EXECUTIVE OFFICE OF THE PRESIDENT

BUREAU OF THE BUDGET

WASHINGTON, D.C. 20503

SEP 2 5 1969

MEMORANDUM FOR THE PRESIDENT

Subject: Space Task Group Report

This memorandum presents a summary of my views on the Space Task Group Report and my recommendations as to the next steps in the decision process. I was an observer on the Space Task Group and, as such, participated in its discussions on the future of the space program, reserving the right to present to you my independent judgment as your Budget Director.

The report sets forth an excellent catalog of technical possibilities for the future. However, standing by itself, it has several shortcomings. In my view, these shortcomings impair its completeness as a vehicle for your final decision.

1. The report does not clearly differentiate between the values of the manned space flight program versus a much less costly unmanned program with its greater emphasis on scientific achievement and potential economic returns.

2. The Space Task Group could not, nor did it try to, assess the relative standing of the space program in our full range of national priorities. In order to do this, you might wish to have the report reviewed by the Cabinet--and perhaps the Security Council as well.

3. The Group could not address the future economic context within which the recommended space expenditure increases would have to be considered.

4. The report is written in such a way that your endorsement of any of the recommended program options implies endorsement of major new long-term development projects, which are included in all three of the program options. Therefore, in a practical sense, the report gives you little flexibility except as to timing (and therefore annual costs). The impact of this is only slightly softened by the assertion that the rate of progress toward the goals would be subject to annual budget decision. This reservation has very practical limits. All the defined options involve significant budget increases over current levels.

5. The Bureau of the Budget has not had the opportunity to review in detail the estimates set forth on page 22 of the report, but they vary sufficiently from other estimates which have been used recently so that we believe they are significantly underestimated. Furthermore, these figures are presented in terms of 1969 dollars and are therefore further underestimated by reason of the inflation that has already taken place.

Of course, there is no reflection of price increases that are almost certain to come in the years ahead.

The other decision factors that most concern me are related specifically to the 1971 budget, now under preparation, and to the budgets that you will be preparing during the remainder of your first term.

The 1971 problem is severe because of:

1. The inflation we are still trying to bring under control.

2. The need to assume continuation of the Vietnam conflict for budget preparation purposes.

3. The commitments we have already made in such areas as domestic welfare, manpower training, social security benefits, revenue sharing, airports/airways, mass transit, and supersonic transport development among others. Every one of these commitments requires outlay increases in 1971.

4. Uncontrollable items such as interest on the national debt.

5. Revenue losses associated with the tax bill--even with proposed Treasury amendments.

In light of these circumstances, I gave NASA an official budget planning target of $3.5 billion for 1971. ($350 million below 1970). This target was based on the assumption that after the manned lunar landing, some reduction in NASA's current budget levels could be made to ease our overall budget problem, without stopping the manned space program. All three options set forth in the report require 1971 budgets of at least $100 million plus price increases above the current NASA funding levels and further increases in following years. These increases will have to come from programs of other agencies.

Because the Space Task Group report has now been published, your endorsement now of any specific option will commit us to annual budget increases of at least the magnitudes specified in the report. Therefore, you could lose effective fiscal control of the program.

I am convinced that a forward-looking manned space program can be developed for you that does not involve commitments to significant near-term budget increases.

Such a program would involve a slower rate of manned Apollo flights than NASA now considers desirable. It would also involve consecutive rather than simultaneous development of a space transportation system and space station, which are necessary steps toward a manned Mars mission. I intend to explore such a program in some detail with Dr. Paine during the FY 1971 budget decision process. Such a program could be accelerated in the future if conditions permit.

I believe this course would be preferable to announcing ambitious long-range plans now and then having to cut back in the future due to economic constraints.

In this circumstance, I recommend:

1. That you withhold announcement of your space program decision until after you have reviewed the report recommendations specifically in the context of the total 1971 budget problem.

2. That you ask the Cabinet and perhaps the NSC to consider the Space Task Group report during October or November and advise you of their views on its recommendations, so that you will have those views in mind during your budget decisions.

3. That you consider meeting with Tom Paine and me after I have had an opportunity to discuss with him the lower cost program option I have described above. Your meeting could be planned for December, and could serve as the final step in your decision process on the NASA 1971 budget. At that time, it is essential that you specify program content as well as budget guidance in order to help maintain effective fiscal control of the program.

4. That your space program decisions be announced in the State of the Union address, the budget message, or a special message to the Congress in the spring of 1970.

Robert P. Mayo

Robert P. Mayo
Director

Space

Wednesday 9/24/69

12:10 Had called Mr. Flanigan's office asked them to hold up on the memo for the President regarding the announcement on space until after you've had a chance to doublecheck something (told them he dictated it while you were there yesterday).

Marie Smith called back and said she told Mr. Flanigan and he didn't know what you were talking about. Marie asked if you could call him when you return.

Wednesday 9/24/69

11:35 Asked Mr. Kriegsman to check specifically on what the PSAC report on space is going to recommend with regard to the emphasis of the space program and the development of the space shuttle, etc.

4:15 They're still checking.

September 22, 1969

MEMORANDUM TO ROBERT P. MAYO

Attached is a report to the President from Tom Paine recommending that the President choose Option 2 . Since this option provides the President the flexibility of moving the stipulated date for the Mars landing in either direction and since it is a balance between an indefinite deferment of the Mars trip and an immediate decision, I support the Paine recommendation. May I have your comments to include with a memorandum to the President along with Tom Paine's memo.

Peter M. Flanigan

cc: with copy of Paine's letter (Sept. 19, 1969(to the Pres. with attachments to Tom Whitehead

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

OFFICE OF THE ADMINISTRATOR

September 19, 1969

The President
The White House
Washington, D. C. 20500

Dear Mr. President:

This letter provides my recommendations for further actions you may wish to take on the report of the Space Task Group.

The report and your initial reaction to it are receiving positive and widespread public support. Representative editorials are enclosed. Particularly noteworthy are the favorable comments of the New York Times and Washington Post, papers which are often critical. This favorable environment suggests the desirability of an appropriate follow-up.

In considering which of the STG Report's three options you may wish to select, other problems currently facing the nation must obviously be taken into account. Option 1, the most vigorous of the proposed programs, clearly offers this nation the greatest opportunities and greatest challenge in the long run. However, it is the most expensive in the near term when resources are most constrained. Option 3, which defers for at least 20 years the challenge of a manned mission to Mars, lacks vigor and fails to seize fully the opportunities available.

My recommendation, therefore, is that you select Option 2, a balanced and challenging program which includes as major objectives the earth-orbiting space station, space shuttle and nuclear stage in the 1970's, leading to a manned mission to Mars in the 1980's. As the nation progresses toward meeting its other needs during the next few years, I would hope that we may be able to reexamine this and move closer to Option 1.

In the near future I believe it would be advantageous for you to make a public statement of your view of the nation's future in space. As I mentioned at our meeting last week, the dedication of the new Lunar Science Institute at Houston might afford an appropriate occasion. We could arrange the dedication for any date convenient to you in the next month.

I would be happy to discuss these matters further with you at any time.

Sincerely yours,

T. O. Paine
Administrator

Enclosures

NEWS MEDIA REACTION TO SPACE TASK GROUP REPORT

The news media reaction to the Space Task Group report has been good. The story broke in two parts. The first followed the briefing for you at the White House and the press reported that both a "crash" program and a "going-out-of-business" program had been rejected by the President. The immediate reaction was favorable. The second wave of reaction, which is still current, followed the press briefing by the Vice President this week.

Today's Washington Post took a reasoned approach and is typical of the kind of reaction we are hearing from individual members of the press and what we can anticipate from editorial comment in the near future. It is interesting that there has been no "selection" by the news media of a favorite option--all seem to be judged as reasonable and rational.

The Post said acceptance by the President of the basic recommendation would eliminate talk of abandoning manned space flight, which would be a foolish course of action, or of proceeding toward Mars in a crash effort to get there as quickly as possible.

"It is difficult for anyone to reach any other conclusion except those who blindly opposed manned space travel or those who, equally blindly, favor giving it the nation's top priority."

The Evening Star said the decision not to engage in a crash program is a "sensible, realistic view."

The New York Times said, "If the President made a commitment to a manned landing on Mars, as his press secretary suggested, it was of a very different character

from the commitment with regard to the moon that President Kennedy made in 1961. Mr. Nixon indulged in no dramatics; he did not appear before Congress; and he set no inflexible timetable to be achieved at almost any cost..... The extreme options Mr. Nixon is said to have rejected were always unreal. There was never any prospect that this country would abandon manned space flight entirely, or, conversely, that the United States would give a manned flight to Mars first priority over its many pressing domestic problems."

The Washington Post

AN INDEPENDENT NEWSPAPER · · · · ★ FRIDAY, SEPTEMBER 19, 1969 PAGE A26

A Spaceman's Sense of Balance

The report of President Nixon's Task Group on Space and, indeed, even the speeches to Congress of the three men who rode in Apollo 11 have brought some rationality back to the discussion of whither the space program. That report recommends that the President commit the nation to a "long-range goal of manned planetary exploration" aimed at a landing on Mars in the early 1980s, the mid-1980s, or the 1990s. Acceptance by the President of the basic recommendation would eliminate talk of abandoning manned space flight, which would be a foolish course of action, or of proceeding toward Mars in a crash effort to get there as quickly as possible.

It is difficult for anyone to reach any other conclusion except those who blindly opposed manned space travel or those who, equally blindly, favor giving it the nation's top priority. Space exploration ought to proceed in an orderly way, maximizing at every step the advance of knowledge and the utilization of it here on earth. In fact, it is not at all clear that the President should set a "goal" of a Mars landing in any particular year.

What is important is for the nation to push ahead on the immediate recommendations of the Task Group—exploring the moon, developing the tools that are needed for systematic exploitation of our space travel capability, and extracting from the space program more benefits for those of us who are earthbound. This means that NASA would continue its moon flights, perhaps reaching the day in the 1970s when semi-permanent colonies would be established on the moon's surface. At the same time, it would push development of a nuclear rocket engine, which would make long-range space travel more feasible, a space vehicle that could be landed on earth and used over and over again, which would reduce the costs of each mission sharply, and a space station to hold a dozen or so men that could be flown in orbit around the earth or the moon or, when the time comes, Mars.

This kind of program would keep NASA operating for a while on about the budget it now has. It would have the advantage of allowing the agency to keep together the remarkable team of scientists and engineers it has created by giving them new and interesting problems to solve. At the same time, it would encourage those in NASA who want to tailor the space program to produce more information directly useful in the solution of earthly problems—surveys of natural resources, weather prediction and control, and so on.

Although parts of the speeches the three astronauts of Apollo 11 delivered to Congress Tuesday were open pleas for money for future space flights, they were carefully balanced by the recognition each man gave to the needs of domestic programs for the funds that might otherwise be spent in space. The words of Neil Armstrong, the first man to walk on the moon, are worth repeating because they catch the spirit of the delicate balance that must be made between the dreams for adventure and the practical realities of life:

> Several weeks ago, I enjoyed the warmth of reflection on the true meaning of the spirit of Apollo. I stood in the highlands of this nation, near the continental divide, introducing to my sons the wonders of nature and pleasures of looking for deer and elk. In their enthusiasm for the view, they frequently stumbled on the rocky trails, but when they looked only to their footing, they did not see the elk.
>
> To those of you have advocated looking high we owe our sincere gratitude, for you have granted us the opportunity to see some of the grandest views of the Creator. To those of you who have been our honest critics, we also thank, for you have reminded us that we dare not forget to watch the trail.

The Evening Star
With Sunday Morning Edition
Published by THE EVENING STAR NEWSPAPER CO., Washington, D. C.
CROSBY N. BOYD, Chairman of the Board
JOHN H. KAUFFMANN, President
NEWBOLD NOYES, Editor

Slow Trip to Mars

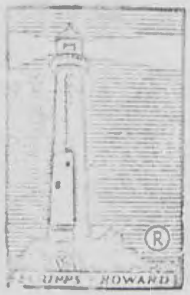
Although President Nixon supports an American commitment to land a man on Mars, he has made clear through Press Secretary Ziegler that the undertaking will not involve a high-speed, extra-costly crash program that would ignore "budgetary considerations."

This is a sensible, realistic view. It is in keeping, in fact, with the balanced space program that has been recommended by a special panel of advisers in the report just accepted and endorsed by Mr. Nixon. The panel, headed by Vice President Agnew, includes NASA Administrator Thomas O. Paine, Air Force Secretary Robert C. Seamans and White House Science Adviser Lee E. du Bridge — all well-qualified to offer sound counsel on the subject.

These and other distinguished members of the study group have given the President three options as to the timing of a landing on Mars—in 1983, no sooner than 1986, or around the year 2000. With the President's concurrence, the panel has rejected two alternatives as extreme. One would have the country go all-out—more or less in the manner of the Apollo moon landing — to put an American on Mars in the shortest possible time, regardless of cost. The other, on completion of the Apollo program, would put an end to all manned space projects.

What seems predictable is that when he makes his decision on the timetable for Mars, Mr. Nixon will be governed by what its effects may be not only on other space ventures, but also on down-to-earth human requirements and the amount of money available to meet them. Meanwhile, he has indicated that he fully agrees with the panel's recommendation that the space program, wholly apart from the Apollo landings still to come, should be pressed forward with vigor through the 1970s. The program would include unmanned probes of the Martian surface and a "grand tour" of the environs of the outer planets. Also, strenuous efforts would be made to develop a re-usable shuttle vehicle that would be capable of remaining in orbit, with large crews, for months at a time.

One of the important aspects of such a program is that it would provide for projects numerous enough and significant enough to insure against a grave weakening or withering away of the great and vital complex of scientists, technicians, administrators and technological plants now engaged in space work. It is work full of immense actual and potential value. And it will lead, among other things, to the day when man will almost certainly set foot on Mars and go on from there to explore deeper and deeper in the firmament.



The Washington Daily News

A SCRIPPS HOWARD NEWSPAPER
"Give light and the people will find their own way."

Richard Hollander, Editor — Ray F. Mack, Business Manager

THURSDAY, SEPTEMBER 18, 1969

1013 13th ST. N.W. (20005) DI. 7-7777

In Metropolitan Washington: By carrier, 37c per week; $1.60 per month. By mail: 3 months, $5.25

A cool trip to Mars

THE special Space Task Group headed by Vice President Spiro T. Agnew has soundly advised the President to adopt a slow-but-sure approach to a manned landing on Mars.

Their report, submitted yesterday, proposes landing a man on Mars no sooner than the early 1980's, perhaps not before 1986 and possibly not until the 1990's.

Mr. Agnew says he favors the 1986 target date as a reasonable compromise that would muster "broad scientific and political support."

This would mean a National Aeronautics and Space Administration (NASA) budget of around $4 billion for each of the next three fiscal years, rising gradually to a peak of $8 billion in the 1980's.

Thus, the nation would ease into its Mars commitment instead of adopting the expensive race-ahead tactics of the $24 billion Apollo moon program.

But even a cool trip to Mars will cost plenty — and the space scientists hope to get the most for their money.

For instance, the Task Group members — Mr. Agnew, Thomas O. Paine of NASA, Air Force Secretary Robert C. Seamans and Lee A. DuBridge, the President's science adviser — proposed reusable space ships instead of present craft, which shed their multi-million-dollar parts like throw-away beer cans.

And they offered their alternative timetables so that the pace of the Mars project could be tailored to the availability of funds.

In short, the President's advisers are saying it would be a mistake to get out of space — but a mistake to plunge ahead regardless of cost.

They recognize the Mars mission must take its place alongside the other national needs — some of them very pressing indeed.

The economic spin-off benefits of space technology, the challenge of new worlds beyond our own and the potential military significance of space ventures amply justify the kind of Mars program the Task Group proposes.

(11)

Slow Boat to Mars

The Apollo 11 astronauts were low-pressure advocates of the space program in their Congressional appearance yesterday. No one listening to them could doubt that they would like to see Americans walk on Mars as soon as possible. But they made it plain that they knew there are many problems on earth that cannot be ignored. The result was a modest plea for a continuing space program having an appreciable but hardly an overriding priority.

That same reasonable spirit seems to have animated President Nixon's reaction to the report of a study group on space exploration. If the President made a commitment to a manned landing on Mars, as his press secretary suggested, it was of a very different character from the commitment with regard to the moon that President Kennedy made in 1961. Mr. Nixon indulged in no dramatics; he did not appear before Congress; and he set no inflexible timetable to be achieved at almost any cost. About all he seems to have done is to indicate that it would be a good idea to land Americans on Mars well within the next half century and to promise that he'd try to help the project along within the limits of available resources.

The extreme options Mr. Nixon is said to have rejected were always unreal. There was never any prospect that this country would abandon manned space flight entirely, or, conversely, that the United States would give a manned flight to Mars first priority over its many pressing domestic problems.

The intermediate path that will be followed in the years ahead will depend upon the most varied factors from the progress made in curing the ills of the cities to the new challenges in space that the Russians and others are likely to pose. The space age is here to stay, but the precise contours of how far and how fast this nation will go in the decades ahead will have to be determined on a pragmatic basis, almost year by year and Administration by Administration.

THE SUN, BALTIMORE, WEDNESDAY MORNING, SEPTEMBER 17, 1969

Mars Can Wait

The Space Task Group's recommendation against making an early, hard-and-fast decision on scheduling a manned expedition to Mars was sensibly made and has been sensibly accepted. The project is much too ambitious and will be much too costly to be fitted headlong to a timetable. Mr. Nixon has approved a "balanced" space program which contemplates the possibility of a Martian landing perhaps in the mid or late 1980's, perhaps before the end of the century, perhaps not until sometime after the year 2000.

So far as can be seen now the "balance" is the strongest point of the endeavor to formulate plans for the future space exploration. The task group proposes that in the next decade the United States undertake instrumental tours and probes of the planets (including Mars of course), further manned study of the moon, development of a reusable space shuttle which could serve as a large space laboratory and of a nuclear-powered rocket. Much of this would be essential to an attempt to put men on Mars in any case, and all of it promises to advance knowledge of the solar system.

As for Mars, the eagerness to reach it has to be tempered by a very sober, prudent consideration of all the pressing needs of the country and the earth. It is not something to which we can, or should, commit ourselves and the future in a fit of adventurous and extremely expensive impatience. Fortunately, it seems that scientists and Washington are now wisely agreed on that.

THE CHRISTIAN SCIENCE MONITOR Wednesday, September 17, 1969

Pace for space

President Nixon's task force on space offers useful guidance for the American space program over the next decade. A manned orbiting station, a space shuttle, a nuclear-powered rocket, unmanned probes, and satellites for communication, meteorology, and navigation — these set the tone and pace for the postmoon phase.

The United States needs a vigorous space drive. This is a vast, productive, challenging frontier. There must be, of course, a thoughtful sharing of funds with the more urgent and immediate programs here on earth. A proposed $4 billion budget for each of 10 years may be overly ambitious. But even the eventual manned landing on Mars should not be jettisoned.

An orbiting space station would be a gate-opener for further explorations, besides affording essential experience in space living. The space shuttle would, economically, get men to the orbiting station, bring intelligence data back to earth, launch unmanned vehicles. The nuclear rocket would power, someday, the great ship for Mars.

The essential aerospace companies need a continuity if they are to maintain their talent assemblages and financial stability. Someday, the American space program may become a worldwide project, including the Soviets. But as of now it is up to President Nixon to assure that the United States carries on adequately with its well-begun space odyssey.

9/20 cy for: Tom Whitehead

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

OFFICE OF THE ADMINISTRATOR

September 19, 1969

The President
The White House
Washington, D. C. 20500

Dear Mr. President:

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In considering which of the STG Report's three options you may wish to select, other problems currently facing the nation must obviously be taken into account. Option 1, the most vigorous of the proposed programs, clearly offers this nation the greatest opportunities and greatest challenge in the long run. However, it is the most expensive in the near term when resources are most constrained. Option 3, which defers for at least 20 years the challenge of a manned mission to Mars, lacks vigor and fails to seize fully the opportunities available.

My recommendation, therefore, is that you select Option 2, a balanced and challenging program which includes as major objectives the earth-orbiting space station, space shuttle and nuclear stage in the 1970's, leading to a manned mission to Mars in the 1980's. As the nation progresses toward meeting its other needs during the next few years, I would hope that we may be able to reexamine this and move closer to Option 1.

In the near future I believe it would be advantageous for you to make a public statement of your view of the nation's future in space. As I mentioned at our meeting last week, the dedication of the new Lunar Science Institute at Houston might afford an appropriate occasion. We could arrange the dedication for any date convenient to you in the next month.

I would be happy to discuss these matters further with you at any time.

Sincerely yours,

T. O. Paine
Administrator

Enclosures

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

REPLY TO
ATTN OF:

September 18, 1969

Dr. Clay T. Whitehead
Staff Assistant
The White House
Washington, D. C. 20500

Dear Dr. Whitehead:

On June 13, 1969, NASA presented to interested parties the capabilities and availability of its Applications Technology Satellites for experimentation. Because of your interest in communications, I wish to bring to your attention the possibility of experimenting with available satellite and ground facilities.

NASA has established a policy of making the ATS satellites available for worthwhile experimentation by other organizations after the initial technical experiments on the satellites have been completed and for as long as the satellites remain operative. Such organizations can include other government agencies, educational institutions, or private concerns which are potential users of future operational satellite systems and are willing to invest in the necessary ground facilities, provide message content, and cover other ground costs.

To assist those who attended the meeting at NASA on June 13 and others who may be interested in proposing experiments in the use of communications satellites, the enclosed inventory of satellite and ground facilities that might be made available during 1969 and 1970 for user experimentation has been compiled.

In order to provide prospective user-experimenters with the broadest range of possibilities on which to base their plans, the inventory includes available facilities of the Communications Satellite Corporation (Comsat) as well as those of NASA. At the June 13 meeting, the Communications Satellite Corporation representative offered to make Comsat's facilities available for user-experimenters who wish to use them, subject to FCC approval. It is our hope that this information

will assist interested user-experimenters to formulate specific proposals for experimental use of available facilities, in any mix of NASA or Comsat facilities the user considers appropriate.

