></u>	<u><u>6,386</u></u>

**NATIONAL AERONAUTIC AND SPACE ADMINISTRATION  
ORGANIZATION AND STAFFING CHART  
MARSHALL SPACE FLIGHT CENTER**

**OFFICE OF DIRECTOR**

EXCEPTED	68	69
GS-16	9	9
GS-15	1	1
GS-14	3	3
ALL OTHER GS	0	0
WAGEBOARD	10	10
TOTAL PERMANENT	23	23

**SAFETY OFFICE**

EXCEPTED	68	69
GS-16	1	1
GS-15	0	0
GS-14	1	1
ALL OTHER GS	4	4
WAGEBOARD	1	1
TOTAL PERMANENT	7	7

**ASST DIR. FOR SCIENTIFIC & TECH ANALYSIS**

EXCEPTED	68	69
GS-16	1	1
GS-15	0	0
GS-14	0	0
ALL OTHER GS	0	0
WAGEBOARD	0	0
TOTAL PERMANENT	1	1

**EXECUTIVE STAFF**

EXCEPTED	68	69
GS-16	3	3
GS-15	0	0
GS-14	7	7
ALL OTHER GS	8	8
WAGEBOARD	38	38
TOTAL PERMANENT	56	56

**PUBLIC AFFAIRS OFFICE**

EXCEPTED	68	69
GS-16	0	0
GS-15	1	1
GS-14	3	3
ALL OTHER GS	22	22
WAGEBOARD	0	0
TOTAL PERMANENT	26	26

**CHIEF COUNSEL**

EXCEPTED	68	69
GS-16	0	0
GS-15	2	2
GS-14	4	4
ALL OTHER GS	13	13
WAGEBOARD	0	0
TOTAL PERMANENT	19	19

**LABOR RELATIONS OFFICE**

EXCEPTED	68	69
GS-16	0	0
GS-15	0	0
GS-14	1	1
ALL OTHER GS	2	2
WAGEBOARD	0	0
TOTAL PERMANENT	4	4

**PATENT COUNSEL**

EXCEPTED	68	69
GS-16	0	0
GS-15	1	1
GS-14	4	4
ALL OTHER GS	4	4
WAGEBOARD	0	0
TOTAL PERMANENT	9	9

**STAFFING SUMMARY**

EXCEPTED	68	69
GS-16	47	47
GS-15	56	56
GS-14	375	375
GS-13	773	773
ALL OTHER GS	4486	4486
WAGEBOARD	689	689
TOTAL PERMANENT	6386	6386
NON-PERMANENT	274	274
TOTAL POSITIONS	6660	6660

**MANAGEMENT SERVICES OFFICE**

EXCEPTED	68	69
GS-16	1	1
GS-15	0	0
GS-14	5	5
ALL OTHER GS	10	10
WAGEBOARD	141	141
TOTAL PERMANENT	182	182

**PURCHASING OFFICE**

EXCEPTED	68	69
GS-16	0	0
GS-15	2	2
GS-14	8	8
ALL OTHER GS	203	203
WAGEBOARD	0	0
TOTAL PERMANENT	213	213

**TECHNICAL SERVICES OFFICE**

EXCEPTED	68	69
GS-16	0	0
GS-15	2	2
GS-14	6	6
ALL OTHER GS	265	265
WAGEBOARD	218	218
TOTAL PERMANENT	491	491

**FINANCIAL MANAGEMENT OFFICE**

EXCEPTED	68	69
GS-16	0	0
GS-15	5	5
GS-14	13	13
ALL OTHER GS	148	148
WAGEBOARD	0	0
TOTAL PERMANENT	166	166

**MANPOWER UTILIZATION & ADMINISTRATION OFFICE**

EXCEPTED	68	69
GS-16	0	0
GS-15	3	3
GS-14	9	9
ALL OTHER GS	101	101
WAGEBOARD	0	0
TOTAL PERMANENT	113	113

**FACILITIES & DESIGN OFFICE**

EXCEPTED	68	69
GS-16	0	0
GS-15	5	5
GS-14	15	15
ALL OTHER GS	15	15
WAGEBOARD	0	0
TOTAL PERMANENT	35	35

**RESEARCH AND DEVELOPMENT OPERATIONS**

EXCEPTED	68	69
GS-16	3	3
GS-15	0	0
GS-14	1	1
ALL OTHER GS	3	3
WAGEBOARD	0	0
TOTAL PERMANENT	7	7

**INDUSTRIAL OPERATIONS**

EXCEPTED	68	69
GS-16	2	2
GS-15	0	0
GS-14	3	3
ALL OTHER GS	19	17
WAGEBOARD	0	0
TOTAL PERMANENT	24	22

**ADVANCED SYSTEMS OFFICE**

EXCEPTED	68	69
GS-16	2	2
GS-15	0	0
GS-14	12	12
GS-13	16	16
ALL OTHER GS	50	50
WAGEBOARD	0	0
TOTAL PERMANENT	80	80

**SYSTEMS ENGRG OFFICE**

EXCEPTED	68	69
GS-16	0	0
GS-15	1	1
GS-14	7	7
GS-13	11	11
ALL OTHER GS	42	42
WAGEBOARD	0	0
TOTAL PERMANENT	61	61

**EXPERIMENTS OFFICE**

EXCEPTED	68	69
GS-16	0	0
GS-15	1	1
GS-14	3	3
GS-13	4	4
ALL OTHER GS	19	19
WAGEBOARD	0	0
TOTAL PERMANENT	27	27

**OPERATIONS MANAGEMENT OFFICE**

EXCEPTED	67	68
GS-16	0	0
GS-15	0	0
GS-14	4	4
GS-13	14	14
ALL OTHER GS	35	35
WAGEBOARD	0	0
TOTAL PERMANENT	53	53

**CONTRACTS OFFICE**

EXCEPTED	68	69
GS-16	1	1
GS-15	0	0
GS-14	4	4
GS-13	14	14
ALL OTHER GS	101	101
WAGEBOARD	0	0
TOTAL PERMANENT	120	120

**PLANNING & RESOURCES OFFICE**

EXCEPTED	68	69
GS-16	0	0
GS-15	4	4
GS-14	4	4
ALL OTHER GS	27	27
WAGEBOARD	0	0
TOTAL PERMANENT	35	35

**PROJECT LOGISTICS OFFICE**

EXCEPTED	68	69
GS-16	0	0
GS-15	0	0
GS-14	3	3
GS-13	5	5
ALL OTHER GS	9	9
WAGEBOARD	0	0
TOTAL PERMANENT	17	17

**AERO-ASTRODYNAMICS LABORATORY**

EXCEPTED	68	69
GS-16	1	1
GS-15	7	7
GS-14	29	29
GS-13	36	36
ALL OTHER GS	250	250
WAGEBOARD	2	2
TOTAL PERMANENT	325	325

**ASTRONOMICS LABORATORY**

EXCEPTED	68	69
GS-16	6	6
GS-15	5	5
GS-14	58	58
GS-13	104	104
ALL OTHER GS	599	599
WAGEBOARD	88	88
TOTAL PERMANENT	860	860

**COMPUTATION LABORATORY**

EXCEPTED	68	69
GS-16	2	2
GS-15	4	4
GS-14	10	10
GS-13	28	28
ALL OTHER GS	119	119
WAGEBOARD	0	0
TOTAL PERMANENT	163	163

**MANUFACTURING ENGINEERING LABORATORY**

EXCEPTED	68	69
GS-16	3	3
GS-15	2	2
GS-14	13	13
GS-13	39	39
ALL OTHER GS	361	361
WAGEBOARD	232	232
TOTAL PERMANENT	650	650

**SATURN I/IB PROGRAM OFFICE**

EXCEPTED	68	69
GS-16	2	2
GS-15	2	2
GS-14	17	14
GS-13	30	28
ALL OTHER GS	79	79
WAGEBOARD	0	0
TOTAL PERMANENT	130	125

**SATURN/APOLLO APPLICATIONS PROGRAM OFFICE**

EXCEPTED	68	69
GS-16	1	1
GS-15	3	3
GS-14	9	18
GS-13	30	36
ALL OTHER GS	77	92
WAGEBOARD	0	0
TOTAL PERMANENT	120	150

**SATURN V PROGRAM OFFICE**

EXCEPTED	68	69
GS-16	1	1
GS-15	5	5
GS-14	24	20
GS-13	64	60
ALL OTHER GS	196	184
WAGEBOARD	0	0
TOTAL PERMANENT	290	270

**ENGINE PROGRAM OFFICE**

EXCEPTED	68	69
GS-16	1	1
GS-15	4	4
GS-14	9	8
GS-13	32	30
ALL OTHER GS	34	37
WAGEBOARD	0	0
TOTAL PERMANENT	80	80

**PROPULSION & VEHICLE ENGINEERING LABORATORY**

EXCEPTED	68	69
GS-16	2	2
GS-15	7	7
GS-14	50	50
GS-13	104	104
ALL OTHER GS	531	531
WAGEBOARD	25	25
TOTAL PERMANENT	719	719

**QUALITY & RELIABILITY ASSURANCE LABORATORY**

EXCEPTED	68	69
GS-16	1	1
GS-15	4	4
GS-14	28	28
GS-13	63	63
ALL OTHER GS	435	435
WAGEBOARD	4	4
TOTAL PERMANENT	535	535

**SPACE SCIENCES LABORATORY**

EXCEPTED	68	69
GS-16	1	1
GS-15	2	2
GS-14	14	14
GS-13	20	20
ALL OTHER GS	68	68
WAGEBOARD	0	0
TOTAL PERMANENT	105	105

**TEST LABORATORY**

EXCEPTED	68	69
GS-16	1	1
GS-15	5	5
GS-14	18	18
GS-13	35	35
ALL OTHER GS	181	181
WAGEBOARD	95	95
TOTAL PERMANENT	335	335

**MICHOUD ASSEMBLY FACILITY**

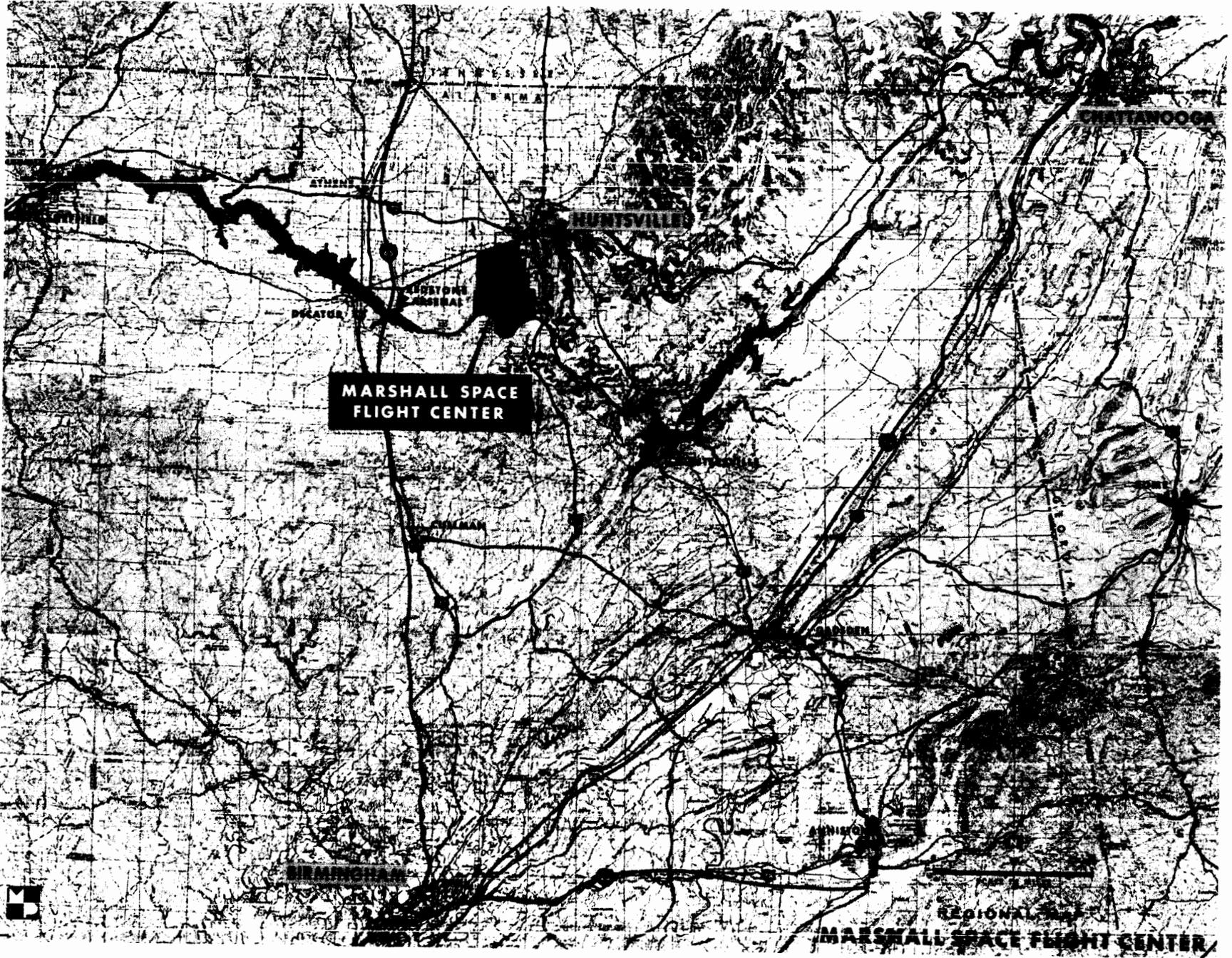
EXCEPTED	68	69
GS-16	1	1
GS-15	1	1
GS-14	9	8
GS-13	16	15
ALL OTHER GS	146	140
WAGEBOARD	0	0
TOTAL PERMANENT	175	170

**MISSION OPERATIONS OFFICE**

EXCEPTED	68	69
GS-16	0	0
GS-15	1	1
GS-14	5	5
GS-13	7	10
ALL OTHER GS	30	24
WAGEBOARD	0	0
TOTAL PERMANENT	4	4

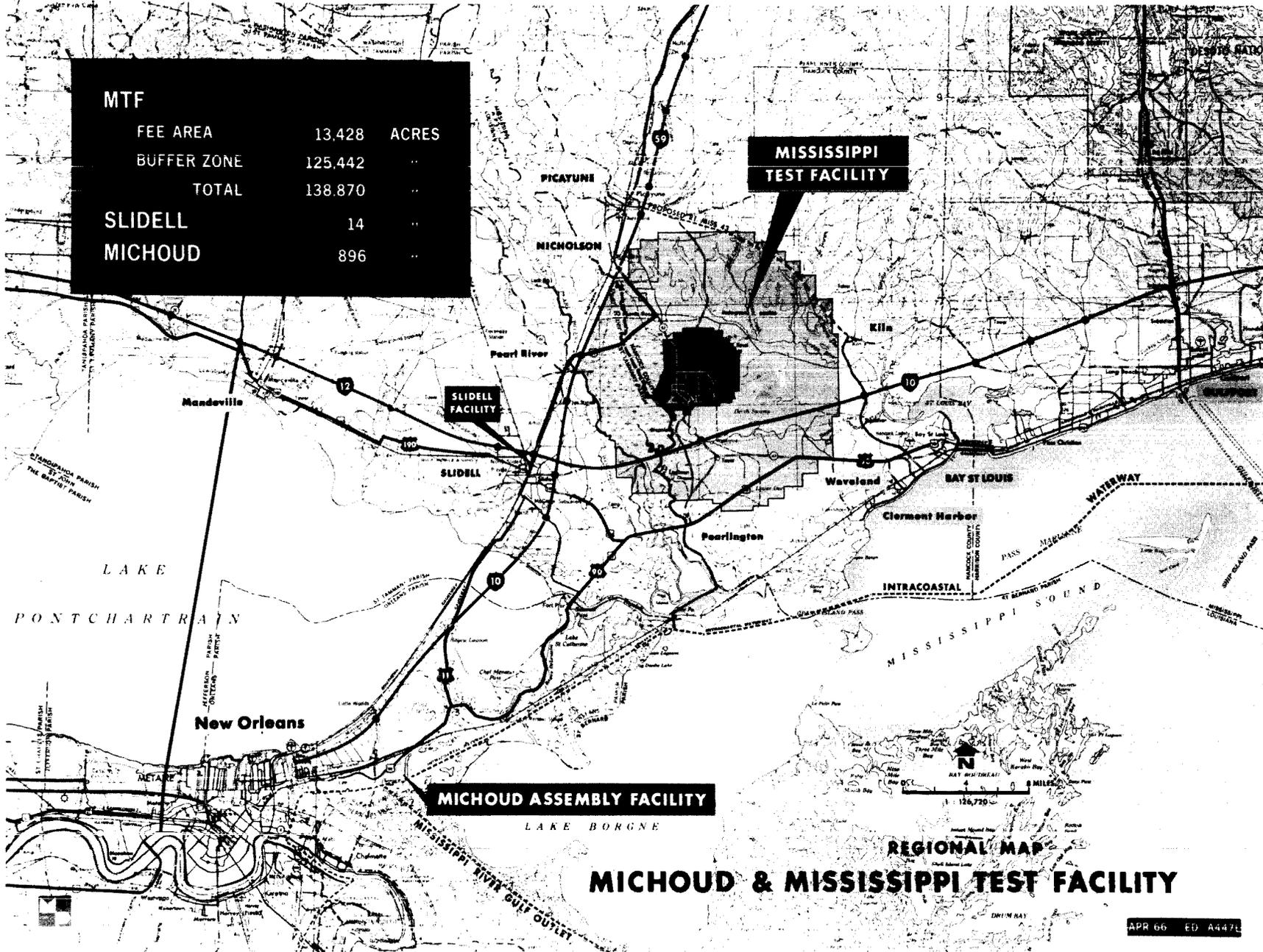
**MISSISSIPPI TEST FACILITY**

EXCEPTED	68	69
GS-16	1	1
GS-15	1	1
GS-14	4	4
GS-13	11	11
ALL OTHER GS	70	70
WAGEBOARD	0	0
TOTAL PERMANENT	87	87



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<b>MTF</b>			
FEE AREA	13,428	ACRES	
BUFFER ZONE	125,442		
TOTAL	138,870		
<b>SLIDELL</b>	14		
<b>MICHOD</b>	896		



**MICHOD & MISSISSIPPI TEST FACILITY**

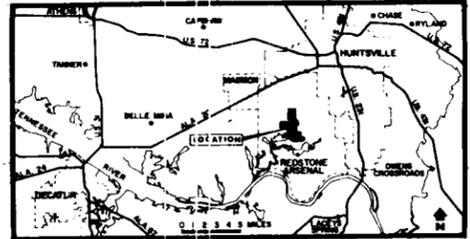
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# MARSHALL SPACE FLIGHT CENTER

FISCAL YEAR 1968 ESTIMATES

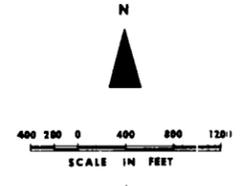
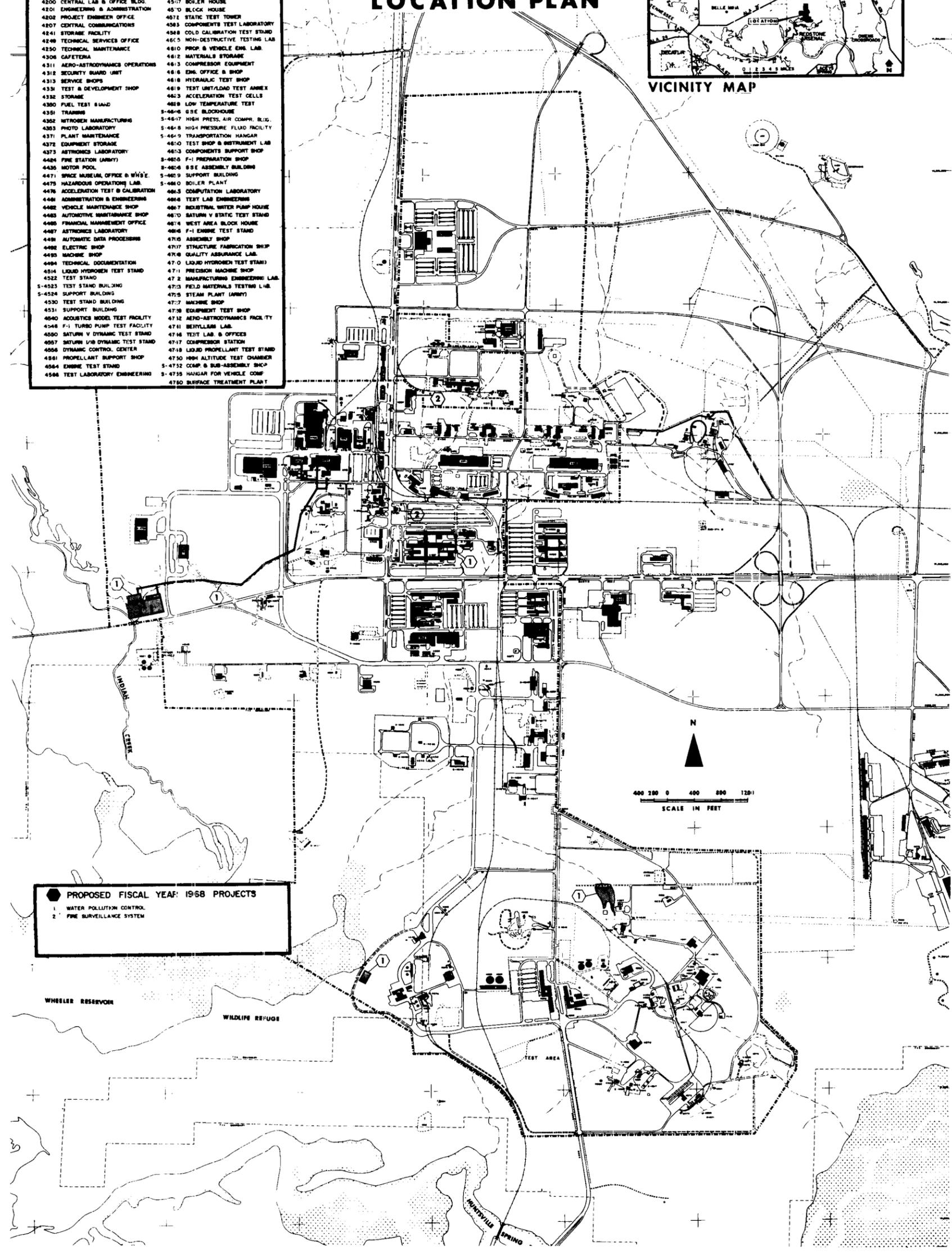
## LOCATION PLAN



VICINITY MAP

LEGEND			
EXISTING FACILITIES			
BLDG. NO.	TITLE OR USE	BLDG. NO.	TITLE OR USE
4200	CENTRAL LAB & OFFICE BLDG.	4517	BOILER HOUSE
4201	ENGINEERING & ADMINISTRATION	4570	BLACK HOUSE
4202	PROJECT ENGINEER OFFICE	4572	STATIC TEST TOWER
4207	CENTRAL COMMUNICATIONS	4585	COMPONENTS TEST LABORATORY
4241	STORAGE FACILITY	4588	COLD CALIBRATION TEST STAND
4249	TECHNICAL SERVICES OFFICE	4605	NON-DESTRUCTIVE TESTING LAB
4250	TECHNICAL MAINTENANCE	4810	PROP. & VEHICLE ENG. LAB.
4308	CAFETERIA	4812	MATERIALS STORAGE
4311	AERO-ASTRODYNAMICS OPERATIONS	4813	COMPRESSOR EQUIPMENT
4312	SECURITY GUARD UNIT	4818	ENG. OFFICE & SHOP
4313	SERVICE SHOPS	4819	HYDRAULIC TEST SHOP
4331	TEST & DEVELOPMENT SHOP	4819	TEST UNLOAD TEST ANNEX
4332	STORAGE	4823	ACCELERATION TEST CELLS
4350	FUEL TEST STAND	4828	LOW TEMPERATURE TEST
4351	TRAINING	5-4846	GSE BLOCKHOUSE
4352	NITROGEN MANUFACTURING	5-4847	HIGH PRESS. AIR COMPR. BLDG.
4353	PHOTO LABORATORY	5-4848	HIGH PRESSURE FLUID FACILITY
4371	PLANT MAINTENANCE	5-4849	TRANSPORTATION HANGAR
4372	EQUIPMENT STORAGE	4850	TEST SHOP & INSTRUMENT LAB
4373	ASTRONOMICS LABORATORY	4853	COMPONENTS SUPPORT SHOP
4424	FINE STATION (ARMY)	5-4854	F-I PREPARATION SHOP
4430	MOTOR POOL	5-4854	GSE ASSEMBLY BUILDING
4471	SPACE MUSEUM, OFFICE & WARE.	5-4859	SUPPORT BUILDING
4473	HAZARDOUS OPERATIONS LAB.	5-4860	BOILER PLANT
4476	ACCELERATION TEST & CALIBRATION	4863	COMPUTATION LABORATORY
4481	ADMINISTRATION & ENGINEERING	4864	TEST LAB ENGINEERING
4482	VEHICLE MAINTENANCE SHOP	4867	INDUSTRIAL WATER PUMP HOUSE
4483	AUTOMOTIVE MAINTENANCE SHOP	4870	SATURN V STATIC TEST STAND
4485	FINANCIAL MANAGEMENT OFFICE	4874	WEST AREA BLOCK HOUSE
4487	ASTRONOMICS LABORATORY	4884	F-I ENGINE TEST STAND
4488	AUTOMATIC DATA PROCESSING	4710	ASSEMBLY SHOP
4488	ELECTRIC SHOP	4717	STRUCTURE FABRICATION SHOP
4489	MACHINE SHOP	4718	QUALITY ASSURANCE LAB.
4484	TECHNICAL DOCUMENTATION	4710	LIQUID HYDROGEN TEST STAND
4514	LIQUID HYDROGEN TEST STAND	4711	PRECISION MACHINE SHOP
4522	TEST STAND	472	MANUFACTURING ENGINEERING LAB.
5-4523	TEST STAND BUILDING	4723	FIELD MATERIALS TESTING LAB.
5-4524	SUPPORT BUILDING	4725	STEAM PLANT (ARMY)
4530	TEST STAND BUILDING	4727	MACHINE SHOP
4531	SUPPORT BUILDING	4728	EQUIPMENT TEST SHOP
4540	ACOUSTICS MODEL TEST FACILITY	4712	AERO-ASTRODYNAMICS FACILITY
4548	F-I TURBO PUMP TEST FACILITY	4741	BEHAVIOR LAB.
4550	SATURN V DYNAMIC TEST STAND	4748	TEST LAB. & OFFICES
4557	SATURN V/D DYNAMIC TEST STAND	4717	COMPRESSOR STATION
4558	DYNAMIC CONTROL CENTER	4718	LIQUID PROPELLANT TEST STAND
4561	PROPELLANT SUPPORT SHOP	4730	HIGH ALTITUDE TEST CHAMBER
4564	ENGINE TEST STAND	5-4732	COMP. & SUB-ASSEMBLY SHOP
4566	TEST LABORATORY ENGINEERING	5-4735	HANGAR FOR VEHICLE COMP.
		4780	SURFACE TREATMENT PLANT

PROPOSED FISCAL YEAR 1968 PROJECTS	
1	WATER POLLUTION CONTROL
2	FIRE SURVEILLANCE SYSTEM



MARSHALL SPACE FLIGHT CENTER



AERIAL VIEW

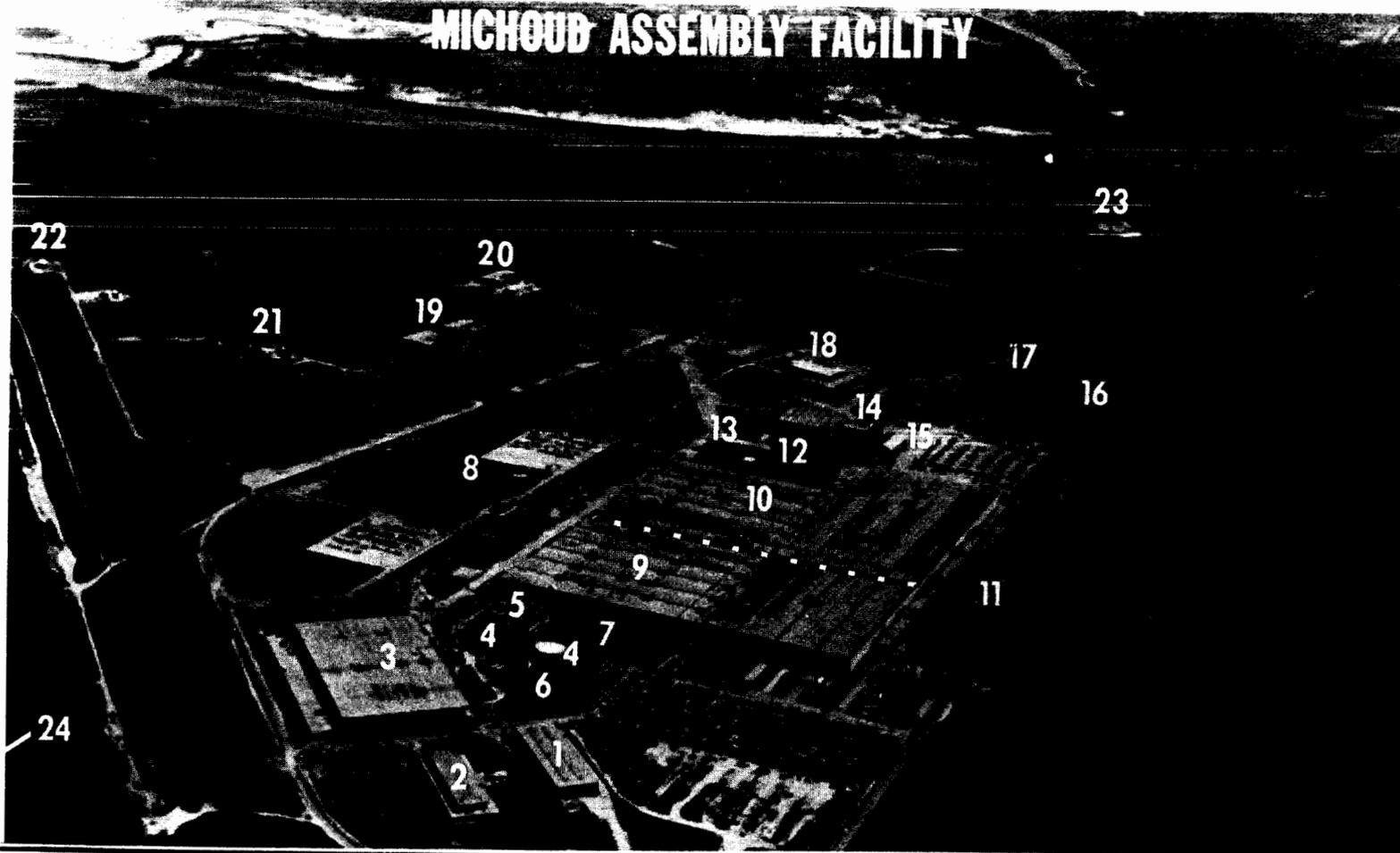
MARSHALL SPACE FLIGHT CENTER



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AERIAL VIEW

# MICHOUD ASSEMBLY FACILITY

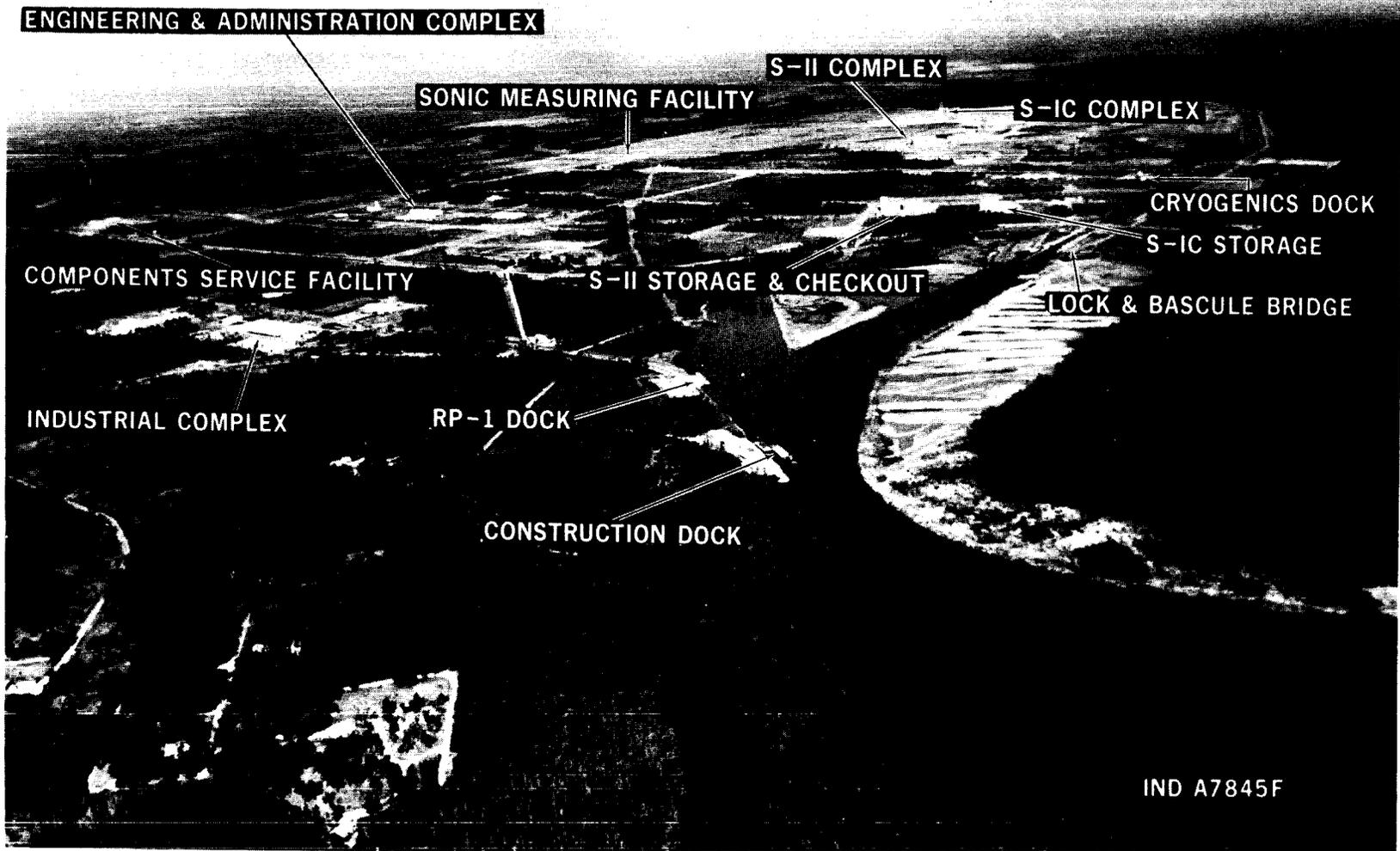


- |                              |                                  |                                 |
|------------------------------|----------------------------------|---------------------------------|
| 1. MAINTENANCE SUPPLY        | 9. CHRYSLER FAB AREA (S-IB)      | 17. CAFETERIA                   |
| 2. HAZARDOUS MATLS           | 10. BOEING FAB AREA (S-IC)       | 18. CONTRACTOR SERVICES BLDG    |
| 3. VEHICLE COMPONENT SUPPLY  | 11. ENGINEERING BUILDINGS        | 19. STAGE TEST & CHECK OUT      |
| 4. BOILER PLANT & FUEL TANKS | 12. VERT ASSY & HYDROSTATIC TEST | 20. SALVAGE YARD                |
| 5. BATTERY CHARGING          | 13. SYSTEMS ENGINEERING BLDG     | 21. HIGH PRESSURE TEST FACILITY |
| 6. COOLING TOWER             | 14. BOOSTER HANGAR               | 22. MAIN PUMPING STATION        |
| 7. LABORATORY                | 15. MAINTENANCE                  | 23. BARGE DOCK                  |
| 8. CHEMICAL WASTE RESERVOIR  | 16. ENGINEERING & OFFICE BLDG    | 24. LOX & LH <sub>2</sub> PLANT |

AO 2-27

IND 8904F

# MISSISSIPPI TEST FACILITY—AERIAL VIEW



AO 2-28

IND A7845F

ADMINISTRATIVE OPERATIONS  
FISCAL YEAR 1968 ESTIMATES  
GODDARD SPACE FLIGHT CENTER

**MISSION:**

The Goddard Space Flight Center, established in 1959 as the first major United States laboratory devoted to the investigation and peaceful exploration of space, conducts a wide-ranging program of experimentation in the space sciences. As a result, Goddard has developed many diverse capabilities: the management of complex satellite projects; the development of wholly integrated spacecraft, ranging from systems engineering to development and integration; the development and operation of satellite tracking networks; data acquisition and analysis; and, scientific research to include both theoretical studies and the development of many significant scientific experiments flown in satellites.

Although the majority of Goddard's personnel are at the Greenbelt site, other personnel are located at the Goddard Institute for Space Sciences in New York City and throughout the world, managing the operation of satellite tracking and communications network stations.

Goddard Space Flight Center is responsible for the development of the sounding rocket program; the management of communications and meteorological satellite programs, such as the Applications Technology and Nimbus Satellites; the management of scientific satellite projects to include the Orbiting Geophysical (OGO), Orbiting Solar (OSO) and the Orbiting Astronomical (OAO) Observatories and the Explorer series; project management of NASA's Delta launch vehicle; and management and operation of two world-wide tracking and data acquisition networks, the Space Tracking and Data Acquisition Network and the Manned Space Flight Network. During 1966, Goddard was assigned two new scientific satellite programs, the Small Standard Satellite to study space environment inside the earth's magnetosphere and the X-ray Explorer project to investigate recently discovered X-ray sources in space.

Significant achievements of the Goddard Space Flight Center in 1966 were:

Scientific Satellites - Three scientific satellites, the Orbiting Geophysical Satellite (OGO III), Explorers XXXII (AE-B) and XXXIII (IMP-D) were successfully orbited in 1966. OGO III assisted in the detailed mapping of the sun-side of the magnetosphere accomplished by OGO I; AE-B continued the study of the neutral helium atom belt around the earth discovered by Explorer XVII; and IMP-D provided the first definitive proof of the earth's magnetosphere extending beyond the moon's orbit on the side opposite the sun.

Meteorological Satellites - Nimbus II successfully completed its six-month operating span in November 1966. The Medium Resolution Infrared Radiometer (MRIR) pictures obtained may result in the successful plotting of the jet stream flow as an aid to aviation. ESSA I through III were successfully launched and initiated the Tiros Operational Satellite series. ESSA III carried an advanced cartwheel design for continuous earth viewing and an advanced vidicon camera system producing additional data.

Sounding Rockets - The Sounding Rockets program consisted of 158 scientific rocket launchings in 1966. Of the total 158 rockets launched, 80 carried space research experiments, including 13 launches with experiments of foreign scientists. The first successful launching of a rocket system capable of pointing to specific locations in space occurred in 1966. This new device should prove to be a valuable and relatively inexpensive astronomy research tool.

Communications Satellite - The highly successful launch of the first Applications Technology Satellite, a complex second-generation communications meteorology scientific satellite, occurred in 1966. The satellite provides a capability for the study of several scientific disciplines.

Tracking and Data Acquisition - The Space Tracking and Data Acquisition Network, comprised of 14 stations located throughout the world, provided communications and tracking coverage for automated scientific and applications satellites launched in 1966 and for similar operating satellites launched prior to 1966. The successful Gemini manned flight launches VIII through XII were supported by the Manned Space Flight Network. The Manned Space Flight Network which provides global tracking support for the United States manned space flight program also supported the two unmanned Apollo/Saturn launches, while converting to support new phases of the Apollo program.

DESCRIPTION:

The Goddard Space Flight Center, located 15 miles northeast of Washington, D. C. and 1 mile east of the Baltimore-Washington Parkway, Greenbelt, Maryland exit, is situated on a 553 acre main site. Three additional plots of 639 acres comprise our remote site area and contain the Goddard Antenna Test Range, the Magnetic Fields Component Test Facility, the Attitude Control Test Facility, the STADAN Engineering and Real Time Station, the Manned Space Flight Training Facility and the 40-foot Antenna Test Bed. Total capital investment as of June 30, 1966, was \$272,276,000.

SUMMARY OF RESOURCES REQUIREMENTS:

<u>Functions</u>	<u>FUNDS</u>		
	<u>1966</u>	<u>1967</u>	<u>1968</u>
Personnel.....	\$42,436,000	\$46,748,000	\$46,989,000
Travel.....	2,454,000	2,535,000	2,661,000

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Automatic data processing.....	6,876,000	7,807,000	8,866,000
Facilities services.....	6,996,000	8,148,000	7,794,000
Technical services.....	1,008,000	1,297,000	1,169,000
Administrative support.....	<u>4,595,000</u>	<u>4,676,000</u>	<u>4,761,000</u>
Total, fund requirements.....	<u>\$64,365,000</u>	<u>\$71,211,000</u>	<u>\$72,240,000</u>

PERSONNEL

	<u>1966</u>	<u>1967</u>	<u>1968</u>
<b>1. <u>Permanent positions by program:</u></b>			
<u>Space Science and Applications</u>			
Physics and astronomy.....	1,018	1,031	1,026
Lunar and planetary.....	28	39	39
Launch vehicle procurement.....	37	35	35
Bioscience.....	13	17	19
Space applications.....	345	370	368
<u>Advanced Research and Technology</u>			
Basic research.....	8	1	1
Space vehicle systems.....	46	53	56
Electronics systems.....	67	64	67
Space power and electric propulsion systems.....	35	31	31
Chemical propulsion.....	7	7	7
<u>Tracking and Data Acquisition</u> .....	871	906	890
<u>Technology Utilization</u> .....	<u>3</u>	<u>4</u>	<u>4</u>
Subtotal, positions by program.....	2,478	2,558	2,543
<b>2. <u>Support positions:</u></b>			
Director and staff.....	16	16	16
Administrative support.....	865	853	863
Research and development support.....	<u>353</u>	<u>355</u>	<u>360</u>
Subtotal, support positions.....	<u>1,234</u>	<u>1,224</u>	<u>1,239</u>
Total, permanent positions.....	<u>3,712</u>	<u>3,782</u>	<u>3,782</u>

**GODDARD SPACE FLIGHT CENTER  
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
ORGANIZATION AND STAFFING CHART**

**STAFFING SUMMARY**

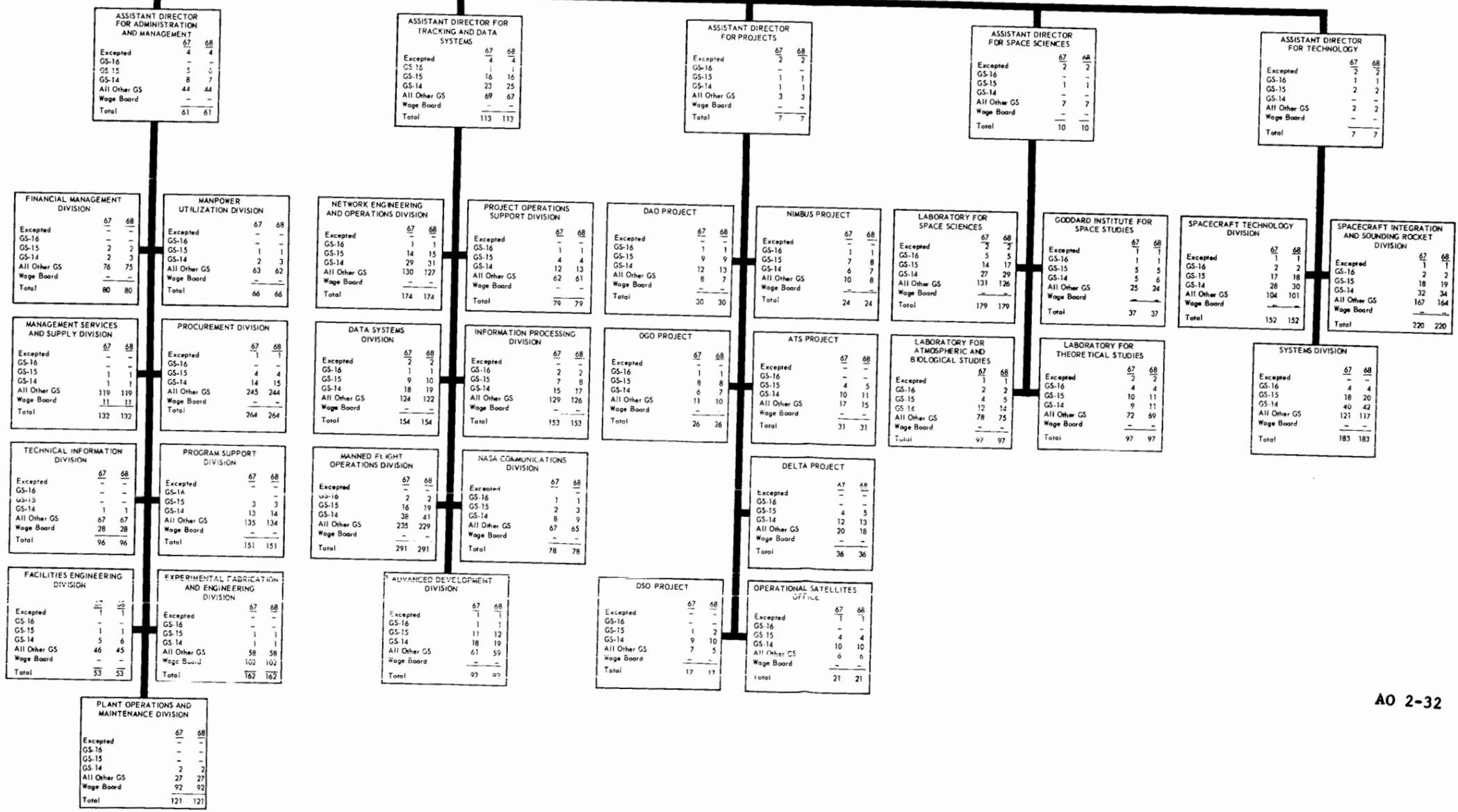
Excepted	67	68
GS-16	35	35
GS-15	241	265
GS-14	470	510
All Other GS	2769	2705
Wage Board	233	233
Total Permanent	3782	3782

<b>CHIEF ADVANCED PLANS STAFF</b>		
Excepted	67	68
GS-16	1	1
GS-15	2	2
GS-14	2	2
All Other GS	3	3
Wage Board	—	—
Total	8	8

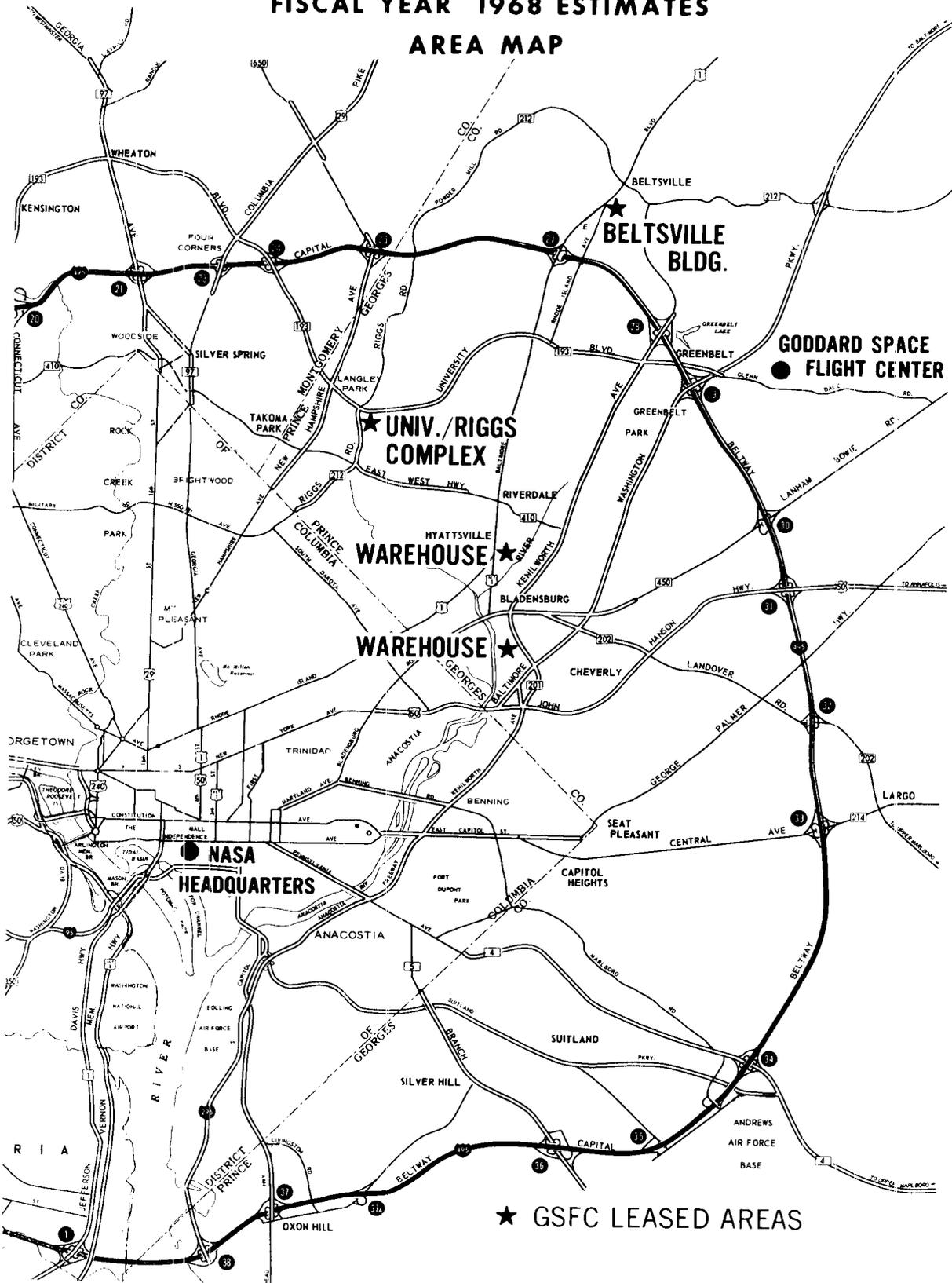
<b>OFFICE OF THE DIRECTOR DEPUTY DIRECTOR ASSOCIATE DIRECTOR</b>		
Excepted	67	68
GS-16	3	3
GS-15	—	—
GS-14	—	—
All Other GS	5	5
Wage Board	—	—
Total	8	8

<b>ASSISTANT DIRECTOR FOR SYSTEMS RELIABILITY</b>		
Excepted	67	68
GS-16	2	2
GS-15	3	3
GS-14	1	1
All Other GS	7	7
Wage Board	—	—
Total	13	13

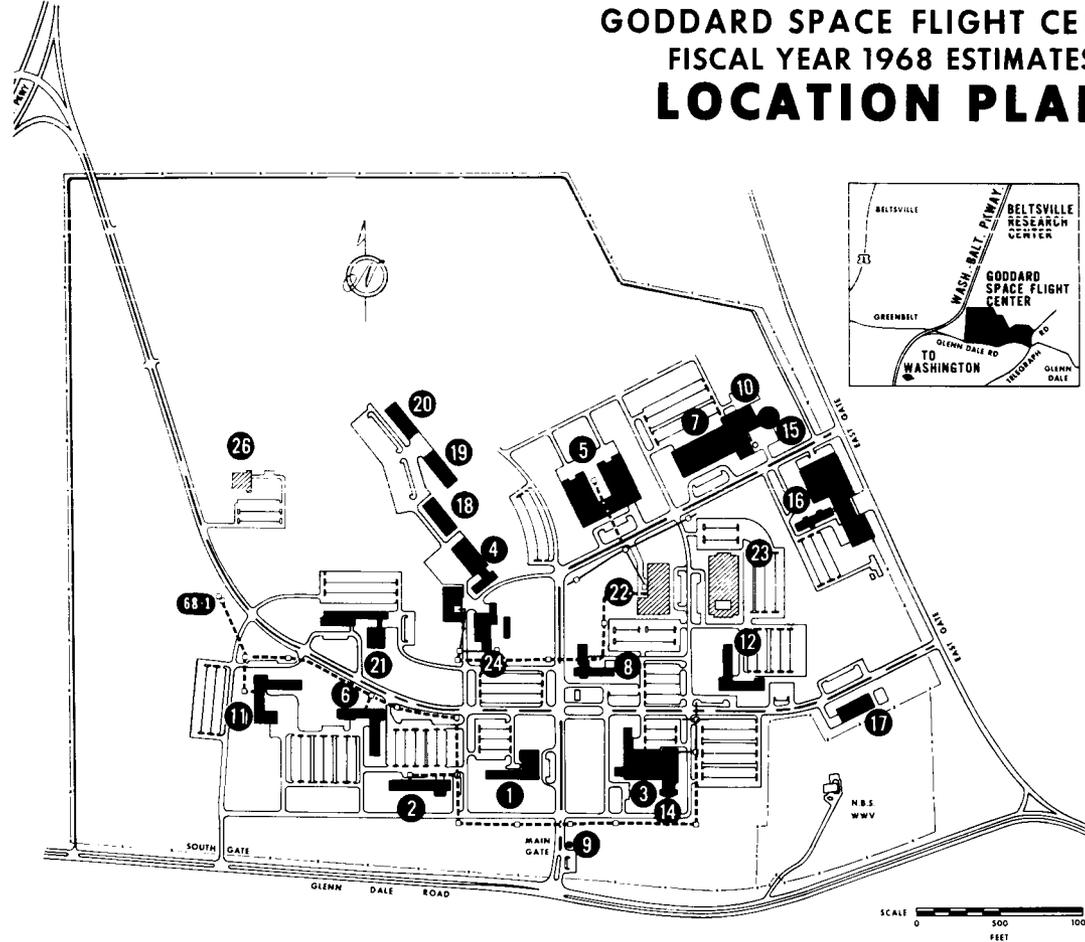
<b>TEST AND EVALUATION DIVISION</b>		
Excepted	67	68
GS-16	1	1
GS-15	12	14
GS-14	38	42
All Other GS	208	202
Wage Board	—	—
Total	259	259



**GODDARD SPACE FLIGHT CENTER  
FISCAL YEAR 1968 ESTIMATES  
AREA MAP**

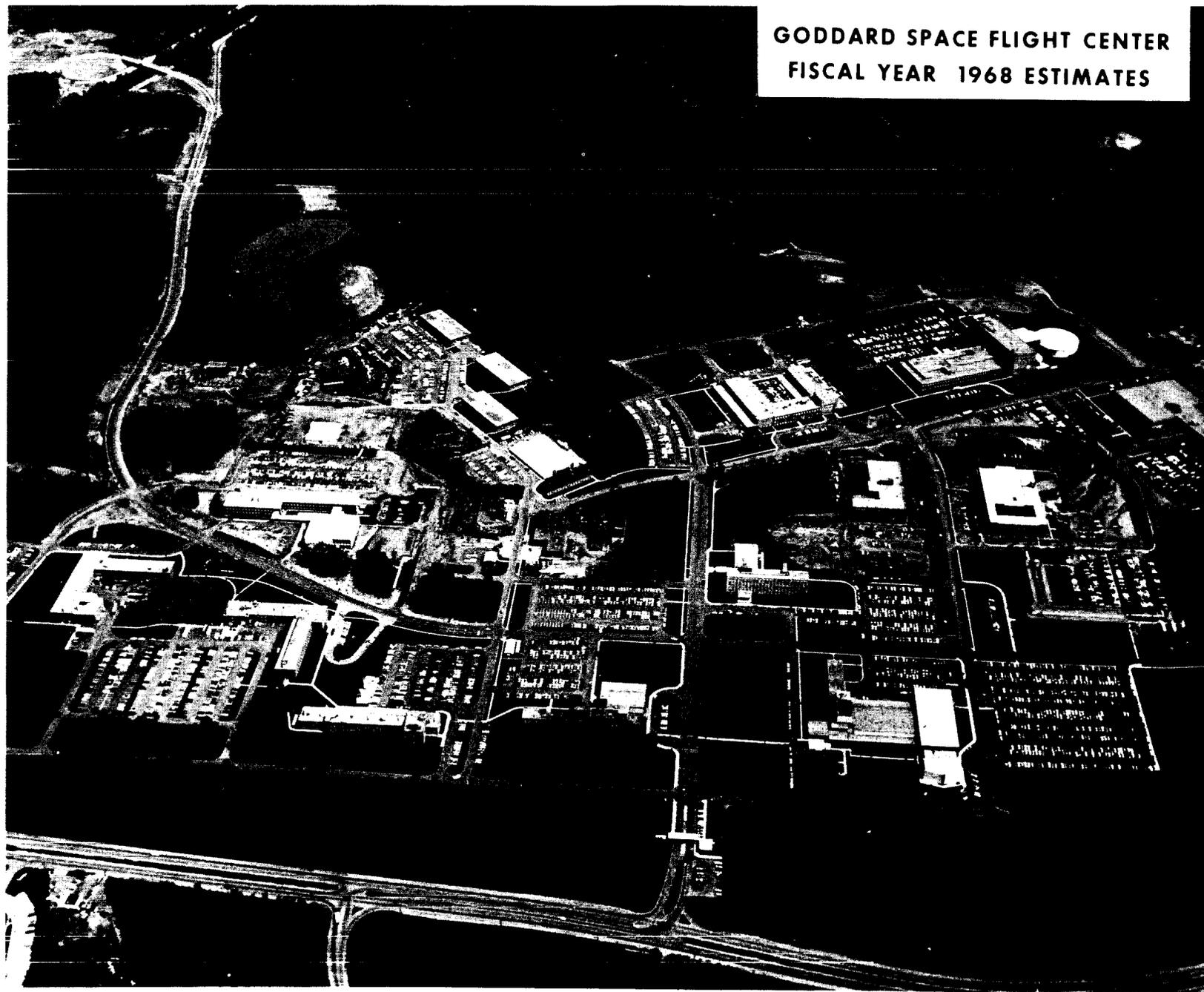


# GODDARD SPACE FLIGHT CENTER FISCAL YEAR 1968 ESTIMATES LOCATION PLAN



- 1 SPACE PROJECTS BUILDING
  - 2 RESEARCH PROJECTS LABORATORY
  - 3 CENTRAL FLIGHT CONTROL AND RANGE OPERATIONS LABORATORY
  - 4 BOILER HOUSE AND ELECTRIC SUBSTATION
  - 5 INSTRUMENT CONSTRUCTION AND INSTALLATION LABORATORY
  - 6 SPACE SCIENCES LABORATORY
  - 7 PAYLOAD TESTING FACILITY
  - 8 SATELLITE SYSTEMS LABORATORY
  - 9 GATE HOUSE
  - 10 ENVIRONMENTAL TESTING LABORATORY
  - 11 APPLIED SCIENCES LABORATORY
  - 12 TRACKING AND TELEMETRY LABORATORY
  - 14 SPACECRAFT OPERATIONS FACILITY
  - 15 LAUNCH PHASE SIMULATOR
  - 16 DEVELOPMENT OPERATIONS BUILDING
  - 17 MULTI-PURPOSE BUILDING
  - 18 MULTI-PURPOSE BUILDING
  - 19 MULTI-PURPOSE BUILDING
  - 20 MULTI-PURPOSE BUILDING
  - 21 METEOROLOGICAL SYSTEMS DEVELOPMENT LABORATORY
  - 22 MECHANICAL TEST FACILITY AND QUALITY ASSURANCE LABORATORY
  - 23 DATA INTERPRETATION LABORATORY
  - 24 ADDITION TO CENTRAL HEATING AND REFRIGERATION PLANT
  - 26 NASA SPACE SCIENCE DATA CENTER
- CONSTRUCTION PROPOSED IN FY 1968**
- 68.1 UTILITY MODIFICATION AND INSTALLATION
- EXISTING FACILITIES  
 FACILITIES UNDER CONSTRUCTION  
 CONSTRUCTION PROPOSED IN FY 1968
- SCALE 0 500 1000 FEET

**GODDARD SPACE FLIGHT CENTER  
FISCAL YEAR 1968 ESTIMATES**



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## ADMINISTRATIVE OPERATIONS

### FISCAL YEAR 1968 ESTIMATES

#### WALLOPS STATION

##### MISSION:

Wallops Station, formerly the Pilotless Aircraft Research Station of the National Advisory Committee for Aeronautics (NACA), was designated Wallops Station when the resources and facilities of NACA were transferred to the National Aeronautics and Space Administration (NASA) in 1958. Wallops' early mission included wind tunnel and laboratory investigations of a variety of aerodynamic problems of flight, as well as serving as a launch site for meteorological and sounding rockets.