Should you wish to submit a proposal, emphasis should be placed on unique applications or approaches. The proposal should be detailed and include the objectives, methodology, expected results of the experiments and procedures by which the results of the experiments would be disseminated, the value of each experiment in terms of local, national, or international interest, and transmission time requirements and degree of schedule flexibility. For your convenience we have included in the inventory a form entitled "Proposed Transmission Schedule."

NASA will review the technical and other aspects of these plans and determine whether the proposed use of the NASA satellites and ground facilities would be consistent with NASA's mission and the existing commitments and priorities for the use of the satellites. Comsat will participate in the discussion of proposals involving the use of its facilities.

In view of the limited availability of the satellites, proposals should be submitted as soon as possible. We will be pleased to meet with you at any time to clarify any questions you may have on this matter. Proposals and inquiries should be addressed to:

Dr. Richard B. Marsten
Director, Communications Programs
Office of Space Science and Applications
National Aeronautics and Space Administration
Washington, D. C. 20546

Telephone No. AC 202 962-0888

Sincerely yours,

R. B. Marsten
Director, Communications Programs

Enclosures

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

REPLY TO
ATTN OF:

INFORMATION FOR PROPOSAL SUBMISSION

In each proposal, emphasis should be placed on unique applications or approaches. The proposal should be detailed and include the objectives, methodology, expected results of the experiments and procedures by which the results of the experiments would be disseminated, the value of each experiment in terms of local, national, or international interest, and transmission time requirements and degree of schedule flexibility. For your convenience we have included in the inventory a form entitled "Proposed Transmission Schedule."

INVENTORY OF

COMMUNICATIONS SATELLITES AND ASSOCIATED GROUND FACILITIES

PHASE I

July 1969

INDEX

COMMUNICATIONS SATELLITES AND ASSOCIATED GROUND FACILITY INVENTORY

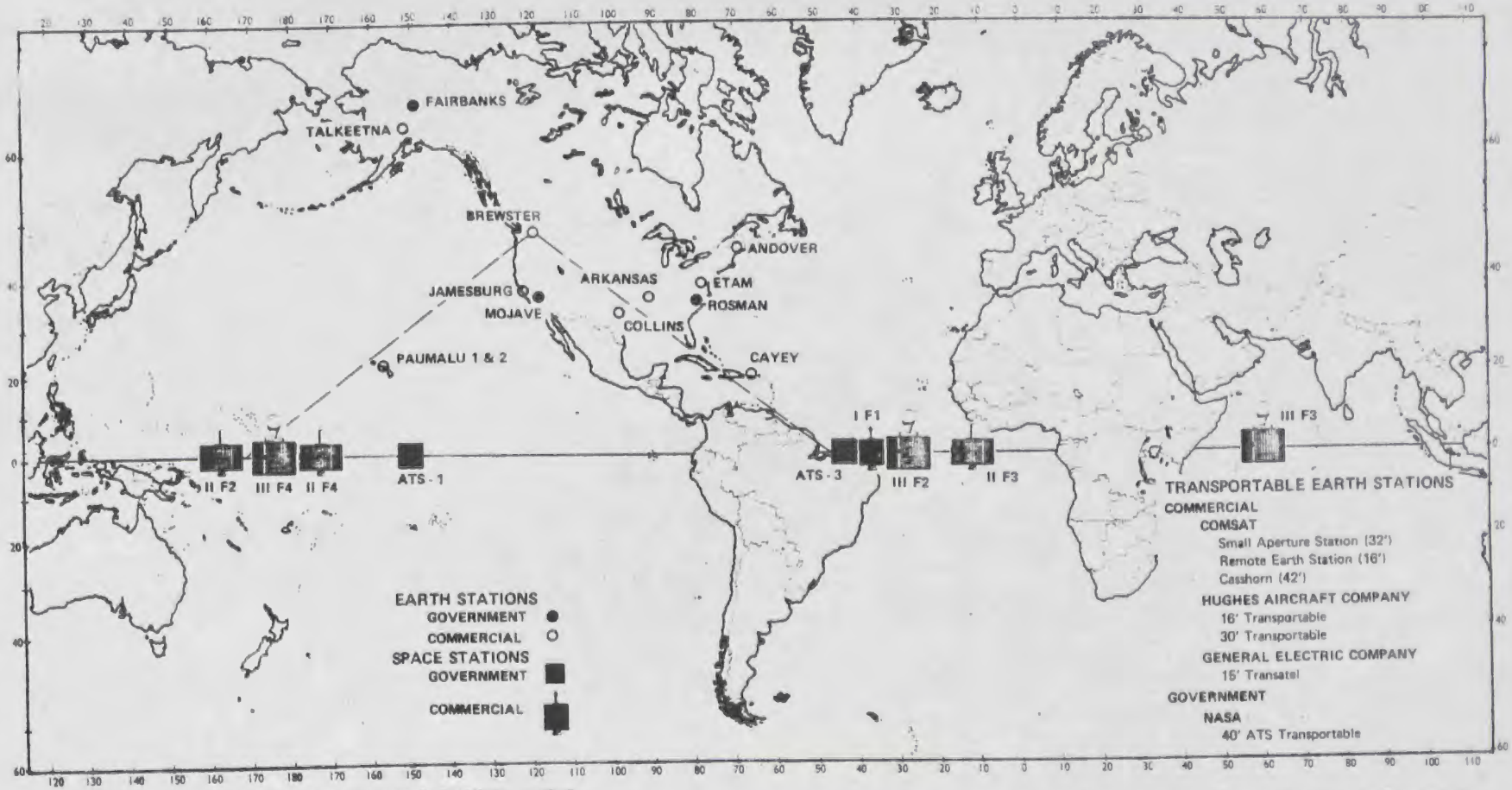
I. Introduction

NASA has established a policy of making its Applications Technology Satellites available for worthwhile expermentation by other organizations after the initial technical experiments on the satellites have been completed and for as long as the satellites remain operative. This could include organizations which might be potential users of future operational systems, such as other government agencies, educational institutions or private concerns who would be willing to invest in the necessary ground facilities, provide a message content and cover other ground costs.

To assist potential experimenters, NASA has compiled an inventory of its satellite and ground facilities that might be available during 1969 and 1970 for user experimentation. A similar list of potentially available commercial facilities has been compiled by Comsat and is included here with NASA's for completeness. A further effort is being made to document all government, industry, and university potentially available space and ground facilities. It is our hope that this information will assist potential users in formulating proposals for the use of available facilities.

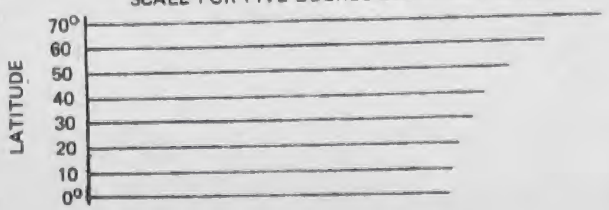
COMMERCIAL / GOVERNMENT

DEMONSTRATIONAL FACILITY INVENTORY



G 4587

SCALE FOR FIVE DEGREE ELEVATION ANGLE



To determine which satellites are usable with an earth station, find the latitude of the earth station and select the appropriate scale. The scale forms a radius from the earth station showing those inclusive satellites.
Example shown: Brewster – latitude approximately 50° – useful satellites: INTELSAT II F4, III F4, ATS-1.

FACILITY DEMONSTRATIONAL CAPABILITY
1969 - 1970

			G1 NASA ATS-1	G1 NASA ATS-3	G2 INTELSAT I F 1	C1 INTELSAT II F 2	C2 INTELSAT II F 3	C3 INTELSAT II F 4	C4 INTELSAT II F 5 (NOTE 4)	C5 INTELSAT III F 2	C6 INTELSAT III F 3	C7 INTELSAT III F 4	C8 INTELSAT III F 6 (NOTE 5)	C9 INTELSAT III F 7 (NOTE 5)	C10
NOTE 1	C	A	BREWSTER COMSAT	VA / RA		N / A	VA / RA	N / A	VA / RA		N / A	N / A	VA / RA		
	C	B	SMALL AP. ST. COMSAT	VB / RA		RC	RA	RA	RA		RB	RB	RB		
	C	C	REMOTE EARTH ST. COMSAT	RB		RD	RC	RC	RC		RD	RD	RD		
	C	D	CASSHORN COMSAT	VB / RA		RC	RA	RA	RA		RB	RB	RB		
	G	A	ROSMAN NASA	VA / RA	RC	VB / RA	N / A	VA / RA	N / A		VA / RA	N / A	N / A		
	G	B	MOJAVE NASA	VB / RA	RC	N / A	RA	N / A	RA				RB		
	G	C	TRANSPORTABLE 40' NASA	VB / RA	RC	RC	RA	RA	RA		RB	RB	RB		
	G	D	PORTABLE-VHF – YAGI – NASA	RC	RC										
	G	E	TRANSPORTABLE – 15' – NASA	RB		RD	RC	RC	RC		RD	RD	RD		
	G	F	FAIRBANKS – 30' – NASA	RC		N / A	RD	N / A	RD		N / A	N / A	RD		
NOTE 2	C	E	ANDOVER COMSAT	N / A		VB / RA	N / A	VA / RA	N / A		VA / RA	N / A	N / A		
	C	F	ETAM COMSAT	N / A		VB / RA	N / A	VA / RA	N / A		VA / RA	N / A	N / A		
	C	G	CAYEY COMSAT	N / A		VA / RA	N / A	VA / RA	N / A		VA / RA	N / A	N / A		
	C	H	JAMESBURG COMSAT	VA / RA		N / A	VA / RA	N / A	VA / RA		N / A	N / A	VA / RA		
	C	I	PAUMALU 1 COMSAT	VA / RA		N / A	VA / RA	N / A	VA / RA		N / A	N / A	VA / RA		
	C	J	PAUMALU 2 COMSAT	VA / RA		N / A	VA / RA	N / A	VA / RA		N / A	N / A	VA / RA		
	C	K	TALKEETNA COMSAT	VA / RA		N / A	VA / RA	N / A	VA / RA		N / A	N / A	VA / RA		
	C	L	ANDOVER INTELSAT	N / A		RB	N / A	RA	N / A		RB	N / A	N / A		
	C	M	PAUMALU INTELSAT	VB / RA		N / A	RA	N / A	RA		N / A	N / A	RA		
NOTE 3	C	N	HAC - 30'	RA		RC	RB	RB	RB		RB	RB	RB		
	C	O	HAC - 16'	RB		RD	RC	RC	RC		RD	RD	RD		
	C	P	HAC ARKANSAS	VA / RA		RB	VA / RA	VA / RA	VA / RA		VB / RA	N / A	N / A		
	C	Q	WUI (GE) TRANSATEL	Normally used as a transmit earth station.											
	C	R	COLLINS - 60'	VA / RA		RB	N / A	N / A	N / A		VB / RA	N / A	N / A		
	C	S	RCA 42'	VB / RA		RC	RA	RA	RA		RB	RB	RB		

G-4587

NOTES

1. Earth Station Facilities More Likely To Be Available Than Others Listed
2. Availability To Be Determined
3. Commercial Facilities - Availability Would Be By Arrangement With Owner Or Manager
4. INTELSAT II F 5 On Ground Spare
5. To Be Launched

Notes

(1) Space station orbital positions are for 7/7/69.

(2) Capabilities shown for INTELSAT III assume use of only the dedicated video satellite e.i.r.p. (i.e., not the full transponder e.i.r.p.).

(3) Legend for System Demonstration Capability charts:

VA - High quality color or b-w television

VB - Medium quality b-w television

RA - High capacity telephone/data > 240 voice channels

RB - Medium capacity telephone/data > 60 voice channels

RC - Broadcast radio/low capacity telephone/low speed data > 1 voice channel

RD - Low quality single voice channel or teletype

NA - Not currently applicable

Lower capabilities may be assumed to be encompassed within a higher capability.

(4) Earth station locations are assumed to be at or within the 2 dB coverage contours and only the receive capability is shown.

(5) ATS-I and ATS-III have VHF capability, RC/RD capability is possible to very simple VHF installations.

PROPOSED TRANSMISSION SCHEDULE

NAME OF ORGANIZATION

To be filled in by proposer -
include dates, times and degree of flexibility if possible

1969

DESIRED USE	FACILITY REQUIRED	OCT AM	OCT PM	NOV AM	NOV PM	DEC AM	DEC PM	COMMENTS
VA								
VB								
RA								
RB								
RC								
RD								

Key: VA - High quality color or b-w television
VB - Medium quality b-w television
RA - High capacity telephone/data > 240 voice channels
RB - Medium capacity telephone/data > 60 voice channels
RC - Broadcast radio/low capacity telephone/low speed data > 1 voice channel
RD - Low quality single voice channel or teletype

PROPOSED TRANSMISSION SCHEDULE

(To be filled in by proposer)

NAME OF ORGANIZATION

1970

DESIRED USE / FACILITY REQUIRED	JAN AM	JAN PM	FEB AM	FEB PM	MAR AM	MAR PM	APR AM	APR PM	MAY AM	MAY PM	JUNE AM	JUNE PM	COMMENTS
VA													
VB													
RA													
RB													
RC													
RD													

Key: VA - High quality color or b-w television
VB - Medium quality b-w television
RA - High capacity telephone/data > 240 voice channels
RB - Medium capacity telephone/data > 60 voice channels
RC - Broadcast radio/low capacity telephone/low speed data > 1 voice channel
RD - Low quality single voice channel or teletype

NAME
OF
ORGANIZATION

DESIRED USE	FACILITY REQUIRED	JULY AM	JULY PM	AUG AM	AUG PM	SEPT AM	SEPT PM	OCT AM	OCT PM	NOV AM	NOV PM	DEC AM	DEC PM	1971 1st Qt.	1971 2d Qt.	1971 3d Qt.	1971 4th Qt.	COMMENTS
VA																		
VB																		
RA																		
RB																		
RC																		
RD																		

Space Station

Name: ATS-I

Assigned Inventory Number: G-1

Organization Responsible: SCS/OSSA - NASA

Orbit: Geostationary

Location: 150° W

Beam Pointing Accuracy: Plus/minus two degrees

Center Radio Frequencies	6212 6/4 GHz 6301 4120 4179	135.6 & 149.22 MHz
Beam Center E.i.r.p.	49.4/52/2 DBM	22.5 DBW
Transmit Beamwidth:	Earth Coverage	Earth Coverage
Transmit Polarization:	Linear	Linear
Beam Center G/T:	- 25.4 DB	- 20.2 DB
Receive Beamwidth:	Earth Coverage	Earth Coverage
Receive Polarization:	Linear	Linear
Transponder Types & Numbers:	Multiple Access and Frequency Translation	Frequency Translation Hard Limiting
Transponder Bandwidths:	25 MHz	100 KHz

Location Reposition Ability: Gas supply exhausted; cannot be moved

Beam Repointing Ability: None

Normal Operation Ability: 24 hrs/day (with nothing else on)

Eclipse Operation Ability: Reduced

Multiple Access Ability: Yes

Availability By agreement with NASA's ATS Project Office

Projected Lifetime: Several years.

Space Station

Name: ATS-III

Assigned Inventory Number: G-2

Organization Responsible: SCS/OSSA - NASA

Orbit: Geostationary

Location: 47° W

Beam Pointing Accuracy: Plus/minus two degrees

Center Radio Frequencies	6212 6301 4120 4179 6/4 GHz	135.6 and 149.22 MHz
Beam Center E.i.r.p.	52.2 to 56.5 DBM	242 DBW
Transmit Beamwidth:	Earth Coverage	Earth Coverage
Transmit Polarization:	Linear	Linear
Beam Center G/T:	- 14.4 DB	- 19.4 DB
Receive Beamwidth:	Earth Coverage	Earth Coverage
Receive Polarization:	Linear	Linear
Transponder Types & Numbers:	Multiple Access & Frequency Translation	Frequency Translation Linear
Transponder Bandwidths:	25 MHz	100 KHz

Location Reposition Ability: Yes

Beam Repointing Ability: SHF MDA Antenna has Anomalies

Normal Operation Ability: 24 hrs/day (with nothing else on)

Eclipse Operation Ability: Reduced

Multiple Access Ability: Yes

Availability: By arrangement with NASA's ATS Project Office

Projected Lifetime: Several years.

Space Station

Name: INTELSAT I, FI

Assigned Inventory Number: C1

Organization Responsible: INTELSAT

Orbit: Geo-stationary

Location: 317.76° East Longitude; drift 0.103° East; inclination 4.02°

Controlled station limits: 308 to 321° East Long. Inclination 4°

Beam Pointing Accuracy: ±1.0°

Center Radio Frequencies	6-4 GHz	
Beam Center e.i.r.p.	+10 dBW	
Transmit Beamwidth:	11° squinted 7°	
Transmit Polarization:	Linear (orthogonal to receive)	
Beam Center G/T:	-31 dB	
Receive Beamwidth:	14°	
Receive Polarization:	Linear (orthogonal to transmit)	
Transponder Types & Numbers:	Limiting frequency translation - (two)	
Transponder Bandwidths:	25 MHz	

Location Reposition Ability: System No. 1 out of fuel, gas available for repositioning in System No. 2

Beam Repointing Ability: Not applicable

Normal Operation Ability: Both transponders

Eclipse Operation Ability: No

Multiple Access Ability: No

Availability: By arrangement with INTELSAT. Availability depends on current operational requirements

Projected Lifetime: Many months

Space Station

Name: INTELSAT II, F2

Assigned Inventory Number: C2

Organization Responsible: INTELSAT

Orbit: Geo-stationary

Location: 163.67° East Longitude; drift rate 0.012° East; inclination 0.053

Beam Pointing Accuracy: Beam axis variation 2.53°

Center Radio Frequencies	6-4 GHz	
Beam Center e.i.r.p.	15.5 dBW	
Transmit Beamwidth:	12°	
Transmit Polarization:	Linear	
Beam Center G/T:	-26.6 dB	
Receive Beamwidth:	12°	
Receive Polarization:	Linear (orthogonal with transmit)	
Transponder Types & Numbers:	Linear frequency translation (two)	
Transponder Bandwidths:	126 MHz	

Location Reposition Ability: Fuel is exhausted

Beam Repointing Ability: Not applicable

Normal Operation Ability: Both transponders 3 years

Eclipse Operation Ability: Battery operation of two TWT's

Multiple Access Ability: Yes

Availability: By arrangement with INTELSAT. No current operational usage

Projected Lifetime: 2-3 years

Space Station

Name: INTELSAT II, F3

Assigned Inventory Number: C3

Organization Responsible: INTELSAT

Orbit: Geo-stationary

Location: 348.69° East Longitude; drift rate 0.004°; inclination 0.799°

Controlled station limits: 348.5 to 358.5° E. Long. Inclination .8°

Bean Pointing Accuracy: $\pm 1.0^{0}$

Center Radio Frequencies	6-4 GHz	
Beam Center e.i.r.p.	15.5 dBW	
Transmit Beamwidth:	12°	
Transmit Polarization:	Linear	
Beam Center G/T:	-26.6 dB	
Receive Beamwidth:	12°	
Receive Polarization:	Linear (orthogonal with transmit)	
Transponder Types & Numbers:	Linear frequency translation (two)	
Transponder Bandwidths:	126 MHz	

Location Reposition Ability: Gas available for repositioning

Beam Repointing Ability: Not applicable

Normal Operation Ability: Both transponders - 3 years

Eclipse Operation Ability: Two TWT operation with batteries

Multiple Access Ability: Yes

Availability: By arrangement with INTELSAT. The satellite is currently in use for commercial communications in the Atlantic Ocean region and its position would be maintained for visibility between the U.S., Ascension, NASA ship and Canary Island. The excess is currently 3/5 of total capacity.* The full satellite will be excess in mid 1970.

Projected Lifetime: 2-3 years

*Two TWT operation.

Space Station

Name: INTELSAT II, F4

Assigned Inventory Number: C4

Organization Responsible: INTELSAT

Orbit: Geo-stationary

Location: 179.67° East Longitude; drift rate 0.034° West; inclination 0.767

Controlled station limits: 178° to 188° E. Long.

Beam Pointing Accuracy: ±1.0°

Center Radio Frequencies	6-4 GHz	
Beam Center e.i.r.p.	15.5 dBW	
Transmit Beamwidth:	12°	
Transmit Polarization:	Linear	
Beam Center G/T:	-26.6 dB	
Receive Beamwidth:	12°	
Receive Polarization:	Linear (orthogonal with transmit)	
Transponder Types & Numbers:	Linear frequency translation (two)	
Transponder Bandwidths:	126 MHz	

Location Reposition Ability: System No. 2 lacks gas pressure and gas is available for station keeping only in System No. 1.

Beam Repointing Ability: Not applicable

Normal Operation Ability: Both transponders - 3 years

Eclipse Operation Ability: Two TWT operation with batteries

Multiple Access Ability: Yes

Availability: By arrangement with INTELSAT. The satellite will be in use for commercial communications in the Pacific Ocean region* and its position would be maintained for visibility between the U.S. (Brewster), Paumalu, Hawaii, Carnarvon, Australia and the NASA ship. The satellite excess will be 1/5 of total capacity** through mid 1970.

Projected Lifetime: 2-3 years

*Scheduled for September 18, 1969.
**Two TWT operation.

Space Station

Name: INTELSAT II, F5

Assigned Inventory Number: C5

Organization Responsible: INTELSAT

Orbit: Warehouse storage - Delaware

Location:

Beam Pointing Accuracy: ±1.0°

Center Radio Frequencies	6-4 GHz	
Beam Center e.i.r.p.	15.5 dBW	
Transmit Beamwidth:	12°	
Transmit Polarization:	Linear	
Beam Center G/T:	-26.6 dB	
Receive Beamwidth:	12°	
Receive Polarization:	Linear (orthogonal to transmit)	
Transponder Types & Numbers:	Linear frequency translation (two)	
Transponder Bandwidths:	126 MHz	

Location Reposition Ability: Gas would be available for reposition

Beam Repointing Ability: Not applicable

Normal Operation Ability: Both transponders for 3 years

Eclipse Operation Ability: Battery operation of two TWT's

Multiple Access Ability: Yes

Availability: By arrangement with INTELSAT. The satellite's availability is dependent on pre-launch check out and launch.