Today, the primary mission of Wallops Station is to prepare, assemble, and launch experimental payloads; position them correctly in space at the right velocity; track them, and acquire meaningful data. The data are then processed and turned over to the experimenter to be analyzed. The rocket-borne experiments flown from the Wallops Island range are conceived, and for the most part, designed and built by scientists and engineers in the laboratories and research centers of NASA, other Government agencies, colleges and universities, and the world-wide scientific community. They are brought by teams of experimenters to Wallops Station where the payloads are checked out, prepared for flight, and mated to an appropriate launch vehicle. Wallops personnel participate in these latter tasks and perform those engineering functions necessary to design and establish ground facilities and instrumentation systems compatible with test requirements.

In addition to supporting the launching of sounding rocket propelled experiments, Wallops uses its facilities for a variety of other research projects. The testing and development of components and instrumentation to be flown in later types of vehicles and spacecraft is a continuing Wallops project. A sizeable portion of Wallops effort is devoted to NASA's program of international cooperation in space research. Some 50 countries have sent representatives to Wallops Station over the past few years to observe its operation or to receive training in methods and techniques of launching sounding rockets and satellite payloads. The four-stage Scout, the largest launch vehicle at Wallops, is used in the launch of small scientific satellites, another important element of the Wallops research program. The Owl series of University Explorers, a small scientific satellite project for which Wallops has project management responsibility, is well underway. Responsibility for the management of the Owl series of Explorers provides Wallops with the capability of managing a project from initial design to the ultimate launch, tracking and data acquisition phases.

Wallops Station's achievements during the past calendar year include: the launching of 336 sounding rockets and 267 test rockets; participation in a number of international projects highlighted by two solar eclipse expeditions to Greece and Brazil involving more than 20 launches; and the first helicopter recovery in midair of a rocket-launched parachute and payload. The station continues to play a noteworthy role in the training of foreign nationals in the techniques of launch operations. Twenty personnel from Brazil, France, and Spain received training at Wallops Station during the past calendar year and a total of 143 persons from 24 countries visited the installation to observe its operation or seek assistance in establishing a sounding rocket launch facility of their own.

DESCRIPTION:

Wallops Station includes three separate areas on the Atlantic Coast of Virginia's eastern shore: the main base (formerly Chincoteague Naval Air Station), the Wallops Island launching site and the Wallops mainland. The administrative offices, the range control center, support shops and the main telemetry building are located on the main base. Wallops Island is about seven miles southeast of the main base and is connected to the mainland by a causeway and bridge. The island is about five miles long and its widest point is only one-half mile. Located on the island are rocket storage buildings, blockhouses, assembly shops and the launch sites. The Wallops mainland is a one-half mile strip west of the island and houses the radar and optical tracking sites. The Eastville tracking site located about 50 miles south of Wallops Station, was recently acquired at no acquisition cost from the Air Force as a transfer of excess real property. The acquisition of the Eastville site from the Air Force assured that the NASA camera tracking facilities located thereon may continue in operation.

Wallops Station, totaling 6,561 acres, consists of 2,313 acres on the main base; 3,000 acres on Wallops Island, 108 acres on the mainland tracking site; and 1,140 acres of unusable marsh land. The Eastville tracking site consists of an additional 53 acres of government-owned property. The total capital investment as of June 30, 1966, was \$82,567,000.

SUMMARY OF RESOURCES REQUIREMENTS:

<u>Functions</u>	<u>FUNDS</u>		
	<u>1966</u>	<u>1967</u>	<u>1968</u>
Personnel.....	\$4,864,000	\$5,269,000	\$5,351,000
Travel.....	103,000	166,000	144,000
Automatic data processing.....	114,000	62,000	76,000

<u>Functions</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
Facilities services.....	\$3,152,000	\$3,321,000	\$3,410,000
Technical services.....	66,000	112,000	109,000
Administrative support.....	<u>1,038,000</u>	<u>1,081,000</u>	<u>1,098,000</u>
Total, fund requirements.....	<u>\$9,337,000</u>	<u>\$10,011,000</u>	<u>\$10,188,000</u>

PERSONNEL

	<u>1966</u>	<u>1967</u>	<u>1968</u>
<b>1. <u>Permanent positions by program:</u></b>			
<u>Space Science and Applications</u>			
Physics and astronomy.....	68	73	70
Launch vehicle procurement.....	5	4	4
Bioscience.....	8	10	12
Space applications.....	5	3	3
<u>Advanced Research and Technology</u>			
Space vehicle systems.....	32	32	34
Space power and electric propulsion systems.....	2	---	---
Aeronautics.....	20	20	22
<u>Tracking and Data Acquisition.....</u>	<u>41</u>	<u>43</u>	<u>43</u>
Subtotal, positions by program.....	181	185	188
<b>2. <u>Support positions:</u></b>			
Director and staff.....	6	6	6
Administrative support.....	207	206	206
Research and development support.....	<u>124</u>	<u>121</u>	<u>118</u>
Subtotal, support positions.....	<u>337</u>	<u>333</u>	<u>330</u>
<b>Total, permanent positions.....</b>	<b><u>518</u></b>	<b><u>518</u></b>	<b><u>518</u></b>

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
 ORGANIZATION AND STAFFING CHART  
 Wallops Station

STAFFING SUMMARY		
	<u>67</u>	<u>68</u>
Excepted	2	2
GS-16	1	1
GS-15	7	8
GS-14	16	17
All Other GS	372	376
Wage Board	<u>120</u>	<u>114</u>
Total Permanent	518	518

DIRECTOR		
	<u>67</u>	<u>68</u>
Excepted	2	2
GS-16	--	--
GS-15	--	--
GS-14	--	--
All Other GS	4	4
Wage Board	--	--
Total Permanent	<u>6</u>	<u>6</u>

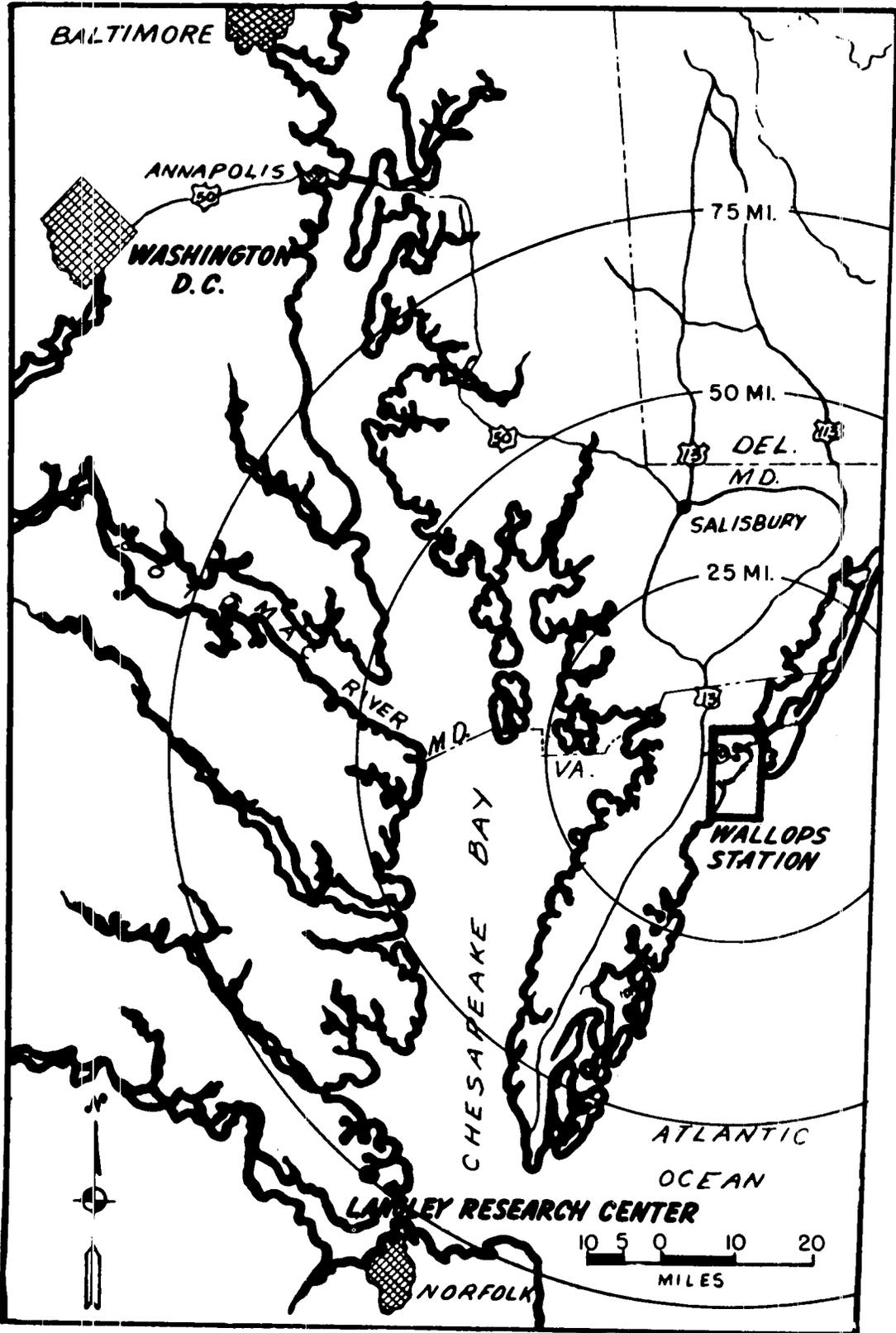
FLIGHT TEST DIVISION		
	<u>67</u>	<u>68</u>
Excepted	--	--
GS-16	--	--
GS-15	3	3
GS-14	4	4
All Other GS	121	126
Wage Board	<u>20</u>	<u>15</u>
Total Permanent	148	148

RANGE ENGINEERING DIVISION		
	<u>67</u>	<u>68</u>
Excepted	--	--
GS-16	1	1
GS-15	3	4
GS-14	10	11
All Other GS	79	77
Wage Board	<u>0</u>	<u>0</u>
Total Permanent	93	93

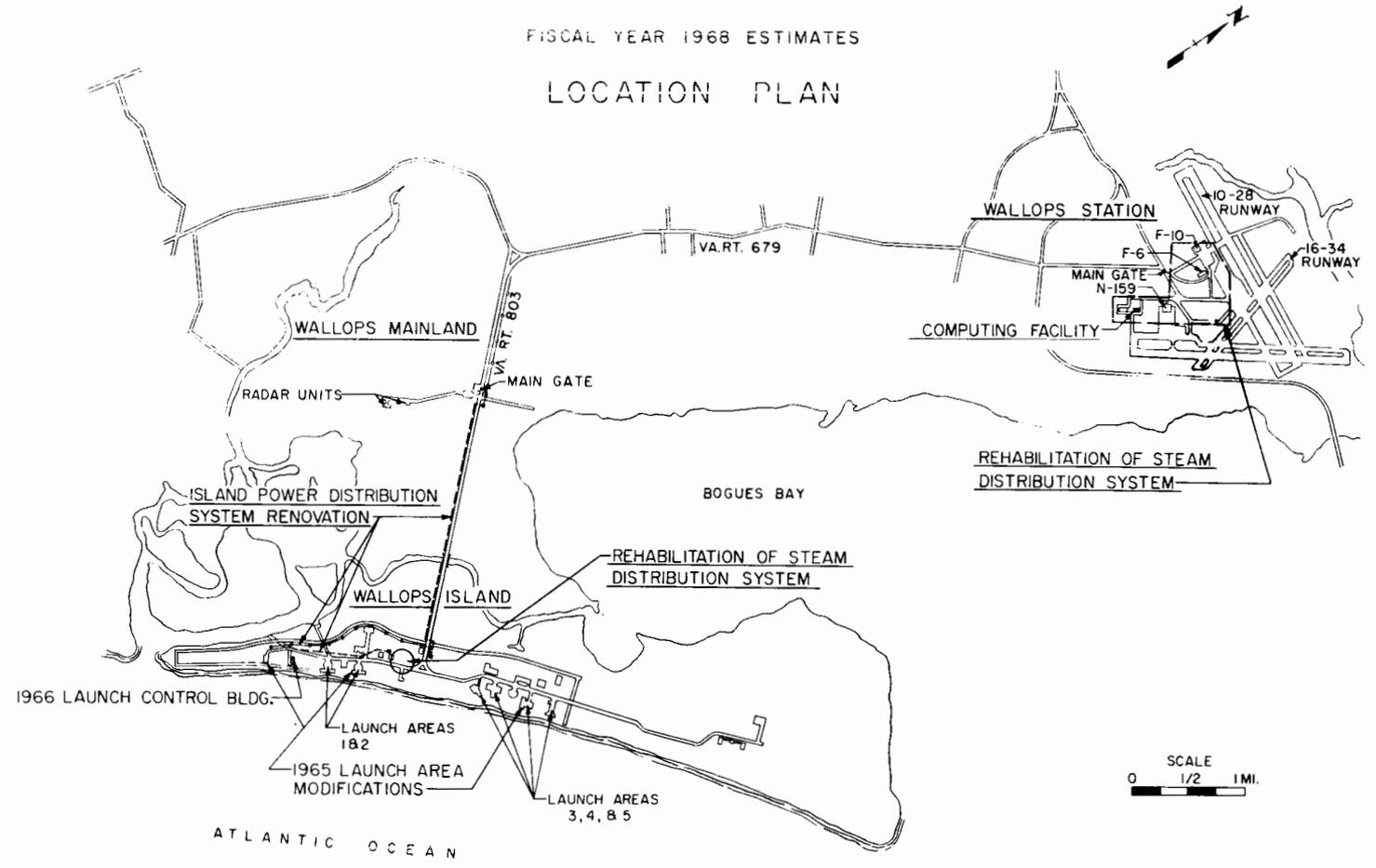
ADMINISTRATIVE MANAGEMENT DIVISION		
	<u>67</u>	<u>68</u>
Excepted	--	--
GS-16	--	--
GS-15	1	1
GS-14	1	1
All Other GS	116	116
Wage Board	<u>2</u>	<u>2</u>
Total Permanent	120	120

TECHNICAL SERVICES DIVISION		
	<u>67</u>	<u>68</u>
Excepted	--	--
GS-16	--	--
GS-15	--	--
GS-14	1	1
All Other GS	52	53
Wage Board	<u>98</u>	<u>97</u>
Total Permanent	151	151

# WALLOPS STATION LOCATION



WALLOPS STATION  
FISCAL YEAR 1968 ESTIMATES  
LOCATION PLAN



AO 2-41

AO 2-42

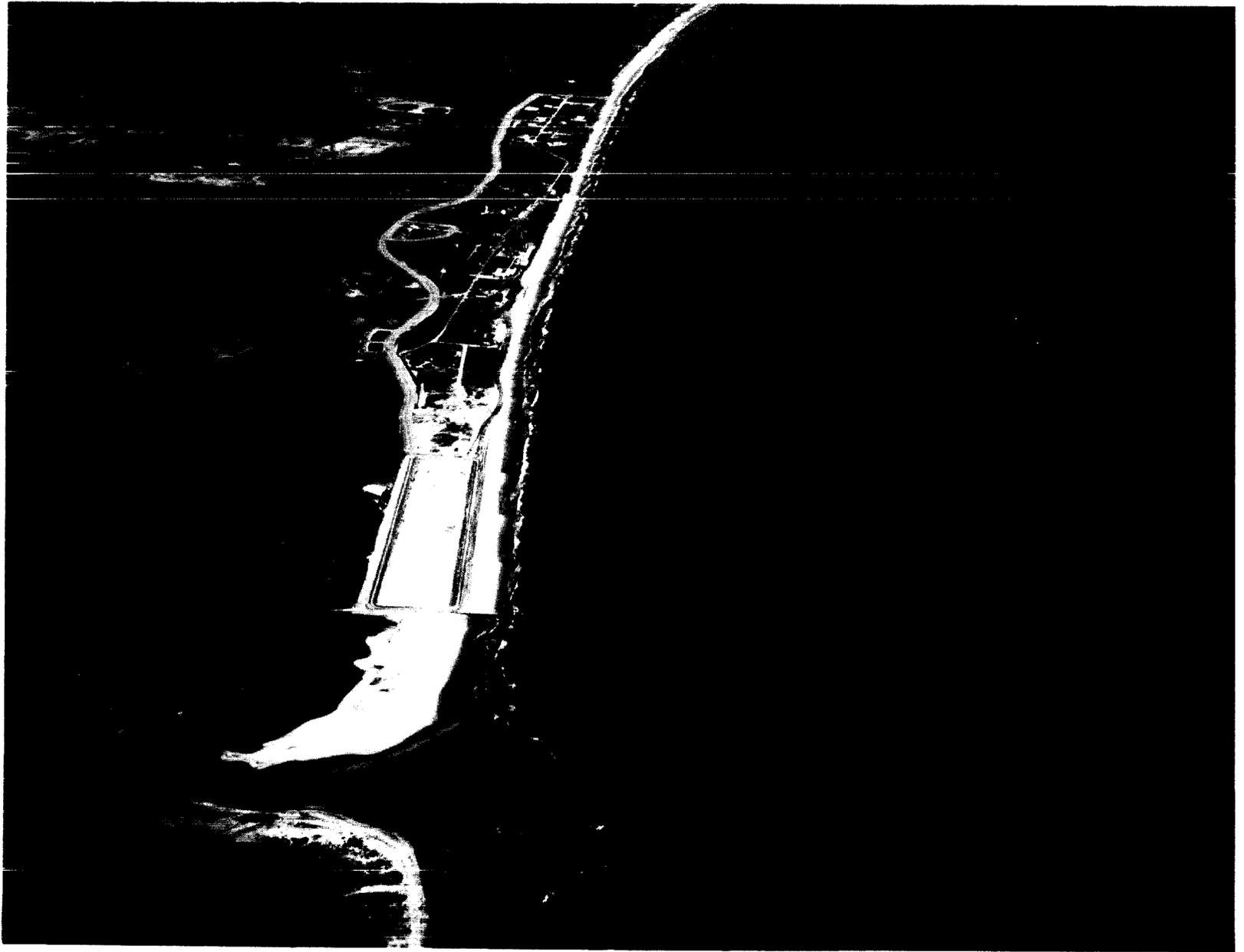


Toms Cove and Wallops Station



AO 2-43

Runways 34, 28, 16, and 22 at Wallops Station



AO 2-44

South End of Wallops Island Looking North

## ADMINISTRATIVE OPERATIONS

### FISCAL YEAR 1968 ESTIMATES

#### AMES RESEARCH CENTER

##### MISSION:

The mission of the Ames Research Center has been broadened significantly since the establishment of NASA and now includes a major research responsibility in the life sciences, a flight project management responsibility and the operational responsibility for the NASA Convair 990 aircraft to conduct airborne scientific experiments in addition to the traditional research mission in the physical sciences. In the current and budget years, the installation has flight project management responsibility for the Pioneer and Biosatellite projects. Pioneer will provide scientific observations of phenomena in interplanetary space from an unmanned spacecraft, and the Biosatellite project will explore the biological effects of the space environment on primates and other earth organisms.

Research in the physical sciences includes studies in atmosphere entry and environmental physics, guidance and control systems, and aeronautics. The work in entry and environmental physics includes basic studies of the physics of high temperature gases, the stability, control and performance of a wide range of spacecraft configurations, and of materials and structures for spacecraft. In the area of gas physics, particular emphasis is placed on problems associated with flight into earth and other planetary atmospheres. Through this effort, significant contributions have been made to the design of the Mercury, Gemini and Apollo spacecraft, the design of Mars entry vehicles, and the design of ballistic missiles. The work in guidance and control systems is broad in nature and is applicable to manned and unmanned spacecraft, as well as aircraft. Current emphasis in guidance systems is directed mainly at current and follow-on manned missions. This includes an intensive effort in the area of midcourse navigation and terminal guidance with a smaller effort directed at studies involving lunar approach, lunar landing, and rendezvous. The research in control systems is directed at examining various techniques applicable to unmanned satellites and probes and techniques applicable to vertical and short take-off (V/STOL) aircraft, the supersonic transport, and manned spacecraft. The research program in aeronautics is directed at fundamental studies in aerodynamics, propulsion and operating problems associated with supersonic aircraft with particular emphasis on the supersonic transport, a wide variety of V/STOL vehicles and with hypersonic research aircraft. This includes studies of piloting problems with numerous fixed-base, moving-base, and flight simulators.

Research in the space sciences includes studies in the fields of solar physics, planetary environments, and geophysics. This includes ground-based and sounding rocket experiments as well as experiments requiring specialized instruments aboard satellites and space probes. The work covers studies pertaining to magnetic fields and plasmas in space, studies to determine the composition and structure of planets and of planetary and stellar atmospheres and studies of cratering mechanics in natural materials.

Research in the life sciences is conducted in three major areas: basic research in the physiological and behavioral sciences concerned with obtaining a basic understanding of the effects of terrestrial and extra-terrestrial environments and of space flight stresses upon living organisms; many studies in exobiology oriented towards the prediction, detection and study of extraterrestrial fossils, chemicals, and life forms; and research in long-term advanced life support systems and in the human factors aspects of the relationships between man and the machines which will transport and support him during lunar and planetary exploration.

DESCRIPTION:

The installation was established in 1940 and is located at the southern end of San Francisco Bay on land contiguous to the U. S. Naval Air Station, Moffett Field, California. Its physical plant comprises many specialized facilities for aerospace research in the traditional physical sciences as well as the space sciences and life sciences, all of which are included in the mission of the center. These include conventional wind tunnels, entry-heating simulators, and free-flight ballistic test facilities capable of conducting tests at speeds up to and above earth escape speed as well as laboratories equipped to study solar and environmental factors. The installation occupies about 226 acres of land. Certain other facilities, such as the utilities and airfield runways, are used jointly by NASA and the Navy. The total capital investment as of June 30, 1966, was \$195,697,000.

SUMMARY OF RESOURCES REQUIREMENTS:

<u>Functions</u>	<u>FUNDS</u>		
	<u>1966</u>	<u>1967</u>	<u>1968</u>
Personnel.....	\$24,027,000	\$25,684,000	\$25,811,000
Travel.....	703,000	718,000	718,000
Automatic data processing.....	2,751,000	1,943,000	2,095,000
Facilities services.....	4,563,000	4,252,000	4,163,000

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Technical services.....	\$320,000	\$177,000	\$207,000
Administrative support.....	<u>847,000</u>	<u>965,000</u>	<u>960,000</u>
Total, fund requirements.....	<u>\$33,211,000</u>	<u>\$33,739,000</u>	<u>\$33,954,000</u>

PERSONNEL

	<u>1966</u>	<u>1967</u>	<u>1968</u>
<b>1. <u>Permanent positions by program:</u></b>			
<u>Manned Space Flight</u>			
Gemini.....	1	1	---
Apollo.....	8	6	7
Apollo applications.....	1	4	4
<u>Space Science and Applications</u>			
Physics and astronomy.....	140	142	142
Lunar and planetary.....	38	38	38
Bioscience.....	217	216	218
Space applications.....	4	---	---
<u>Advanced Research and Technology</u>			
Basic research.....	298	292	292
Space vehicle systems.....	264	257	245
Electronics systems.....	178	166	155
Human factor systems.....	189	189	195
Space power and electric propulsion systems.....	4	4	4
Aeronautics.....	<u>406</u>	<u>406</u>	<u>421</u>
Subtotal, positions by program.....	1,748	1,721	1,721
<b>2. <u>Support positions:</u></b>			
Director and staff.....	50	50	50
Administrative support.....	331	321	321
Research and development support.....	<u>94</u>	<u>79</u>	<u>79</u>
Subtotal, support positions.....	<u>475</u>	<u>450</u>	<u>450</u>
Total, permanent positions.....	<u>2,223</u>	<u>2,171</u>	<u>2,171</u>

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
ORGANIZATION AND STAFFING CHART  
AMES RESEARCH CENTER**

STAFFING SUMMARY		
	67	68
Excepted	26	26
GS-16	29	29
GS-15	122	128
GS-14	212	230
All Other GS	1113	1089
Wage Board	669	669
Total Permanent	2171	2171

DIRECTOR		
	67	68
Excepted	2	2
GS-16	2	2
GS-15	2	2
GS-14	1	1
All Other GS	6	6
Wage Board	-	-
Total Permanent	13	13

OFFICE OF ADVANCED RESEARCH AND TECHNOLOGY (NASA HQ/RTS)		
Excepted	-	-
GS-16	-	-
GS-15	-	-
GS-14	-	-
All Other GS	-	-
Wage Board	-	-
Total Permanent	-	-

TECHNOLOGY UTILIZATION OFFICE		
	67	68
Excepted	-	-
TR-14	-	-
GS-16	-	-
GS-15	-	-
GS-14	1	1
All Other GS	2	2
Wage Board	-	-
Total Permanent	4	4

PROGRAMS & RESOURCES OFFICE		
	67	68
Excepted	-	-
GS-16	-	-
GS-15	1	1
GS-14	1	1
All Other GS	7	7
Wage Board	-	-
Total Permanent	10	10

PUBLIC AFFAIRS OFFICE		
	67	68
Excepted	-	-
GS-16	-	-
GS-15	-	-
GS-14	1	1
All Other GS	4	4
Wage Board	-	-
Total Permanent	5	5

MEDICAL OFFICE		
	67	68
Excepted	-	-
GS-16	-	-
GS-15	1	1
GS-14	-	-
All Other GS	-	-
Wage Board	-	-
Total Permanent	1	1

LEGAL OFFICE		
	67	68
Excepted	-	-
GS-16	-	-
GS-15	2	2
GS-14	-	-
All Other GS	2	2
Wage Board	-	-
Total Permanent	4	4

ASSISTANT DIRECTOR AERONAUTICS & FLIGHT MECHANICS		
	67	68
Excepted	1	1
GS-16	-	-
GS-15	1	1
GS-14	1	1
All Other GS	5	5
Wage Board	-	-
Total Permanent	8	8

ASSISTANT DIRECTOR ASTRONAUTICS		
	67	68
Excepted	1	1
GS-16	-	-
GS-15	-	-
GS-14	1	1
All Other GS	1	1
Wage Board	-	-
Total Permanent	3	3

ASSISTANT DIRECTOR LIFE SCIENCES		
	67	68
Excepted	2	2
GS-16	-	-
GS-15	-	-
GS-14	-	-
All Other GS	3	2
Wage Board	-	-
Total Permanent	5	5

ASSISTANT DIRECTOR DEVELOPMENT		
	67	68
Excepted	1	1
GS-16	-	-
GS-15	-	-
GS-14	-	-
All Other GS	1	1
Wage Board	-	-
Total Permanent	2	2

ASSISTANT DIRECTOR ADMINISTRATION		
	67	68
Excepted	1	1
GS-16	-	-
GS-15	-	-
GS-14	-	-
All Other GS	1	1
Wage Board	-	-
Total Permanent	3	3

MISSION ANALYSIS DIVISION		
	67	68
Excepted	1	3
GS-16	-	-
GS-15	1	1
GS-14	4	4
All Other GS	12	12
Wage Board	28	28
Total Permanent	48	48