Projected Lifetime: 3 years

Space Station

Name: INTELSAT III, F2

Assigned Inventory Number: C6

Organization Responsible: INTELSAT

Orbit: Geo-stationary

Location: 320.99 East Longitude; drift rate 0.094 East; inclination 0.413°

Controlled station limits: 323° to 335.5° E. Long.

Beam Pointing Accuracy: ±1.0°

Center Radio Frequencies	6-4 GHz	
Beam Center e.i.r.p.	24 dBW	
Transmit Beamwidth:	19°	
Transmit Polarization:	Right circular	
Beam Center G/T:	-15.7 dB	
Receive Beamwidth:	13.6°	
Receive Polarization:	Left circular	
Transponder Types & Numbers:	Linear frequency translation (two)	
Transponder Bandwidths:	225 MHz	

Location Reposition Ability: Gas available for repositioning

Beam Repointing Ability: Not applicable

Normal Operation Ability: Both transponders for 5 years

Eclipse Operation Ability: Full operation with batteries

Multiple Access Ability: Yes

Availability: By arrangement with INTELSAT. The satellite is in use for commercial communications in the Atlantic Ocean region and its position would be maintained for visibility between Etam, Mexico, Fucino and Raisting. The satellite excess capacity will be approximately 1/7 of transponder one and approximately 1/5 of transponder two after INTELSAT III, F6 is launched.

Projected Lifetime: 5 years

Note: MDA on S/C failed to despin for one month during summer solstice 1969 - June 29 to July 28.

Space Station

Name: INTELSAT III, F3

Assigned Inventory Number: C7

Organization Responsible: INTELSAT

Orbit: Geo-stationary

Location: 61.09° East Longitude; drift rate 0.085°; inclination 1.025°

Controlled station limits: 59° to 62° E. Long.

Beam Pointing Accuracy: ±1.0

Center Radio Frequencies	6-4 GHz	
Beam Center e.i.r.p.	24 dBW	
Transmit Beamwidth:	19°	
Transmit Polarization:	Right circular	
Beam Center G/T:	-15.7 dB	
Receive Beamwidth:	13.6°	
Receive Polarization:	Left circular	
Transponder Types & Numbers:	Linear frequency translation (two)	
Transponder Bandwidths:	225 MHz	

Location Reposition Ability: Gas available for repositioning

Beam Repointing Ability: Not applicable

Normal Operation Ability: Both transponders for 5 years

Eclipse Operation Ability: Full via batteries

Multiple Access Ability: Yes

Availability: By arrangement with INTELSAT. The satellite is in use for commercial communication in the Indian Ocean region and its position must be accurately maintained for visibility between Japan/U.K. One transponder has -24 dB G/T. The satellite excess capacity is currently approximately 1/3 of transponder one and approximately 5/6 of transponder two.

Projected Lifetime: 5 years

Space Station

Name: INTELSAT III, F4

Assigned Inventory Number: C8

Organization Responsible: INTELSAT

Orbit: Geo-stationary

Location: 173.66 East Longitude; drift rate 0.055° West, inclination 0.505°

Controlled station limits: 172° to 176° E. Long.

Beam Pointing Accuracy: ±1.0

Center Radio Frequencies	6-4 GHz	
Beam Center e.i.r.p.	24 dBW	
Transmit Beamwidth:	19°	
Transmit Polarization:	Right circular	
Beam Center G/T:	-15.7 dB	
Receive Beamwidth:	13.6°	
Receive Polarization:	Left circular	
Transponder Types & Numbers:	Linear frequency translation (two)	
Transponder Bandwidths:	225 MHz	

Location Reposition Ability: Gas available for repositioning

Beam Repointing Ability: Not applicable

Normal Operation Ability: Both transponders - 5 years

Eclipse Operation Ability: Full operation using batteries

Multiple Access Ability: Yes

Availability: By arrangement with INTELSAT. The satellite is in use for commercial communications in the Pacific Ocean region and its position would be maintained for visibility between U.S. and Thailand. The satellites excess capacity is currently approximately 1/6 of transponder one and approximately 1/3 of transponder two.

Projected Lifetime: 5 years

Space Station

Name: INTELSAT III, F6

Assigned Inventory Number: C9

Organization Responsible: INTELSAT

Orbit: *

Location: *

Beam Pointing Accuracy: ±1.0°

Center Radio Frequencies	6-4 GHz	
Beam Center e.i.r.p.	24 dBW	
Transmit Beamwidth:	19°	
Transmit Polarization:	Right circular	
Beam Center G/T:	-15.7 dB	
Receive Beamwidth:	13.6°	
Receive Polarization:	Left circular	
Transponder Types & Numbers:	Linear frequency translation (two)	
Transponder Bandwidths:	225 MHz	

Location Reposition Ability: Gas available for reposition

Beam Repointing Ability: Not applicable

Normal Operation Ability: Both transponders for 5 years

Eclipse Operation Ability: Full via battery

Multiple Access Ability: Yes

Availability: *

Projected Lifetime: *

*Launch is scheduled for October 1969.

Space Station

Name: INTELSAT III, F7

Assigned Inventory Number: C10

Organization Responsible: INTELSAT

Orbit: *

Location:*

Beam Pointing Accuracy: ±1.0°

Center Radio Frequencies	6-4 GHz	
Beam Center e.i.r.p.	24 dBW	
Transmit Beamwidth:	19°	
Transmit Polarization:	Right circular	
Beam Center G/T:	-15.7 dB	
Receive Beamwidth:	13.6°	
Receive Polarization:	Left circular	
Transponder Types & Numbers:	Linear frequency translation (two)	
Transponder Bandwidths:	225 MHz	

Location Reposition Ability: Gas available for repositioning

Beam Repointing Ability: Not applicable

Normal Operation Ability: Both transponders for 5 years

Eclipse Operation Ability: Full via batteries

Multiple Access Ability: Yes

Availability: *

Projected Lifetime: *

*Launch is scheduled for January 1970.

Earth Station

Name: Rosman (ATS)

Assigned Inventory Letter: GA

Organization Responsibility: OTDA (GSFC)

Location: 35° 11' 35" N. Lat., 82° 52' 22" W. Long.

Antenna Size: 85' Parabola

Beam Pointing Mechanism/Accuracy: Autotrack & programmed, 0.050° (1σ)

Radio Frequency Bands	6/4 GHz*	
Transmit E.i.r.p.	+ 131 dBM (10 kw = Po)	
Receive G/T:	40.2 dB	
Modulator Types & Numbers:	FM & SSB 1 each	
Modulator Bandwidths:	25 MHz (FM)	
Demodulator Types & Numbers:	FM & PM 1 each	
Demodulator Bandwidths:	25 MHz	

Beam Reposition Ability:

Frequency Retunability: Fixed tuned crystal controlled (can interchange crystal), frequency synthesizer planned

Interconnection Capability: 5 MHz microwave link to GSFC

Polarization Capability: Linear rotatable

Non-Synchronous Satellite Capability: 2° per second

Availability: By arrangement with NASA

*3.7 ~ 4.2 GHz planned for 1972

Earth Station

Name: Rosman

Assigned Inventory Letter: GA-1

Organization Responsibility: OTDA for ATS

Location: 82° 52' 22" W. Long., 35° 11' 36" N. Lat.

Antenna Size: Transmit 4,9 element crossed yagi - Receive 16, 8 element crossed yagi

Beam Pointing Mechanism/Accuracy: X-Y mount transmit beamwidth 36° - Receive beamdwidth 15°

Radio Frequency Bands	135.6/149.22 MHz	
Transmit E.i.r.p.	45.8 dBW	
Receive G/T:	-5.3 dB	
Modulator Types & Numbers:	FM & AM MSG	
Modulator Bandwidths:	3 MHz	
Demodulator Types & Numbers:	FM & AM MSG	
Demodulator Bandwidths:	10 kHz - 3 MHz	

Beam Reposition Ability:

Frequency Retunability:

Interconnection Capability:

Polarization Capability: Linear or circular

Non-Synchronous Satellite Capability:

Availability: By arrangement with NASA

Earth Station

Name: Mojave (ATS)

Assigned Inventory Letter: GB

Organization Responsibility: OTDA (GSFC)

Location: 116° 53' 57" W. Long, 35° 17' 48" N. Lat.

Antenna Size: 40' Parabola

Beam Pointing Mechanism/Accuracy: Autotrack & Programmed 0.025° (1σ)

Radio Frequency Bands	6/4 GHz*	
Transmit E.i.r.p.	+ 124 dBM (10 kw = Po)	
Receive G/T:	32.7 dB	
Modulator Types & Numbers:	FM & SSB 1 each	
Modulator Bandwidths:	25 MHz (FM)	
Demodulator Types & Numbers:	FM/PM 1 each	
Demodulator Bandwidths:	25 MHz	

Beam Reposition Ability:

Frequency Retunability: Fixed tuned - crystal controlled (can interchange crystals) frequency synthesizer planned

Interconnection Capability: 2.4 kHz voice & data circuits

Polarzation Capability: Linear rotatable & LCP

Non-Synchronous Satellite Capability: 4° per second

Availability: By arrangement with NASA

*3.7 - 4.2 GHz planned for 1972

Earth Station

Name: Mojave

Assigned Inventory Letter: GB-1

Organization Responsibility: OTDA for ATS

Location: 116° 53' 57" W. Long., 35° 17' 48" N. Lat.

Antenna Size: Transmit 4,9 element crossed yagi - Receive 16,8 element crossed yaqi

Beam Pointing Mechanism/Accuracy: X-Y mount transmit beamwidth 36° - Receive beamwidth 15°

Radio Frequency Bands	135.6/149.22 MHz	
Transmit E.i.r.p.	45.8 dBW	
Receive G/T:	-5.3 dB	
Modulator Types & Numbers:	FM & AM MSG	
Modulator Bandwidths:	3 MHz	
Demodulator Types & Numbers:	FM & AM MSG	
Demodulator Bandwidths:	10 kHz - 3 MHz	

Beam Reposition Ability:

Frequency Retunability:

Interconnection Capability:

Polarization Capability: Linear or circular

Non-Synchronous Satellite Capability:

Availability: By arrangement with NASA

Earth Station

Name: Transportable (ATS)

Assigned Inventory Letter: GC

Organization Responsibility: (GSFC) OTDA

Location: Transportable*

Antenna Size: 40' Parabola

Beam Pointing Mechanism/Accuracy: Autotrack & Programmed, 0.025^{o} (1σ)

Radio Frequency Bands	6/4 GHz**	
Transmit E.i.r.p.	+ 124 dBM (10 kw = Po)	
Receive G/T:	33.4 dB	
Modulator Types & Numbers:	FM & SSB 1 each	
Modulator Bandwidths:	25 MHz (FM)	
Demodulator Types & Numbers:	FM/PM 1 each	
Demodulator Bandwidths:	25 MHz	

Beam Reposition Ability:

Frequency Retunability: Fixed tuned, crystal controlled (can interchange crystals) frequency synthesizer planned

Interconnection Capability: N/A

Polarization Capability: Linear rotatable & LCP

Non-Synchronous Satellite Capability: 3^{o} per second

Availability: By arrangement with NASA

*3.7 - 4.2 GHz planned for 1972

**Presently at Toowomba (Cooby Creek)

Earth Station

Name:

Assigned Inventory Letter: GC-1

Organization Responsibility: OTDA for ATS

Location: Transportable*

Antenna Size: Transmit - 1,9 element yagi - Receive - 9,8 element yagi

Beam Pointing Mechanism/Accuracy:

Radio Frequency Bands	135.6/149.22 MHz	
Transmit E.i.r.p.	45.3 dBW	
Receive G/T:	-5 dB	
Modulator Types & Numbers:	FM & AM MSG	
Modulator Bandwidths:	3 MHz	
Demodulator Types & Numbers:	FM & AM MSG	
Demodulator Bandwidths:	10 kHz - 3 MHz	

Beam Reposition Ability:

Frequency Retunability:

Interconnection Capability:

Polarization Capability: Linear or circular

Non-Synchronous Satellite Capability:

Availability: By arrangement with NASA

*Presently at Toowomba (Cooby Creek)

Earth Station

Name: None assigned (small ATS-VHF)

Assigned Inventory Letter: GD

Organization Responsibility: SCS/OSSA

Location: Portable

Antenna Size: 10 foot long crossed YAGI

Beam Pointing Mechanism/Accuracy: Pedestal mounted, manual.

Radio Frequency Bands	135.6 MHz	149.22 MHz
Transmit E.i.r.p.		30 dBW
Receive G/T:		
Modulator Types & Numbers:	FM	FM
Modulator Bandwidths:	100 kHz	100 kHz
Demodulator Types & Numbers:	FM	FM
Demodulator Bandwidths:	100 kHz	100 kHz

Beam Reposition Ability: Hemispherical

Frequency Retunability:

Interconnection Capability: Adequate for voice, TTY, data and facsimile.

Polarization Capability:

Non-Synchronous Satellite Capability:

Availability: By arrangement with ATS.

Earth Station

Name: Small Aperture Ground Station (SAGS) - Transportable

Assigned Inventory Letter: GE

Organization Responsibility: GSFC (ATS)

Location: GSFC* (Transportable)

Antenna Size: 15'

Beam Pointing Mechanism/Accuracy: Manual Tracking
Transmit 6.3 GHz $\pm$ .005
$\pm$ 0

Radio Frequency Bands

	4/6 GHz	
Transmit E.i.r.p.:	58.8 dbw	
Receive G/T:	18.4 dbw	
Modulator Types & Numbers:	Narrow Band FM	
Modulator Bandwidths:	12 Khz	
Demodulator Types & Numbers:	Narrow Band FM	
Demodulator Bandwidths:	12 Khz	

Beam Reposition Ability: Very good

Frequency Retunability: No

Interconnection Capability: Can interface with telephone equipment

Availability: By arrangement with NASA ATS Program Office . Designed for ATS-III

*Associated equipment mounted in station wagon.

Earth Station

Name: RANGE & RANGE RATE

Assigned Inventory Letter: GF

Organization Responsibility: OTDA/NASA

Location: Fairbanks, Alaska

Antenna Size: 30' Parabola

Beam Pointing Mechanism/Accuracy: Autotrack & Programmed 0.15°

Radio Frequency Bands

	1750 - 1850	2200 - 2300 MHz
Transmit E.i.r.p.:	+110 DBM (10kw=Po)	-
Receive G/T:	-	17.8 DB
Modulator Types & Numbers:	PM one	-
Modulator Bandwidths:	1 MHz	-
Demodulator Types & Numbers:	-	AM/PM coho, FM non-coho up to 10 MHz
Demodulator Bandwidths:	-	

Beam Reposition Ability: -

Frequency Retunability: Frequency Synthesizer

Interconnection Capability: 2 48 KHz circuits

Polarization Capability: RCP & LCP Diversity Combiner Linear

Non-Synchronous Satellite Capability: 5° per second

Availability: By arrangement with NASA

Earth Station

Name: Brewster (Washington State)

Assigned Inventory Letter: CA

Organization Responsibility: Comsat

Location: 48° 08' 49" North Lat., 119° 41' 28" West Long.

Antenna Size: 97' Cassegrain

Beam Pointing Mechanism/Accuracy: Autotrack ±0.02°

Radio Frequency Bands	4-6 GHz	
Transmit e.i.r.p.	98 dBW	
Receive G/T:	≥ 40.7 dB	
Modulator Types & Numbers:	1 TV & 3 MSG (FM)	
Modulator Bandwidths:	5/10/20/40 MHz	
Demodulator Types & Numbers:	1 TV & 3 MSG (FM)	
Demodulator Bandwidths:	5/10/20/40 MHz	

Beam Reposition Ability: Fully steerable AZ-EL

Frequency Retunability: Requires 1-2 hours when necessary components are on station - transmitter, tunable in two 70 MHz segments

Interconnection Capability: Adequate for MSG and video to Seattle.

Polarization Capability: Circular (transmit-left, receive-right) can be modified for linear any angle.

Non-Synchronous Satellite Capability: Yes

Availability: The earth station will be normally used for commercial communications after September 1969. The earth station would be available for demonstrational purposes providing INTELSAT II F4 were used in conjunction with this earth station.

Earth Station

Name: Small Aperture Stations*

Assigned Inventory Letter: CB

Organization Responsibility: Comsat

Location: Transportable

Antenna Size: 32' Cassegrain

Beam Pointing Mechanism/Accuracy: Manual ±0.1°

Radio Frequency Bands	4 GHz	
Transmit e.i.r.p.	Not applicable**	
Receive G/T:	31.5	
Modulator Types & Numbers:	Not applicable**	
Modulator Bandwidths:	Not applicable**	
Demodulator Types & Numbers:	2 TV & Sound (FM)	
Demodulator Bandwidths:	11/18/36 MHz	

Beam Reposition Ability: Hour angle/declination - manually from nominal position ±3° in declination and ±8° in hour angle

Frequency Retunability: 30 minutes when components are on-station

Interconnection Capability: Not known

Polarization Capability: Linear & circular (normal and orthogonal modes)

Non-Synchronous Satellite Capability: No

Availability: Available for demonstrational use

*Scheduled completions: March 1970
April 1970
May 1970

**Transmit capability may be added.

Earth Station

Name: Remote Earth Station*

Assigned Inventory Letter: CC

Organization Responsibility: Comsat

Location: Not designated

Antenna Size: 16'

Beam Pointing Mechanism/Accuracy: Manual ±0.2°

Radio Frequency Bands	4-6 GHz	
Transmit e.i.r.p.	71 dBW	
Receive G/T:	20 dB	
Modulator Types & Numbers:	1 MSG	
Modulator Bandwidths:	50 kHz	
Demodulator Types & Numbers:	1 MSG	
Demodulator Bandwidths:	50 kHz	

Beam Reposition Ability: Manually steerable - hour angle/declination

Frequency Retunability: Requires 1-2 hours when necessary components are on-station

Interconnection Capability: Not known

Polarization Capability: Linear and adjustable

Non-Synchronous Satellite Capability: No

Availability: Available for demonstrational use

*Scheduled completion December 1969.

Earth Station

Name: Casshorn

Assigned Inventory Letter: CD

Organization Responsibility: Comsat

Location: In storage - Manila Philippines

Antenna Size: 42' casshorn

Beam Pointing Mechanism/Accuracy: Autotrack and manual 0.04°

Radio Frequency Bands	4-6 GHz	
Transmit e.i.r.p.:	95.5 dBW	
Receive G/T:	32.5 dB	
Modulator Types & Numbers:	2 MSG (FM)	
Modulator Bandwidths:	3.5 MHz	
Demodulator Types & Numbers:	2 MSG (FM)	
Demodulator Bandwidths:	3.5 MHZ	

Beam Reposition Ability: Fully steerable AZ-EL

Frequency Retunability 1-2 hour when needed components are on-station.

Interconnection Capability: Not known

Polarization Capability: Linear with any orientation

Non-Synchronous Satellite Capability: Yes

Availability: Available for demonstrational purposes

Earth Station

Name: Andover (Maine)

Assigned Inventory Letter: CE

Organization Responsibility: Comsat

Location: 44° 38' 59" North Lat., 070° 42' 52" West Long.

Antenna Size: 68' horn-reflector

Beam Pointing Mechanism/Accuracy: Autotrack, manual ±0.02°

Radio Frequency Bands	4-6 GHz	
Transmit e.i.r.p.	98 dBW	
Receive G/T:	≥ 40.7 dB	
Modulator Types & Numbers:	1 TV, 9 MSG (FM)	
Modulator Bandwidths:	5/10/20/40 MHz	
Demodulator Types & Numbers:	1 TV, 15 MSG (FM)	
Demodulator Bandwidths:	5/10/20/40 MHz	

Beam Reposition Ability: Elevation -2° to 88°, azimuth 0° to 360°

Frequency Retunability: Requires 1-2 hours when needed components are on-station

Interconnection Capability: Adequate for MSG and video to New York

Polarization Capability: Linear, rotatable or circular

Non-Synchronous Satellite Capability: Yes

Availability: The earth station is normally used for commercial communications. The earth station would be available for demonstrational purposes providing INTELSAT II F3 were used in conjunction with this earth station.

Earth Station

Name: Etam (West Virginia)

Assigned Inventory Letter: CF

Organization Responsibility: Comsat

Location: 39° 16' 50" North Lat., 079° 44' 13" West Long.

Antenna Size: 97' parabolic-reflector

Beam Pointing Mechanism/Accuracy: Autotrack, manual ±0.015°

Radio Frequency Bands	4-6 GHz	
Transmit e.i.r.p.	100 dBW	
Receive G/T:	≥ 40.7 dB	
Modulator Types & Numbers:	8 MSG and 1 TV (FM)	
Demodulator Bandwidths:	5/10/20/40 MHz	
Demodulator Types & Numbers:	10 MSG and 1 TV (FM)	
Demodulator Bandwidths:	5/10/20/40 MHz	

Beam Reposition Ability: Fully steerable AZ-EL

Frequency Retunability: Requires 1-2 hours when necessary components are on-station

Interconnection Capability: Adequate for MSG and video

Polarization Capability: Circular (transmit-left, receive-right) can be modified for linear any angle

Non-Synchronous Satellite Capability: Yes

Availability: The earth station is normally used for commercial communications. The earth station would be available for demonstrational purposes providing INTELSAT III F2 were used in conjunction with this earth station.

*3 receive and 1 transmit MSG units will be added by October 1969.

Earth Station

Name: Cayey (Perto Rico)

Assigned Inventory Letter: CG

Organization Responsibility: Comsat

Location: 18° 08' 00" North Lat., 066° 07' 57" West Long.

Antenna Size: 97' parabolic reflector

Beam Pointing Mechanism/Accuracy: Autotrack, manual ±0.015°

Radio Frequency Bands	4-6 GHz	
Transmit e.i.r.p.	100 dBW	
Receive G/T:	≥ 40.7 dB	
Modulator Types & Numbers:	3 MSG and 1 TV (FM)	
Modulator Bandwidths:	5/10/20/40 MHz	
Demodulator Types & Numbers:	4 MSG and 1 TV (FM)	
Demodulator Bandwidths:	5/10/20/40 MHz	

Beam Reposition Ability: Fully steerable AZ-EL

Frequency Retunability: Requires 1-2 hours when necessary components are on station

Interconnection Capability: Adequate for MSG and video to San Juan

Polarization Capability: Circular (transmit-left, receive-right) can be modified for linear any angle

Non-Synchronous Satellite Capability: Yes

Availability: The earth station is normally used for commercial communications. The earth station would be available for demonstrational purposes providing INTELSAT III F2 were used in conjunction with this earth station.

Earth Station

Name: Jamesburg (California)

Assigned Inventory Letter: CH

Organization Responsibility: Comsat

Location: 36° 24' 10" North Lat., 121° 38' 48" West Long.

Antenna Size: 97' parabolic-reflector

Beam Pointing Mechanism/Accuracy: Autotrack, manual ±.015°

Radio Frequency Bands	4-6 GHz	
Transmit e.i.r.p.	100 dBW	
Receive G/T:	> 40.7 dB	
Modulator Types & Numbers:	6 MSG and 1 TV (FM)	
Modulator Bandwidths:	5/10/20/40 MHz	
Demodulator Types & Numbers:	6 MSG and 1 TV (FM)	
Demodulator Bandwidths:	5/10/20/40 MHz	

Beam Reposition Ability: Fully steerable AZ-EL

Frequency Retunability: Requires 1-2 hours when necessary components are on station.

Interconnection Capability: Adequate for MSG and video to San Francisco

Polarization Capability: Circular (transmit-left, receive-right) can be modified for linear any angle.

Non-Synchronous Satellite Capability: Yes

Availability: The earth station is normally used for commercial communications. The earth station would be available for demonstrational purposes providing INTELSAT III F4 were used in conjunction with this earth station.

*One(1) transmit and five(5) receive MSG units will be added by December 1969.

Earth Station

Name: Paumalu No. 1 (Hawaii)

Assigned Inventory Letter: CI

Organization Responsibility: Comsat

Location: 21° 40' 24" North Lat., 158° 02' 09" West Long.

Antenna Size: 97' cassegrain

Beam Pointing Mechanism/Accuracy: Autotrack, program track, manual ±0.02

Radio Frequency Bands	4-6 GHz	
Transmit e.i.r.p.	100 dBW	
Receive G/T:	> 40.7 dB	
Modulator Types & Numbers:	1 TV and 3 MSG (FM)	
Modulator Bandwidths:	5/10/20/40 MHz	
Demodulator Types & Numbers:	1 TV and 3 MSG (FM)	
Demodulator Bandwidths:	5/10/20/40 MHz	

Beam Reposition Ability: Fully steerable AZ-EL

Frequency Retunability: Requires 1-2 hours when necessary components are on station

Interconnection Capability: Adequate for MSG and video to Honolulu

Polarization Capability: Circular (transmit-left, receive-right) can be modified for linear with any orientation

Non-Synchronous Satellite Capability: Yes

Availability: The earth station will be normally used for commercial communications after September 1969. The earth station would be available for demonstrational purposes providing INTELSAT II F4 were used in conjunction with this earth station.

Earth Station

Name: Paumalu No. 2 (Hawaii)

Assigned Inventory Letter: CJ

Organization Responsibility: Comsat

Location: 21° 40' 17" North Lat., 158° 02' 12" West Long.

Antenna Size: 97' parabolic-reflector

Beam Pointing Mechanism/Accuracy: Autotrack, manual ±0.015°

Radio Frequency Bands	4-6 GHz	
Transmit e.i.r.p.	100 dBW	
Receive G/T:	≥ 40.7 dB	
Modulator Types & Numbers:	3 MGS and 1 video (FM)	
Modulator Bandwidths:	5/10/20/40 MHz	
Demodulator Types & Numbers:	6 MGS and 1 video (FM)	
Demodulator Bandwidths:	5/10/20/40 MHz	

Beam Reposition Ability: Fully steerable

Frequency Retunability: Requires 1-2 hours when necessary components are on station.

Interconnection Capability: Adequate for MSG and Video to Honolulu

Polarization Capability: Circular (transmit-left, receive-right) can be modified for linear any angle.

Non-Synchronous Satellite Capability: Yes

Availability: The earth station is normally used for commercial communications. The earth station would be available for demonstrational purposes providing INTELSAT III F4 were used in conjunction with this earth station.

*One(1) transmit and two(2) receive MSG units will be added by October 1969

Earth Station

Name: Talkeetna*

Assigned Inventory Letter: CK

Organization Responsibility: Comsat

Location: 62° - 19' - 57", North Lat., 150°-01-52", West Long.

Antenna Size: 97' Cassegrain

Beam Pointing Mechanism/Accuracy: Autotrack, manual ±.015°

Radio Frequency Bands	4-6 GHz	
Transmit e.i.r.p.	100 dBW	
Receive G/T:	> 40.7 dB	
Modulator Types & Numbers:	1 TV & 1 MSG (FM)	
Modulator Bandwidths:	5/10/20/40 MHz	
Demodulator Types & Numbers:	1 TV & 2 MSG (FM)	
Demodulator Bandwidths:	5/10/20/40 MHz	

Beam Reposition Ability: Fully steerable AZ-EL

Frequency Retunability: Requires 1-2 hours when necessary components are on-station

Interconnection Capability: Adequate for MSG and video to Anchorage

Polarization Capability: Circular (transmit-left and receive-right) can be modified for linear any angle

Non-Synchronous Satellite Capability: Yes

Availability: The earth station would be normally used for commercial communications. The earth station would be available for demonstrational purposes providing INTELSAT III F4 were used in conjunction with this earth station.

*Scheduled operational date: 7/1/70.

Earth Station

Name: Andover (Maine)

Assigned Inventory Letter: CL

Organization Responsibility: INTELSAT

Location: 44° 38' 59" North Lat., 070° 42' 52" West Long.

Antenna Size: 42' casshorn

Beam Pointing Mechanism/Accuracy: Autotrack and Manual ±0.04°

Radio Frequency Bands	4-6 GHz	
Transmit e.i.r.p.:	95.5 dBW	
Receive G/T:	32.5 dB	
Modulator Types & Numbers:	1 MSG (FM)	
Modulator Bandwidths:	3.5 MHz	
Demodulator Types & Numbers:	1 MSG (FM)	
Demodulator Bandwidths:	3.5 MHz	

Beam Reposition Ability: Fully steerable AZ-EL

Frequency Retunability: 1-2 hours when needed components are on-station

Interconnection Capability: Adequate MSG and video to New York

Polarization Capability: Linear with any orientation

Non-Synchronous Satellite Capability: Yes

Availability: Required for Telemetry and Command of INTELSAT satellites.

Earth Station

Name: Paumalu (Hawaii)

Assigned Inventory Letter: CM

Organization Responsibility: INTELSAT

Location: 21° 40' 18" North Lat., 158° 02' 09" West Long.

Antenna Size: 42 foot Casshorn

Beam Pointing Mechanism/Accuracy: Autotrack, discrete point program, manual ±0.04°

Radio Frequency Bands	4-6 GHz	
Transmit e.i.r.p.:	95.5 dBW	
Receive G/T:	32.5 dB	
Modulator Types & Numbers:	1 MSG (FM)	
Modulator Bandwidths:	3.5 MHz	
Demodulator Types & Numbers:	1 MSG (FM)	
Demodulator Bandwidths:	3.5 MHz	

Beam Reposition Ability: Fully steerable AZ - EL

Frequency Retunability: 1-2 hour when needed components are on-station.

Interconnection Capability: Adequate MSG and video to Honolulu

Polarization Capability: Linear with any orientation

Non-Synchronous Satellite Capability: Yes

Availability: Required for telemetry and command of INTELSAT satellites

Earth Station

Name:

Assigned Inventory Letter: C N

Organization Responsibility: Hughes Aircraft Company

Location: Transportable

Antenna Size: 30' Cassegrain

Beam Pointing Mechanism/Accuracy: Motor driven manual ± 0.1°

Radio Frequency Bands	4-6 GHz	
Transmit E.i.r.p.	93 dBW	
Receive G/T:	28.4 dB	
Modulator Types & Numbers:	1 TV (FM)	
Modulator Bandwidths:	30 MHz	
Demodulator Types & Numbers:	2 TV (FM)	
Demodulator Bandwidths:	30 MHz	

Beam Reposition Ability: Motor driven

Frequency Retunability: Requires 1-2 hours when needed components are on station

Interconnection Capability: Not known

Polarization Capability: Linear

Non-Synchronous Satellite Capability: No

Availability: By arrangement with Hughes Aircraft Company

Earth Station

Name:

Assigned Inventory Letter: CY

Organization Responsibility: Hughes Aircraft Company

Location: Transportable

Antenna Size: 16' Cassegrain

Beam Pointing Mechanism/Accuracy: Manual ± .2°

Radio Frequency Bands	4-6 GHz	
Transmit E.i.r.p.	88.7 dBW	
Receive G/T:	20 dB	
Modulator Types & Numbers:	1 TV (FM)	
Modulator Bandwidths:	30 MHz	
Demodulator Types & Numbers:	1 TV (FM)	
Demodulator Bandwidths:	30 MHz	

Beam Reposition Ability: Manually steerable - hour angle/declination

Frequency Retunability: Requires 1-2 hours when needed components are on-station

Interconnection Capability: Not Known

Polarization Capability: Linear

Non-Synchronous Satellite Capability: No

Availability: By arrangement with Hughes Aircraft Company

Earth Station

Name: Arkansas

Assigned Inventory Letter: CZ

Organization Responsibility: Hughes Aircraft Company

Location:

Antenna Size: 85' Cassegrain

Beam Pointing Mechanism/Accuracy: Motor driven ± .01

Radio Frequency Bands	4-6 GHz	
Transmit E.i.r.p.	84.5 dBW	
Receive G/T:	39.5 dB	
Modulator Types & Numbers:	I TV 1 MSG (FM)	
Modulator Bandwidths:	30 MHz	
Demodulator Types & Numbers:	I TV 1 MSG (FM)	
Demodulator Bandwidths:	30 MHz	

Beam Reposition Ability: Limited motion AZ-EL ± 5^{o} either axis

Frequency Retunability: 1-2 hours when needed components are on station

Interconnection Capability: Not known

Polarization Capability: Linear

Non-Synchronous Satellite Capability: No

Availability: By arrangement with Hughes Aircraft Company

Earth Station

Name: Transatel

Assigned Inventory Letter: Q

Organization Responsibility: General Electric Company

Location: Transportable

Antenna Size: 15' parabola

Beam Pointing Mechanism/Accuracy: Monopulse autotrack and stabilized for shipboard operation ± .25

Radio Frequency Bands	6 GHz	
Transmit E.i.r.p.	87.9 dBW	
Receive G/T:		
Modulator Types & Numbers:	1 TV - 1 TVS (FM)	
Modulator Bandwidths:	20 MHz	
Demodulator Types & Numbers:		
Demodulator Bandwidths:		

Beam Reposition Ability: Fully steerable AZ-EL

Frequency Retunability: Requirement 1-2 hours when needed components are on station

Interconnection Capability:

Polarization Capability: Linear

Non-Synchronous Satellite Capability: No

Availability: By arrangement with Western Union International when not used for Apollo operations

Earth Station

Name:

Assigned Inventory Letter: C R

Organization Responsibility: Collins Radio Company

Location: Dallas, Texas

Antenna Size: 60'

Beam Pointing Mechanism/Accuracy: Manual and Autotrack

Radio Frequency Bands	6/4 GHz	
Transmit E.i.r.p.	84.5 dBW	
Receive G/T:	39.1 dB	
Modulator Types & Numbers:	1 MSG or TV (FM)	
Modulator Bandwidths:	40 MHz	
Demodulator Types & Numbers:	1 MSG or TV (FM)	
Demodulator Bandwidths:	40 MHz	

Beam Reposition Ability: Fully steerable AZ-EL

Frequency Retunability: Requires 1-2 hours where needed components are on-station

Interconnection Capability: None at present

Polarization Capability: Linear adjustable or circular

Non-Synchronous Satellite Capability: Yes

Availability: By arrangement with Collins Radio Company

Earth Station

Name:

Assigned Inventory Letter: CS

Organization Responsibility: RCA World Communications

Location:*

Antenna Size: 42' Casshorn

Beam Pointing Mechanism/Accuracy:

Radio Frequency Bands	4-6 GHz	
Transmit E.i.r.p.	95.5 dBW	
Receive G/T:	> 32.5 dB	
Modulator Types & Numbers:	___ MSG (FM)	
Modulator Bandwidths:	___ MHZ	
Demodulator Types & Numbers:	___ MSG (FM)	
Demodulator Bandwidths:	___ MHz	

Beam Reposition Ability: Fully steerable AZ-EL

Frequency Retunability: 1-2 hours where needed components are on station

Interconnection Capability: Not known

Polarization Capability: Linear with any orientation

Non-Synchronous Satellite Capability: Yes

Availability: By arrangement with RCA

*The electronics van is presently at Guam and should be available 1970. The antenna is presently at

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OFFICE OF THE WHITE HOUSE PRESS SECRETARY

THE WHITE HOUSE

PRESS CONFERENCE
OF
THE VICE PRESIDENT,
DR. ROBERT C. SEAMANS, SECRETARY OF THE AIR FORCE,
DR. THOMAS O. PAINE, ADMINISTRATOR,
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION,
DR. LEE A. DUBRIDGE,
SCIENCE ADVISER TO THE PRESIDENT,
AND
LIEUTENANT COLONEL BILL ANDERS,
EXECUTIVE SECRETARY OF THE NATIONAL SPACE COUNCIL.
THE ROOSEVELT ROOM

AT 3:20 P.M. EDT

MR. WARREN: The Vice President is here this afternoon to discuss the Space Task Group report to the President and with him he has Dr. Lee DuBridge, Dr. Thomas Paine of NASA, and Secretary of the Air Force Seamans.

Also here today is a gentleman I am sure you all remember, Lieutenant Colonel Bill Anders, who is retired from the Air Force and who is now Executive Secretary of the National Space Council, of which the Vice President is the head.

I will turn this over now to the Vice President.

THE VICE PRESIDENT: Ladies and Gentlemen:

If I can just review the beginning, the origin of this Space Task Group for you for a minute.

On February 13, the President appointed a group to develop a recommendation for the United States' space program to take in the post-Apollo period. He requested us not only to prepare a coordinated program, but to look specifically at the budgetary considerations.

The principles of the Space Task Group have already been introduced and in addition to them, of course, we had, as observers working with us and cooperating with us in our explorations, Secretary Johnson of State, Dr. Glenn Seaborg, Chairman of the Atomic Energy Commission, and Robert Mayo, the Director of the Budget.

We had quite a few far-reaching meetings in developing these recommendations which have now been distributed you, and I want to point out that there are additional copies of these available if you do need them.

The results of our explorations into a subject which is quite difficult to cope with because of the diversity of opinion and because of the inherent problems

of visualizing what is actually going to take place several decades from now, nonetheless did develop a unanimity of opinion within a certain spectrum among us.

As the report indicates, as far as NASA is concerned, we came up with a recommended three programs, each having different budgetary levels and each having as a goal -- and I emphasize the word "goal," and not a commitment -- a manned landing on Mars before the end of the century.

We rejected a crash program of the magnitude that would turn loose every bit of our technological ability toward achieving this manned landing as quickly as possible, regardless of the budgetary limitations, for the obvious reason that there are competing priorities in a difficult time of inflation that makes it impossible for us to move in this direction.

We also rejected foregoing the substantial benefits that have come out of the APOLLO program, the benefits of National prestige, so aptly and cogently drawn by the APOLLO 11 astronauts in their appearance before the Joint Session of Congress yesterday.

We presented, rather, a balanced program, not unduly focusing in its developmental stages upon the manned space program, but spreading our abilities over space missions such as navigation, meteorology, communications, the space science program, the enhancement of National security and increased international cooperation and participation and the development of new capabilities.

We came up with the options with which you have been provided. I can't say what my principal colleagues on the group would like to suggest as their individual choices as far as these options are concerned.

I think you also have in your possession a letter from me to the President indicating that my personal preference is Option II, which allows a clear acceptance of the Mars landing goal sometime around 1986, but nonetheless, as Bill Anders pointed out to me today, leaves us free to be flexible by evaluating the results of precursor flights by unmanned vehicles, testing the desirability of the time frame in which we should really make the final designation of a Mars landing date.

Option I would permit a landing on Mars in the early 1980's and would require a maximum annual expenditure of $9 billion in 1980.

Option II, the one I personally recommended, would include the launch of a manned Mars mission in 1986, about three years later than Option I. The maximum annual expenditure for this option would be about $8 billion, occurring in the early 1980's.

Option III includes initial development of a space station and reuseable space shuttles, which are also included, incidentally, in Options I and II, but defers a decision on a manned landing on Mars while maintaining the option of accomplishing this goal after 1980, but before the close of the century.

Now, the Task Group, as I said, rejected these two outside limits, the idea of a crash program, and the other, the idea of foregoing any future manned flights after the phase out of APOLLO.

The Task Group also considered and reported to the President on defense aspects of the Nation's space program. It recommended continuing coordination between the Department of Defense and NASA, particularly in the development of the new space transportation capability.

The Task Group recommended broadening the applications program, which I have already indicated, such as air and ocean travel control, navigation system, environmental monitoring and forecasting, earth resources, surveys and communications.

We recommended increased utilization of the National Aeronautics and Space Council, the council which Bill Anders now heads, as Executive Secretary, not only in coordinating interagency space interest, but in conducting a continuing re-assessment of the space program.

That, briefly, is a summation of the non-technical parts of our report. I do want to say, before I turn the meeting over to Dr. DuBridge, who will comment on the scientific aspects of the report, that this has been one of the most stimulating and profitable groups that I have ever had the pleasure of working with.

I want particularly to commend the agencies represented by the principals, particularly Dr. Russell Drew, who is with us today, and who made the presentation of the final result of our studies to the President the day before yesterday.

Dr. DuBridge, would you like to add something?

DR. DU BRIDGE: Thank you, Mr. Vice President.

This is Russell Drew right here, and I want to commend him, too. The staff work on this report was coordinated through my office and Dr. Drew was my chief aide in this respect. He did a marvelous job inhelping to bring all the ideas together, sorting them out and bringing unanimity in the Task Group and in the staff people who were concerned with this report.

I know that some of the more spectacular features of this report will be the matters that have to do with the large budget expenditures, the important space transportation system, the important space stations, and particularly, the Mars landing.

I would want to say, however, that in all three options there are, from the scientific community's point of view, very heavy emphasis on important aspects of proceeding with science and applications of this program. All three options contain heavy emphasis on earth applications, satellites, for studying the geology, the geography, the atmosphere of the oceans of the earth and bringing space technology directly and immediately to the benefit of the people on earth.

All three programs also consist and include heavy emphasis on scientific programs, to extend our scientific knowledge of the earth itself, of the moon, through additional lunar expeditions, interplanetary space and additional scientific information about the moon and the planets.

They include the grand tour of the outer planets at some time in the late '70's when these grand tours become possible because of the peculiar lineup of the planets which occurs in the late '70's and which will not occur again for another 100 or 150 years. This will be a most important scientific enterprise which is included in all of these options.

Therefore, I think the important part of these reports having to do with the scientific community, will be the earth applications and the scientific programs which are mixed up, however, with both the manned and the unmanned programs because the manned programs, earth satellite programs, and the manned landing on Mars will all also have important scientific components. That is why we call it a balance program. It aims at applications and scientific objectives and exploration objectives by using both manned and unmanned technologies.

Finally, there is heavy emphasis in the report on international collaboration. I am leaving tomorrow morning with a group of colleagues to travel in several countries in Europe in which we will discuss general matters of scientific collaboration with these countries, including questions of how we can best collaborate in the space field.

I think that is all I need to say, and we will now, all of us, be ready to try to answer your questions.

Q Dr. DuBridge, do you have any recommendation on the options yourself?

DR. DU BRIDGE: I am not putting in any special personal recommendation, because I think the choice between the three is possibly a matter of budgetary consideration, and I think that should be left to the President.

Q Dr. DuBridge, you have said recently that there is no possibility or a very great unlikelihood of life on Mars, so how do you rationalize the sending of men there to look for life?

DR. DU BRIDGE: Well, there are many other things that men will look for besides life. Nobody ever expected to find life on the moon, either, and yet what the astronauts discovered there and the analysis of the materials that they brought back, which are undergoing a very exciting analysis and interpretation, has revealed a great wealth of information

about the nature of the moon. Whether or not there is life on Mars, seeing Mars close up and bringing back samples of the Martian surface will be a great event in scientific history.

Q When does the President have to make his decision to be able to get one of these options into motion?

DR. DU BRIDGE: The only option that requires a very early decision on the Mars project is Option I, in which the decision would have to be made quite soon to get going with that. It would require the decision on Mars by 1974 if Option I were to be undertaken. It could be a little bit later on Option II and, of course, still later on Option III.

Q Mr. Vice President, may we ask you how big a factor was it in reaching your decision on which of these options to go with was what the Soviet's capabilities are on making it in the future, and if the President adopts your option, what are the chances of the Soviet Union staging a manned landing on Mars first?

THE VICE PRESIDENT: To answer the first part of your question, almost no consideration, because as we developed these options, all three of them are flexible enough to allow modifications to take place and accelerations to take place in the budgetary end of things, the funding of the programs to move them up should it be indicated by some future development on the part of the capability on the part of the Soviets or some other nation that might make us wish to, as we did in the pre-Apollo days, undertake a more vigorous and more expensive approach to the whole question.