AERONAUTICS DIVISION		
	67	68
Excepted	1	1
GS-16	2	2
GS-15	6	7
GS-14	16	17
All Other GS	68	66
Wage Board	58	50
Total Permanent	143	143

THERMO & GAS-DYNAMICS DIVISION		
	67	68
Excepted	2	2
GS-16	3	3
GS-15	18	19
GS-14	23	25
All Other GS	93	90
Wage Board	30	30
Total Permanent	169	169

EXOBIOLGY DIVISION		
	67	68
Excepted	1	1
GS-16	1	1
GS-15	4	4
GS-14	6	8
All Other GS	37	35
Wage Board	-	-
Total Permanent	49	49

SYSTEMS ENGINEERING DIVISION		
	67	68
Excepted	1	1
GS-16	1	1
GS-15	5	5
GS-14	11	12
All Other GS	11	10
Wage Board	-	-
Total Permanent	29	29

SERVICES & SUPPLY DIVISION		
	67	68
Excepted	-	-
GS-16	-	-
GS-15	-	-
GS-14	-	-
All Other GS	43	43
Wage Board	23	23
Total Permanent	66	66

RESEARCH FACILITIES & EQUIPMENT DIVISION		
	67	68
Excepted	-	-
GS-16	1	1
GS-15	6	6
GS-14	7	8
All Other GS	115	114
Wage Board	46	46
Total Permanent	175	175

FULL SCALE & SYSTEMS RESEARCH DIVISION		
	67	68
Excepted	1	1
GS-16	5	5
GS-15	13	14
GS-14	21	23
All Other GS	69	66
Wage Board	9	9
Total Permanent	118	118

VEHICLE ENVIRONMENT DIVISION		
	67	68
Excepted	1	1
GS-16	5	5
GS-15	12	13
GS-14	17	18
All Other GS	89	87
Wage Board	32	32
Total Permanent	156	156

ENVIRONMENTAL BIOLOGY DIVISION		
	67	68
Excepted	2	2
GS-16	1	1
GS-15	6	6
GS-14	9	11
All Other GS	37	35
Wage Board	4	4
Total Permanent	59	59

PROJECT PIONEER		
	67	68
Excepted	1	1
GS-16	-	-
GS-15	5	5
GS-14	12	13
All Other GS	26	25
Wage Board	-	-
Total Permanent	44	44

FISCAL DIVISION		
	67	68
Excepted	-	-
GS-16	-	-
GS-15	-	-
GS-14	1	1
All Other GS	59	59
Wage Board	-	-
Total Permanent	60	60

TECHNICAL SERVICES DIVISION		
	67	68
Excepted	-	-
GS-16	-	-
GS-15	1	1
GS-14	1	1
All Other GS	13	13
Wage Board	308	308
Total Permanent	323	323

INSTRUMENTATION DIVISION		
	67	68
Excepted	2	2
GS-16	-	-
GS-15	6	7
GS-14	17	18
All Other GS	55	53
Wage Board	118	118
Total Permanent	198	198

SPACE SCIENCES DIVISION		
	67	68
Excepted	1	1
GS-16	1	1
GS-15	13	14
GS-14	13	14
All Other GS	29	27
Wage Board	13	13
Total Permanent	70	70

BIOTECHNOLOGY DIVISION		
	67	68
Excepted	1	1
GS-16	1	1
GS-15	4	4
GS-14	39	38
All Other GS	12	13
Wage Board	39	38
Total Permanent	57	57

PROJECT BIOMATELLITE		
	67	68
Excepted	1	1
GS-16	2	2
GS-15	4	4
GS-14	15	16
All Other GS	43	42
Wage Board	4	4
Total Permanent	71	71

PERSONNEL DIVISION		
	67	68
Excepted	-	-
GS-16	-	-
GS-15	1	1
GS-14	2	2
All Other GS	44	44
Wage Board	-	-
Total Permanent	57	57

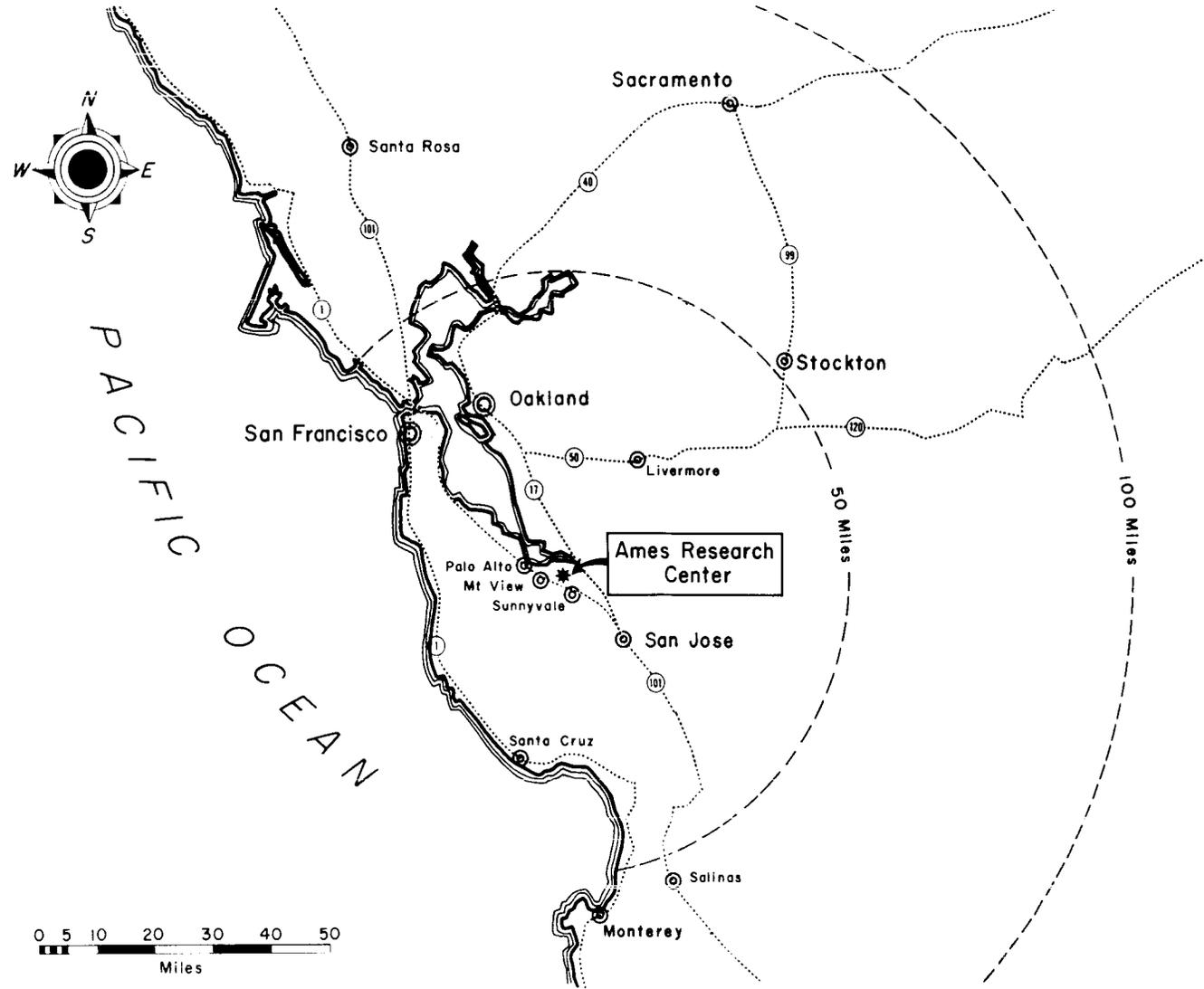
COMPUTATION DIVISION		
	67	68
Excepted	-	-
GS-16	-	-
GS-15	1	1
GS-14	2	2
All Other GS	9	9
Wage Board	57	57
Total Permanent	62	62

SIMULATION SCIENCES DIVISION		
	67	68
Excepted	-	-
GS-16	1	1
GS-15	3	3
GS-14	6	6
All Other GS	16	16
Wage Board	10	10
Total Permanent	42	42

PROCUREMENT DIVISION		
	67	68
Excepted	-	-
GS-16	-	-
GS-15	1	1
GS-14	2	2
All Other GS	61	61
Wage Board	-	-
Total Permanent	64	64

TECHNICAL INFORMATION DIVISION		
	67	68
Excepted	-	-
GS-16	-	-
GS-15	-	-
GS-14	-	-
All Other GS	39	39
Wage Board	14	14
Total Permanent	53	53

# AMES RESEARCH CENTER FISCAL YEAR 1968 ESTIMATES VICINITY MAP



AO 2-49

AMES RESEARCH CENTER  
FISCAL YEAR 1968 ESTIMATES

**LOCATION PLAN**

DATE: DECEMBER 7, 1966

LEGEND	
N-200	ADMINISTRATION BUILDING
N-201	AUDITORIUM
N-202	ADMINISTRATION BUILDING ANNEX
N-203	ENGINEERING SERVICES BUILDING
N-204	SPACE TECHNOLOGY BUILDING
N-204A	SPACE TECHNOLOGY BUILDING ANNEX
N-206	12-FOOT PRESSURE WIND TUNNEL
N-206A	12-FOOT PRESSURE WIND TUNNEL, AUXILIARIES BUILDING
N-207	1-BY 3-FOOT SUPERSONIC WIND TUNNEL
N-208	SUPERSONIC FREE-FLIGHT WIND TUNNEL
N-208	PRESSURIZED BALLISTIC RANGE
N-210	FLIGHT SIMULATION LABORATORY
N-211	AIRPLANE HANGAR AND SHOP
N-212	STRUCTURAL FABRICATION SHOP
N-213	INSTRUMENT RESEARCH LABORATORY
N-214	MODEL FINISHING SHOP
N-215	7-BY 10-FOOT WIND TUNNEL NO. 1
N-216	7-BY 10-FOOT WIND TUNNEL NO. 2
N-218	14-FOOT TRANSONIC WIND TUNNEL
N-219	ELECTRICAL SERVICES BUILDING
N-220	TECHNICAL SERVICES BUILDING
N-221	40-BY 80-FOOT WIND TUNNEL
N-222	2-BY 2-FOOT TRANSONIC WIND TUNNEL
N-223	HYPERVELOCITY BALLISTIC RANGE
N-224	PAYLOAD INTEGRATION AND TEST FACILITY
N-225	SUBSTATION
N-226	6-BY 6-FOOT SUPERSONIC WIND TUNNEL
N-227	UNITARY PLAN WIND TUNNELS BUILDING
N-227A	11-FOOT TRANSONIC WIND TUNNEL
N-227B	9-BY 7-FOOT SUPERSONIC WIND TUNNEL
N-227C	8-BY 7-FOOT SUPERSONIC WIND TUNNEL
N-227D	UNITARY PLAN WIND TUNNELS, AUXILIARY BUILDING
N-228	1-FOOT SHOCK TUNNEL
N-229	3.5-FOOT HYPERSONIC WIND TUNNEL
N-229A	3.5-FOOT HYPERSONIC WIND TUNNEL, AUXILIARIES BUILDING
N-230	PHYSICAL SCIENCES RESEARCH LABORATORY
N-231	HYPERSONIC HELIUM TUNNEL
N-232	PILOT MODEL OF HYPERVELOCITY FREE FLIGHT FACILITY
N-233	DATA REDUCTION BUILDING
N-234	GASDYNAMICS LABORATORY
N-235	CAFETERIA BUILDING
N-236	BIOSCIENCE LABORATORY
N-237	HYPERVELOCITY FREE FLIGHT FACILITY
N-238	MACH 50 HELIUM TUNNEL
N-239	LIFE SCIENCES RESEARCH LABORATORY
N-240	SPACE ENVIRONMENT RESEARCH FACILITY
N-241	ADMINISTRATIVE MANAGEMENT BUILDING
N-242	STRUCTURAL DYNAMICS LABORATORY
N-243	FLIGHT AND GUIDANCE SIMULATION LABORATORY
N-244	SYSTEMS ENGINEERING FACILITY

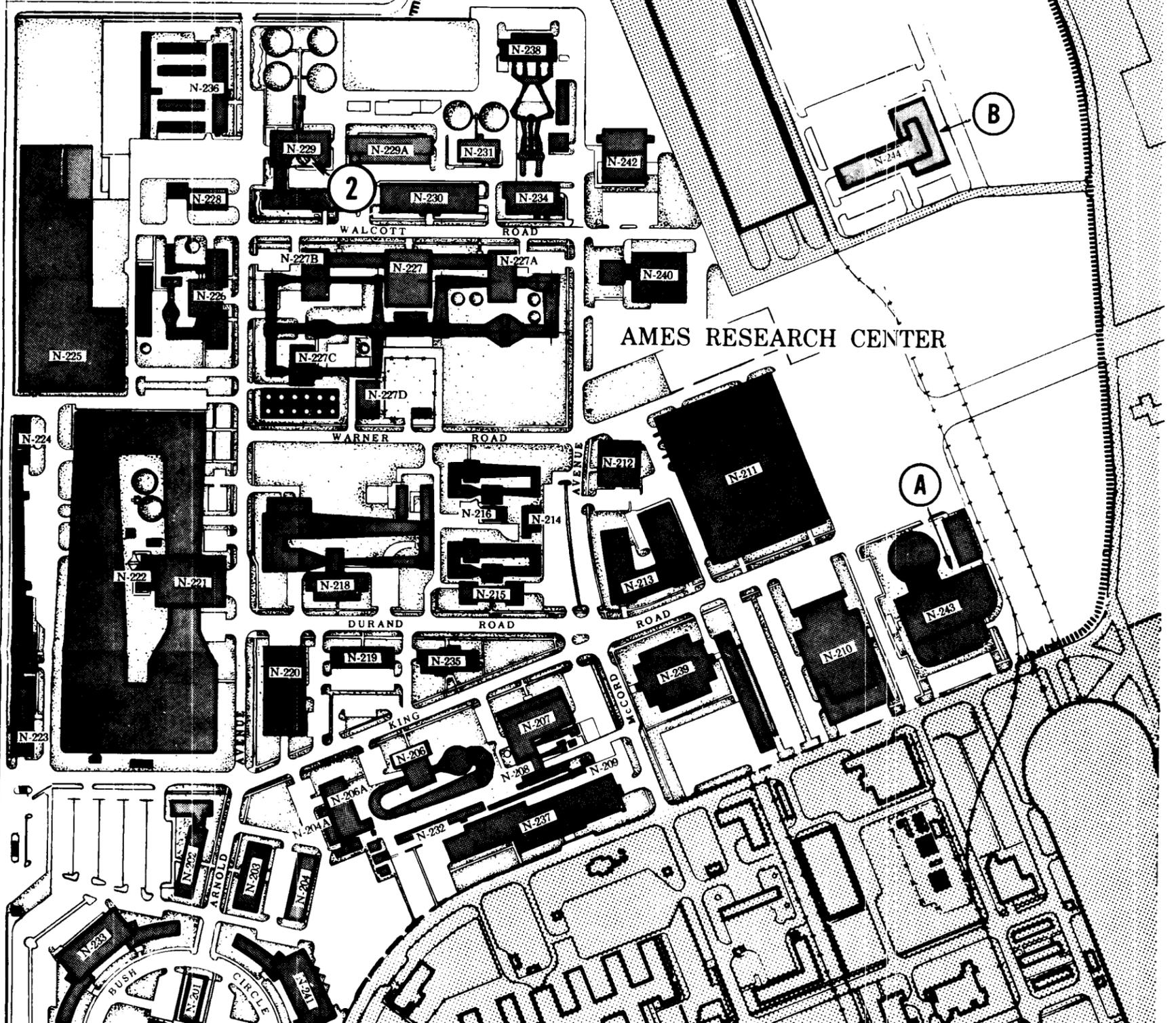
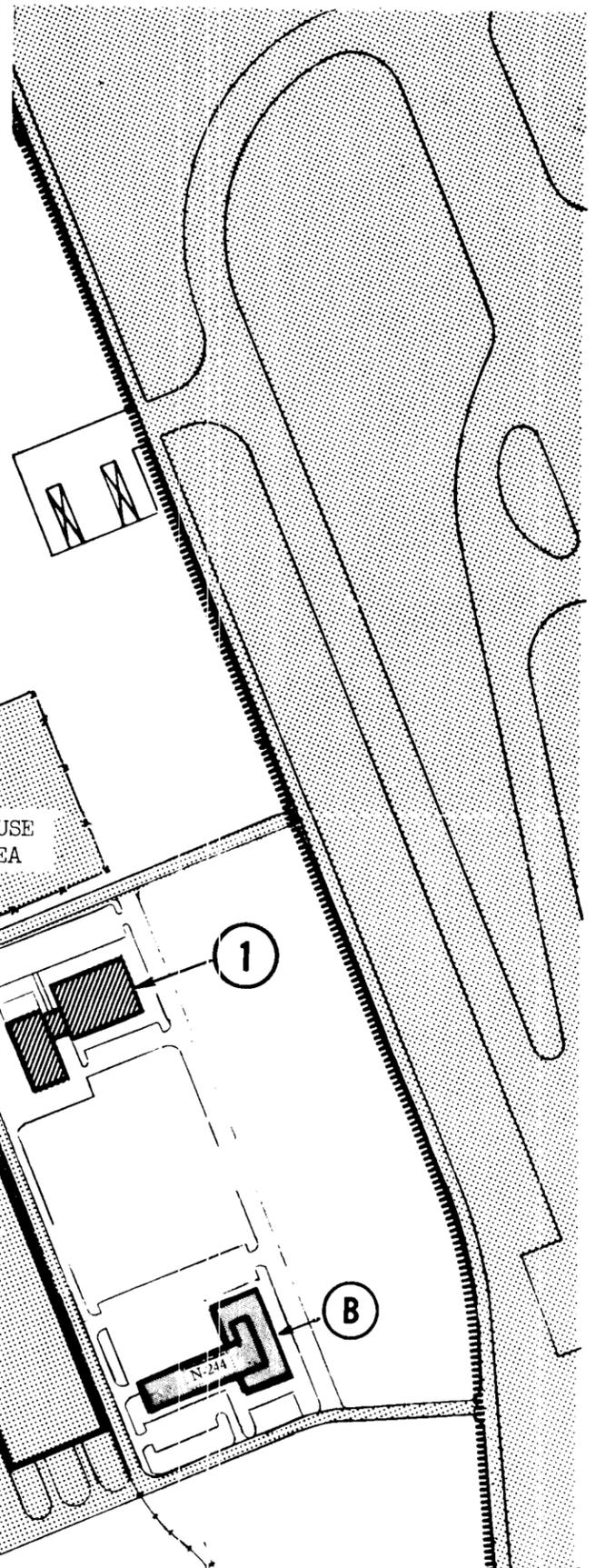
FACILITIES UNDER CONSTRUCTION

- A. FLIGHT AND GUIDANCE SIMULATION LABORATORY
- B. SYSTEMS ENGINEERING FACILITY

AUTHORIZED PROJECTS (1967) - NONE

PROPOSED PROJECTS - FY 1968

- 1. SPACE SCIENCE RESEARCH LABORATORY
- 2. HEATER REPLACEMENT, 3.5-FOOT WIND TUNNEL



- N-207 7-FOOT SUPERSONIC WIND TUNNEL
- N-208 SUPERSONIC FREE-FLIGHT WIND TUNNEL
- N-209 PRESSURIZED BALLISTIC RANGE
- N-210 FLIGHT SIMULATION LABORATORY
- N-211 AIRPLANE HANGAR AND SHOP
- N-212 STRUCTURAL FABRICATION SHOP
- N-213 INSTRUMENT RESEARCH LABORATORY
- N-214 MODEL FINISHING SHOP
- N-215 7-BY-10-FOOT WIND TUNNEL NO. 1
- N-216 7-BY-10-FOOT WIND TUNNEL NO. 2
- N-218 14-FOOT TRANSONIC WIND TUNNEL
- N-219 ELECTRICAL SERVICES BUILDING
- N-220 TECHNICAL SERVICES BUILDING
- N-221 40-BY-80-FOOT WIND TUNNEL
- N-222 2-BY-2-FOOT TRANSONIC WIND TUNNEL
- N-223 HYPERVELOCITY BALLISTIC RANGE
- N-224 PAYLOAD INTEGRATION AND TEST FACILITY
- N-225 SUBSTATION
- N-226 6-BY-6-FOOT SUPERSONIC WIND TUNNEL
- N-227 UNITARY PLAN WIND TUNNELS BUILDING
- N-227A 11-FOOT TRANSONIC WIND TUNNEL
- N-227B 9-BY-7-FOOT SUPERSONIC WIND TUNNEL
- N-227C 8-BY-7-FOOT SUPERSONIC WIND TUNNEL
- N-227D UNITARY PLAN WIND TUNNELS, AUXILIARY BUILDING
- N-228 1-FOOT SHOCK TUNNEL
- N-229 3.5-FOOT HYPERSONIC WIND TUNNEL
- N-229A 3.5-FOOT HYPERSONIC WIND TUNNEL AUXILIARIES BUILDING
- N-230 PHYSICAL SCIENCES RESEARCH LABORATORY
- N-231 HYPERSONIC HELIUM TUNNEL
- N-232 PILOT MODEL OF HYPERVELOCITY FREE FLIGHT FACILITY
- N-233 DATA REDUCTION BUILDING
- N-234 GASDYNAMICS LABORATORY
- N-235 CAFETERIA BUILDING
- N-236 BIOSCIENCE LABORATORY
- N-237 HYPERVELOCITY FREE FLIGHT FACILITY
- N-238 MACH 50 HELIUM TUNNEL
- N-239 LIFE SCIENCES RESEARCH LABORATORY
- N-240 SPACE ENVIRONMENT RESEARCH FACILITY
- N-241 ADMINISTRATIVE MANAGEMENT BUILDING
- N-242 STRUCTURAL DYNAMICS LABORATORY
- N-243 FLIGHT AND GUIDANCE SIMULATION LABORATORY
- N-244 SYSTEMS ENGINEERING FACILITY

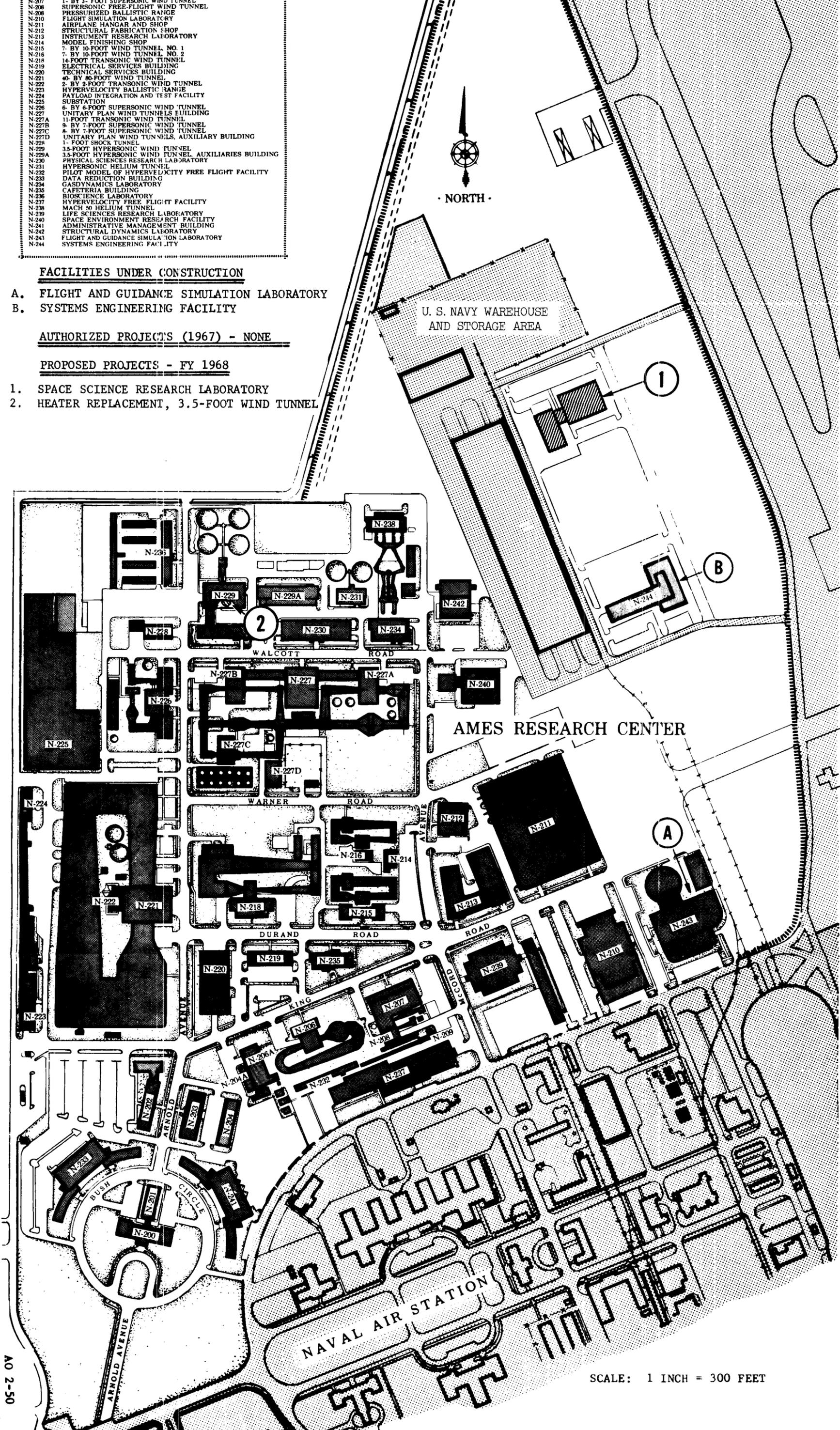
**FACILITIES UNDER CONSTRUCTION**

- A. FLIGHT AND GUIDANCE SIMULATION LABORATORY
- B. SYSTEMS ENGINEERING FACILITY

**AUTHORIZED PROJECTS (1967) - NONE**

**PROPOSED PROJECTS - FY 1968**

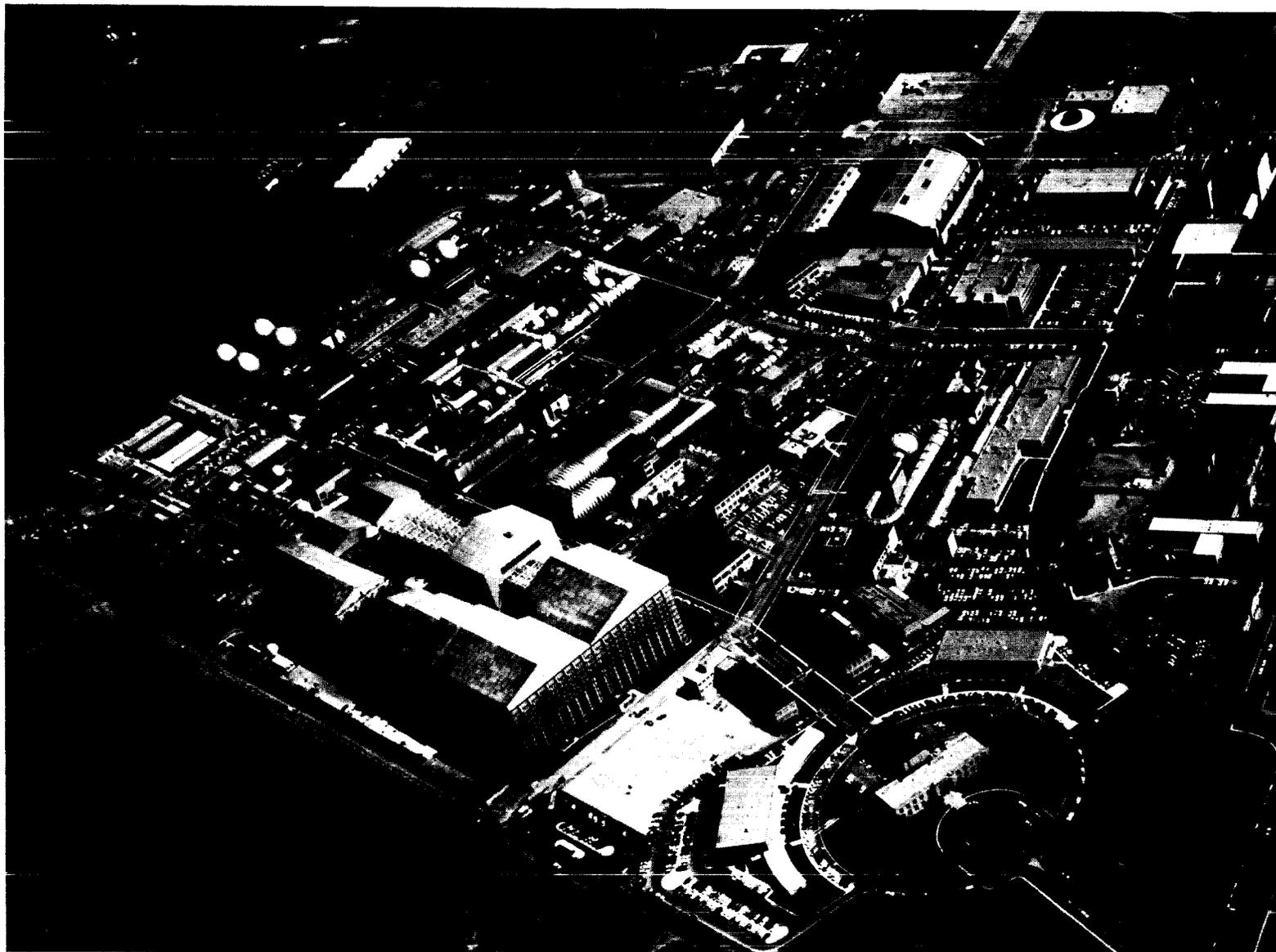
- 1. SPACE SCIENCE RESEARCH LABORATORY
- 2. HEATER REPLACEMENT, 3.5-FOOT WIND TUNNEL



AO 2-50

SCALE: 1 INCH = 300 FEET

AMES RESEARCH CENTER  
FISCAL YEAR 1968 ESTIMATES



AO 2-51

ADMINISTRATIVE OPERATIONS

FISCAL YEAR 1968 ESTIMATES

ELECTRONICS RESEARCH CENTER

MISSION:

The mission of the Electronics Research Center is to increase the agency's capability in space by providing the knowledge and advanced technology needed to improve performance and reliability of space and aeronautical electronic systems and components. The center meets this responsibility in two principal ways:

First, the center organizes, manages, and conducts a comprehensive program of basic and applied space electronics research in order to: (a) investigate concepts and techniques that will provide the technological foundation for the development of electronic equipment of reduced weight, size, power drain, and complexity, able to operate for long periods of time in the temperatures, radiation, vacuum, and other harsh conditions found in space; (b) investigate concepts and techniques, establish performance characteristics, test procedures, and specifications for space electronic components and techniques that will make space electronics equipment inherently more reliable; and (c) devise new electronic concepts and techniques and prove their feasibility both analytically and experimentally, leading to space electronic equipment with performance characteristics far beyond those of today.