The flexibility is built in to these options and doesn't require us to react at the present time to anything that is happening outside our own space program.

I might add here that in Table 2 of the booklet that has been distributed, you will see for fiscal year 1970 the funding levels are $3.9 million for each of the three options. In 1971, it moves to $4.250 billion for 1971 on Option 1, but only $3.950 million for II and III. From that point on, II and III maintain a constant level together, all the way up to 1978, which is the first place that Option II takes off and starts to go up.

Q If we may, Mr. Vice President, what are the chances that the Russians will beat us in terms of a man on Mars?

THE VICE PRESIDENT: I think Dr. Paine would probably know more about the developments of the Soviet scientific capability than I would. We have not seen very much in the way of information advanced through the media from the Soviet Union on any space activity.

We understand that they are still interested in this area. They are not, by any means, leaving the field to the United States, but maybe Dr. Paine would like to comment on that.

DR. PAINE: That is a good statement.

Q Mr. Vice President, were it not for the budget considerations, would you have favored Option I?

THE VICE PRESIDENT: No, I don't believe so, because I personally believe that although we need this long-range goal, that is, as the APOLLO program named as a simple objective the conquest of the moon to the feet of man, while we need this goal we should wait until we can establish through our precursor flights of unmanned satellites how valuable it is for us to go to Mars at any particular moment.

When we have such difficult budgetary competition taking place between the domestic problems of the country and the need to get on with this type of thing, we want to know exactly what the benefits are going to be as far as we can and we need these precursor flights to give us some idea of the potential benefit of the flight.

Q Dr. Paine, under your cheapest budget, would you be able to hold together your space industrial complex, your machine, or would it fall apart at the low rate of spending on the third option?

DR. PAINE: No. All three of these options will hold together the team and indeed will give them a major challenge. As the Vice President explained, the principal difference between the options is budgetary, how long you string out the programs in the future.

Q Dr. Paine, which option do you opt for?

DR. PAINE: I have not yet made my recommendation to the President, and I am considering this very carefully. I think that the program itself in any one of the three options is the thing that so far we have put together with a great deal of care. All three of these programs are programs that we in the Task Force and the observers unanimously endorsed.

The question of which you select has to get you into the question of National priorities, and together with many other people, I share the view that we are not moving ahead in many other areas as rapidly as we should be. We are faced with problems of inflation. When I make my recommendation to the President, it will be on the basis of taking these things into consideration, also.

Q You told the Senate Space Committee last month that a manned expedition landing on Mars in 1932 would not, in your estimation, be a crash program. Have you changed your mind since then?

DR. PAINE: It would not be a crash program, but it would certainly be a flat-out program that would demand that we were successful in everything that we undertook and it would require substantial expenditures.

You will notice that all of our Mars programs are predicated on the availability of nuclear propulsion, which will make this expedition a far more economical and practical thing to do. It does, however, require that we come up with

a successful answer to the problems we face in this area. We are making very good progress in nuclear propulsion. We are very pleased and we, therefore, felt that the Mars expendition should follow and take advantage of nuclear propulsion which would not only make this an expedition that would have far more capability, but at the end of the expedition, as our testimony shows before the Senate Committee, we would still have the space ships in earth orbit ready to be refueled and resupplied and set forth again.

So the Mars expedition in the 1980's, of the type that we are talking about, is a very different proposition from the one-shot expendable SATURN mission of the 1960's.

Q Dr. DuBridge, when you were talking about the timing of a Presidential decision, were you talking in terms of months or what, when you said soon?

DR. DU BRIDGE: I thought the question was how soon would the President have to make his decision in regard to the Mars landing. The answer which Dr. Paine gave was in Option I in 1974, and the other options at corresponding later periods.

I hope the President's choice among these three general options will be made rather soon. He has not given us any indication of how soon, but I have ever expectation that it will only be a few weeks before the President indicates his preference among these three options.

Q Will the Task Force stay organized to advise the President further?

DR. DU BRIDGE: We will stand by to answer any questions which he might like to raise, but we consider that our task has been completed now.

Q Dr. Seamans, what would the DOD use the space shuttle for? It has been recommended that it jointly enter into studies with NASA. What would you use it for?

DR. SEAMANS: The DOD is very interested in the possibility of the space transportation system, as with the recoverable booster and space craft into orbit, not for a manned program, but because there are a large number of unmanned payloads that the Department of Defense is putting into orbit, and if a reliable, recoverable space transportation system could be developed, we believe that the cost of our program in the future could be materially reduced.

Q Dr. Paine, do you envision a space craft that could land men and take men to Mars at that time would also be useful for fly-bys to Jupiter and perhaps other planets?

DR. PAINE: The same type of space craft that would take men out to Mars and back would have a number of other applications. It certainly would be excellent for Venus expeditions. It would be a very good low-cost way to shuttle men back and forth to the moon.

Whether we could get out as far as Jupiter is another question. I think that would represent quite another thing. I think this will require the next generation of advance in space propulsion.

Q Can you give us an estimate of the cost of going to Mars on these various programs?

DR. PAINE: It is difficult to put a figure on it because it partly depends on the base from which we leave, how far we have come with nuclear propulsion, how far we have come with our space shuttle and how our space station program has progressed.

With these programs behind us, an expedition to Mars should be no more expensive than the APOLLO program to go to the moon. But those Mars specific expenditures would start later on, after we are satisfied that we had made the right technical progress in these other areas.

Q Does this mean you can wait until 1974 before you would have to commit yourselves to a Mars decision?

DR. PAINE: Yes. We would not start developing Mars systems equipment until the 1974 period.

Q When would you have to commit to the Mars landing?

DR. PAINE: 1974. That is the specific part. It is 1974 for Option I.

Q For Option II?

DR. PAINE: For Option II you could go as late as 1977 -- 1976 would probably be a better date.

Q Is there any shut-off date, Dr. Paine, in the production of a SATURN V? Are you just going to go on making those?

DR. PAINE: At the present time we are keeping the team together to produce the SATURN V's. We are producing components for them. We have not yet reached a decision as to what the terminal number will be or the rate at which we will proceed in the future. We still have the teams together, the production lines in place.

Q It is still three a year?

DR. PAINE: Yes.

Q Dr. Seamans, do you have a personal preference as to which option should be chosen here?

DR. SEAMANS: I might point out that there are two sets of options. There is a set of options for the Department of Defense which we have not been discussing. This will have to be decided on a case-by-case basis rather than really between options as we go ahead.

As far as the NASA program is concerned, I felt very strongly from the start that from the present vantage point of our space program, having achieved the lunar landing and other achievements, that we should exploit this capability to the maximum extent for scientific purposes and for the service of mankind here on earth. I am very happy with all three options because they all show an increase in this exploitation area above the present level that we now have in the NASA program.

So, I would say between the options it becomes a question of the budget, However, of the various items, the big budget items on which the decision will hinge, I personally would like to see an early experimental program to determine whether the space transportation system is really in the cards or not because this could have impact, as I have already said, on the DOD effort.

Q Dr. Paine, what is the development cost of the space shuttle and space station? Do you have any estimate?

DR. PAINE: I don't have those numbers with me. We are preparing the backup material which will be available this Friday, that NASA submitted to the Space Task Group which has a breakdown of all these programs.

DR. DU BRIDGE: The annual costs are shown on the chart on Page 25. It shows the component which the shuttle will occupy during the first few years of its development and also the component which would be attributable to the space station alone during those years. You can add up the areas of those curves and get the total numbers.

Q Dr. DuBridge, why are you handing us three options? Why aren't you just telling the President that we looked at all of these things, the pros and cons, and here is what we have looked at and we would like you to go with one of the options. Why are you telling us about three options?

DR. DU BRIDGE: I think it would have been inconsiderate for us to say to the President, here is one program and it is the only one you have to chose from. There are many other things that the President must consider as he considers the space program, such as our fight against inflation, the problems of welfare, the many other problems which face the nation. Only in the President's office can all of these considerations and priority problems be brought together so that a decision can be made bringing in all aspects of our national welfare and national prosperity.

Therefore, I think it would have been a little, let us say, inconsiderate, for us not to have given the President several options, all of which have components which we believe are valuable and important and which we believe capitalize on the great technological advances and scientific advances that we have seen in the last ten or twelve years and which give us the means of moving ahead, but leaving it to him to chose the pace at which this motion shall occur and in making this determination in consideration of all other national priority problems.

Q I am not saying why are you giving him three choices. I am saying, why are you telling us about it. Isn't that a little on the political side?

DR. DU BRIDGE: We are telling you exactly what we told the President. The President felt that it would be desirable for us to present to the public exactly the report that we presented to him. So this is precisely the report that we gave to the President with the attachments. There is a classified attachment from DOD given to the President which is not distributed to the press.

So we are simply coming clean with you and telling you exactly what we told the President. That was his desire.

Q Dr. Paine, when are you going to make your recommendation to the President?

DR. PAINE: I will probably be making my recommendations in about a week.

Q I have not had a chance to look at this except only very briefly, but I saw in Option II and III that you had a lunar surface base station for 1983. Would you say on what level that would be and how many people would be there?

DR. PAINE: This is predicated, again, on the success of our space station module which will give us the capability of keeping six to twelve men safe in orbit in space for substantial periods of time.

We propose that toward the end of the 1970's, if we have a successful nuclear propulsion capability, to move one of these space station modules out and put it in orbit around the moon which will be our first lunar base, but not our first lunar surface base.

Then, several years later, when we have selected the area of the moon that we think would be the most advantageous to have men living on the surface, we would take one of these very similar modules and, using a space tug capability, ease this down on to a soft landing on the surface.

Q Dr. Paine, there has been some discussion in the press and elsewhere, up on the Hill, about the relative lack of emphasis on the applications program, the scientific satellite, the weather satellite and communications and so forth.

This report and others indicate that there should be increased emphasis on these. Can you give us some indication or percentage figures, perhaps, of increased activity on the part of NASA in these two areas?

DR. PAINE: Again, this is covered in our more detailed breakdown that we will have available for you Friday. The general area that we are putting the most emphasis behind is this new area of earth resources. This is an area that holds great promise. At the same time, there is a great deal of work to do before this promise can be proved and the true economic benefits in the many different areas which it will influence can be established.

There are opportunities for substantial returns in the field of surveillance of agriculture, forestry, pasture lands, fisheries, a great deal in the management of water, and all of these things, minerals. These are things which we will be looking at and trying to find out where the maximum payoff is, where we can make the best investment that will give us an earth resources program.

Q Do you mean you are going to do a complete rethinking of the whole applications area?

DR. PAINE: It is not a rethinking. This is just moving ahead in the thinking that we already have underway.

Q Dr. DuBridge, is the word "program" in this booklet synonymous with the word "option" in this booklet?

MR. DREW: If you are talking about the NASA booklet, yes.

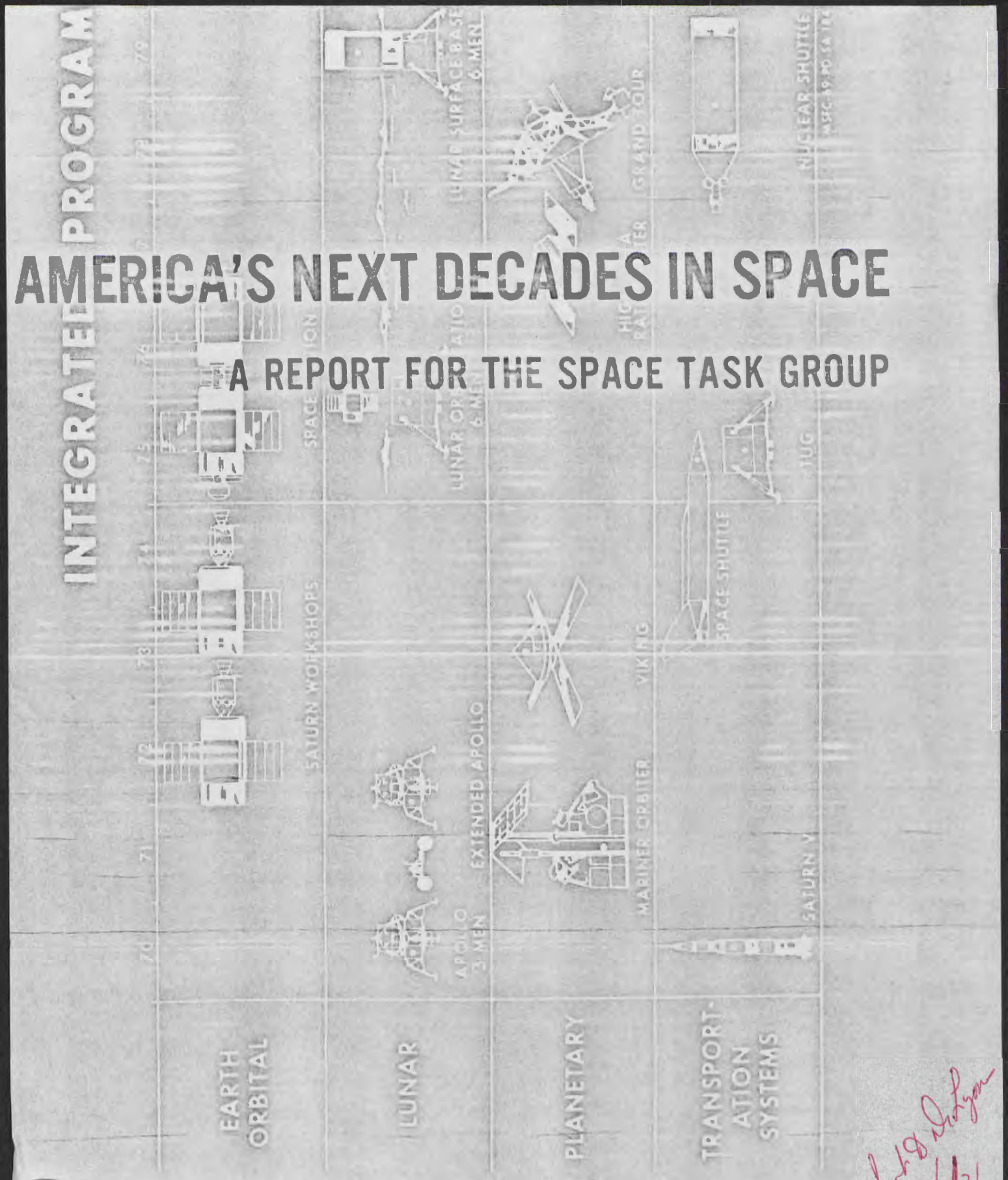
DR. DU BRIDGE: Yes, we have used the two interchangeably.

Q Dr. Paine, you said before Congress, you or Dr. Miller, that these space shuttles would be able to land and take off virtually from any airport. Does this mean that Cape Kennedy is obsolete?

DR. PAINE: Not at all. I think that that was perhaps a somewhat oversimplification. When these things take off they are going to generate noises that I assure you the National Airport would not welcome.

THE PRESS: Thank you.

END (AT 3:50 P.M. EDT)

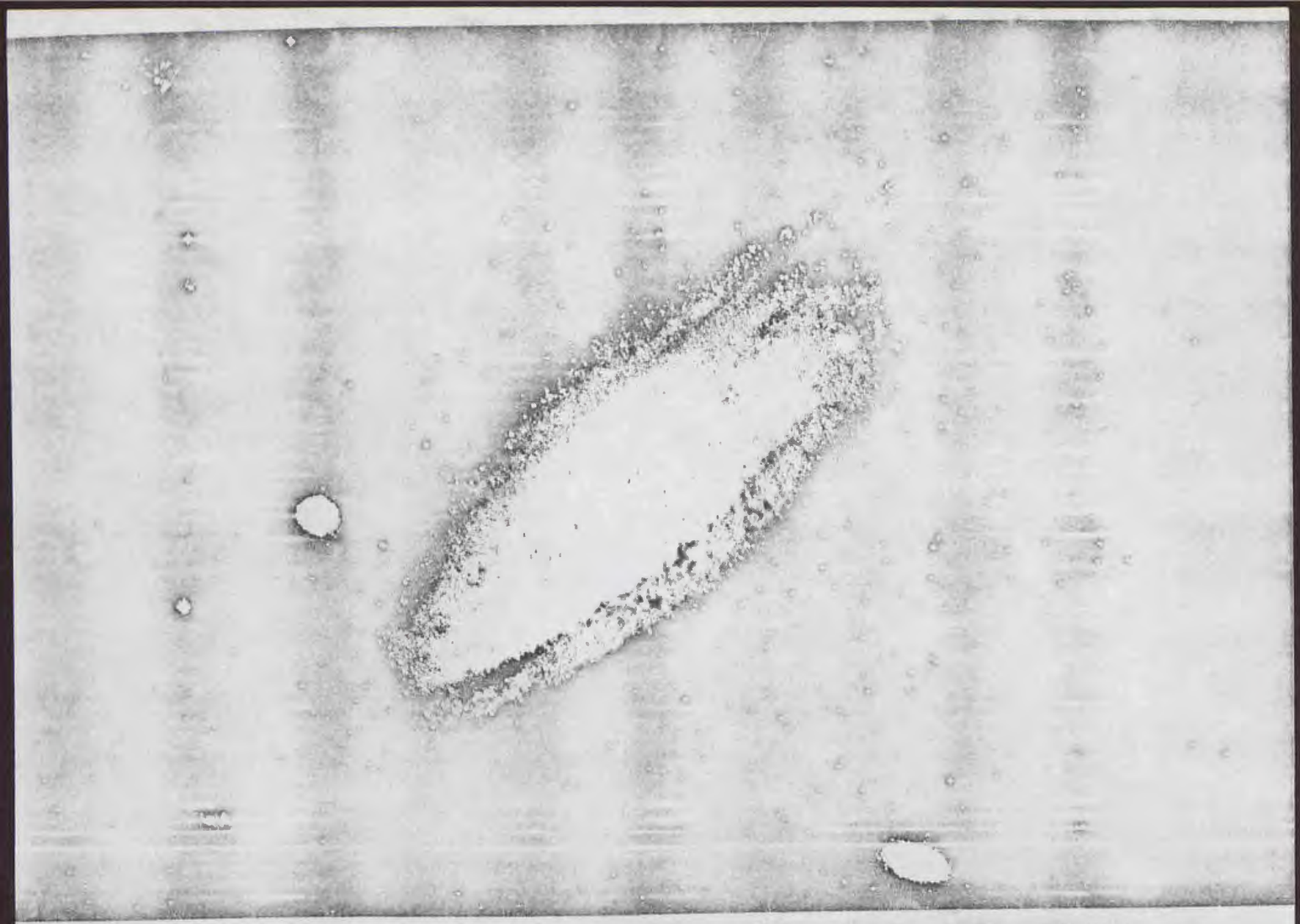


AMERICA'S NEXT DECADES IN SPACE

A REPORT FOR THE SPACE TASK GROUP

PREPARED BY
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
SEPTEMBER 1969

Sent to Nixon 4/1/71



THE POST–APOLLO SPACE PROGRAM: DIRECTIONS FOR THE FUTURE

SPACE TASK GROUP REPORT TO THE PRESIDENT

SEPTEMBER 1969

Sent to Dr Lyons 4/1/71

NASA

Sept. 12, 1969

To: Mr. Flanigan

From: Tom Whitehead

Here is a summary of an analysis I requested from the USIA. No surprises, but thought you might be interested.

8/20/69

Impact of U. S. Space Program on Domestic and Foreign Opinion
(sent by Henry Loomis)

Space Task Group Rpt.

Sept. 12, 1969

To: Dr. Kissinger

From: Tom Whitehead

At the request of
Peter Flanigan --
preliminary draft.

Space Task Group

Report

(Preliminary)

Space Task Group Rpt.

September 12, 1969

To: Bryce Harlow

From: Tom Whitehead

At the request of
Peter Flanigan --
preliminary draft.

Space Task Group Report (preliminary)

NASA

Thursday 9/11/69

3:05 Checked with Earl Rhode about the budget numbers for NASA -- he had misunderstood -- didn't know he was to bring them down.

Have Jon Rose a copy

NASA Budget
($ in billions)

	BA	BO
1969	4.0	4.2
1970	3.7	3.9
1971 runout estimate*	4.1	4.1

*Budget numbers will not be settled until January. These numbers represent NASA estimates of the cost of continuing their current program into 1971.

NASA

Thursday 9/11/69

2:45 Dr. Lyons checked with Edward Joyce of USIA concerning the evaluation of public opinion on space shots which you had requested from Henry Loomis several weeks ago. 632-5172

He finds that it was sent to James Keogh on the 21st of August. Dr. Lyons has arranged to have Loomis' office send you a copy of it.

cy rec'd
9/11

NASA

September 8, 1969

MEMORANDUM FOR MR. TONER

The following is submitted for possible inclusion in the Staff and Department Briefs:

> Vacancies in key jobs still exist at NASA and NSF. Of immediate concern are the Deputy and several Associate Director positions in each agency. Mr. Flanigan's office, which shares substantive responsibility for these agencies with Dr. DuBridge, has initiated an effort to work with Mr. Flemming's office, OST, and these two agencies to locate people with appropriate qualifications for those jobs.

Clay T. Whitehead
Staff Assistant

cc: Mr. Flanigan
Mr. Kriegsman
Mr. Whitehead
Central Files

CTWhitehead:ed

9/9/69

Called Dr. Radius'
office to advise
that Mr. Whitehead
said the letters are
O.K.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Office of the Administrator

Sept. 5, 1969

Dr. Whitehead:

Here are the draft letters I spoke to you about last evening. We will probably do some further editing but these drafts will show you the approach we are taking.

Please give me your reaction as soon as possible.

Willis H. Shapley

On June 13, 1969, NASA presented to interested parties the capabilities and availability of its Applications Technology Satellites for experimentation. Because of your interest in communications, I wish to bring to your attention the possibility of experimenting with available satellite and ground facilities.

NASA has established a policy of making the ATS satellites available for worthwhile experimentation by other organizations after the initial technical experiments on the satellites have been completed and for as long as the satellites remain operative. Such organizations can include other government agencies, educational institutions, or private concerns which are potential users of future operational satellite systems and are willing to invest in the necessary ground facilities, provide message content, and cover other ground costs.

To assist those who attended the meeting at NASA on June 13 and others who may be interested in proposing experiments in the use of communications satellites, we have compiled the enclosed inventory of satellite and ground facilities that might be made available during 1969 and 1970 for user experimentation.

In order to provide prospective user-experimenters with the broadest range of possibilities on which to base their plans, the inventory includes available facilities of the Communications Satellite Corporation as well as those of NASA. At the June 13 meeting, the ComSat Corporation representative offered to make ComSat's facilities available for user-experimenters who wish to use them, subject to FCC approval. It is our hope that this information will assist interested user-experimenters to formulate specific proposals for experimental use of available facilities, in any mix of NASA or ComSat facilities the user considers appropriate.

Should you wish to submit a proposal, emphasis should be placed on unique applications or approaches. The proposal should be detailed and include the objectives, methodology, expected results of the experiments and procedures by which the results of the experiments would be disseminated, the value of each experiment in terms of local, national, or international interest, and transmission time requirements and degree of schedule flexibility. For your convenience we have included in the inventory a form entitled "Proposed Transmission Schedule."

NASA will review the technical and other aspects of these plans and determine whether the proposed use of the NASA satellites and ground facilities would be consistent with NASA's mission and the existing commitments and priorities for the use of the satellites. ComSat will participate in the discussion of proposals involving the use of its facilities.

In view of the limited availability of the satellites, proposals should be submitted as soon as possible. We will be pleased to meet with you at any time to clarify any questions you may have on this matter. Proposals and inquiries should be addressed to:

Dr. Richard B. Marsten
Director, Communications Programs
Office of Space Science & Applications
National Aeronautics and Space Admin.
Washington, D. C. 20546

Telephone No. AC 202 962-0888

Sincerely yours,

R. B. Marsten
Director, Communications Programs

Enclosures

To assist those who attended the meeting at NASA on June 13 and others who may be interested in proposing experiments in the use of communications satellites, we have compiled the enclosed inventory of satellite and ground facilities that might be made available during 1969 and 1970 for user experimentation.

In order to provide prospective user-experimenters with the broadest range of possibilities on which to base their plans, the inventory includes available facilities of the Communications Satellite Corporation as well as those of NASA. As their representative indicated at the June 13 meeting, the ComSat Corporation has offered to make its facilities available for user-experimenters who wish to use them, subject to FCC approval.

It is our hope that this information will assist interested user-experimenters to formulate specific proposals for experimental use of available facilities, in any mix of NASA or ComSat facilities the user considers appropriate. NASA stands ready to discuss all proposals that are presented. ComSat will join the discussion of proposals involving the use of its facilities.

Several proposals have been received to date, but none has yet been scheduled for implementation. In view of the limited availability of the satellites, additional proposals or further details relating to previous proposals should be forwarded as soon as possible. Proposals and inquiries should be addressed to:

Dr. Richard B. Marsten
Director, Communications Programs
Office of Space Science & Applications
National Aeronautics and Space Admin.
Washington, D. C. 20546

Telephone No. AC 202 962-0888

Thank you for your continued interest in this program.

Sincerely yours,

R. B. Marsten
Director, Communications Programs

Enclosure

Space Task Group

Eva,

Rob Odle (Mr. Klein's Ofc) called Friday afternoon. He would like to know ASAP (I told him that wouldn't be before Tuesday morning) if the Task Force Report on Space Goals presented to the President on 1 September will be made public at the same time. Mr. Odle requested that your office find out and provide him with this info.

I told Mr. Odle I would have you call him back. Apparently, reporters are involved, and he (Mr. Odle) needs the info so that he can properly respond to their queries.

Carole

Rob Odle - 2760

9/2/69 - Per Kriegsman's instructions, advised Mr. Odle's office that we had nothing to do with this report.

5

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

NSC
9/17

OFFICE OF THE ADMINISTRATOR

September 8, 1969

MEMORANDUM FOR THE PRESIDENT

SUBJECT: NASA Activities Report

Attached is a report of activities and matters of current significance to NASA. I plan to submit such reports periodically, as requested by Mr. Peter Flanigan of your staff.

T. O. Paine
Administrator

1. NASA Participation in the President's Space Task Group

On August 4, 1969, the Space Task Group, chaired by the Vice President, met at NASA Headquarters. A presentation by NASA set forth the potential for a forward-looking civilian space program in the 1970's and 80's, including permanent space stations in Earth and lunar orbits utilizing reusable shuttle vehicles as key elements in a low-cost space transportation system. Science, technology, exploration and application benefits were balanced for optimum returns. Following the NASA presentation, the Task Group reviewed the work of its Staff Directors and furnished guidelines for the preparation of the STG draft report. The substance of the Staff Directors' draft was approved at a September 3, 1969, Task Group Meeting on the West Coast. Following a final meeting scheduled for September 11, the report will be ready for presentation to the President on September 16, 1969. It is hoped that White House guidance will be available in time for NASA's 1971 budget submission to the BOB on October 1, 1969.

2. Budget Activities

The additional reductions in NASA's FY 70 Budget and associated personnel ceilings are of grave long-range concern to us. In discussions with the Bureau of the Budget, I have taken the position that NASA should be allowed to manage its operations during FY 70 in such a way as to effect the BOB proposed $50 million reduction of expenditures, but without further reduction of civil service personnel. The personnel reductions originally proposed would have required severe and unbalanced personnel cutbacks which would have had a crippling effect on our capabilities completely unrelated to dollar savings. Mr. Mayo has agreed that we will jointly review these problems and that actions to further cut NASA employees need not be taken until the President has considered the Space Task Group report.

Meanwhile, Congressional actions have included the passing of the NASA Authorization Bill by the House in an amount of $250.9 million higher than the President's amended budget. The Senate Committee has reported out an Authorization Bill equal to the President's budget, but floor action is not yet scheduled. The NASA Appropriation passed by the House was at a level $28.5 million below the budget request. The Senate Appropriations Bill has not yet been reported out of Committee.

3. Program Adjustments

Following the success of Apollo 11, we took immediate measures to reduce Apollo launch activity by cutting the work force. The launch interval has been increased from 2½-month intervals to 4-month intervals, a schedule which affords more economical operations while more effectively

supporting future scientific exploration of the moon. These changes are resulting in manpower decreases of approximately 5,000 people in our support contractors by the end of this year. At the same time we are taking steps to increase mission flexibility and scientific return. Specifically, (a) increased and varied lunar orbital and lunar surface scientific payloads will be provided; (b) the lunar module propulsive capability will be improved to permit landings on the moon and areas currently inaccessible; (c) lunar surface mobility aids will be developed to extend the exploration and scientific value of the missions; and (d) modifications will be effected to increase the lunar stay time up to the three days to permit more effective observations and experimentation.

4. Results of Apollo 11 Experiments

First results of the Apollo 11 scientific experiments reveal no evidence of life in any form in the lunar samples returned to Earth. No hazard or possibility of contamination has been found. Wide distribution of the samples for more detailed analyses will therefore be made to selected scientists in this country and abroad on or about September 10, 1969.

Analysis of argon and neon gases in the samples suggest a minimum age of about 3.1 billion years, indicating that the Sea of Tranquility was formed early in the history of the solar system,which is generally estimated to be about 4.5 billion years old. Some of the experimenters think that the moon was formed at the same time as the Earth, perhaps even from the same whirling gas cloud.

Average density of the rock samples is surprisingly high, considerably greater than surface rocks of the Earth. The lunar material is apparently igneous and volcanic in origin although its chemical composition is different from volcanic material on Earth; its content of heavy elements such as iron, titanium, etc. is higher than Earth volcanic material, and its content of lighter elements such as sodium and aluminum is lower. A number of common minerals have been identified, but no evidence of water has been detected. The rocks were apparently formed under conditions in which little water or oxygen was present. The rocks and soil are a mixture of crystalline material and glass, generally gray in appearance with a brownish tinge and some traces of yellow and yellowish green. Armstrong's photographs of a large crater near the landing site suggest to geologists that the thickness of the loose lunar surface material overlying basic bedrock is approximately 10 to 12 feet.

The passive seismometer which was emplaced by the astronauts on the lunar surface transmitted seismic activity signals until August 28, when it became inoperative. Some of the seismic signals have been identified as coming from the lunar module and others were identified in the early phases as resulting from the movement of the astronauts. The experimenters

are developing criteria by which natural origin events, such as quakes, slides, or meteoroid impacts, can be distinguished from other sources. Propogation patterns of the long-period recorded signals show no patterns normally observed for seismic activity on Earth. Experimenters think this might indicate a very heterogenous structure of the moon unlike the concentric sphere structure of the Earth.

The laser beam experiment has given the most precise measurements of distance between the Earth and the moon ever made: measurements to an accuracy of within 12 feet have been obtained. (The best previous measurement of Earth-moon distance was done in the Soviet Union by laser beam reflection to an accuracy of a few thousand feet.) Measurements in the future may refine the accuracy to a few inches and permit many related experiments of both scientific and practical significance.

To date the experiment analyses neither prove or disprove major candidate theories regarding the origin and history of the moon. It should be noted that the Sea of Tranquility is not a typical site on the moon. It was selected for its unusually smooth surface in the interest of safety for the first landing. Most of the moon's surface is much more rugged and probably older and thus more interesting from a scientific point of view. These other sites will be included in future landings, which will deploy more sophisticated scientific experiments, but the scientific returns from Apollo 11 are unexpectedly rich.

5. Results of the Mariner VI and VII Missions

Preliminary analyses of the Mariner-Mars 69 missions by most of the principal investigators revealed a number of important new scientific facts.

The surface of Mars has numerous craters, many from 30 to 50 miles in diameter, some with diameters as large as 300 miles. The light and dark areas on the Martian surface observed from the Earth as rather sharply defined have proven to be more diffused and blotchy when observed in the higher resolution of the close Mariner observations. The polar cap region, which is also heavily cratered, appears to be covered by a thick layer of frozen carbon dioxide with a small mixture of water ice. It appears that there are certain surface modification processes on Mars which are different from the moon. For example, the unique absence of craters in the bright Martian "desert," Hellas, strongly implies some activity in that region which obliterates the craters. Mars surface pressures range from about .0035 to .0065 Earth atmospheres, which is consistent with the earlier Mariner observations. The lower pressures indicate higher ground elevations. There seems to be considerable relief variance in surface features.

Overall, Mars apparently has a relatively moderate temperature with a daytime range of -63°F to 62°F and nighttime temperatures of -63°F to -153°F.

The southern polar cap is much colder based on infrared radiometer readings which indicated temperatures of approximately -153°F to -189°F. However, spectrometer readings indicated a polar cap temperature of -94°F. Further investigation is underway to determine the nature of the divergence.

Spectroscopic measurements of the Martian atmosphere confirm the presence of carbon dioxide, carbon monoxide and water vapor. There is also tentative indication that there may be water ice, methane, and ammonia present in the lower atmosphere. The methane and ammonia, observed only over the polar cap, are normally associated with life forms. However, nitrogen and ozone, which are also important life-related components here on Earth, were not detected.

Sept. 10

Further analysis is continuing and a more detailed report of results will be presented at NASA Headquarters on October 10, 1969. The Vice President and other interested government officials have been invited to attend this presentation.

29 August 1969

DESCRIPTION OF SCHEDULED NASA LAUNCHES

September through November 1969

Mission	Launch Date	Description	Launch Vehicle/Site
1. Skynet A	24 September	Non-NASA Mission: The first of two synchronous communication satellites procured by the DOD for the United Kingdom to augment the U.S. Initial Defense Communication Satellite Project. Launch will be conducted by NASA.	Delta/ETR
2. ESRO 1 B	1-2 October	Non-NASA Mission: The European Space Research Organization built this satellite designed to study the ionosphere. Launch will be conducted by NASA.	Scout/WTR
3. TIROS M	15 October	This 670 pound NASA satellite is the prototype for future operational ESSA weather satellites. It will perform both day and night weather coverage from space.	Delta/WTR
4. Intelsat III F 6	17 October	Non-NASA Mission: This satellite will be the 11th satellite launched by NASA for ComSat to provide a global commercial communications satellite system. The satellite will have 1200 2-way circuits.	Delta/WTR
5. SERT II-A	25-28 October	This 1000 pound Space Electric Rocket Test (SERT) satellite will demonstrate flight performance of an ion thruster in space.	Thor-Agena/WTR
6. Apollo 12	14 November	This seventh launch of the Saturn V will carry Astronauts Conrad, Bean and Gordon on the second Lunar Landing Mission. Astronauts Conrad and Bean are scheduled to land close to the Surveyor III spacecraft in the Ocean of Storms. The astronauts will perform 6 to 7 hours of EVA and deploy five experiments in addition to taking stereo photographs and returning TV data.	Saturn V/ETR
7. AZUR-1 (German Research Satellite)	November	Non-NASA Mission: This cooperative West German Satellite project will investigate the earth's radiation belts. Spacecraft and experiments are funded by Germany. Launch will be conducted by NASA.	Scout/WTR

NOTE: ETR - Eastern Test Range, Cape Kennedy, Florida
WTR - Western Test Range, Vandenberg Air Force Base, Lompoc, California

UNITED STATES INFORMATION AGENCY

OFFICE OF THE DIRECTOR

9/11

Mr. Thomas Whitehead
The White House

Dr. Lyons said you were interested in seeing attached analysis.

Dolores S. Benson
Secretary to
Henry Loomis

UNITED STATES INFORMATION AGENCY

OFFICE OF THE DIRECTOR

WASHINGTON

August 21, 1969

MEMORANDUM FOR: Mr. James Keogh
The White House

I thought you might be interested in the enclosed analysis which we have done of the impact of the U.S. space program on domestic and foreign opinion.

Henry Loomis
Acting Director

Enclosure

Copies to:
The Vice President
Mr. Elliot Richardson, State
Mr. Thomas Paine, NASA
Mr. Albert Toner, White House

August 20, 1969

IMPACT OF THE U.S. SPACE PROGRAM ON DOMESTIC AND FOREIGN OPINION

SUMMARY

1. Americans are greatly impressed and exhilarated by Apollo XI, which they regard as proof of our excellence and of our supremacy in space. There is concern now, as there has been over the years, about the cost of the space program, especially in the light of our domestic problems and the cost of solving them. The nervousness about Soviet space supremacy has disappeared, as Americans have long felt that the U.S. is ahead in the "space race", and there is no more self-flagellation on this score. There is no disposition to abandon space exploration; the argument is rather one of tempo and scope.

2. Foreigners have overcome the period of doubt occasioned by Sputnik and by what they consider to be the subsequent American floundering in space. Their doubt, while it lasted, called into question American scientific and military ascendancy. This began to change in our favor in the mid-sixties. Apollo XI has brought unstinted praise and acknowledgement that America is now the leader in space. Two striking reactions of foreigners are:

(1) Apollo XI is an achievement of all mankind, and

(2) it should serve to bring mankind closer together.

3. From the standpoint of impact, the only thing comparable to Apollo XI was Sputnik. Sputnik achieved its impact in good part because it was so unexpected. Apollo XI achieved its impact because it was planned and brought to pass completely in the open, and because the build-up was so lengthy. Further exploration of, and travel in, space will probably not have comperable impact, unless life is discovered on other planets, or unless there is a manned landing on a planet.

I

IMPACT OF U.S. SPACE PROGRAM ON DOMESTIC OPINION

In the electric excitement of the unparalleled success of Apollo XI, there is a feeling among the American people of deep satisfaction, of justified pride, and exhilaration. This extraordinary feat occupied the attention of Americans for days, and will no doubt be the center of attention for some time to come as the three astronauts travel throughout the country and throughout the world. Unquestionably the fact that Apollo XI was a manned space flight, that two of the men actually walked on the moon, while a third astronaut orbited the moon, and the whole fabulous enterprise was televised to a breathless world from beginning to end -- in itself a marvel -- gave a dimension to this success which surpasses anything, however well done, the U.S. has heretofore accomplished in space.

Yet even persons who have unstinted praise for the success of Apollo XI and who agree with the expenditure of money in this way lament what they perceive to be a failure to devote just as much energy, imagination, intelligence, and perseverance to such issues as housing, education, racial equality, urban renewal, job opportunities, job training, combatting pollution and the like.

Historical Glance

Public opinion in the United States has consistently shared with popular opinion elsewhere an enthusiasm for space research, and a fascination with space exploration as an instrument for extending human knowledge and potential. The generally high level of popular U.S. interest in science and technology, especially among the young and the better-educated, has served to heighten and sustain this interest. In the initial days of the U.S. space program, however, public attitudes toward space were to a considerable degree colored and stimulated by concern with space as an aspect of U.S. foreign relationships. Although [illegible] of a [illegible] lead in space did not predominate in [illegible] U.S. opinion, U.S. international prestige, power, and leadership in science and technology, were seen as sharply challenged and as clearly overshadowed in the eyes of many foreigners.

As the conviction grew that the U.S. had reclaimed a lead in space, however, and as the danger of a Soviet military challenge appeared to recede, popular attitudes toward space activities were less concerned with directly competitive aspects, and with need to repair damage to U.S. prestige or leadership in science and technology. The focus appeared to

shift: popular interest in space reflected a more sophisticated concern with its direct results and benefits, and discussion of space programs increasingly reflected the context of domestic concerns, and the broad U.S. debate over national goals, priorities, and problems.

From the early sixties to the present, there is a clear thread of concern about, and a questioning of, such vast outlays of money for space programs when urgent and growing problems of the country remain unsolved. Those who have opposed spending "so much" money for the space program have maintained that the money would be more productively spent in the solution of domestic problems. (Some under-developed countries have expressed a similar point of view; they are persuaded that the U.S. could more fruitfully and advantageously give the money to them for development.)

For example, very shortly after the Apollo XI success, a Gallup Poll release of August 6, 1969 revealed that the public generally was lukewarm to the idea of setting aside money to achieve a manned landing on the planet Mars. The core of the public opposition to setting aside money for this purpose was rooted in the belief that money earmarked for a Mars landing would be better spent on domestic problems. Negroes opposed the Mars landing by a ratio of three to one. The 53% who opposed the idea consisted largely of older and less well-educated persons; the 39% who favored the idea consisted in good part of younger and better-educated persons.

The Gallup Poll of August 6 does not of course represent the irrevocable decision of the American people. It is, however, illustrative of the latest in a long series of similar polls on the space program. No matter how much variation there may be in the degree of public support and enthusiasm for a space program, and there has been a considerable fluctuation over the years, some trends are constant: younger people, and those better-educated people tend to support the program; older persons, and those less well-educated people tend to be lukewarm about it; minorities, lately, more frequently express opposition; there is a clear and articulate expression of concern about the priority of earth-bound, national problems.

Other segments of popular opinion hold that we need to keep ahead of the Russians, scientifically, technologically, and militarily; it is fitting for the leading nation of the world to accept the challenge of space; the space program corresponds to the innate curiosity of man; we have come so far, we cannot suddenly stop and draw back; if we are to maintain our leadership in the world, we must embrace the opportunity space presents.

Costs: Unpopular

The American public's mixed feelings about the space program appear in two Gallup surveys in 1961 (see tables 1 and 2). In June 1961, 63% of those sampled considered it to be at least fairly important that the United States be ahead of the Soviet Union in space exploration. One month earlier, however, 58% did not want to spend the estimated $40 billion to send a man to the moon.

The threat of Russian space supremacy apparently waned as the sixties progressed. By February 1967 (see table 6), only 33% considered it important to send a man to the moon before the Soviets, while 60% thought it was not that important.

The American public consistently viewed the great cost of the space program with disfavor (see tables 1, 3, 5, 7). This continued even as the American space effort became more successful. In June 1965, Gallup reported that only 16% of the public wished to increase the funds being spent on space exploration while 42% favored keeping them the same and 33% wanted the amount decreased. By January 1969, only 14% favored increasing the money for space exploration, while 41% wished to keep it the same and 40% wanted to cut the amount.

A series of polls conducted by Louis Harris and Associates between October 1965 and June 1969 produce generally the same results. In January of this year, the American public opposed the space project aim of landing a man on the moon by 49 to 39 per cent.

By early July 1969, however, the public favored putting a man on the moon, 51 to 41 per cent, probably in anticipation of the Apollo XI moonshot. This was consistent with opinion in other parts of the world where enthusiasm for the project increased as the time for lift-off grew nearer.

There seems little question in the minds of most Americans that the United States is comfortably ahead of the Soviet Union in the so-called space race; this has been the case for some time, and it may be one of the reasons that Americans see less need to agitate for huge sums devoted to this cause. To this must be added the widely felt uneasiness about the "swollen" federal budget, which, in the eyes of many, has grown unchecked. Since the space program deals with a subject really foreign although fascinating to most people, it is peculiarly vulnerable to attack.

Arguments that NASA's budget is only a fraction of one per cent of the gross national product appear to impress people less at a time of budget restraints and reordering of priorities. Sophisticated persons may agree when advocates of space activities assert that they generate technological advances to help solve problems. Broad public opinion,

even when favorable, rarely shows awareness of space gains in such concrete and specific terms.

Further, the question of support for the space program occurs at a time when there is something akin to dismay, certainly a high degree of worry, about inflation, high taxes, and the spiralling cost of living. Such every-day anxieties are obstacles to an unquestioning support of a space program.

Attitudes of Scientists

Amid the post Apollo XI glow, there is other evidence of some disenchantment. American scientists do not unanimously praise the space program; some of them think that science has been short-changed and they charge that the pursuit of basic scientific knowledge, which they consider to offer the fundamental justification for the space program, has up to now been a handmaiden on space flights. Some scientists have been vocal in opposition to the proposition that the next American goal in space should be the landing of a man on Mars. An advisory committee of the National Academy of Sciences stated in 1968: "While at some time in the future it may be in the national interest to undertake a manned program to the planets, we do not believe man is essential for scientific planetary investigation at this stage." Others simply express the view that the U.S. should now make the space program more accessible to its scientists, who ought from now on to have the authority to decide what the next missions are. Some insist that space exploration by instruments is far cheaper than, and at least as productive as, manned landings on the moon or anywhere else. Recent resignations of prominent figures in the space program because of the alleged secondary role of science have been prominently reported.