Second, the center provides a focal point for national space electronics research, coordinating nationwide research efforts and sponsoring electronics research conducted by industry, universities, and private institutions. In this capacity, the center (a) responds to the needs of specific space programs and projects for new electronic techniques, concepts, and devices, and helps shape future electronics research to resolve anticipated problems in these programs; (b) distributes knowledge about basic and applied research on space electronics within NASA and also to industry, universities, and other members of the scientific and engineering community; and provides to NASA programs and projects space electronic scientists and engineers who are fully knowledgeable in the electronics state-of-the-art.

Electronics research being managed and conducted by the center during FY 1967 and FY 1968 is largely contracted with industry and universities and is focused in the following areas:

1. Space electronics materials and components.

2. Guidance and navigation of space vehicles, spacecraft, and supporting ground-based equipment.
3. Space vehicle and spacecraft control, stabilization and information systems.
4. Electronic system simulation, analysis, evaluation and integration in the fields of guidance, control, navigation, tracking, communication and instrumentation.
5. Electronic power conditioning and distribution.
6. Space and ground-based instrumentation technology.
7. Space and ground-based computers and computing systems.
8. Solid state physics, microwave propagation, microwave communications, and transmitting and receiving phenomena.
9. Optical communications.

An in-house research effort is being conducted by the center staff on those tasks offering great promise for space electronics technology and on those problems requiring first-hand experience on the part of the center personnel in order to contract related research with industry and universities.

DESCRIPTION:

The Electronics Research Center is being constructed on a tract in the Kendall Square area of Cambridge, Massachusetts. The site, one and a half miles west of the center of Boston, Massachusetts, is immediately north of the Massachusetts Institute of Technology and one and a half miles from Harvard University. The tract being acquired by the city for NASA use is bounded on the north by Binney Street, on the south by Broadway, on the east by Third Street, and on the west by the New York Central Railroad. In addition to the center site, an auxiliary site will be required for the field tests and research that cannot be conducted at the main site. The total area to be occupied at the Kendall Square site in Cambridge is 29 acres. The total capital investment as of June 30, 1966, was \$2,887,000.

SUMMARY OF RESOURCES REQUIREMENTS:

<u>Functions</u>	<u>FUNDS</u>		
	<u>1966</u>	<u>1967</u>	<u>1968</u>
Personnel.....	\$4,070,000	\$7,574,000	\$11,375,000
Travel.....	238,000	300,000	580,000

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Automatic data processing.....	\$454,000	\$1,071,000	\$2,098,000
Facilities services.....	957,000	1,830,000	2,870,000
Technical services.....	146,000	569,000	1,127,000
Administrative support.....	<u>481,000</u>	<u>908,000</u>	<u>1,214,000</u>
Total, fund requirements.....	<u>\$6,346,000</u>	<u>\$12,252,000</u>	<u>\$19,264,000</u>

PERSONNEL

	<u>1966</u>	<u>1967</u>	<u>1968</u>
<b>1. <u>Permanent positions by program:</u></b>			
<b><u>Space Science and Applications</u></b>			
Physics and astronomy.....	---	1	4
Lunar and planetary.....	---	---	4
Launch vehicle procurement.....	6	14	26
Space applications.....	4	8	20
<b><u>Advanced Research and Technology</u></b>			
Basic research.....	43	83	130
Space vehicle systems.....	2	5	10
Electronics systems.....	192	281	390
Human factor systems.....	19	20	39
Space power and electric propulsion systems.....	---	18	31
Aeronautics.....	<u>1</u>	<u>4</u>	<u>12</u>
Subtotal, positions by program.....	267	434	666
<b>2. <u>Support positions:</u></b>			
Director and staff.....	28	26	30
Administrative support.....	150	181	221
Research and development support.....	<u>65</u>	<u>100</u>	<u>124</u>
Subtotal, support positions.....	<u>243</u>	<u>307</u>	<u>375</u>
Total, permanent positions.....	<u>510</u>	<u>741</u>	<u>1,041</u>

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
ELECTRONICS RESEARCH CENTER  
ORGANIZATION AND STAFFING CHART

STAFFING SUMMARY

	<u>FY67</u>	<u>FY68</u>
EXCEPTED	10	10
GS-16	12	12
GS-15	67	82
GS-14	97	145
ALL OTHER GS	545	760
WAGE BOARD	10	32
TOTAL PERM.	741	1041

OFFICE OF THE DIRECTOR

	<u>FY67</u>	<u>FY68</u>
EXCEPTED	4	4
GS-16	0	0
GS-15	6	8
GS-14	3	4
ALL OTHER GS	13	14
WAGE BOARD	0	0
TOTAL	26	30

PROGRAMS AND RESOURCES OFFICE

	<u>FY67</u>	<u>FY68</u>
EXCEPTED	0	0
GS-16	1	1
GS-15	2	3
GS-14	4	5
ALL OTHER GS	39	45
WAGE BOARD	0	0
TOTAL	46	54

ADMINISTRATION OFFICE

	<u>FY67</u>	<u>FY68</u>
EXCEPTED	1	1
GS-16	0	0
GS-15	2	3
GS-14	4	7
ALL OTHER GS	125	150
WAGE BOARD	3	6
TOTAL	135	167

FACILITIES AND ENGINEERING OFFICE

	<u>FY67</u>	<u>FY68</u>
EXCEPTED	0	0
GS-16	1	1
GS-15	3	3
GS-14	8	12
ALL OTHER GS	81	82
WAGE BOARD	7	26
TOTAL	100	124

SYSTEMS DIVISION

	<u>FY67</u>	<u>FY68</u>
EXCEPTED	1	1
GS-16	2	2
GS-15	8	11
GS-14	14	16
ALL OTHER GS	32	66
WAGE BOARD	0	0
TOTAL	57	96

ELECTRONIC COMPONENTS DIVISION

	<u>FY67</u>	<u>FY68</u>
EXCEPTED	1	1
GS-16	2	2
GS-15	16	19
GS-14	15	33
ALL OTHER GS	81	123
WAGE BOARD	0	0
TOTAL	115	178

GUIDANCE AND CONTROL DIVISION

	<u>FY67</u>	<u>FY68</u>
EXCEPTED	1	1
GS-16	2	2
GS-15	7	9
GS-14	16	17
ALL OTHER GS	80	124
WAGE BOARD	0	0
TOTAL	106	153

INSTRUMENTATION AND DATA PROCESSING RESEARCH DIV.

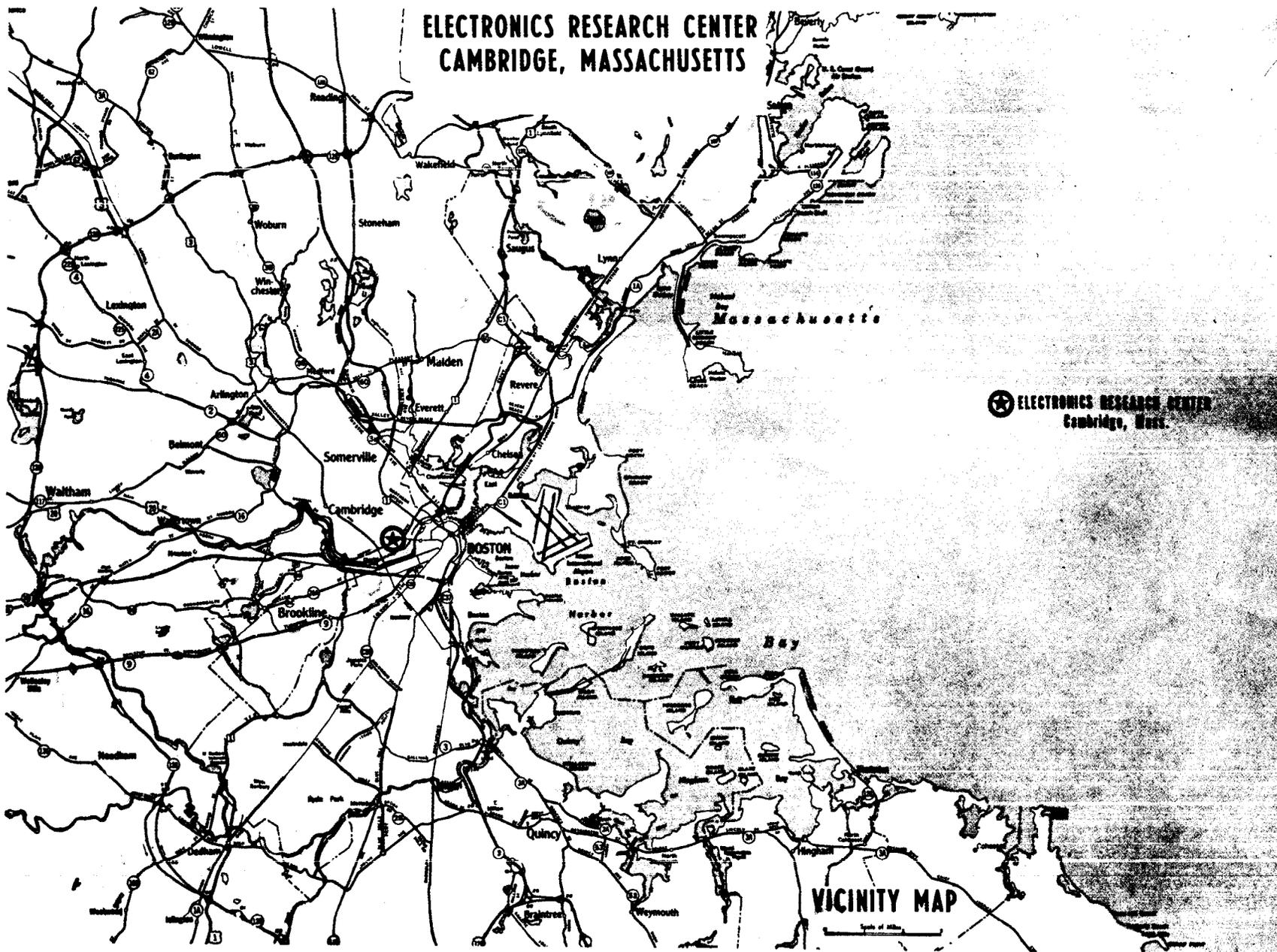
	<u>FY67</u>	<u>FY68</u>
EXCEPTED	1	1
GS-16	2	2
GS-15	8	10
GS-14	15	20
ALL OTHER GS	46	71
WAGE BOARD	0	0
TOTAL	72	104

ELECTROMAGNETIC DIVISION

	<u>FY67</u>	<u>FY68</u>
EXCEPTED	1	1
GS-16	2	2
GS-15	15	16
GS-14	18	31
ALL OTHER GS	48	85
WAGE BOARD	0	0
TOTAL	84	135

AO 2-55

# ELECTRONICS RESEARCH CENTER CAMBRIDGE, MASSACHUSETTS

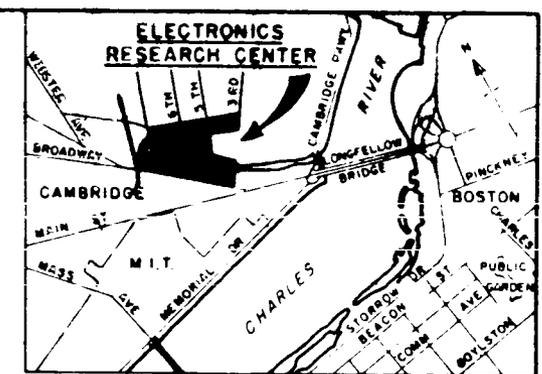
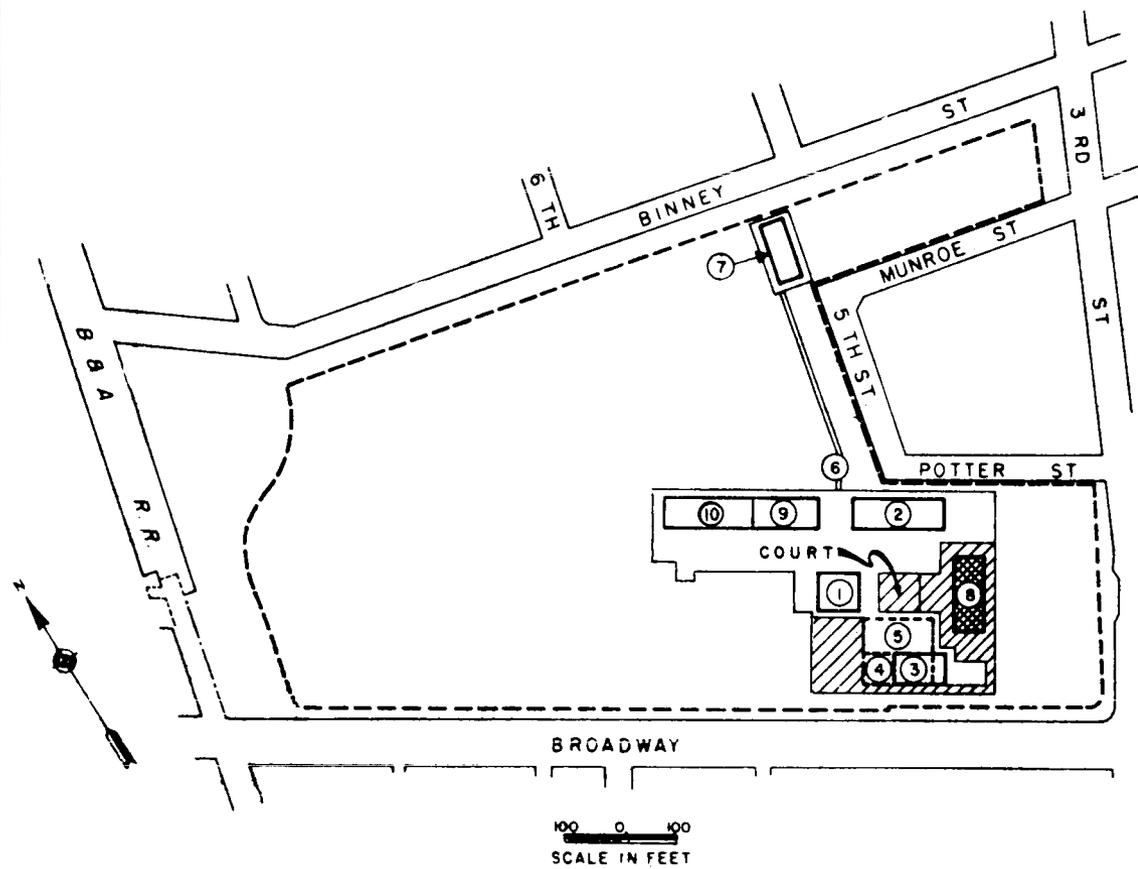


★ ELECTRONICS RESEARCH CENTER  
Cambridge, Mass.

AO 2-56

VICINITY MAP  
Scale of Miles

ELECTRONICS RESEARCH CENTER  
 FISCAL YEAR 1968 ESTIMATES  
**LOCATION PLAN**  
 CAMBRIDGE, MASS.



- ① TOWER-E/A & GENERAL PURPOSE LABORATORIES
- ② MICROWAVE RADIATION LABORATORY
- ③ AUDITORIUM
- ④ KITCHEN (BASEMENT)
- ⑤ DINING (BASEMENT)
- ⑥ UTILITY TUNNEL
- ⑦ CENTER SERVICE BUILDING
- ⑧ QUALIFICATIONS & STANDARDS/COMPONENT TECHNOLOGY LABORATORY
- ⑨ SPACE OPTICS LABORATORY
- ⑩ GUIDANCE LABORATORY

**LEGEND**

- FY 65, 66 & 67 FACILITIES
- ▣ FACILITIES PROPOSED IN 1968 ESTIMATES
- ▨ BASEMENTS ASSOCIATED WITH FY 68 FACILITIES
- - - PROJECT BOUNDARY

AO 2-57

ELECTRONICS RESEARCH CENTER  
CAMBRIDGE, MASS.



AO 2-58

AERIAL VIEW

## ADMINISTRATIVE OPERATIONS

### FISCAL YEAR 1968 ESTIMATES

#### FLIGHT RESEARCH CENTER

##### MISSION:

The Flight Research Center, established in 1947, conducts research in and evaluates problems, both within and outside the atmosphere. The work includes effort on problems of take-off and landing, low-speed flights, supersonic and hypersonic flight, and re-entry to verify predicted characteristics and to identify unexpected problems in actual flight.

The current and projected programs at this center include aeronautics projects, such as X-15, XB-70, supersonic transport and hypersonic research; space vehicle systems projects in which the flight behavior of advanced re-entry vehicles including M-2, F-2 and HL-10 heavyweight lifting bodies is studied; and electronic systems projects such as display, guidance, and control in advanced flight missions and improvements on systems and sensors used in biomedical monitoring, tracking, and data acquisition.

Most important of the facilities and special equipment for conducting programs at the Flight Research Center are the aircraft. They range from lightweight civil aircraft for handling qualities investigations to century series fighters used for pilot proficiency and general investigations and to X-15 rocket aircraft used for hypersonic research and re-entry investigations. Special purpose vehicles such as lifting bodies, variable stability aircraft, or airborne simulators are contractor procured or developed in-house. Specialized laboratory facilities are available to complement the flight activities with proper preliminary research and testing. Simulation equipment is used to guide and assist in the performance of productive flight activities. A three-station radar for tracking and data acquisition is operated to support the flight activity.

##### DESCRIPTION:

The Flight Research Center, Edwards, California is 65 air miles northeast of Los Angeles. The center is located at the north end of Edwards Air Force Base on 218 acres of land leased from the Air Force. Utilities are provided by the Air Force on a reimbursable basis. The center is adjacent to Rogers Dry Lake, a 55 square mile area with a complex of runways varying in length from 5 to 11 miles.

The physical plant consists of an office-laboratory building with adjoining shops, a flight maintenance hangar and a calibration hangar, and

a high temperature loads calibration facility. Auxiliary buildings include warehouses, an auxiliary power systems building, and a communications building. The main station of the three-station radar range operated by the center is located on the third floor of the office-laboratory building. The total capital investment as of June 30, 1966, was \$40,178,000.

SUMMARY OF RESOURCES REQUIREMENTS:

<u>Functions</u>	<u>FUNDS</u>		
	<u>1966</u>	<u>1967</u>	<u>1968</u>
Personnel.....	\$6,923,000	\$7,116,000	\$7,224,000
Travel.....	227,000	216,000	216,000
Automatic data processing.....	97,000	23,000	24,000
Facilities services.....	1,290,000	1,354,000	1,376,000
Technical services.....	191,000	84,000	82,000
Administrative support.....	<u>652,000</u>	<u>692,000</u>	<u>708,000</u>
Total, fund requirements.....	<u>\$9,380,000</u>	<u>\$9,485,000</u>	<u>\$9,630,000</u>

PERSONNEL

	<u>1966</u>	<u>1967</u>	<u>1968</u>
1. <u>Permanent positions by program:</u>			
<u>Manned Space Flight</u>			
Apollo.....	34	---	---
<u>Space Science and Applications</u>			
Physics and astronomy.....	1	1	1
<u>Advanced Research and Technology</u>			
Basic research.....	1	---	---
Space vehicle systems.....	63	71	71
Electronics systems.....	30	30	30
Human factor systems.....	10	10	10
Aeronautics.....	308	324	324

AO 2-60

	<u>1966</u>	<u>1967</u>	<u>1968</u>
<u>Tracking and Data Acquisition</u> .....	37	37	37
<u>Technology Utilization</u> .....	<u>1</u>	<u>1</u>	<u>1</u>
Subtotal, positions by program.....	485	474	474
<b>2. <u>Support positions:</u></b>			
Director and staff.....	11	11	11
Administrative support.....	<u>107</u>	<u>105</u>	<u>105</u>
Subtotal, support positions.....	<u>118</u>	<u>116</u>	<u>116</u>
Total, permanent positions.....	<u>603</u>	<u>590</u>	<u>590</u>

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**  
**ORGANIZATION AND STAFFING CHART**  
**FLIGHT RESEARCH CENTER**

STAFFING SUMMARY		
	<u>67</u>	<u>68</u>
Excepted	6	6
GS-16	6	6
GS-15	15	20
GS-14	30	34
All Other GS	297	288
Wage Board	<u>236</u>	<u>236</u>
Total Permanent:	590	590

OFFICE OF THE DIRECTOR		
	<u>67</u>	<u>68</u>
Excepted	3	3
GS-16	1	1
GS-15	3	3
GS-14	1	1
All Other GS	7	7
Wage Board	<u>22</u>	<u>22</u>
Total Permanent	37	37

RESEARCH DIVISION		
	<u>67</u>	<u>68</u>
Excepted	1	1
GS-16	3	3
GS-15	6	10
GS-14	15	19
All Other GS	92	84
Wage Board	<u>1</u>	<u>1</u>
Total Permanent	118	118

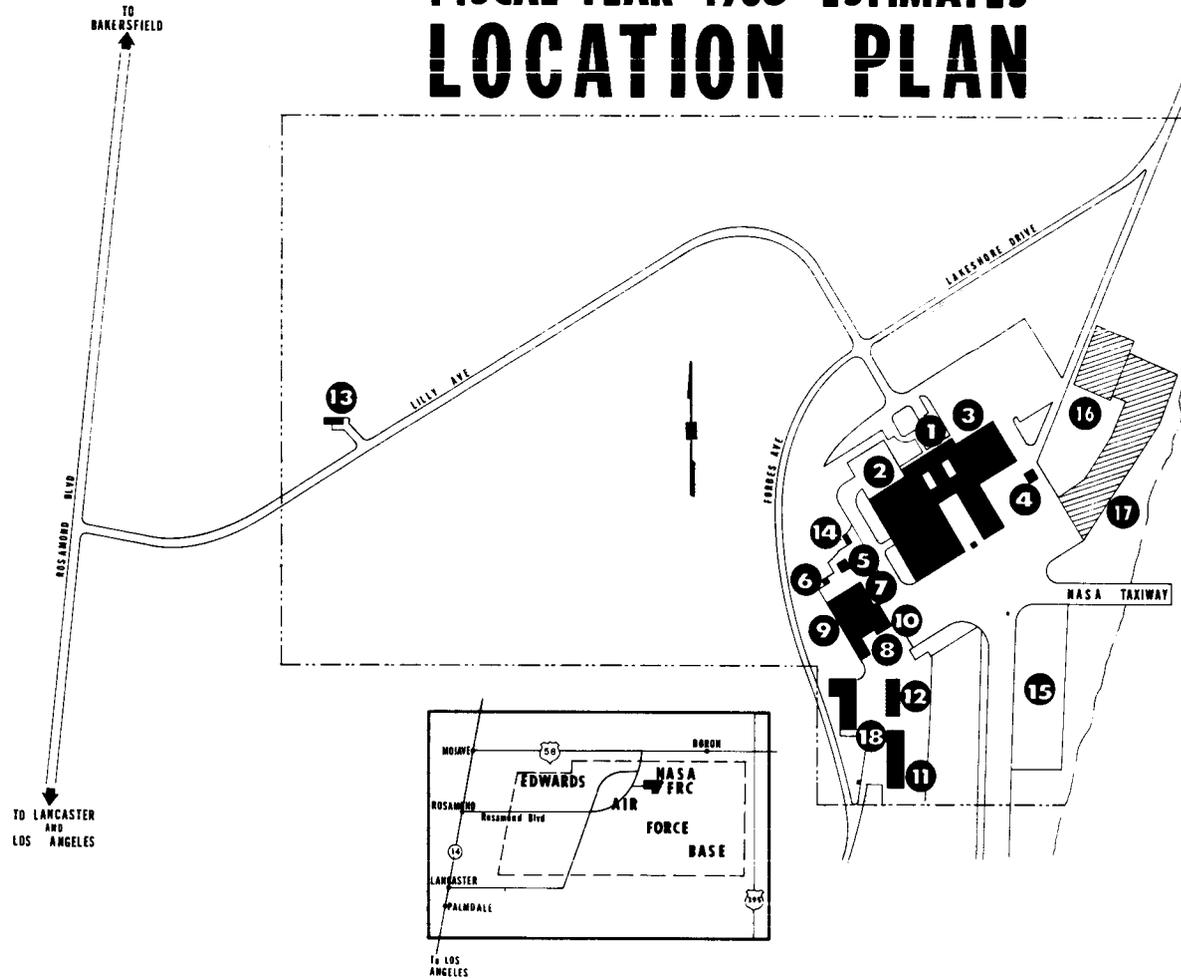
OPERATIONS DIVISION		
	<u>67</u>	<u>68</u>
Excepted	1	1
GS-16	1	1
GS-15	5	6
GS-14	4	4
All Other GS	24	23
Wage Board	<u>121</u>	<u>121</u>
Total Permanent	156	156

DATA SYSTEMS DIVISION		
	<u>67</u>	<u>68</u>
Excepted	-	-
GS-16	1	1
GS-15	1	1
GS-14	8	8
All Other GS	93	93
Wage Board	<u>71</u>	<u>71</u>
Total Permanent	174	174

ADMINISTRATIVE DIVISION		
	<u>67</u>	<u>68</u>
Excepted	1	1
GS-16	-	-
GS-15	-	-
GS-14	2	2
All Other GS	81	81
Wage Board	<u>21</u>	<u>21</u>
Total Permanent	105	105



# FLIGHT RESEARCH CENTER FISCAL YEAR 1968 ESTIMATES LOCATION PLAN



- ① LABORATORY
- ② MAIN HANGAR
- ③ CALIBRATION HANGAR
- ④ AUXILIARY POWER UNIT BUILDING X-15
- ⑤ BOILER HOUSE
- ⑥ PAINT STORAGE SHED
- ⑦ WAREHOUSE NO 1
- ⑧ WAREHOUSE NO 1 ADDITION
- ⑨ WAREHOUSE NO 2
- ⑩ GROUND SUPPORT
- ⑪ WAREHOUSE NO 4
- ⑫ TRAILER PARKING
- ⑬ COMMUNICATION BUILDING
- ⑭ PAINT SPRAY BUILDING
- ⑮ JET RUN-UP PAD
- ⑯ HIGH TEMPERATURE LOADS CALIBRATION FACILITY
- ⑰ TAXIWAY & RAMP
- ⑱ WAREHOUSE NO 3

■ EXISTING FACILITIES  
 ▨ FACILITIES AUTHORIZED & UNDER CONSTRUCTION



AO 2-64

FLIGHT RESEARCH CENTER  
FISCAL YEAR 1968 ESTIMATES



AO 2-65

ADMINISTRATIVE OPERATIONS  
FISCAL YEAR 1968 ESTIMATES  
LANGLEY RESEARCH CENTER

MISSION:

The Langley Research Center focuses its capabilities on the advancement of the aeronautical and space programs of the United States. In this effort, a broad range of activities are conducted to identify new technological opportunities for important progress in flight; to expose and master critical problems that will confront the attainment of advanced flight objectives; to provide sound design, construction, and operations guidance for progressive flight endeavors; and to manage and support the undertaking of major national flight projects. For this purpose, the center has evolved a highly competent staff in aerodynamics, fluid physics, flight environments, structures and materials, dynamic loading, energy conversion, navigation and control, electronics systems and instrumentation, crew performance and vehicular accommodation, life support, systems integration, and flight operations. Their work involves the development and use of a unique research complex of advanced wind tunnel and jet facilities, flight environment and operations simulators, flight hardware development and evaluation laboratories, experimental aircraft, free-flight models, rocket propelled flight systems, and space vehicles.