The Present

The U.S. public appears, then, to be engaged in a debate, in which are being weighed the gains from a sustained space program on the one hand, and, on the other, the central domestic preoccupations of the country. The question of money looms large in each case. Precisely what shape a future space program should have has achieved no consensus at this moment, but there is little disposition to urge that space exploration should be abandoned. There does appear to be argument on the question of scope and tempo. There seems to be recognition that the U.S., both as a super-power, and as leader in space, cannot simply pause, as to space, on its launching pad now that the wonder of Apollo XI

has come to pass. There is acknowledgment that Apollo XI is the beginning of something, in which the U.S. must keep the lead (the notion eg, the race between ourselves and the Soviets is never far below the surface of consciousness). Space is seen by many as a necessary element of national leadership which can become a powerful force for international friendship and cooperation. The space program appears to give our society a "forward look", and to be an index of national vision, confidence, aspiration and ambition. It is felt by many that Apollo XI is the beginning of an age, not the end of a program.

Table 1

It has been estimated that it would cost the United States 40 billion dollars -- or an average of about $225 per person -- to send a man to the moon. Would you like to see this amount spent for this purpose or not?

May 1961	Yes	No	No opinion	
Age:				
20-39	43%	47%	9%	.. 100%
40-59	30	61	9	
60-	21	70	9	
Education[a]:				
Grade 8	20%	69%	11%	.. 100%
High School	35	56	9	
Tech/College	47	44	9	
Race:				
White	33%	58%	8%	.. 100%
Non-white	25	59	16	
Total Sample				
No. of cases (3449)	32%	58%	9%	.. 100%

[a] Education: Up to and including the last grade or level attained. "Grade 8" includes elementary school graduates and dropouts, "High School" includes secondary school graduates and dropouts, and "Tech/College" stands for all those continuing their education past high school.

Table 2

How important do you think it is for the United States to be ahead of Russia in space exploration -- very important, fairly important, or not too important?

June 1961	Very	Fairly	Not too	No opinion	
Age:					
20-39	54%	25%	19%	2%	.. 100%
40-59	50	21	24	5	
60-	49	12	30	8	
Education:					
Grade 8	55%	13%	23%	9%	.. 100%
High School	52	24	22	2	
Tech/College	45	27	27	1	
Race:					
White	50%	22%	24%	4%	.. 100%
Non-white	63	11	17	9	
Total Sample					
No. of cases (2843)	52%	21%	22%	5%	.. 100%

Table 3

Do you think there is anything for which the government should be spending more money than it is at present? What?

Do you think there is anything for which the government should be spending less money than it is at present? What?

April 1963	Space (More Money)	Space (Less Money)
No. of cases	(45)[a]	(539)[b]
Age:		
20-39	73%	19%
40-59	18	40
60-	9	38
No answer	-	3
	100%	100%
Education:		
Grade 8	11%	42%
High School	69	32
Tech/College	20	26
	100%	100%
Race:		
White	93%	94%
Non-white	7%	6%
	100%	100%

[a] Two percent of total (3461). [b] Sixteen percent of total (3461).

Table 2

Would you like to see the amount of money being spent on space exploration increased, decreased, or kept about the same as now?

June 1965	Increased	Decreased	Same	No opinion	
Age:					
20-39	22%	30%	43%	5%	.. 100%
40-59	14	34	45	7	
60-	10	39	37	14	
Education:					
Grade 8	12%	44%	30%	13%	.. 100%
High School	19	31	44	6	
Tech/College	17	25	54	4	
Race:					
White	16%	33%	44%	7%	.. 100%
Non-white	18	34	33	16	
Total Sample					
No. of cases (3537)	16%	33%	42%	8%	.. 100%

Table 6

In your opinion, do you think it is important or not important to try to send a man to the moon before Russia does?

February 1967	Is	Is not	No opinion	
Age:				
20-39	48%	47%	5%	.. 100%
40-59	28	66	7	
60-	18	73	10	
Education:				
Grade 8	22%	68%	9%	.. 100%
High School	36	57	7	
Tech/College	38	57	5	
Race:				
White	33%	60%	7%	.. 100%
Non-white	33	61	6	
Total Sample				
No. of cases (3509)	33%	60%	7%	.. 100%

Table 7

The U.S. is now spending many billions of dollars on space research. Do you think we should increase these funds, keep them the same, or reduce these funds?

January 1969	Increase	Decrease	Same	No opinion	
Age:					
20-29	19%	33%	44%	4%	.. 100%
30-39	17	33	46	4	
50-	9	52	35	4	
Education:					
Grade School	9%	56%	29%	6%	.. 100%
High School	15	37	44	4	
College	19	28	51	2	
Politics:					
Democrat	14%	43%	38%	5%	.. 100%
Republican	13	36	47	4	
Independent	16	40	41	3	
Total Sample					
No. of cases (1516)	14%	40%	41%	5%	.. 100%

II

IMPACT OF U.S. SPACE PROGRAM ON FOREIGN OPINION

The Impact of Sputnik

U.S. space efforts began under the heavy shadow of a startling Soviet triumph, a traumatic beginning that still influences both U.S. and foreign views of space and its significance. The successful launching of a Soviet earth satellite initiated a drastic revision of the image of the USSR, and a simultaneous popular reassessment of the relative positions of the U.S. and the USSR in scientific and technological capabilities, and in all the components of national power.

Prior to Sputnik I, the U.S. was generally judged preeminent in scientific and technical development. The firm conviction of U.S. preeminence was reinforced by broad awareness of U.S. productivity and its manifestation in two world wars, and by U.S. leadership in the development of nuclear energy.

On the other hand, it was generally held that the USSR was backward in science and technology, clumsy in the organization of its resources, and poor in the sophisticated industrial skills of the advanced Western nations. The Soviet achievement of nuclear capabilities, assertively proclaimed by Soviet propaganda, brought no fundamental recasting of the general estimate of Soviet scientific and technical levels.

Sputnik I and its aftermath produced both a reassessment of the gap between the U.S. and the USSR in scientific and technological competence, and a new image of the USSR as a world power. The USSR was seen as not only holding a commanding lead in space; it was viewed as able to offer a credible challenge to the U.S. in any field where it chose to compete.

A number of factors intensified the impact of Sputnik:

1. Its unexpectedness magnified its effect.

2. The dramatic aspects of space achievements and their innate appeal to the imagination, insured coverage in all communications media. News of Sputnik penetrated to audiences normally inaccessible or indifferent.

3. The disproportion assumed to have existed between the U.S. and the USSR tended to exaggerate the re-adjustment; along with surprise went over-correction.

4. The effect of Sputnik was rapidly reinforced by subsequent Soviet successes and what was seen as U.S. failure to match them.

5. Perhaps even more influential than direct Soviet propaganda was the response of the U.S., to the Soviet launchings. Both among the general public and officials, expressions of shock, dismay, and widespread concern served to underline Soviet claims about the significance of Sputnik. The clamor of domestic debate in the U.S. reverberated through the world press, and was assiduously cited by the USSR.

Soviet general claims were given greatly enhanced credibility; any skepticism about the announced Soviet possessions of an intercontinental ballistic mission largely vanished. The Soviets were viewed as possessing a capacity in rocketry that called the military balance of power into question, and a strong tendency developed in popular opinion to equate space performance with military strength.

Up-Hill: The U.S. Space Program to the Mid-Sixties

The views held about the relative U.S. and Soviet positions in the space race have shown themselves to be in some ways highly volatile, in others extremely stubborn. One conviction was almost unwavering: that a space race was on, that both the U.S. and the USSR viewed their programs as competitive.

The U.S. program, coming from far behind, had only one ally: the generally high esteem in which the U.S. was held, and a tendency for people in most areas to see a greater correspondence of their interests with those of the U.S. than with those of the Soviet Union, despite some deterioration in this view. U.S. allies, particularly, were eager to see U.S. progress in space, and inclined to show anxious irritation at U.S. slowness, failures, or apparent hesitancy.

There slowly emerged a kind of see-saw pattern, with popular verdicts tending to be strongly influenced by the latest or most spectacular feat. The USSR clearly held a commanding lead in the space race. But opinion about the size and durability of its lead began to show increasing fluctuations as the U.S. space program got underway.

Openness permitted a high degree of personal identification with American space exploration, and fostered a sense of vicarious participation.

These values the USSR was never able to match, and the Soviet space program has never been able to escape the shadows of secrecy, concealment, and nationalistic possessiveness. As the space race continued -- and continues -- U.S. openness has continued to bear fruit.

Well through the middle of the sixties, expectation of a continuing see-saw pattern continued to predominate in world opinion. The tilt of that see-saw became increasingly less inclined to favor the USSR, and ups and downs less marked, as sophistication about space became more widespread, and as U.S. feats appeared more clearly comparable or superior to Soviet achievements. Verdicts on "who's ahead" in world media became more qualified, leads were increasingly considered temporary. Measurements of popular opinion showed it to be still highly volatile, and readily affected by the latest spectacular. But increasingly, the USSR and the U.S. were seen as roughly neck-and-neck.

And somewhere in the period preceding the Apollo launches of 1969, there appears gradually to have emerged an impression that the U.S. had drawn ahead in manned space flight, had matched the USSR in booster power and reliability of guidance.

Apollo XI

The successful voyage of Apollo XI appears to have been an event surpassing Sputnik I in the degree of global interest and excitement it inspired. A landing on the moon, freighted with all the symbolism of an ancient human dream, inevitably had more innate human and immediate psychological drama than the more abstract triumph of launching an earth satellite, and the first venture of man's machines into space. Its impact was multiplied by the resources of an electronic and communications revolution that had advanced significantly since 1957. The direct and immediate participation of millions upon millions as eye and ear witnesses immeasurably magnified wonder, suspense, and jubilation. To many, the ability to watch men on the moon was a marvel second only to the moon landing itself.

The impact of Sputnik was heightened by shock and surprise; the impact of Apollo XI by a steady building-up of interest in the world media, by mounting tension and a visible drama. Sputnik's importance was magnified by novelty and ignorance; Apollo XI was viewed by a world audience comparatively sophisticated, prepared, and informed. Further exploration of, and travel in, space will probably not have comparable impact, unless life is discovered on other planets, or unless there is a manned landing on a planet.

Reaction

The responses of foreign audiences to the U.S. moon landing were unprecedented in their scope, in their intensity, and in their expressions of direct involvement in the achievement. The U.S. was clearly in the lead in the space race.

Applause for the astonishing precision, daring and skill of the exploit, and recognition of the extraordinary and complex scientific and technical mastery that the U.S. had demonstrated, were unparalleled; superlatives were the order of the day. But the most striking aspect of reaction was not the rendering of a "victory" to the U.S. in space competition:

1. The most striking theme was the general tendency of foreigners to claim the feat as an achievement of all mankind. The deed seemed too important to bear a national label, as it were, and again and again comment stressed that this was a victory for all humanity, an accomplishment that glorified the species -- a day more important in human than in simply national history. U.S. openness, and the electronic revolution that permitted a world audience simultaneously to share the human drama, had so heightened the participatory involvement inherent in the nature of the moon landing that in a sense its impact as a U.S. achievement was for the time at least transcended by its appeal as "a giant step for mankind."

2. A second striking response was the broadly expressed assertion that "a new era" had arrived -- that some great divide had been crossed, that somehow man faced a new world, with a new sense of his potentialities and the immense strength of his resources. Just how that new era would differ from the old was rarely elaborated. But it is unlikely that the great outpouring of eloquence and superlatives, of wonder and pride, hope and astonishment, cannot be dismissed as simply the professional rhetoric of journalism and politics.

3. Concern appeared often to be less with the future of space than with how man's newly demonstrated capability would be used on earth. Among the problems discussed, peace and the ending of human division stood clearly first, coupled with expressions of hope that space would not intensify rivalry and bring an extension of the arms

race into new areas. Calls for cooperation among the nations, chiefly between the U.S. and the USSR, in the further exploration and exploitation of space were frequent; there seemed, however, little optimism about its likelihood. Poverty, hunger, and disease were other human problems conspicuously mentioned.

4. Along with the decrying of wars and division went an expressed sense of solidarity of the human community -- a sense apparently heightened by awareness that the whole of mankind was sharing the emotions and exhilaration of a single experience. Again, the unprecedented expression of human unity seemed to have a reality beyond the conventional cliches of editorialists. Perhaps this signals an emerging new dimension in the international political process, comparable to the experience of unity that might be expected to emerge from such global disasters as a world epidemic, a meteor collision, or a nuclear accident.

The New Era

What the "new era" and new perspectives will bring in terms of political perceptions and preoccupation in the opinion and attitudes of the world public it is far too soon to assess. How durable the current high esteem of U.S. scientific and technical leadership will prove to be cannot be judged, nor the extent to which it will generate increased confidence in U.S. foreign policies and leadership. (Available foreign reaction to U.S. space successes does not so far indicate an increase in confidence in the ability of the U.S. to provide leadership in foreign affairs.) Much will depend on events in the immediate future, notably such matters as:

1. The U.S. domestic debate on the cost and benefits of space exploration.

2. [illegible] U.S. achievements in space or other aspects of science and technology.

3. The Soviet response in space activity.

The following trends and effects seem identifiable in foreign opinion:

1. An increased awareness of what is seen as a disparity between U.S. ability to master the enormous complexities of space exploration, and its capacity to solve the domestic problems that beset it.

2. An increased awareness of, and concern with, the costs in energy and resources devoted to space programs, and rising world as well as domestic debate over the values involved, with have-not nations especially underscoring a demand for a reallocation of such resources.

3. A steeper rise in general public preoccupation with science and technology, and a rise in levels of sophistication about these matters.

4. In both developed and underdeveloped countries, a rise in interest in both U.S. science and scientific education.

5. Increased calls for international cooperation in space and perhaps in other large concerns, both to reduce costs, to blunt the dangers of continuing rivalries, and to permit maximum participation by other nations.

6. An increased sense that the U.S. and the USSR are "super-powers," enjoying a difference in magnitude of capability that is a difference in kind. The chasm between the super-powers and all other nations seems emphasized by the magnitude of the Apollo XI achievement, and there is visible in comment from Europe especially a note of regret at the technological gap that could readily be tinged with resentment. On the other hand, comment on occasion attributed Europe's exclusion from a role in space ventures and what they denoted to the division among the nations of Europe; movements toward European cooperation may find the atmosphere increasingly receptive. A heightened sense of the great and unique power of the super-powers may intensify public opinion pressures upon them to act in what other nations see as the general interest; expectations are likely to be increasingly demanding.

7. The general belief that neither the U.S. nor the USSR is likely to seek its ends by the use of force against the other.

8. There is every expectation that the U.S. will go on to greater things in space.

BB FORM
NO. 38

ROUTE SLIP

(Fold Here)

EXECUTIVE OFFICE OF THE PRESIDENT
BUREAU OF THE BUDGET

DATE 8/26/69

TO: Tom

FROM: Dick Speier

REMARKS: the space program should get less popular now or — and its popularity isn't very impressive now.

The Harris Survey

WASH. POST 8/25/69

Americans Still Question Space Budget

By Louis Harris

Although a majority (53 per cent) of Americans now feel it was worth the cost to land a man on the moon, a narrow plurality of the public is opposed (47 to 44 per cent) to the United States' spending "four billion dollars a year for the next ten years to explore the moon and other planets in outer space."

Thus, the net impact on public opinion in this country of the success of the Apollo 11 astronauts was to increase support for the space program by 7 percentage points, although failing to convince a majority that heavy expenditures for future missions into space are justified. Black citizens, concerned with progress on the domestic front, are opposed by an overwhelming 68 per cent to 19 per cent.

A cross section of 1,577 households was surveyed across the country between July 30th and August 4th, and was asked as it had been before the Apollo 11 mission:

"It could cost the United States four billion dollars a year for the next ten years to explore the moon and other planets in outer space. All in all, do you feel the space program is worth spending that amount of money on, or do you feel it isn't worth it?"

	Worth It	Not Worth It	Not Sure
August.....	44%	47%	9%
July	37	56	7
February...	34	55	11

The divisions in the country still are sharply polarized over the space program, even after the successful moon landing. Majorities on both the East and West coasts favor continuing the program all-out. But majorities in the South and in the Middle West don't feel it is worth the money. Men support the program 52 to 42 per cent, but women oppose it 52 to 37 per cent.

Differences are most apparent by age and education. Young people under 30 favor extension of the space program by 60 to 34 per cent, but people over 50 oppose it by 59 to 30 per cent. Those whose education did not go beyond the eighth grade oppose spending more money on space by 68 to 22 per cent, but the college-educated support the program by 60 to 33 per cent. White people are for it by a narrow 47 to 45 per cent, as against large opposition among racial minorities.

NASA

August 21, 1969

MEMORANDUM FOR DR. PAINE

FROM: PETER FLANIGAN

Thank you for the excellent report on the NASA-Contractor Cost Reduction Program for the six months ending December 31, 1968. I understand from the Bureau of the Budget that both the contractor and internal cost reduction programs of NASA are among the best in Government and have continually achieved impressive results.

As you indicated in your memorandum of July 28, 1969, the Bureau of the Budget is now working on strengthening and broadening the present cost reduction program to include all aspects of management improvement, of which cost reduction will remain a significant element. I can assure you that the President intends to continue to emphasize the necessity for efficiency and economy in Government operations and in concerns that are doing business with the Government.

PM FLANIGAN: MM

EXECUTIVE OFFICE OF THE PRESIDENT
BUREAU OF THE BUDGET
WASHINGTON 25, D.C.

AUG 18 1969

MEMORANDUM FOR MR. TOM WHITEHEAD

SUBJECT: Cost reduction

This is in reply to your memorandum of August 1, 1969, requesting comments about NASA's proposal to send a letter from the President to NASA on their contractor cost reduction program.

NASA's efforts have produced significant results and it is one of the better programs in operation. However, if a letter is sent to NASA, then certainly letters also should be sent to other agencies that have as good if not better programs.

The Government-wide cost reduction program now in effect is being revised and broadened to include all elements of management improvement. We plan to send to the President in September a memorandum summarizing the new program, a proposed Executive order establishing a President's Advisory Council on Management Improvement, and a proposed press release announcing the Council and the new Management Improvement Program. The President can express his overall support and interest in the cost reduction effort either through the press release or a Presidential memorandum to agency and department heads. In the meantime, we would suggest a memorandum from Mr. Flanigan to Dr. Paine along the lines of the attached draft.

(Signed) Sam Hughes

Phillip S. Hughes
Acting Director

Attachments

Re type for sending

~~SECRET~~ MEMORANDUM FOR DR. PAINE

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As you indicated in your memorandum of July 28, 1969, the Bureau of the Budget is now working on strengthening and broadening the present cost reduction program to include all aspects of management improvement, of which cost reduction will remain a significant element. I can assure you that the President intends to continue to emphasize the necessity for efficiency and economy in Government operations and in concerns that are doing business with the Government. ~~We are planning to issue a Presidential communication~~ expressing his overall support and interest in the cost reduction effort in connection with the ~~announcement of the new~~ program.

In connection with this program it may well be that the President will wish to issue a communication expressing his overall support and interest in the cost reduction efforts.

PM Flemming

NASA

August 1, 1969

To: Robert Mayo

From: Tom Whitehead

May we have your comments on the attached?

Attachment

cc: Mr. Whitehead

CTWhitehead:ed

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

OFFICE OF THE ADMINISTRATOR

JUL 28 1969

MEMORANDUM TO: Mr. Peter Flanigan
The White House

Subject: Cost Reduction

There is attached our report on the NASA-Contractor Cost Reduction Program for the six months ending December 31, 1968. Under standing procedures, we have been submitting these reports semiannually; they are separate and in addition to the reports we submit on the NASA Internal Cost Reduction Program.

The value of the Contractor Cost Reduction Program is dependent upon the degree of backing it gets from top management in the companies; this, in turn, depends on the degree of support they believe the program has in the Government. For this reason, it would be helpful to us to have a direct expression of interest from the President if, as we assume, he desires us to continue to push this effort. The enclosed draft indicates the type of statement that would be helpful.

We understand that the Administration's approach to cost reduction programs is currently being reviewed by the Bureau of the Budget. We will continue our cost reduction programs and reporting on the previously established basis until instructed otherwise.

Original signed
T.O. Paine

T. O. Paine
Administrator

Enclosures

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

OFFICE OF THE ADMINISTRATOR

JUL 28 1969

The President
The White House

Dear Mr. President:

In accordance with standing procedures, I am submitting this semiannual report on the NASA-Contractor Cost Reduction Program.

I am pleased to report that Space Program contractors are continuing to apply ingenuity, resourcefulness and cost awareness in carrying out their assigned NASA missions. The 33 companies who are participating in the formal NASA-Contractor Cost Reduction Program have realized cost reduction savings on their NASA contracts of $112.7 million during the first six months of Fiscal Year 1969. The enclosed report contains a representative sample of the wide variety of cost reduction actions which took place during this period and a list of the contractors participating in the program.

NASA and industry began a joint effort to reduce the costs of the Space Program in 1964. Thirty-nine of NASA's principal contractors, responsible for approximately 85 percent of NASA's procurement dollars, agreed to participate in a formal Cost Reduction Program. The results have been gratifying. In the last five years the actively participating companies, now reduced to 33 because of changing workloads, have reported savings totalling $1.3 billion. Of this amount, $1 billion has been accepted as meeting the NASA criteria for valid savings.

We in NASA and our contractors agree that this cost reduction program is making a direct and valuable contribution to our goal of achieving maximum economy in the conduct of the Space Program.