The research program in aeronautics is directed to the provision of a rational technological basis for the successful development and utilization of practicable supersonic and high subsonic speed transports, high performance military aircraft, advanced hypersonic ramjet powered vehicles, and improved V/STOL aircraft. In this endeavor, special emphasis is placed on the refinement of aircraft configurations for increased efficiency and the extension of performance capabilities; the definition and provision of proper stability and control for advanced flight operation; the achievement of optimum man/machine compatibility for maximum mission effectiveness; the specification of critical aircraft loading conditions and structural dynamic characteristics; the provision of improved aircraft construction technologies especially for the accommodation of severe aerodynamic heating, corrosive atmospheres, cryogenic storage, and fatiguing stresses; the establishment of a technical understanding of the aircraft noise problem and its alleviation, the refinement and configuration integration of advanced propulsion systems, including the development of the hypersonic ramjet engine and the hingeless helicopter rotor; the attainment of all-weather operational capabilities, particularly in aircraft terminal areas; and the enhancement of flight safety. Experience gained in such advanced research also provides an eminent basis for Langley support of the military services, the FAA, and industry in their progressive aircraft development efforts, as in the F-111 and the supersonic transport programs.

The Langley Research Center also executes a broad range of research programs to provide a rational technological basis for future space developments, and manages and supports a large number of current space projects. Especially prominent are its contributions to the knowledge of atmosphere entry aerothermodynamics, heat shielding, and the circumvention of communications "blackout" for earth orbital, lunar, and planetary missions; the prediction of the structural dynamic characteristics of large launch vehicles and spacecraft landing systems; the establishment of requirements and advanced design concepts for controlled atmosphere entry and landing spacecraft, reusable launch systems, manned orbital research laboratories, manned orbital telescopes, and expandable space structures; the definition and alleviation of space environment hazards to vehicular systems and materials; the evaluation and enhancement of the ability of man to work in the space domain, including the performance of vehicular rendezvous, lunar landing maneuvers, emergency backup of automated navigation and control systems, and extravehicular operations in weightless flight and under lunar gravitation; and the generation of improved technology for long duration life support and electrical power systems, advanced guidance and stabilization equipment, instrumentation and communication devices, solid and hybrid propellant rocket motors, and aerospace materials. Langley also develops wide ranges of crucial technology for the Apollo and follow-on manned space flight programs, and provides research and development support for a number of other unmanned spacecraft and launch vehicle projects. Langley is responsible for management of the Lunar Orbiter project for detailed photographic surveys of the moon; for the operation of the Scout launch vehicle in its various national and international satellite and entry vehicle applications; and for other vehicular systems and experiments for evaluation of the earth's atmospheric characteristics, the radiation and micrometeoroid hazards of the earth and moon environments, the lunar gravitational field, the mechanical properties of the lunar surface, and the precise interconnection of earth mapping systems. Langley also conducts an intensive program of research on the design and operation of advanced planetary exploration spacecraft, and has a major role in the development of the Mars atmosphere probing and landing vehicles and experiments of the Voyager program.

The depth and scope of these research and development activities should contribute vitally to the attainment of national flight aspirations.

#### DESCRIPTION:

The Langley Research Center, Hampton, Virginia, is located approximately 100 air miles south of Washington, D. C. The center is divided into two separate areas adjacent to the runway facilities of the Langley Air Force Base, and occupies 772 acres of government-owned land. The West Area consists of 750 acres of which 430 acres are owned by NASA and 320 acres are under permit from the Air Force. The East Area consists of 22 acres under permit from the Air Force. Runways, some utilities, and certain other facilities are used jointly by NASA and the Air Force. In addition, there are 110 acres

of NASA owned land located in the city of Newport News, Virginia, 3,276 acres under permit from other government agencies, and 26 acres under lease. The total acreage owned, under permit, or leased, is 4,184. The total capital investment as of June 30, 1966, was \$299,586,000.

SUMMARY OF RESOURCES REQUIREMENTS:

<u>Functions</u>	<u>FUNDS</u>		
	<u>1966</u>	<u>1967</u>	<u>1968</u>
Personnel.....	\$44,434,000	\$46,539,000	\$47,716,000
Travel.....	1,474,000	1,529,000	1,529,000
Automatic data processing.....	8,442,000	5,741,000	8,576,000
Facilities services.....	6,567,000	6,799,000	7,534,000
Technical services.....	333,000	327,000	357,000
Administrative support.....	<u>2,279,000</u>	<u>2,367,000</u>	<u>2,553,000</u>
Total, fund requirements.....	<u>\$63,529,000</u>	<u>\$63,302,000</u>	<u>\$68,265,000</u>

PERSONNEL

	<u>1966</u>	<u>1967</u>	<u>1968</u>
1. <u>Permanent positions by program:</u>			
<u>Manned Space Flight</u>			
Gemini.....	1	---	---
Apollo.....	27	28	28
Apollo applications.....	3	8	10
Advanced missions.....	6	6	6
<u>Space Science and Applications</u>			
Physics and astronomy.....	52	33	32
Lunar and planetary.....	144	118	33
Voyager.....	---	130	218
Launch vehicle procurement.....	51	41	39
Bioscience.....	2	2	2
Space applications.....	29	17	14

AO 2-68

	<u>1966</u>	<u>1967</u>	<u>1968</u>
<u>Advanced Research and Technology</u>			
Basic research.....	335	345	345
Space vehicle systems.....	719	599	632
Electronics systems.....	530	469	435
Human factor systems.....	108	125	143
Space power and electric propulsion systems.....	26	25	25
Chemical propulsion.....	38	42	50
Aeronautics.....	737	751	808
<u>Tracking and Data Acquisition.....</u>	22	19	19
<u>Technology Utilization.....</u>	<u>6</u>	<u>5</u>	<u>5</u>
Subtotal, positions by program.....	2,836	2,763	2,844
2. <u>Support positions:</u>			
Director and staff.....	32	33	34
Administrative support.....	527	539	555
Research and development support.....	<u>838</u>	<u>801</u>	<u>803</u>
Subtotal, support positions.....	<u>1,397</u>	<u>1,373</u>	<u>1,392</u>
Total, permanent positions.....	<u>4,233</u>	<u>4,136</u>	<u>4,236</u>

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
Organization and staffing chart  
LANGLEY RESEARCH CENTER

STAFFING SUMMARY			
	67	68	
Excepted	31	31	
GS-16	36	37	
GS-15	158	171	
GS-14	265	286	
Other GS	2685	2750	
Wage Board	261	261	
Total Perm.	4136	4236	

DIRECTOR ASSOCIATE DIRECTOR			
	67	68	
Excepted	2	2	
GS-15	5	5	
Other GS	2	2	
Total	10	10	

SENIOR STAFF SCIENTIST			
	67	68	
Excepted	1	1	
Total	1	1	

COOPERATIVE PROJECTS OFFICE			
	67	68	
GS-16	1	1	
Total	1	1	

MANNED SPACECRAFT PROJECTS OFFICE			
	67	68	
GS-16	1	1	
Total	1	1	

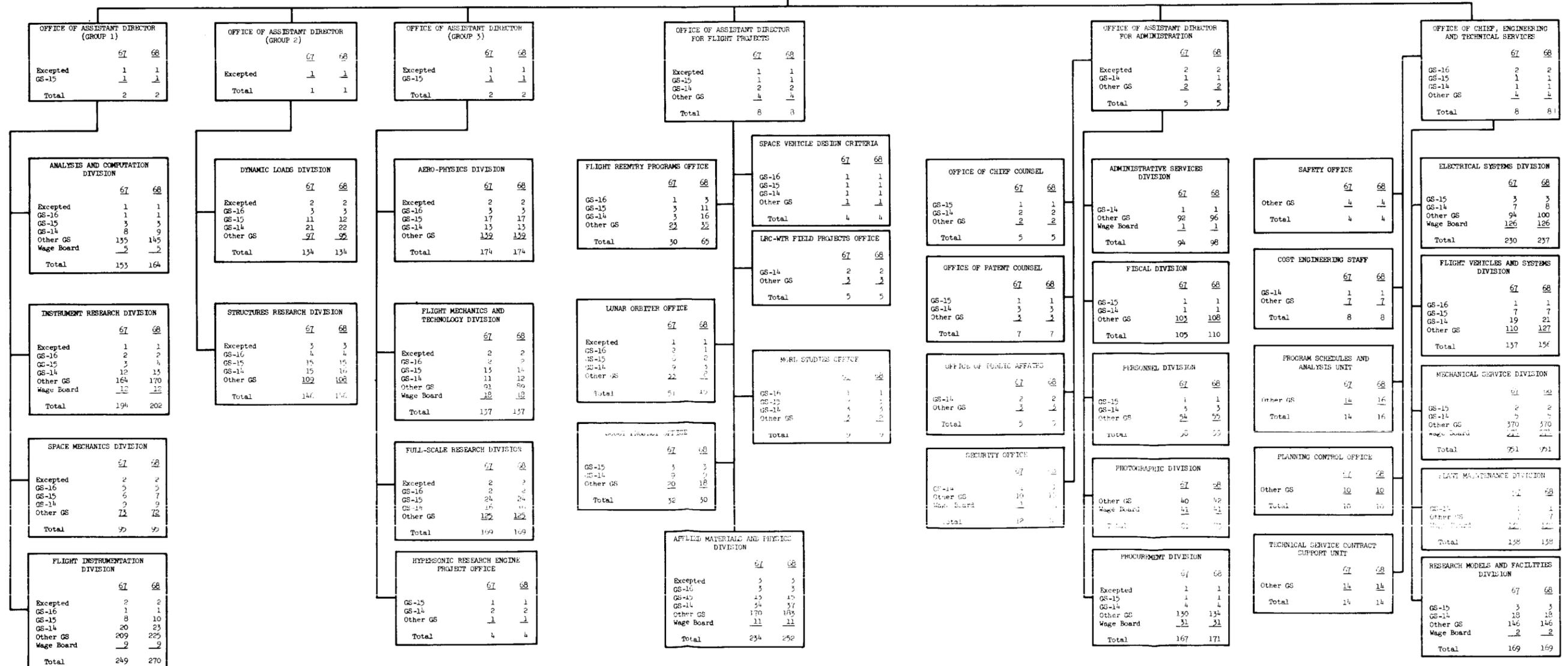
RESEARCH STAFF OFFICE			
	67	68	
GS-14	1	1	
Other GS	6	6	
Total	7	7	

PROGRAM CONTROL ANALYSIS AND BUDGET OFFICE			
	67	68	
GS-15	1	1	
GS-14	1	1	
Other GS	6	7	
Total	8	9	

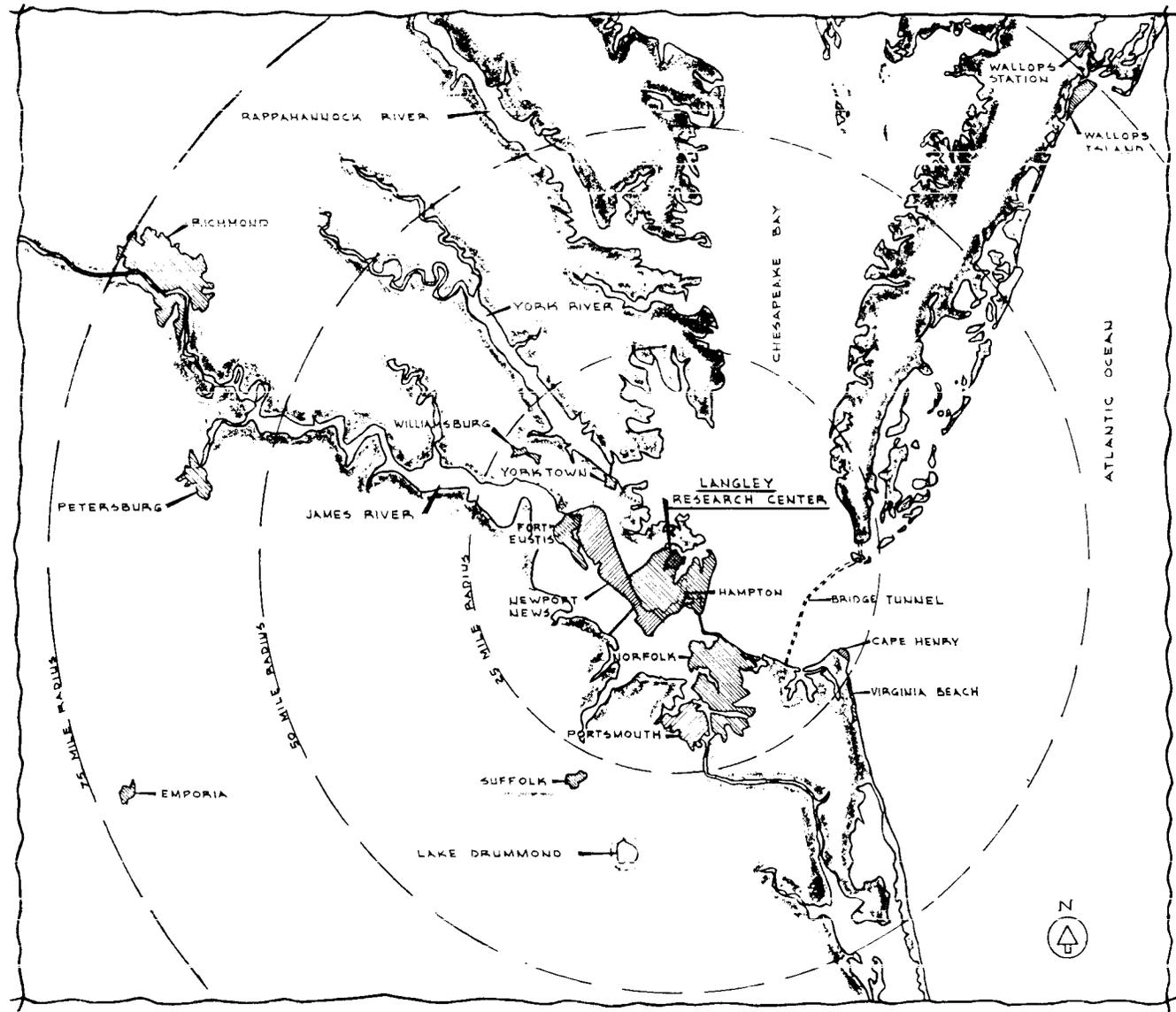
TECHNOLOGY UTILIZATION OFFICE			
	67	68	
GS-14	1	1	
Other GS	2	2	
Total	3	3	

RESEARCH CONTRACTS AND INFORMATION OFFICE			
	67	68	
GS-15	1	1	
GS-14	1	1	
Total	2	2	

RESEARCH REPORTS DIVISION			
	67	68	
GS-14	1	1	
Other GS	47	47	
Total	48	48	



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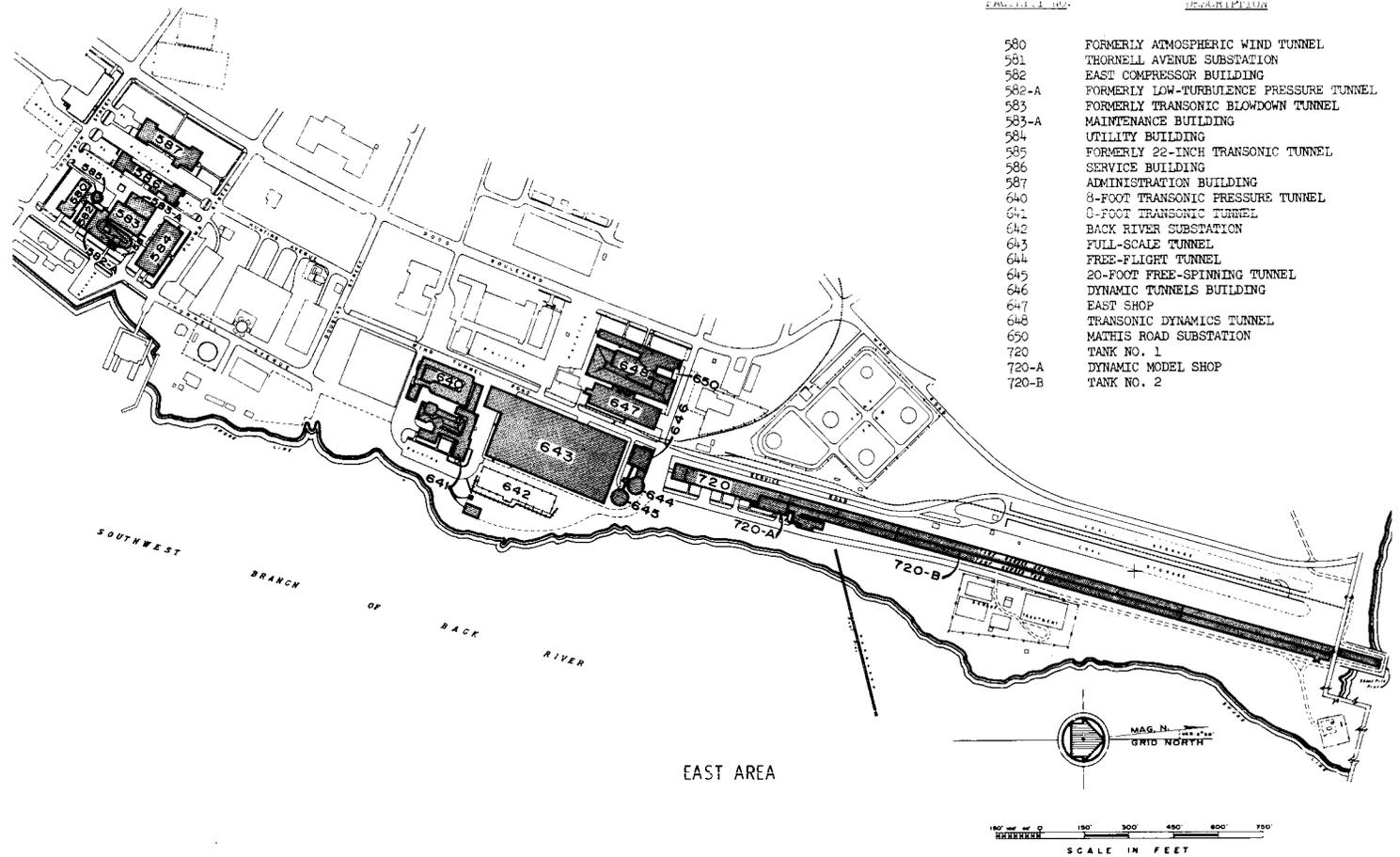
LANGLEY RESEARCH CENTER AND VICINITY

1" = 8 MILES

AO 2-71

# LANGLEY RESEARCH CENTER

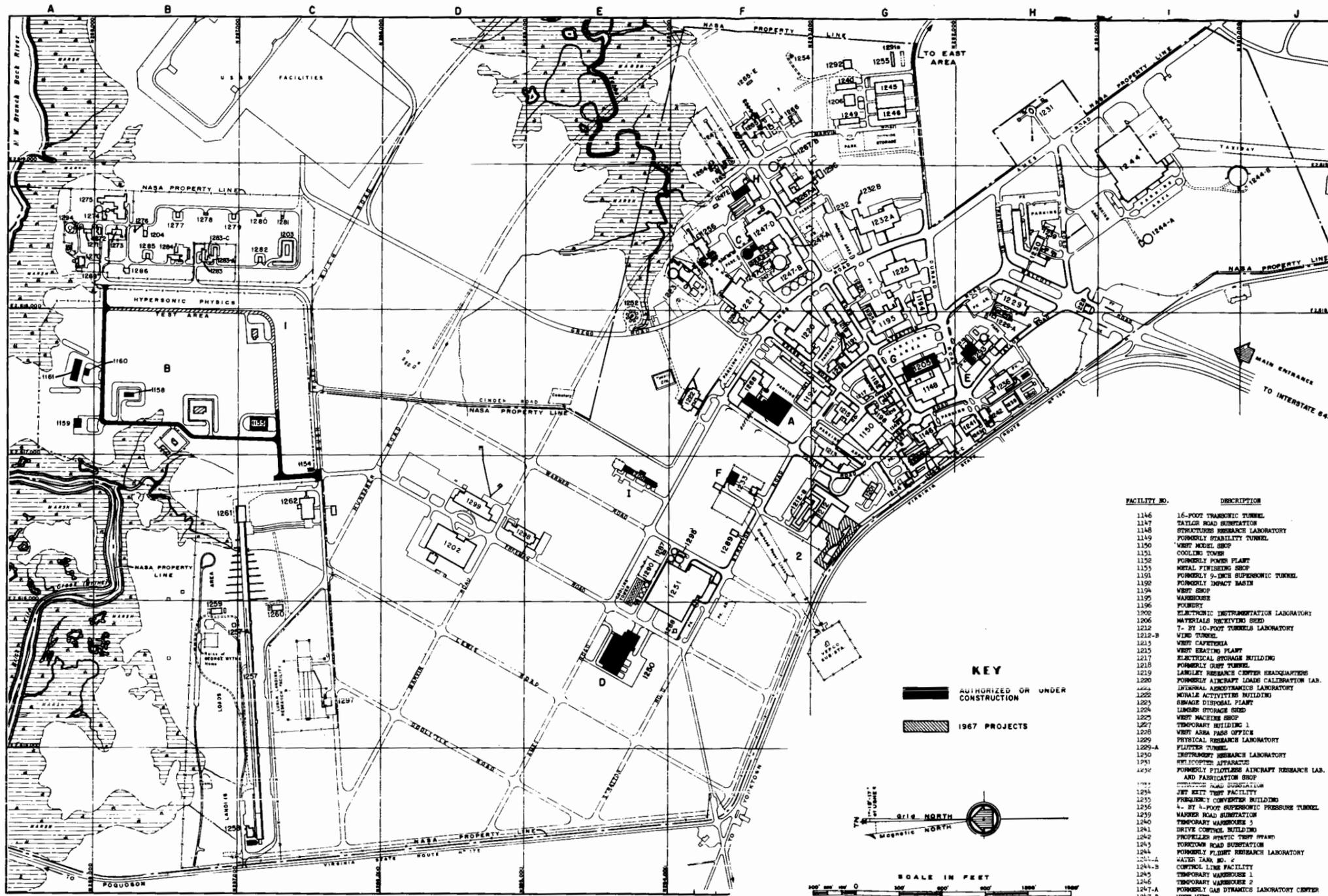
## LOCATION PLAN



AO 2-72

LANGLEY RESEARCH CENTER

LOCATION PLAN



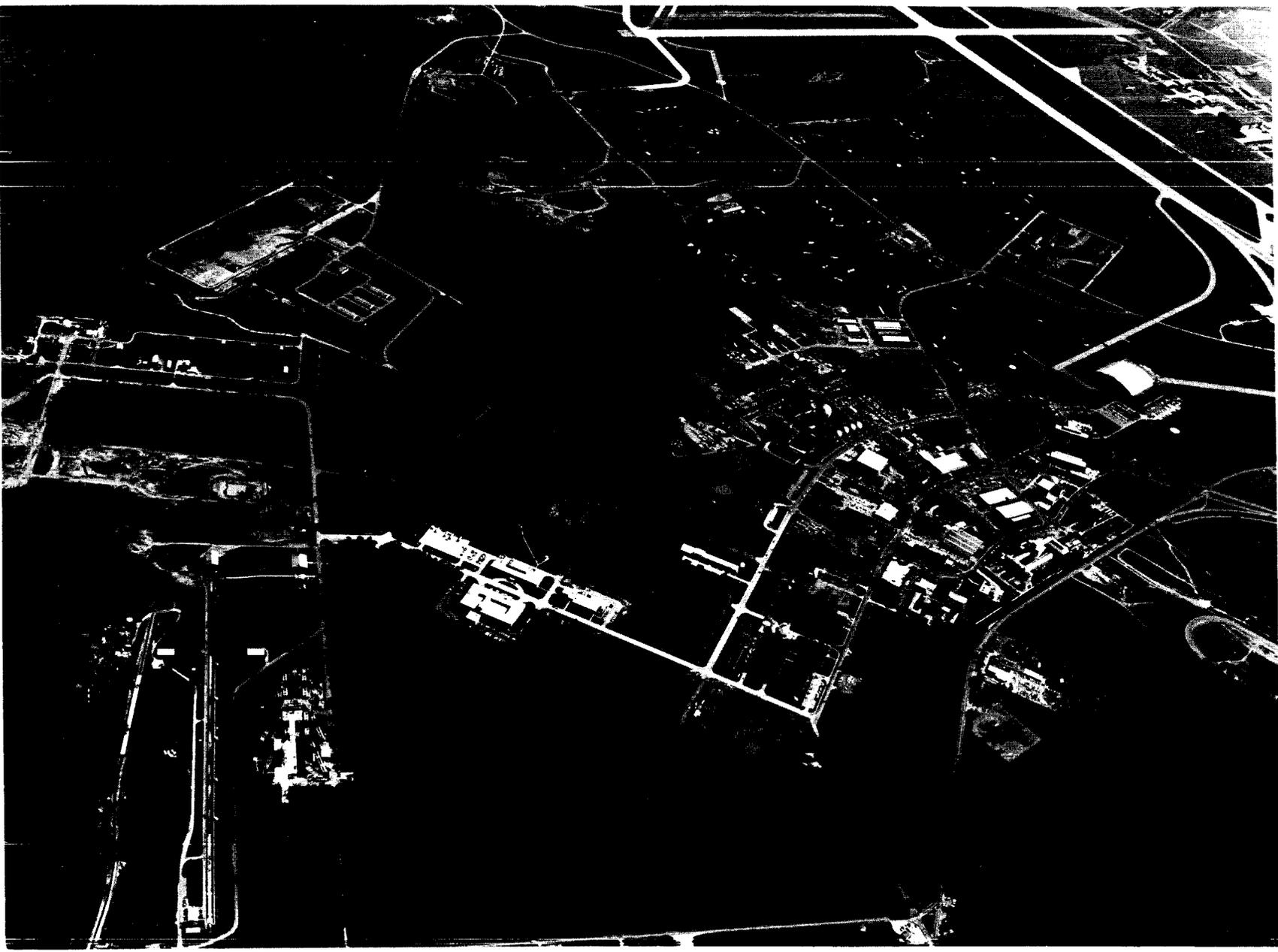
FACILITY NO.	DESCRIPTION	FACILITY NO.	DESCRIPTION
1146	16-FOOT TRANSONIC TUNNEL	1255	TEMPORARY WAREHOUSE 6
1147	TAILOR ROAD SUBSTATION	1256	9- BY 6-FOOT THERMAL STRUCTURES TUNNEL
1148	STRUCTURES RESEARCH LABORATORY	1257	LANDING TRACK
1149	FORMERLY STABILITY TUNNEL	1258	LANDING TRACK COMPRESSOR BUILDING
1150	WEST MODEL SHOP	1259	NOISE ABSORBING CHAMBER
1151	COOLING TOWER	1260	SOUTH ABSORBING CHAMBER
1152	FORMERLY POWER PLANT	1261	LANDING TRACK (NEW)
1153	METAL FINISHING SHOP	1262	HIGH-SPEED HYDRODYNAMICS OFFICE AND SHOP
1154	FORMERLY 9-INCH SUPERSONIC TUNNEL	1263	CERAMIC-HEATED JET (PILOT MODEL)
1155	FORMERLY IMPACT BASIN	1264	HIGH-TEMPERATURE MACH 7 JET (PILOT MODEL)
1156	WAREHOUSE	1265	8-FOOT HIGH-TEMPERATURE STRUCTURES TUNNEL
1157	WAREHOUSE	1266	MOFFETT ROAD SUBSTATION
1158	WAREHOUSE	1267	HIGH-TEMPERATURE MATERIALS LABORATORY
1159	WAREHOUSE	1268	DATA RECEPTION BUILDING
1160	WAREHOUSE	1269	GATE HOUSE (HYPERSONIC PHYSICS TEST AREA)
1161	WAREHOUSE	1270	ROCKET PROPELLANT TEST UNIT, RPTA
1162	WAREHOUSE	1271	OPEN GRID, RPTA
1163	WAREHOUSE	1272	HEATING PLANT, RPTA
1164	WAREHOUSE	1273	OPERATIONS CENTER, RPTA
1165	WAREHOUSE	1274	CERAMIC-HEATED MACH 15 JET, RPTA
1166	WAREHOUSE	1275	IMPACT AND PROPELLANT TEST UNIT, RPTA
1167	WAREHOUSE	1276	IGNITER ASSEMBLY BUILDING, RPTA
1168	WAREHOUSE	1277	STORAGE A
1169	WAREHOUSE	1278	STORAGE B
1170	WAREHOUSE	1279	STORAGE C
1171	WAREHOUSE	1280	STORAGE D
1172	WAREHOUSE	1281	STORAGE E
1173	WAREHOUSE	1282	STORAGE F
1174	WAREHOUSE	1283	STORAGE G
1175	WAREHOUSE	1284	ROCKET PROPELLANT PROCESSING BUILDING, RPTA
1176	WAREHOUSE	1285	STORAGE H
1177	WAREHOUSE	1286	ROCKET ASSEMBLY AND PROPELLANT ALTERNATION BUILDING
1178	WAREHOUSE	1287	TEMPORARY BLDG
1179	WAREHOUSE	1288	SOLAR ENERGY COLLECTOR
1180	WAREHOUSE	1289	TEMPORARY STORAGE
1181	WAREHOUSE	1290	SUBSTATION
1182	WAREHOUSE	1291	PUMP STATION
1183	WAREHOUSE	1292	FACILITIES MAINTENANCE BUILDING
1184	WAREHOUSE	1293	DYNAMICS RESEARCH LABORATORY
1185	WAREHOUSE	1294	ROCKET MOTOR TEST APPARATUS
1186	WAREHOUSE	1295	SHOP AND INSTRUMENTATION FOR 60-FOOT SPHERE
1187	WAREHOUSE	1296	SHOP BUILDING
1188	WAREHOUSE	1297	LUNAR LANDING RESEARCH FACILITY
1189	WAREHOUSE	1298	STABILIZATION AND CONTROL EQUIPMENT LABORATORY
1190	WAREHOUSE	1299	VEHICLE ANTENNA TEST FACILITY AND ADDITION
1200	ELECTRONIC INSTRUMENTATION LABORATORY		
1201	MATERIALS RECEIVING SHED		
1202	7- BY 10-FOOT TUNNELS LABORATORY		
1203	VEHICLE SHOP		
1204	VEHICLE SHOP		
1205	VEHICLE SHOP		
1206	VEHICLE SHOP		
1207	VEHICLE SHOP		
1208	VEHICLE SHOP		
1209	VEHICLE SHOP		
1210	VEHICLE SHOP		
1211	VEHICLE SHOP		
1212	VEHICLE SHOP		
1213	VEHICLE SHOP		
1214	VEHICLE SHOP		
1215	VEHICLE SHOP		
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1229	VEHICLE SHOP		
1230	VEHICLE SHOP		
1231	VEHICLE SHOP		
1232	VEHICLE SHOP		
1233	VEHICLE SHOP		
1234	VEHICLE SHOP		
1235	VEHICLE SHOP		
1236	VEHICLE SHOP		
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1243	VEHICLE SHOP		
1244	VEHICLE SHOP		
1245	VEHICLE SHOP		
1246	VEHICLE SHOP		
1247	VEHICLE SHOP		
1248	VEHICLE SHOP		
1249	VEHICLE SHOP		
1250	VEHICLE SHOP		
1251	VEHICLE SHOP		
1252	VEHICLE SHOP		
1253	VEHICLE SHOP		
1254	VEHICLE SHOP		

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WEST AREA



AO 2-74



AO 2-75

## ADMINISTRATIVE OPERATIONS

### FISCAL YEAR 1968 ESTIMATES

#### LEWIS RESEARCH CENTER

##### MISSION:

The principle mission of the Lewis Research Center has always been aircraft and spacecraft propulsion. During World War II, many improvements were made in reciprocating aircraft engines, engine fuels, superchargers, and other engine accessories. After the war, all facilities were converted for research on turbojet engines, and a rocket laboratory was built. The maximum operating altitude of turbojet engines was greatly increased, pioneer work was done on afterburners, combustion efficiency and the efficiency of compressors and turbines was improved, and an air cooled turbine blade was developed. Rocket work proceeded slowly at first, but the feasibility of using high energy fluorine and hydrogen instead of kerosene as the fuel, was demonstrated. With the establishment of the NASA, work on ion propulsion and spacecraft power systems expanded from theoretical studies and bench type experiments to tests with hardware of practical sizes, and new facilities were added to develop systems which will power and propel our advanced future missions.

The center is now concentrating on research and development in the areas of advanced propulsion and space power generation. This includes work on turbojet engines for supersonic aircraft, on high energy chemical, nuclear, and electric rocket engines and research on space power systems for converting chemical, nuclear, and solar energy into electricity. Basic and applied research is conducted on materials and metallurgy; cryogenic and liquid metal heat transfer fluids; pumps and turbines; combustion processes, propellants, tankage, injectors, chambers, and nozzles; system control dynamics; plasmas and magnetohydrodynamics; space meteoroid damage and zero gravity effects. In the space power area, a major effort is concentrated on turboelectric, thermoelectrical, and thermionic energy conversion systems.

This in-house research provides technical input and direction to the related development, or contractual, efforts for which Lewis has managerial responsibility. For example, the Lewis Research Center maintains technical management of NASA contracts on electric propulsion, nuclear and solar turboelectric space power systems, and liquid hydrogen rocket technology. In addition, Lewis has the procurement responsibility for the Atlas-Centaur and the Atlas-Agena launch vehicles.

Major research tools, or facilities, at the Lewis Research Center (including the Plum Brook Station) are designed to simulate various flight conditions and range from atmospheric wind tunnels to large space environment facilities (vacuum tanks). A large 60-megawatt thermal reactor is now available for studying radiation effects on materials and components, simulating various flux levels associated with spacecraft applications of nuclear energy.

DESCRIPTION:

The Lewis Research Center occupies two sites. The older one, established in 1941, is on the southwest edge of Cleveland, Ohio, and consists of over 90 laboratory buildings, shops, wind tunnels, space environment tanks and other special facilities, all built for conducting research on advanced propulsion systems or spacecraft power generating systems. The Cleveland facilities occupy 364 acres of which about 15 acres are leased from Cleveland. A newer site, established in 1956, is located south of Sandusky, Ohio, on land formerly occupied by the Plum Brook Ordnance Works. Known as the Plum Brook Station, it occupies 6,031 acres, of which 5,981 are owned and 50 are in easements. There are over 200 buildings on this site, approximately 55 built by the NASA, the rest by the former tenants. The research programs at Plum Brook are under the technical direction of personnel located at Cleveland. They are conducted at the larger site because of the need for large separation distances to minimize hazards. A nuclear reactor is used to test components of nuclear powered propulsion systems; large rockets are operated with fluorine, hydrogen and other high energy fuels; and turbopumps are developed for cryogenic propellants. The total capital investment of the Lewis Research Center, including the Plum Brook Station, as of June 30, 1966, was \$292,229,000.

SUMMARY OF RESOURCES REQUIREMENTS:

	<u>FUNDS</u>		
<u>Functions</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
Personnel.....	\$51,719,000	\$53,864,000	\$54,293,000
Travel.....	1,310,000	1,296,000	1,294,000
Automatic data processing.....	2,563,000	281,000	200,000
Facilities services.....	8,313,000	8,392,000	8,547,000
Technical services.....	79,000	70,000	224,000
Administrative support.....	<u>2,399,000</u>	<u>2,380,000</u>	<u>2,438,000</u>
Total, fund requirements.....	<u>\$66,383,000</u>	<u>\$66,283,000</u>	<u>\$66,996,000</u>

PERSONNEL

	<u>1966</u>	<u>1967</u>	<u>1968</u>
1. <u>Permanent positions by program:</u>			
<u>Manned Space Flight</u>			
Apollo.....	11	3	3

	<u>1966</u>	<u>1967</u>	<u>1968</u>
<u>Space Science and Applications</u>			
Launch vehicle development.....	132	91	---
Launch vehicle procurement.....	245	275	366
<u>Advanced Research and Technology</u>			
Basic research.....	436	518	518
Space vehicle systems.....	217	159	159
Electronics systems.....	68	58	58
Human factor systems.....	1	1	1
Space power and electric propulsion systems.....	781	767	767
Nuclear rockets.....	538	236	236
Chemical propulsion.....	382	354	354
Aeronautics.....	276	533	533
<u>Technology Utilization</u> .....	<u>7</u>	<u>7</u>	<u>7</u>
Subtotal, positions by program.....	3,094	3,002	3,002
2. <u>Support positions:</u>			
Director and staff.....	17	17	17
Administrative support.....	665	647	647
Research and development support.....	<u>1,043</u>	<u>1,010</u>	<u>1,010</u>
Subtotal, support positions.....	<u>1,725</u>	<u>1,674</u>	<u>1,674</u>
<b>Total, permanent positions.....</b>	<b><u>4,819</u></b>	<b><u>4,676</u></b>	<b><u>4,676</u></b>

AO 2-78

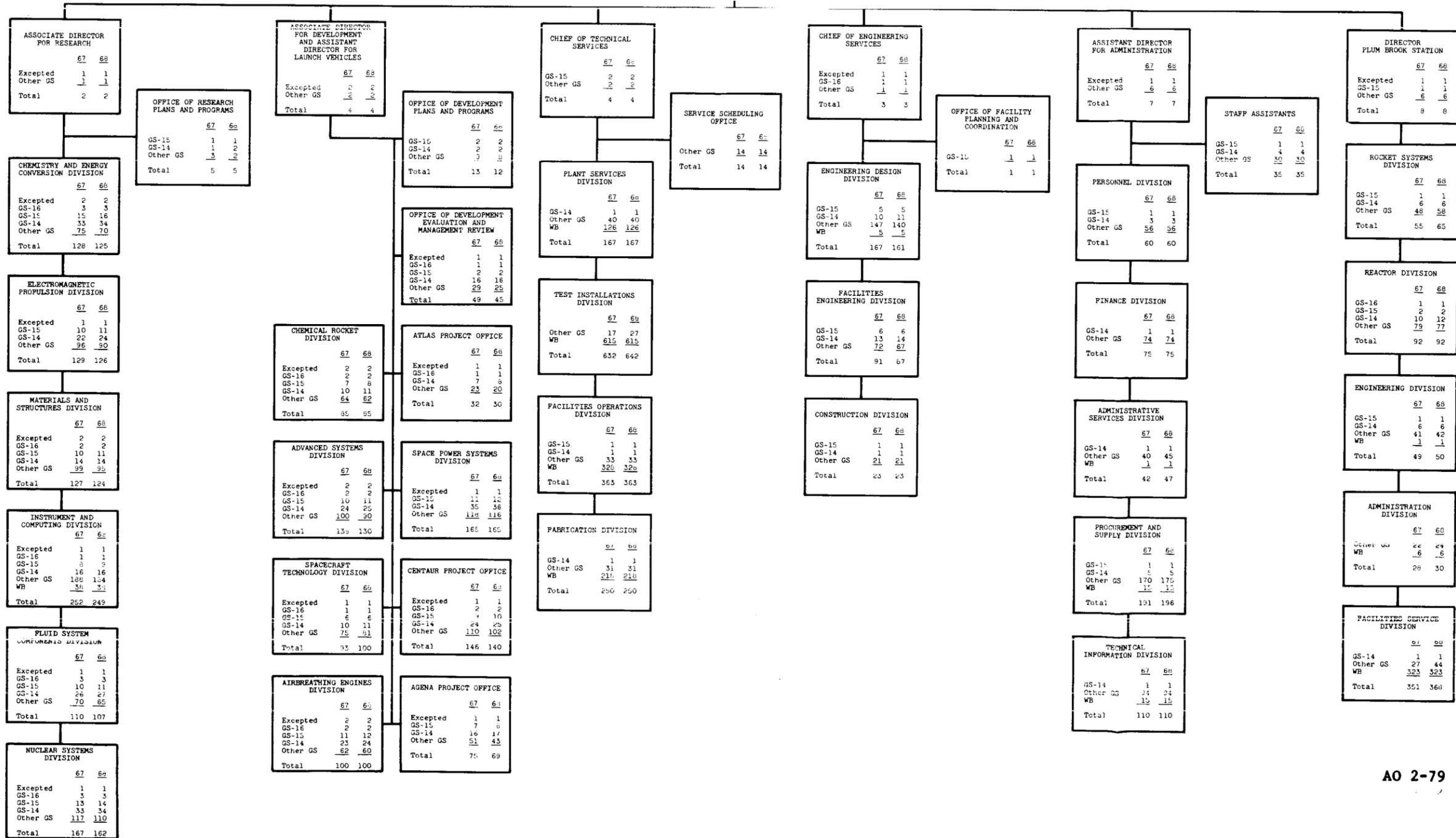
**National Aeronautics and Space Administration  
Organization and Staffing Chart  
Lewis Research Center**

STAFFING SUMMARY		
	67	68
Excepted	30	30
GS-16	25	25
GS-15	153	170
GS-14	379	337
Other GS	2393	2363
WB	1621	1621
<b>Total permanent</b>	<b>4876</b>	<b>4876</b>

DIRECTOR'S OFFICE		
	67	68
Excepted	2	2
GS-15	1	1
Other GS	2	2
<b>Total</b>	<b>5</b>	<b>5</b>

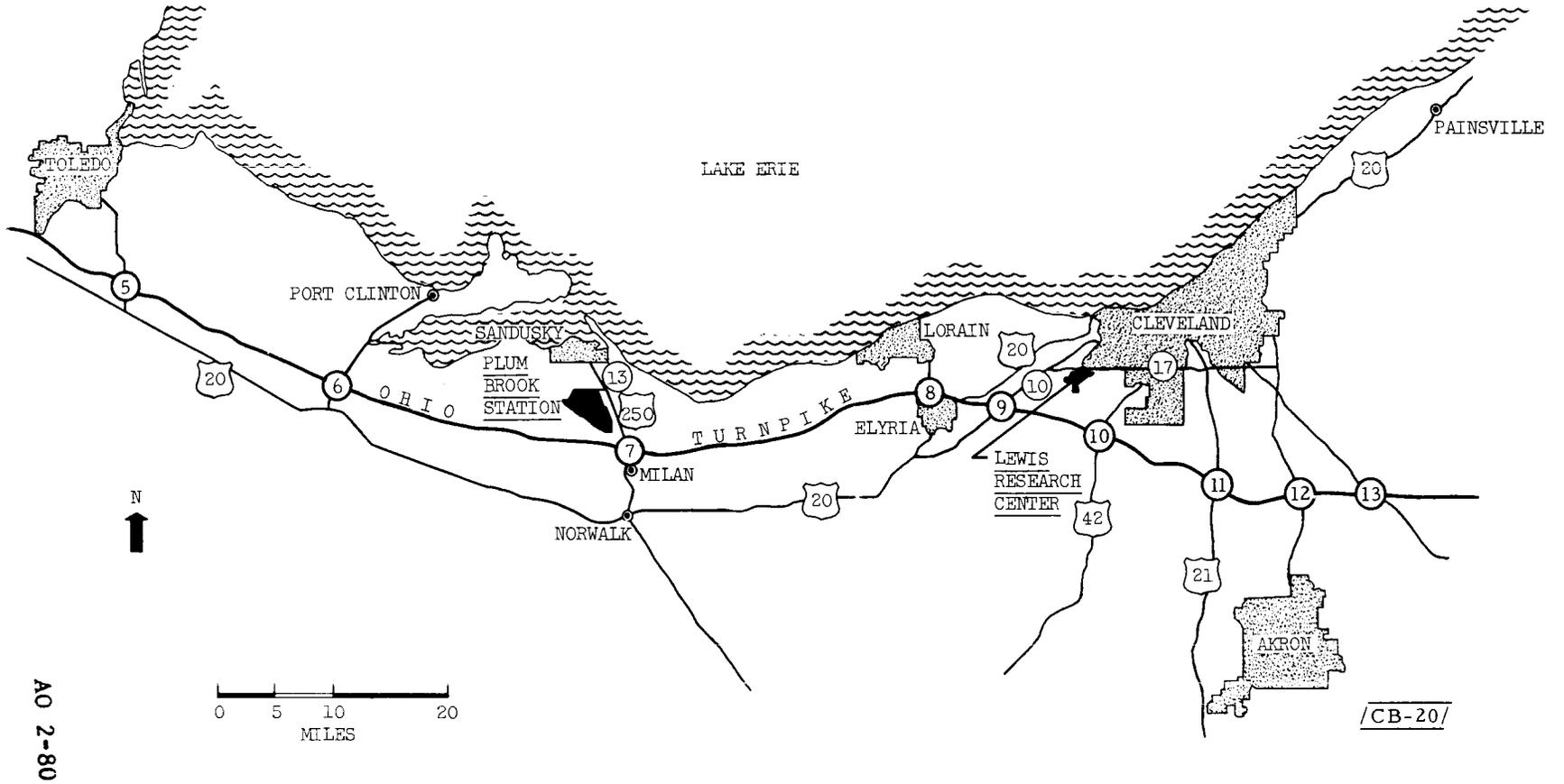
BUDGET OFFICE		
	67	68
Excepted	1	1
GS-14	1	1
Other GS	10	10
<b>Total</b>	<b>12</b>	<b>12</b>

ASSISTANT DIRECTOR FOR PUBLIC AFFAIRS		
	67	68
Excepted	1	1
GS-15	1	1
GS-14	1	1
Other GS	16	16
<b>Total</b>	<b>21</b>	<b>21</b>



LEWIS RESEARCH CENTER  
FISCAL YEAR 1968 ESTIMATES

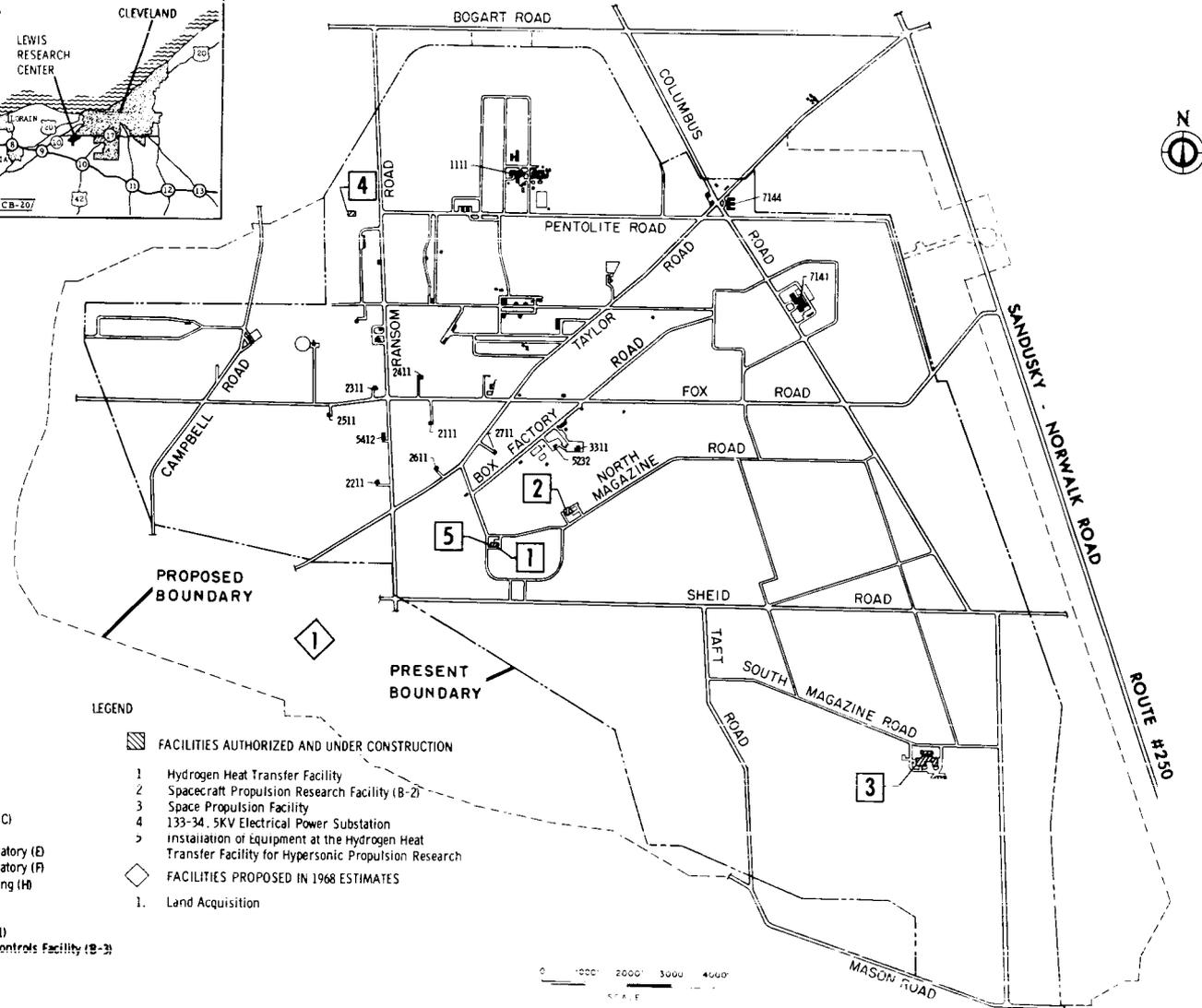
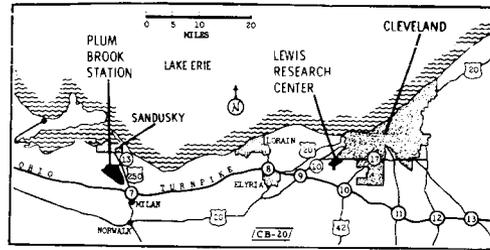
LOCATION OF LEWIS RESEARCH CENTER INCLUDING  
PLUM BROOK STATION





LEWIS RESEARCH CENTER  
 PLUM BROOK STATION  
 FISCAL YEAR 1968 ESTIMATES

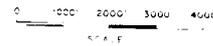
LOCATION PLAN



- EXISTING FACILITIES**
- 1111 Reactor Facility Group
  - 7144 Administration Building
  - 2111 Rocket Pump Laboratory (A)
  - 2211 Rocket Turbo-pump Laboratory (C)
  - 2211 Rocket Turbine Laboratory (D)
  - 2411 Rocket Systems Dynamics Laboratory (E)
  - 2511 Rocket Systems Hydraulic Laboratory (F)
  - 5412 Central Control and Data Building (H)
  - 2611 Fluorine Pump Laboratory (I)
  - 2711 Rocket Systems Laboratory (J)
  - 3111 Altitude Rocket Test Facility (B-1)
  - 3311 Nuclear Rocket Dynamics and Controls Facility (B-3)
  - 7141 Engineering Building

- LEGEND**
- FACILITIES AUTHORIZED AND UNDER CONSTRUCTION
  - 1 Hydrogen Heat Transfer Facility
  - 2 Spacecraft Propulsion Research Facility (B-2)
  - 3 Space Propulsion Facility
  - 4 133-34, 5KV Electrical Power Substation
  - > Installation of equipment at the Hydrogen Heat Transfer Facility for Hypersonic Propulsion Research
  - FACILITIES PROPOSED IN 1968 ESTIMATES
  - 1. Land Acquisition

AO 2-82



LEWIS RESEARCH CENTER  
FISCAL YEAR 1968 ESTIMATES

CLEVELAND FACILITIES



AO 2-33

LEWIS RESEARCH CENTER  
FISCAL YEAR 1968 ESTIMATES

PLUM BROOK FACILITIES



AO 2-84

ADMINISTRATIVE OPERATIONS

FISCAL YEAR 1968 ESTIMATES

SPACE NUCLEAR PROPULSION OFFICE

MISSION:

The mission of the Space Nuclear Propulsion Office is to provide the necessary research, design and engineering data, test hardware and general technology required to develop nuclear rocket systems with power levels, operating times, restart conditions, and specific impulse values suitable for advanced space exploration missions. Through the use of nuclear rockets propulsion, significant performance advantages accrue to such missions as lunar logistics operations, deep space probing with heavy spacecraft, and manned exploration of the planets.

The major areas of effort are the research and engineering of the nuclear reactor, and the development of certain nonnuclear components into a complete experimental engine system. Because of progress in developing the graphite solid core reactor, the current emphasis is moving to the engine system phase which includes development of the nonnuclear components and the integration with the reactor.

DESCRIPTION:

The nuclear rocket program is a joint AEC-NASA undertaking. To ensure an integrated program, the Space Nuclear Propulsion Office, established by an interagency agreement between AEC and NASA, manages all aspects of the program.

The office consists of a headquarters office located at Germantown, Maryland; and three field extensions located in Ohio, New Mexico, and Nevada. At the Nevada location, the Nuclear Rocket Development Station (NRDS) was established to provide a site for ground static testing of the reactors, engines, and eventually, vehicles associated with nuclear rocket development. The NRDS consists of a 90,000 acre site approximately 90 miles northwest of Las Vegas. The total capital investment of NASA funded facilities as of June 30, 1966, was \$31,881,000.

SUMMARY OF RESOURCES REQUIREMENTS:

	<u>FUNDS</u>		
<u>Functions</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
Personnel.....	\$1,553,000	\$1,749,000	\$1,792,000
Travel.....	192,000	207,000	207,000

	<u>1966</u>	<u>1967</u>	<u>1968</u>
Automatic data processing.....	---	---	---
Facilities services.....	---	---	---
Technical services.....	76,000	80,000	89,000
Administrative support.....	<u>1,000</u>	<u>3,000</u>	<u>3,000</u>
Total, fund requirements.....	<u>\$1,822,000</u>	<u>\$2,039,000</u>	<u>\$2,091,000</u>

PERSONNEL

	<u>1966</u>	<u>1967</u>	<u>1968</u>
1. <u>Permanent positions by program:</u>			
<u>Advanced Research and Technology</u>			
Nuclear rockets.....	<u>110</u>	<u>110</u>	<u>110</u>
Subtotal, positions by programs.....	110	110	110
2. <u>Support positions:</u>			
Director and staff.....	2	2	2
Administrative support.....	2	2	2
Research and development support.....	<u>3</u>	<u>3</u>	<u>3</u>
Subtotal, support positions.....	<u>7</u>	<u>7</u>	<u>7</u>
Total, permanent positions.....	<u>117</u>	<u>117</u>	<u>117</u>

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

ORGANIZATION AND STAFFING CHART

SPACE NUCLEAR PROPULSION OFFICE

STAFFING SUMMARY		
Excepted	<u>67</u>	<u>68</u>
GS-16	2	2
GS-15	21	24
GS-14	26	25
Other GS	<u>62</u>	<u>60</u>
Total Permanent	117	117

OFFICE OF THE MANAGER		
Excepted	<u>67</u>	<u>68</u>
GS-16	1	1
GS-15	-	-
GS-14	1	1
Other GS	-	-
Other GS	<u>3</u>	<u>3</u>
Total Permanent	5	5

ALBUQUERQUE EXTENSION		
Excepted	<u>67</u>	<u>68</u>
GS-16	-	-
GS-15	1	1
GS-14	-	-
Other GS	-	-
Total Permanent	1	1

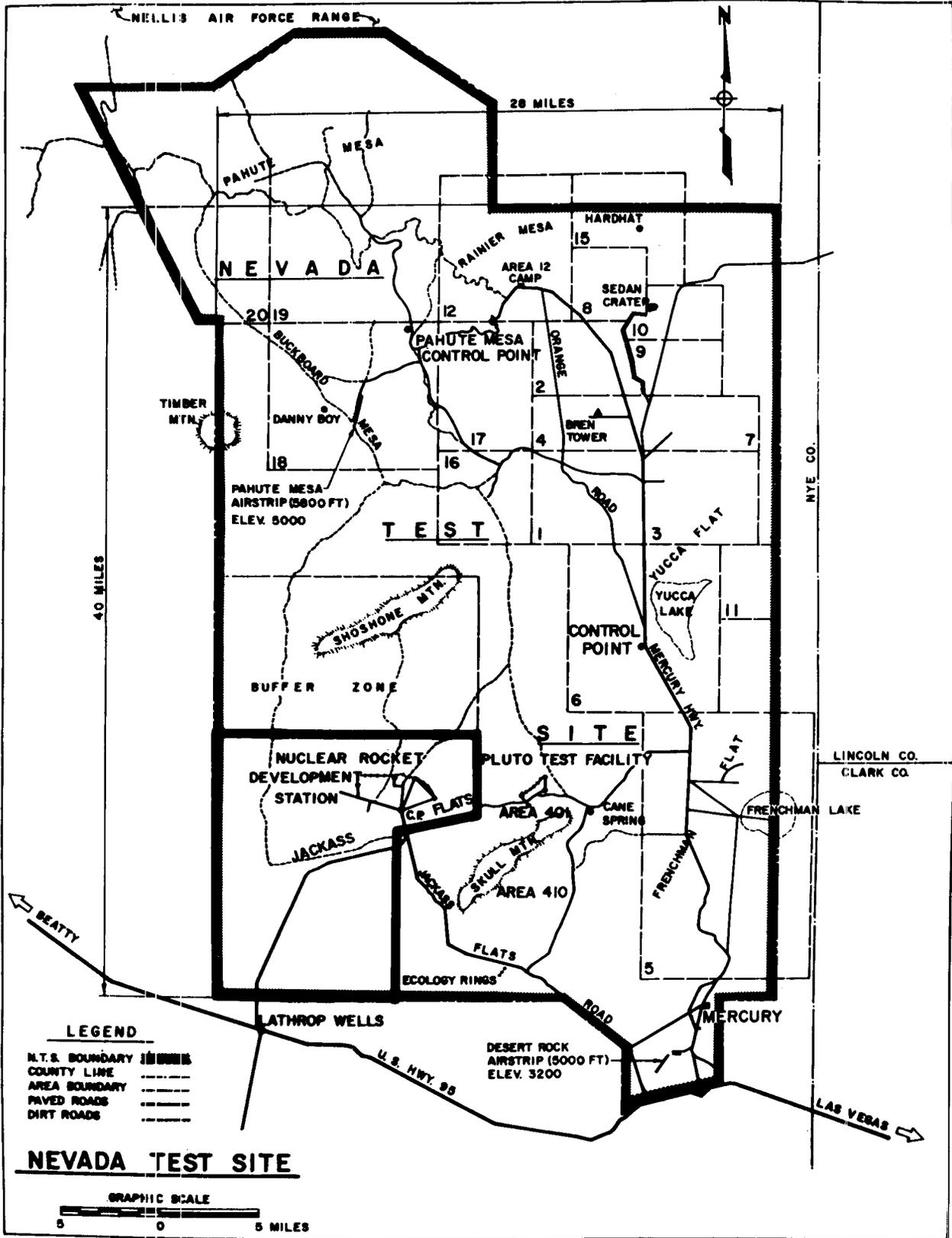
NERVA BRANCH		
Excepted	<u>67</u>	<u>68</u>
GS-16	-	-
GS-15	1	1
GS-14	3	3
Other GS	-	-
Other GS	<u>1</u>	<u>1</u>
Total Permanent	5	5

CLEVELAND EXTENSION		
Excepted	<u>67</u>	<u>68</u>
GS-16	1	1
GS-15	2	2
GS-14	13	16
Other GS	17	16
Other GS	<u>37</u>	<u>35</u>
Total Permanent	70	70

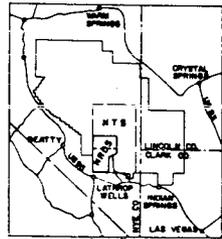
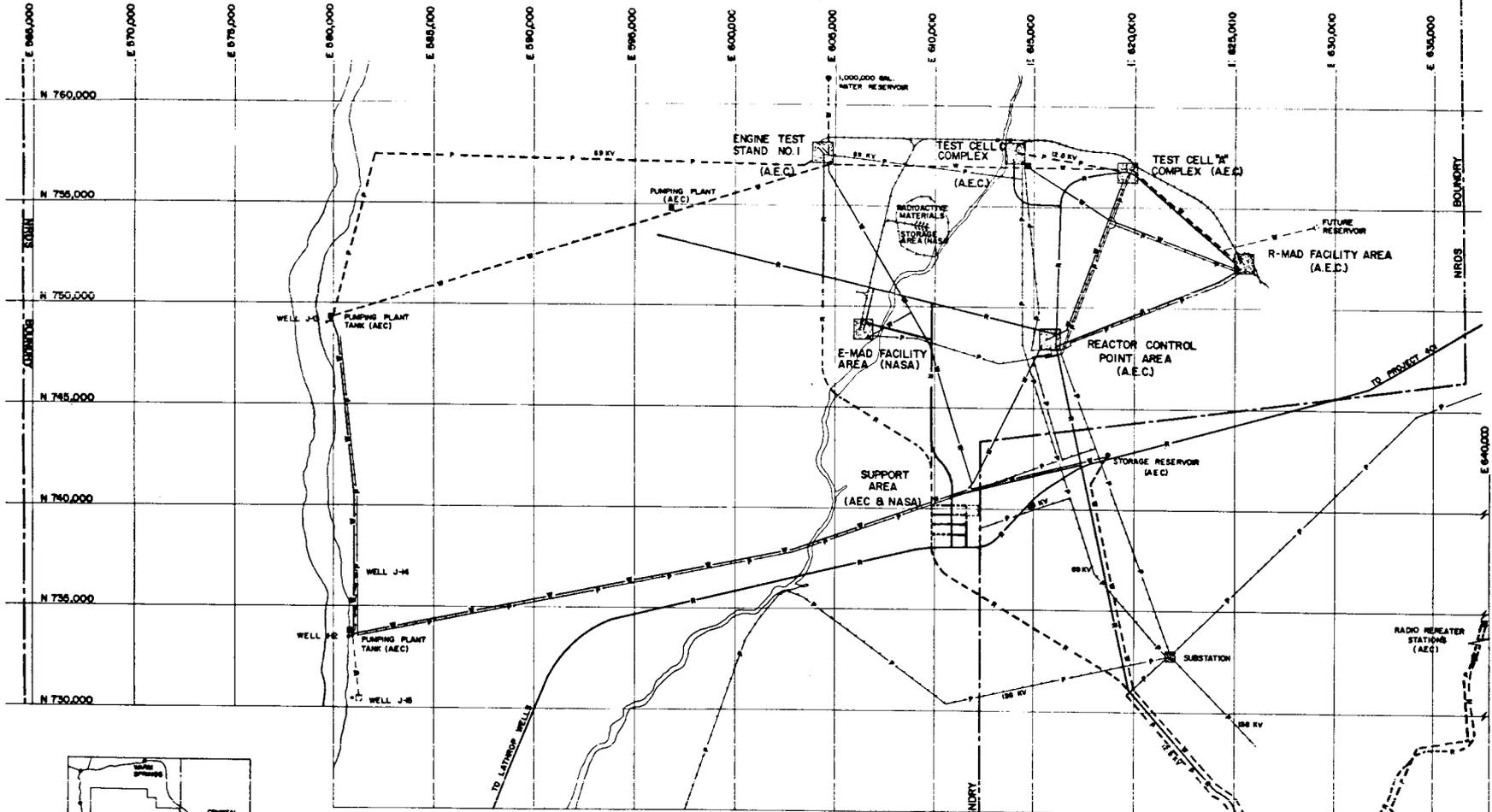
ADVANCED ENGINE BRANCH		
Excepted	<u>67</u>	<u>68</u>
GS-16	-	-
GS-15	1	1
GS-14	1	1
Other GS	-	-
Other GS	-	-
Total Permanent	2	2

NEVADA EXTENSION		
Excepted	<u>67</u>	<u>68</u>
GS-16	-	-
GS-15	1	1
GS-14	1	1
Other GS	9	9
Other GS	<u>20</u>	<u>20</u>
Total Permanent	31	31

FACILITIES BRANCH		
Excepted	<u>67</u>	<u>68</u>
GS-16	-	-
GS-15	1	1
GS-14	1	1
Other GS	-	-
Other GS	<u>1</u>	<u>1</u>
Total Permanent	3	3

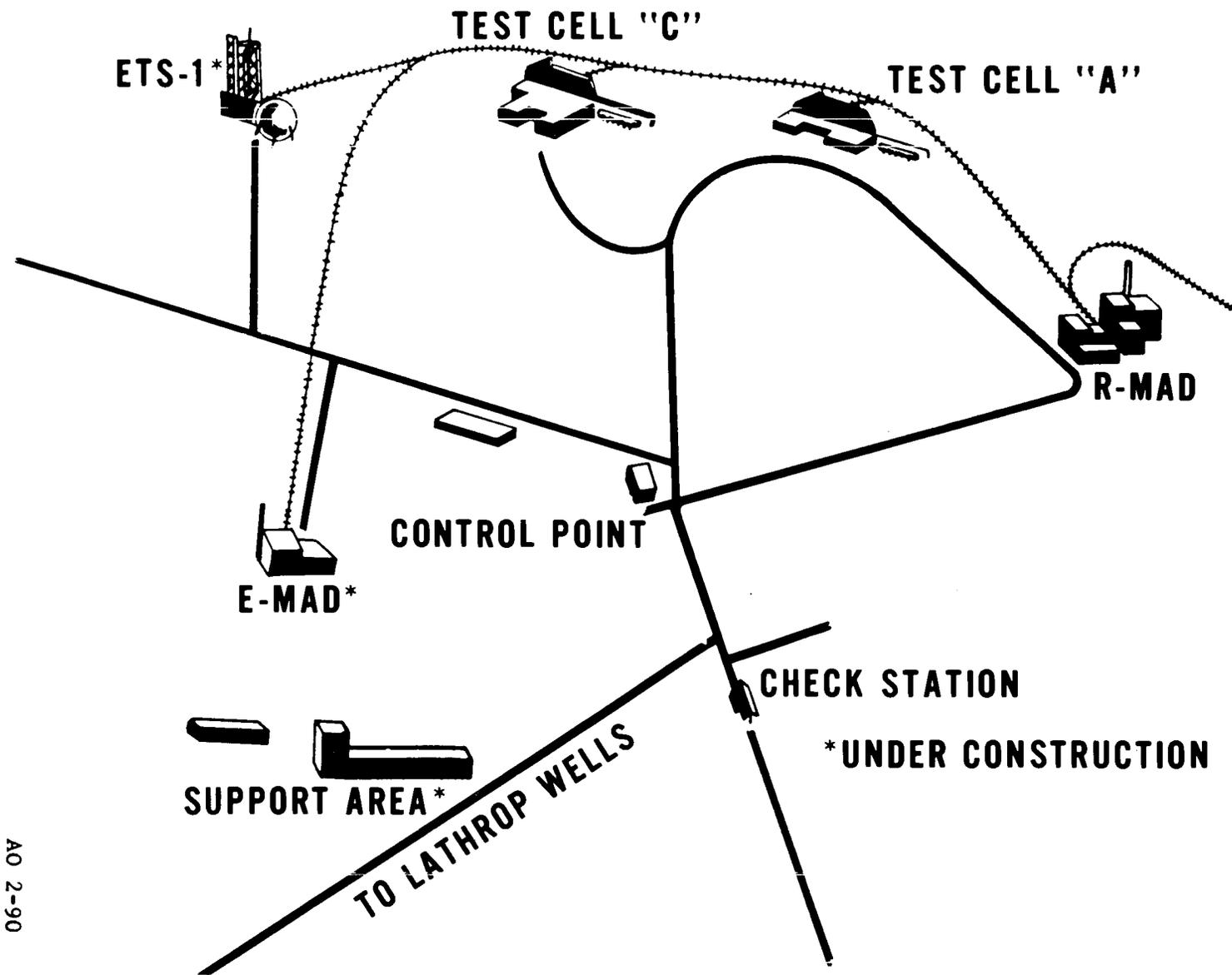


# NUCLEAR ROCKET DEVELOPMENT STATION SITE PLAN



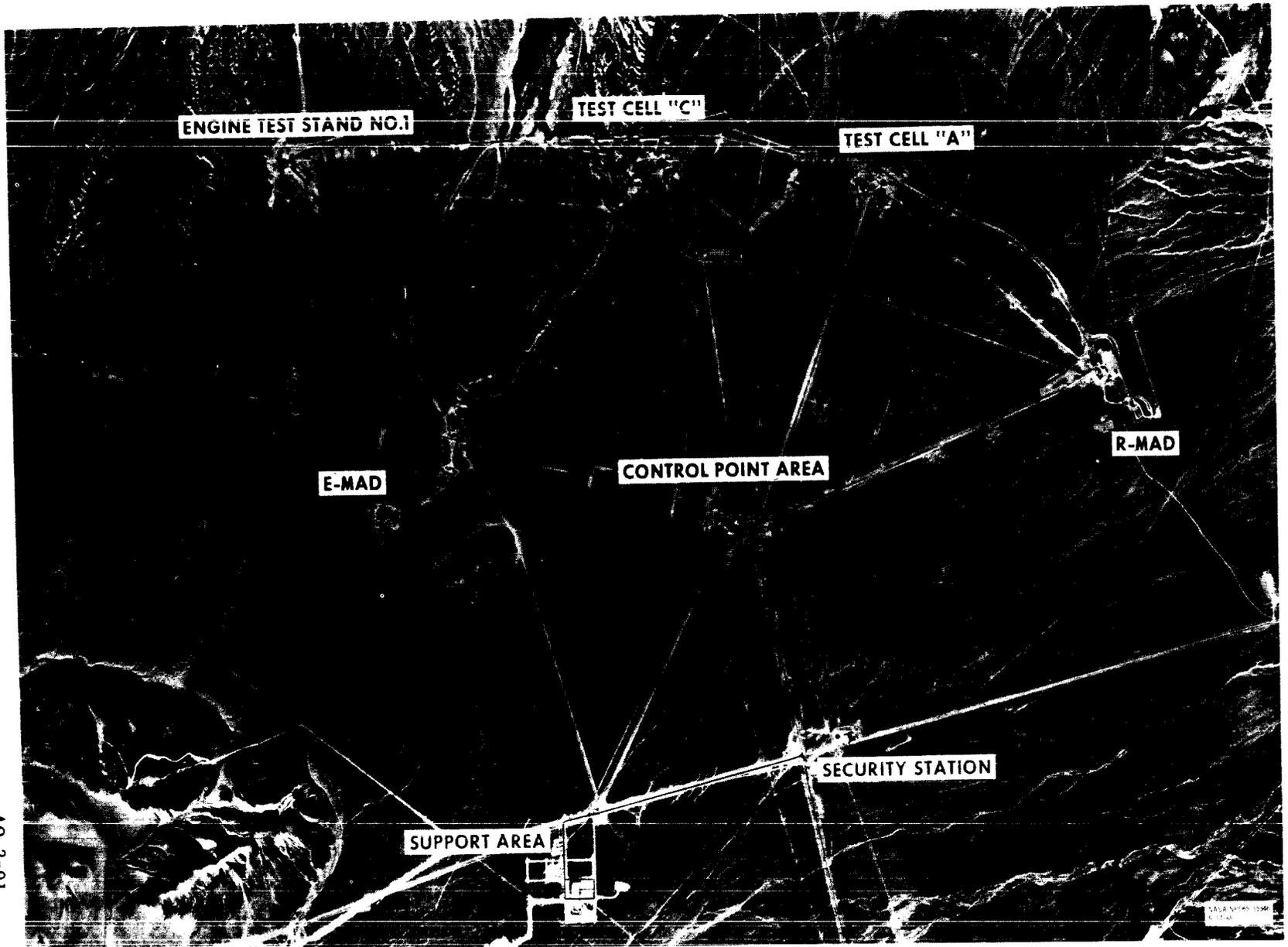
FACILITIES		ROADS & UTILITIES	
EXISTING	AUTHORIZED OR UNDER CONSTRUCTION	EXISTING	AUTHORIZED OR UNDER CONSTRUCTION

# NUCLEAR ROCKET DEVELOPMENT STATION LAYOUT



AO 2-90

# NUCLEAR ROCKET DEVELOPMENT STATION



AO 2-91

MAP Series 1960  
1:25,000

ADMINISTRATIVE OPERATIONS

FISCAL YEAR 1968 ESTIMATES

NASA HEADQUARTERS

MISSION:

The mission of the National Aeronautics and Space Administration Headquarters is to plan and provide executive direction for the programs authorized by the Congress, and to implement the national objectives stated in the National Aeronautics and Space Act of 1958, as amended. The principal statutory functions are:

1. To conduct research into, and for the solution of, problems of flight within and outside the earth's atmosphere and to develop, construct, test, and operate aeronautical and space vehicles for research purposes.
2. To conduct activities required for the exploration of space with manned and unmanned vehicles.
3. To arrange for participation by the scientific community in planning scientific measurements and observations to be made through use of aeronautical and space vehicles, and conduct or arrange for the conduct of such measurements and observations.
4. To provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof.

The following offices at Headquarters assist management in carrying out the technical aspects of this mission:

The Office of Manned Space Flight - Responsible for all NASA activities directly involving manned space flight missions. Programs include:

Apollo - To provide a broad national capability for manned space exploration, including earth orbital, lunar orbital, and lunar surface operations, and to achieve the specific objective of manned lunar landing and return within this decade;

Apollo Applications - To include the improvements of manned space operations and hardware technology and the initiation of extended use of men for scientific, technological, and applied observations

in space, and to provide a fuller understanding of the abilities of men, vehicles, and systems to function effectively in the space environment by extending the flight of existing Apollo/Saturn equipment; and

Advanced Missions - To plan a broad program of explorations which will achieve and maintain a position of space leadership for the United States. The Office of Manned Space Flight has launch responsibility for all major manned and unmanned missions utilizing NASA launch vehicles. This office also has over-all institutional responsibility for the three installations primarily concerned with the manned space flight programs. These installations are: the George C. Marshall Space Flight Center, including Mississippi Test Facility, Michoud Assembly Facility, and Slidell where a computer facility is located; the Manned Spacecraft Center, including NASA activities at the White Sands Test Facility; and the John F. Kennedy Space Center, NASA, including NASA activities at the Eastern and Western Test Ranges.

The Office of Space Science and Applications - Responsible for NASA programs involving the automated scientific investigation of the space environment including the earth, moon, planets, and interplanetary space utilizing ground-based, airborne, and space techniques such as sounding rockets, earth satellites, and deep space probes (e.g., Voyager); for scientific experiments to be conducted by man in space and selection and training of astronaut-scientists; for the research and development of space flight applications in such areas as meteorology, communications, navigation, geodesy, and earth resources surveys, and for the support of operational systems using these developments; for the development, procurement, and use of light and medium class launch vehicles, such as Centaur; and for the Sustaining University program.

The Office of Space Science and Applications has an over-all institutional responsibility for those NASA installations primarily involved in space science and applications programs. These are the Goddard Space Flight Center, Wallops Station, the Jet Propulsion Laboratory (a government-owned facility operated for NASA by the California Institute of Technology), and the NASA Pasadena Office, a component field activity of Headquarters.

The Office of Advanced Research and Technology - Responsible for the planning, direction, execution, evaluation, documentation, and dissemination of the results of all NASA research and technology programs which are conducted primarily to demonstrate the feasibility of a concept, structure, component, or system which may have general application to the nation's aeronautical and space objectives. This

office is also responsible for coordinating NASA's total program of supporting research and technology related to carrying out the specific flight missions in order to avoid unnecessary duplication and to insure an integrated and balanced agency research program.

In addition, this office has over-all institutional responsibility for the research centers primarily involved in carrying out NASA's advanced research programs. These installations are: the Ames Research Center, the Electronics Research Center, the Flight Research Center, the Langley Research Center, the Lewis Research Center, and the Space Nuclear Propulsion Office.

The Office of Tracking and Data Acquisition - Responsible for the development, implementation, and operation of tracking, data acquisition, communications, and data processing facilities, systems, and services required for NASA flight systems. In addition, the office is responsible for agency-wide coordination of the management of automatic data processing systems and services.

The component field offices represent NASA in the southwestern area and provide technical, contractual, and administrative support to NASA centers and NASA Headquarters for programs and projects located in southern California and other areas west of Denver, Colorado.

The NASA Office--Downey, located at Downey and Seal Beach, California provides contract management support for the Apollo command and service module and the Saturn S-II contracts with North American Aviation, Space and Information Division.

The Western Support Office, Santa Monica, California provides administrative support including personnel, financial, public, technology utilization, facilities, limited technical and other support activities to NASA elements on the West Coast.

The NASA Pasadena Office, Pasadena, California was established May 8, 1966, as a component field activity of the NASA Headquarters Office of Space Science and Applications. Staffing was provided by transferring 69 employees from the former Western Operations Office and by absorbing the NASA Resident Office at JPL. The mission of NaPO is to negotiate and administer NASA contracts with the California Institute of Technology for the operation of the Jet Propulsion Laboratory; provide procurement, contract administration, and financial management services for NASA prime contracts for Voyager systems that are assigned to JPL; provide patent and technology utilization services as they relate to prime and subcontracts at JPL; and perform such additional procurement, contract administration and other functions as may be assigned by the Associate Administrator for Space Science and Applications.

DESCRIPTION:

The NASA Headquarters is located at 400 Maryland Avenue, S. W., Washington, D. C., and also occupies other buildings in the District of Columbia and nearby Virginia. The Western Support Office is located at 150 Pico Boulevard, Santa Monica, California. This office occupies a group of leased buildings and there is no government investment in buildings or land at this location. NASA-O Downey is located in government-owned facilities at Downey and Seal Beach, California. The NASA Pasadena Office is physically located at the Jet Propulsion Laboratory at Pasadena, California.

SUMMARY OF RESOURCES REQUIREMENTS:

	<u>FUNDS</u>		
<u>Functions</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
Personnel.....	\$35,105,000	\$37,179,000	\$38,377,000
Travel.....	2,788,000	2,921,000	2,939,000
Automatic data processing.....	943,000	1,264,000	1,149,000
Facilities services.....	1,701,000	1,453,000	1,622,000
Technical services.....	12,868,000	13,733,000	13,941,000
Administrative support.....	<u>6,472,000</u>	<u>7,211,000</u>	<u>7,144,000</u>
Total, fund requirements.....	<u>\$59,877,000</u>	<u>\$63,761,000</u>	<u>\$65,172,000</u>

PERSONNEL

	<u>1966</u>	<u>1967</u>	<u>1968</u>
1. <u>Permanent positions by program:</u>			
<u>Manned Space Flight</u>			
Gemini.....	74	---	---
Apollo.....	342	320	298
Apollo applications.....	70	115	132
Advanced missions.....	92	113	118

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	<u>1966</u>	<u>1967</u>	<u>1968</u>
<u>Space Science and Applications</u>			
Physics and astronomy.....	74	57	57
Lunar and planetary.....	84	92	92
Voyager.....	---	100	100
Sustaining university program.....	76	73	73
Launch vehicle procurement.....	35	35	35
Bioscience.....	32	31	31
Space applications.....	48	46	46
<u>Advanced Research and Technology</u>			
Basic research.....	31	31	31
Space vehicle systems.....	47	45	45
Electronics systems.....	34	31	31
Human factor systems.....	22	22	22
Space power and electric propulsion systems.....	40	33	33
Nuclear rockets.....	8	4	4
Chemical propulsion.....	25	23	23
Aeronautics.....	27	27	27
<u>Tracking and Data Acquisition</u> .....	62	60	60
<u>Technology Utilization</u> .....	<u>22</u>	<u>22</u>	<u>22</u>
Subtotal, positions by program.....	1,245	1,280	1,280
<b>2. <u>Support positions:</u></b>			
Director and staff.....	653	643	643
Administrative support.....	305	297	297
Research and development support.....	<u>389</u>	<u>391</u>	<u>391</u>
Subtotal, support positions.....	<u>1,347</u>	<u>1,331</u>	<u>1,331</u>
<b>Total, permanent positions.....</b>	<b><u>2,592</u></b>	<b><u>2,611</u></b>	<b><u>2,611</u></b>

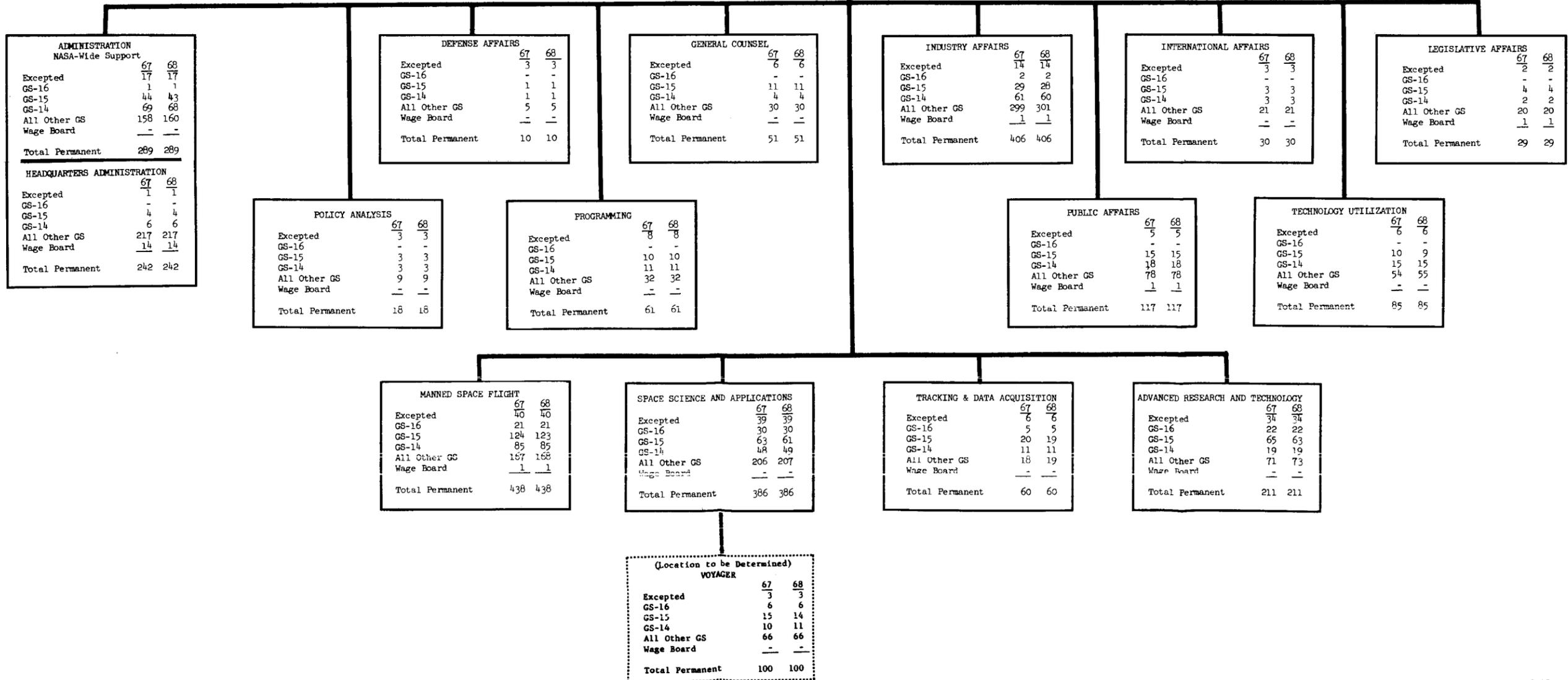
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
 ORGANIZATION AND STAFFING CHART  
 NASA HEADQUARTERS

STAFFING SUMMARY		
	67	68
Excepted	198	198
GS-16	87	87
GS-15	426	416
GS-14	369	369
All Other GS	1,509	1,519
Wage Board	22	22
Total Permanent	2,611	2,611

ADMINISTRATOR		
	67	68
Excepted	7	7
GS-16	-	-
GS-15	-	-
GS-14	-	-
All Other GS	5	5
Wage Board	-	-
Total Permanent	12	12

EXECUTIVE SECRETARY		
	67	68
Excepted	1	1
GS-16	-	-
GS-15	5	5
GS-14	3	3
All Other GS	53	53
Wage Board	4	4
Total Permanent	66	66



## ADMINISTRATIVE OPERATIONS

FISCAL YEAR 1968 ESTIMATES

### JET PROPULSION LABORATORY

The Jet Propulsion Laboratory (JPL) is a government-owned facility which is staffed and managed by the California Institute of Technology under contract with NASA. The contract is administered by the NASA Pasadena Office, which is located at the laboratory, but is organizationally a part of NASA Headquarters. Both JPL and the NASA Pasadena Office are responsible to the Associate Administrator for Space Science and Applications.

Personnel and other administrative-type costs associated with the operation of JPL are funded under the Research and Development appropriation, except for the lease and purchase of administrative aircraft and passenger motor vehicles. These costs are included in the Headquarters Administrative Operations budget. The administrative operations type costs for JPL are shown in this volume for information purposes only and are not to be considered a part of the NASA Administrative Operations budget for FY 1968.

#### MISSION:

The Jet Propulsion Laboratory (JPL) is engaged in activities associated with the nation's program of space exploration. This work includes:

1. Lunar and deep space automated scientific missions.
2. Project management of complete spacecraft systems.
3. Tracking, data acquisition, data reduction and analysis required by lunar and deep space flights.
4. Advanced solid propellant and liquid propellant spacecraft engines.
5. Advanced spacecraft guidance and control systems.
6. Integration of advanced propulsion systems into spacecraft.

Research and development programs represent a highly important aspect of the work of JPL. Extensive research in the space sciences is conducted in support of flight projects. Advanced development and experimental engineering investigations are conceived and executed in the areas comprising space flight technology.

JPL designs and tests flight systems including complete spacecraft and also provides technical direction to contractor organizations. Certain components and spacecraft elements are fabricated, assembled, and tested at JPL.

Space flight operations include the control of flight missions and the collection and evaluation of data. Spacecraft tracking, as well as acquisition of data collected by spacecraft, are accomplished through the facilities of the Deep Space Network (DSN), with all communications and control centered at the Space Flight Operations Facility at JPL.

Some of the work at JPL is closely associated with other NASA facilities and projects. This is particularly true of world-wide tracking facilities of the Deep Space Network, which supports such projects as the Lunar Orbiter and Pioneer managed at the Langley and Ames Research Centers respectively.

DESCRIPTION:

The Jet Propulsion Laboratory is located in Pasadena, California, approximately 20 miles from downtown Los Angeles. Subsidiary facilities are located at Goldstone, California (tracking and data acquisition), Edwards Air Force Base in Muroc, California (solid propellant formulation and testing), and Table Mountain, California (open air testing and astronomy).

At Pasadena, California, the laboratory occupies 171.7 acres of land, 145.9 of which are owned by NASA and 25.8 leased from the city of Pasadena and commercial sources. At Goldstone, California, facilities are located on 40 acres of land occupied under permit from the Army. At Edwards Air Force Base, Muroc, California, facilities are located on 600 acres of land occupied under permit from the Air Force. The Table Mountain, California, facilities are located on 10.5 acres of land occupied under permit from the Forest Service of the Department of Agriculture. The capital investment value as of June 30, 1966, was \$126,612,000.

SUMMARY OF RESOURCES REQUIREMENTS:

	<u>FUNDS</u>		
<u>Functions</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
Personnel.....	\$48,069	\$56,829	\$61,113
Travel.....	2,367	2,735	2,870
Automatic data processing.....	3,259	6,101	6,182
Facilities services.....	5,131	5,607	5,741
Technical services.....	1,668	1,669	1,603
Administrative support.....	<u>3,153</u>	<u>3,722</u>	<u>3,846</u>
Total, fund requirements.....	<u>\$63,647</u>	<u>\$76,663</u>	<u>\$81,355</u>

PERSONNEL

	<u>1966</u>	<u>1967</u>	<u>1968</u>
1. <u>Permanent positions by program:</u>			
Lunar and planetary.....	1,017	1,021	917
Voyager.....	157	198	295
Tracking and data acquisition.....	366	368	357
Supporting research and technology.....	670	683	729
Research and development services.....	<u>388</u>	<u>459</u>	<u>462</u>
Subtotal, positions by program.....	2,598	2,729	2,760
2. <u>Support positions</u> .....	<u>1,802</u>	<u>1,921</u>	<u>1,890</u>
Total, permanent positions.....	<u>4,400</u>	<u>4,650</u>	<u>4,650</u>





JET PROPULSION LABORATORY



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