Respectfully yours,

Original signed
T.O. Paine

T. O. Paine
Administrator

Enclosure

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NASA-CONTRACTOR COST REDUCTION PROGRAM REPORT

to the

PRESIDENT OF THE UNITED STATES

(July 1, 1968 - December 31, 1968)

Thirty-three contractors who have a significant amount of cost reimbursement business with NASA have reported their cost reduction accomplishments for the First Half of Fiscal Year 1969 to NASA. In total, these companies report that they have saved $140,242,400 on the cost of NASA contracts during this period. Cost reduction specialists at NASA Field Centers and at NASA Headquarters have carefully screened all of the hundreds of examples of cost reduction actions reported by the companies, and have found that $112,749,200 meet the NASA criteria for valid and reasonable cost reductions.

Following are 21 examples which have been selected as representative of the many cost reduction actions reported to NASA by the contractors:

1. WEST COAST SUPPLIER SHIPMENTS CONSOLIDATED

Grumman Aircraft Engineering Corporation has established overhead savings by requiring its many suppliers in the Los Angeles area to consolidate their shipments to the Grumman plant on Long Island, N. Y. into a single daily shipment. In a recent one-week period, 196 separate shipments were consolidated into 7 daily shipments. The NASA share of the annual savings is $23,800.

2. REDUCED TESTING OF NIMBUS SPACECRAFT

The Space Systems Department of the General Electric Company studied test requirements for the Nimbus B spacecraft to determine whether any reduction in testing costs could be achieved without impairment of reliability. Results were that out of 27 programmed tests, 7 tests could be either eliminated or combined with other tests. This action saved 4.8 weeks of scheduled testing time at a cost of $80,000 per week, or a total saving of $383,000.

3. REDESIGN OF ASTRONAUT CARBON DIOXIDE REMOVAL UNIT

The Garrett Corporation has designed a replaceable throw-away unit for use by astronauts as their carbon dioxide removal system. The hermetically-sealed unit, which includes a cannister and a lithium hydroxide cartridge, is discarded in space after it has been saturated with the carbon dioxide expired by the astronaut. The per-unit cost is $12,650 less than the cost of the old unit, which consisted of a permanent cannister, a throw-away cartridge, and costly leak-proof doors and seals which had to be used to permit exchange of cartridges.

4. SOLE SOURCE TO COMPETITIVE PROCUREMENT

The Jet Propulsion Laboratory of the California Institute of Technology has saved $143,100 for NASA's Mariner Mars '71 Program by going from a single source to a competitive procurement for purchase of high-reliability circular connectors. An aggressive and alert negotiator at JPL determined that the initial price quotation from the only qualified contractor, who had also been the source for previous buys of this item, was unduly high. Other contractors were solicited and qualified, and contracts were let to two companies to provide the connectors at substantial savings to NASA.

5. NEW CONTAMINATION TEST FOR MATERIALS

Ball Brothers Research Corporation has devised a new technique, called Vacuum Exposure/Nephelometer (VEN), for testing various materials to determine whether they will contaminate optics while a spacecraft is in flight. The VEN technique uses light scatter to measure the amount of contaminant deposited on optics in a vacuum by the material being tested. Previously, all contamination threats were estimated using vacuum weight loss and mass spectrometer data. This was a very time-consuming and costly process, which greatly limited the quantity and variety of materials that could be subjected to the test. Now, all contamination threats are subjected first to the VEN screening, while the vacuum weight/mass spectrometer testing is applied only to those materials which pass the VEN screening. Annual savings to NASA are $304,000.

6. SALVAGE OF CAST PARTS

The Rocketdyne Division of North American Rockwell Corporation had previously been scrapping Saturn engine parts where porosity pits could not be eliminated by machining. A new method has now been adopted which involves copper filling and cadmium capping of pits, thus permitting reclamation of the parts at an annual saving of $89,500.

7. IMPROVED FILTERING SYSTEM

Grumman Aircraft Engineering Corporation recommended certain filtering improvements in the propellant servicing system at Kennedy Space Center. This brought propellants up to the cleanliness requirement specified for the Apollo/Lunar Module Program and eliminated the need for several thousands of NASA and contractor personnel at KSC to standby during launches for frequent propellant samplings. The time required for propellant checks during Apollo launches was reduced from a total of 34 hours to 4 hours, resulting in annual savings to the KSC and support contractor workforce of $4,050,000.

8. ENGINE ANALYSIS BY X-RAY AND PHOTOGRAPHY

McDonnell Douglas Corporation, Western Division, has developed a procedure for analyzing Saturn auxiliary propulsion engines through use of X-rays and photographs. This eliminates the need for breaking down the engines into their individual sections for analysis. The annual savings to NASA: $34,700

9. MANAGEMENT CONTROL SYSTEMS CONSOLIDATED

The Boeing Company, Launch Systems Branch, has combined four previously-separate Saturn internal management and control systems into a single system. The new system consolidates work scheduling, engineering orders, manpower tracking, and change order accounting, and is saving $143,800 annually in labor and computer costs.

10. EXPANDED INDEX FOR SPECIFICATIONS

TRW Systems Group has developed an expanded index of all materials and process specifications which includes usage, type, grade, class, drawing requirements, etc., for each specification. The former index listed specifications only by name and number, and it was frequently necessary for engineers to order and research a number of specifications to determine which applied to a specific design requirement. Use of the comprehensive index has resulted in significant savings company-wide, of which $17,200 are allocable to NASA work.

11. LAMP LIFE EXTENDERS

Trans World Airlines, Inc., has substantially reduced the frequency and cost of incandescent lamp replacement at the Kennedy Space Center by installation of silicon diode plastic adapters in the lamp sockets. Use of the adapters prolongs the rated life of incandescent lamps and makes possible an annual saving of $12,500.

12. APOLLO SPACECRAFT MANUFACTURING CYCLE

The Space Division of North American Rockwell Corporation has stretched out the normal schedule time allotment for manufacturing of Apollo spacecraft without impairing the overall spacecraft delivery schedule to NASA. The gain in manufacturing time -- previously six weeks, but now two months per spacecraft -- was accomplished by reducing by an equivalent period the schedule time allotted for storage of the completed spacecraft. The additional manufacturing time has permitted reductions in costly extra-shift skilled manpower and in overtime, reducing Apollo Program costs by $1,470,100 per year.

13. LESS PAPERWORK

The Boeing Company, Launch Systems Branch, has adopted the practice of issuing firm revisions to test and checkout procedures, with procedure change requests attached. This practice streamlines the paperwork by eliminating the preliminary review, processing, and coordination which had been carried out prior to final issuance. It also provides the means for establishing changes for future revisions of the test and checkout procedures. Annual savings to NASA are $373,500.

14. CLEAN ROOM OPERATIONS

At the Space Division of North American Rockwell Corporation, it had periodically been necessary to stop production operations due to high dust count contamination in the Apollo Command Module Assembly clean room. A special self-leveling sealant, poured above the ceiling over the clean room area, flowed into unnoticed cracks and small openings. The dust count was restored to acceptable levels and the downtime cost for non-productive labor was eliminated, savings $32,700.

15. LONG-TERM COMPUTER LEASING

The Eastern Division of McDonnell Douglas Corporation has effected substantial savings in overhead costs by negotiating long-term computer leases with local computer leasing companies in lieu of month-to-month rentals from the computer manufacturer. The NASA share of the annual savings is $14,700.

16. BETTER DISTRIBUTION SYSTEM FOR TECHNICAL DOCUMENTS

The Space Division of North American Rockwell Corporation reports that annual savings of $281,100 have accrued from a new request-and-distribution system for microfilm copies of blueprints, specifications, and engineering orders. The new system utilizes electronic transmission to replace travel back and forth to central print stations and waiting time at the stations by employees.

17. KITS REDUCE COST OF SPARES

Federal Systems Division of IBM Corporation has reduced Saturn Program costs by furnishing spare part kits which contain all of the replaceable parts in the electronic impulse distributors. Previously, a set of complete distributors, including non-replaceable parts, was provided as spares for each Saturn launch vehicle. Annual savings are $129,600.

18. LEASE COSTS FOR OFFICE COPIERS

TRW Systems Group has developed a usage monitoring system for office copying machines which requires users to take advantage of the most economical leasing plan for their respective machines. Lease costs can be based either on a flat rate per machine per month, which includes a specific number of copies, or on a charge per copy. Under the monitoring system, volume is evaluated by a coordinator each month, and machines are placed under the most economical leasing plans. NASA's share of the savings is $12,800 per year.

19. REPLATING PROCESS FOR COPPER CONTACTS

The General Electric Company, Mississippi Test Support Department, has developed an electrolytic process which permits retention rather than scrapping of printed circuit boards on which copper contacts have become worn. The copper contacts are cleaned, smoothed with a fine abrasive, and replated through an electro-plating process. It requires ten minutes to recondition a single printed circuit board, compared to an average replacement cost of $150 per board. Net savings to NASA are $344,100 per year.

20. REVISION OF INSPECTION TOLERANCE

Federal Systems Division of IBM Corporation has reviewed a rigorous inspection tolerance which had caused rejection of 27 Saturn Measuring Rack Housing Assemblies. It was found that the rigid tolerance was not specificed in documents or drawings for the assemblies, but had been adopted as an assumed tolerance requirement by inspection personnel. After thorough investigation, it was determined that a less rigorous tolerance could be adopted which would not impair required performance, and which would permit use of the 27 previously-rejected assemblies at a saving of $9,700.

21. SALVAGE OF APOLLO COMPUTER MODULES

AC Electronics Division of General Motors Corporation developed a new X-ray/TV system which obtained a 30-power image on metallic contamination which was found in the potting material for Apollo Computer Memory Modules. The system demonstrated that the contamination could not cause failure, and the previously-rejected modules were salvaged, saving $177,800.

LISTING OF COMPANIES PARTICIPATING IN

THE NASA-CONTRACTOR COST REDUCTION PROGRAM

1. AC Electronics Division, General Motors Corporation
2. Aerojet-General Corporation
3. Ball Brothers Research Corporation
4. Bellcomm, Inc.
5. The Bendix Corporation
6. The Boeing Company
7. California Institute of Technology, Jet Propulsion Laboratory
8. Chrysler Corporation
9. Collins Radio Company
10. Fairchild Hiller Corporation
11. Federal Electric Corporation
12. The Garrett Corporation
13. General Dynamics Corporation
14. General Electric Company
15. Grumman Aircraft Engineering Corporation
16. Honeywell, Inc.
17. International Business Machines Corporation
18. Kollsman Instrument Corporation
19. Ling-Temco-Vought, Inc.
20. Lockheed Aircraft Corporation
21. Martin-Marietta Corporation
22. Massachusetts Institute of Technology, Instrumentation Laboratory
23. McDonnell Douglas Corporation
24. North American Rockwell Corporation
25. Northrop Corporation
26. Philco-Ford Corporation
27. Radio Corporation of America
28. Raytheon Company
29. Sperry Rand Corporation
30. Trans World Airlines, Inc.
31. TRW Systems Group, TRW, Inc.
32. United Aircraft Corporation
33. Vitro Corporation of America

July 1969

DRAFT OF SUGGESTED MEMORANDUM FROM THE PRESIDENT TO THE ADMINISTRATOR, NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

I am most encouraged by the cost reduction performance of the 33 Space Program contractors who formally participate in your NASA-Contractor Cost Reduction Program. The savings actions taken by these companies and reported to me in your letter of July 28,1969 are a most effective demonstration of the capability of American industry to develop and apply new ideas, reduce waste, and eliminate inefficiency.

I regard the success of this cost reduction program as evidence that the managers, engineers, and production personnel in industry are continually seeking ways to conserve resources in the Government side of their operations--as they have traditionally done on the commercial side. I sincerely appreciate and encourage this effort.

In these times and in the years ahead, the Government must provide resources for a wide range of programs which represent valid needs of the people of this country. The Government also has to take the lead in containing the factors which contribute to inflation. A successful program by contractors to accomplish their Government missions in a less costly manner makes a most valuable contribution to both of these major objectives.

I am sure that NASA and the Space Program contractors will continue to carry on successful cost reduction programs by seeking out and acting upon their opportunities to make savings. These savings will help greatly to accomplish our objective of providing more space flight per dollar.

Richard Nixon

NASA

August 19, 1969

MEMORANDUM FOR THE PRESIDENT

I concur in Dr. Paine's recommendation that the Administration concentrate its support of bills recognizing accomplishments in space to two of the proposals. Both the astronauts medal and the Commission to erect an astronaut memorial at Kennedy Space Center are appropriate at this time. Other proposals are inappropriate or would be better enacted at a later time.

Peter Flanigan
Assistant to the President

cc: Mr. Flanigan
Mr. Whitehead ✓
Central Files
Mr. Kriegsman

CTWhitehead:ed

cy rec'd 8/7

ACTION MEMORANDUM — WASHINGTON — LOG NO.: 1024

Date: Friday, August 15, 1969 Time: 12:30 P.M.

FOR ACTION: Dr. DuBridge
P. Flanigan
B. Harlow

cc (for information):
Bureau of the Budget

FROM THE STAFF SECRETARY

DUE: Date: Thursday, August 21, 1969 Time: 2:00 P.M.

SUBJECT:

Dr. Paine's memorandum regarding Administration support for the variety of bills submitted to Congress to recognize accomplishments in space.

ACTION REQUESTED:

_____ For Necessary Action
_____ Prepare Agenda and Brief
_____ For Your Comments
__X__ For Your Recommendations
_____ Draft Reply
_____ Draft Remarks

REMARKS:

Please review the attached and submit your recommendations by return memorandum.

PLEASE ATTACH THIS COPY TO MATERIAL SUBMITTED.

If you have any questions or if you anticipate a delay in submitting the required material, please telephone the Staff Secretary immediately.

K. R. COLE, JR.
For the President

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

OFFICE OF THE ADMINISTRATOR

AUG 11 1969

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

A variety of bills to recognize accomplishments in space have been submitted to this Congress; Attachment A lists them by title and sponsor. Generally, they fall into these categories: (1) astronaut medals, (2) the erection of memorials, monuments or other structures recognizing the lunar landing effort, (3) the establishment of a Commission to study the matter, (4) the designation of a holiday or a week commemorating the moon landing, and (5) expressions of gratitude to those involved in the space effort.

I recommend that the Administration withhold its support from most of the proposals and concentrate on two of them, i.e.:

(1) H.J. Res. 775 introduced by Congressman Teague which would authorize the President to award a medal of appropriate design to any astronaut who, in the performance of his duties shall have distinguished himself by exceptional meritorious efforts and contributions to the welfare of the nation and mankind; such medals could be issued posthumously and retroactively. Pursuant to Bureau of the Budget advice that the resolution is in accord with the program of the President, NASA has reported favorably on H.J. Res. 775 to the House Committee on Science and Astronautics. (See Attachment B.)

(2) Identical resolutions (e.g., H.J. Res. 835 and H.J. Res. 836), co-sponsored by Congressman Frey, and all members of the Senate Committee on Aeronautical and Space

Sciences and over 80 other Members, would authorize the President to appoint a five-man commission to erect and maintain a memorial on property donated by the United States at the Kennedy Space Center; the memorial would be built and maintained with funds obtained by donations and admission fees; the use of appropriated funds for those purposes would not be authorized. NASA has prepared a report to the Committee on House Administration in which it indicates that it has no objection to enactment of the resolution; that report is awaiting clearance by the Bureau of the Budget. (See Attachment C.)

In recommending that the Executive Branch restrict its support to the two proposals mentioned above, we have considered many factors, the most important of which are these:

A joint meeting of the Congress to honor the Apollo 11 astronauts during the second week of September is tentatively planned. That date will undoubtedly be climactic so far as Congressional expression regarding Apollo XI is concerned. Some members of Congress wish to secure action on a Congressional proposal before the August 13 adjournment -- or on or before the day of the joint meeting.

Authority exists for the award of other medals. NASA, for example, can award medals for Exceptional Service, Exceptional Bravery, Exceptional Scientific Achievement, Outstanding Leadership and Distinguished Service. The latter is considered its highest award and may be given to any person in the Federal service who, by distinguished service, ability, or courage, has personally made a contribution representing substantial progress to aeronautical or space exploration in the interests of the United States. The contribution must be so extraordinary that other forms of recognition by NASA would be inadequate. The President may award the Medal of Freedom "...to any person who has made an especially meritorious contribution to (1) the security or national interest of the United States, or (2) world peace, or (3) cultural or other significant public or private endeavors." and the National Medal of Science "to individuals who, in his judgment, are deserving of special recognition by reason of their outstanding contributions to knowledge in the physical, biological, mathematical, or engineering sciences."

Award of the Congressional Medal of Honor has been considered inappropriate because the language of the Medal of Honor laws does not readily lend itself to recognition of space achievement. The medals traditionally have been used to recognize conspicuous gallantry and intrepidity in combat at the risk of life above and beyond the call of duty. While special Acts of Congress have set a precedent for the bestowal of the Congressional Medal of Honor for peacetime achievements (e.g. Charles Lindberg), many feel that such precedents should not be applied to recognize persons engaged in a continuing program of peaceful space exploration.

Limiting awards to astronauts has been considered appropriate. Questions have arisen as to whether persons in the civilian or military arms of government, in industry, or in universities or foundations, who are not astronauts, should be eligible for special awards or recognition. In general, the tendency has been to limit proposals to astronauts, apparently because they and their work are definably unique. Many others have contributed heavily to the program; however, other awards appear to cover the contributions of non-astronauts. (Incidentally, we now think of astronauts as pioneers, but as more and more people travel in space the term may become obsolete; we may have to find a new word for the space pioneer.)

Eligibility for posthumous awards is a factor. Seven astronauts have been killed in the line of duty: three in the Apollo 204 accident on January 27, 1967, in which Colonel Virgil I. Grissom, Lieutenant Colonel Edward H. White II, and Lieutenant Commander Roger B. Chaffee died in a spacecraft fire on the launch pad. Most of the deceased had never flown in spacecraft and presumably would not be eligible for awards based on space travel. Chaffee, who died with Grissom and White, had not flown.

Proposals to erect facilities or memorials involve somewhat different considerations than those for the award of medals. For example: A group of citizens in the Cape Kennedy area, supported by Florida Senators Holland and Gurney, have asked for permission - and a lease or easement of land - to build a "Chapel of the Astronauts", presumably non-denominational in character, near the visitor's center at the Kennedy

Space Center through a public subscription drive. The matter is being discussed and studied for its legal and related aspects at this time. Any decision on the provision of facilities may affect this proposal. For example, if a "Commission" type bill is enacted, plans for the chapel would probably be considered by the Commission. Other relevant considerations would include the role of the projected Aerospace Museum in Washington and a legislatively proposed second such museum on the West Coast, as well as the million visitors a year to the Kennedy Center.

The "Dodd" bill (S.J. Res. 140) has passed the Senate and is pending in the House. It provides for the striking of gold medals and their award to each astronaut (including posthumous awards) who has flown in outer space. Duplicate bronze medals would be struck and sold, presumably at a premium, by the National Aeronautics and Space Administration. It raises some questions, e.g.: each astronaut who has flown in space, regardless of whether his contribution was routine or outstanding, would receive a medal but Chaffee, for example, could not. Additionally, for consideration is whether proliferation of duplicate medals to the public would detract from the value and dignity of the medals awarded.

Respectfully,

T. O. Paine
Administrator

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

OFFICE OF THE ADMINISTRATOR

AUG 11 1969

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Washington, D.C. 20500

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Respectfully,

Original Signed by
T.O. Paine, Administrator

T. O. Paine
Administrator

ATTACHMENT A

I. MEDALS AND AWARDS

(a) Congressional Medals of Honor

H.R. 16, "Authorizing the President of the United States to award Congressional Medals of Honor to Astronauts Frank Borman, James A. Lovell, Junior, and William A. Anders."
Sponsor: Mr. Fascell, et. al.

H.R. 17, "Authorizing the President of the United States to award Congressional Medals of Honor to Astronauts Frank Borman, James A. Lovell, Junior, and William A. Anders."
Sponsor: Mr. Fascell, et. al.

H.R. 204, "Authorizing the President of the United States to award Congressional Medals of Honor to Astronauts Frank Borman, James A. Lovell, Junior, and William A. Anders."
Sponsor: Mr. Fascell, et. al.

H.R. 2855, "Authorizing the President of the United States to award Congressional Medals of Honor to Astronauts Frank Borman, James A. Lovell, Junior, and William A. Anders."
Sponsor: Mr. Daniels

H.R. 3370, "Authorizing the President of the United States to award Congressional Medals of Honor to Astronauts Frank Borman, James A. Lovell, Junior, and William A. Anders."
Sponsor: Mr. Schadeberg

H.R. 3932, "Authorizing the President of the United States to award Congressional Medals of Honor to Astronauts Frank Borman, James A. Lovell and William A. Anders; and to Astronauts Virgil I. Grissom, Edward H. White II, and Roger B. Chaffee."
Sponsor: Mr. Fulton (Pa.)

S. 1480, "Authorizing the President of the United States to present, in the name of Congress, the Medal of Honor to Col. Frank Borman, U.S. Air Force; Capt. James Lovell, U.S. Navy; and Lt. Col. William Anders, U.S. Air Force."
Sponsor: Mr. Yarborough

(b) Medals

H.J. Res. 775, "To authorize the President to award appropriate medals honoring those astronauts whose particular efforts and contributions to the welfare of the Nation and of mankind have been exceptionally meritorious."
Sponsor: Mr. Teague (Tex.)

H.J. Res. 788, "To authorize the President to award appropriate medals honoring those astronauts whose particular efforts and contributions to the welfare of the Nation and of mankind have been exceptionally meritorious."
Sponsor: Mr. Fulton (Pa.)

H.J. Res. 800, "To authorize the President to award appropriate medals honoring those astronauts whose particular efforts and contributions to the welfare of the Nation and of mankind have been exceptionally meritorious."
Sponsor: Mr. Evans

H.J. Res. 808, "To authorize the President to award appropriate medals honoring those astronauts whose particular efforts and contributions to the welfare of the Nation and of mankind have been exceptionally meritorious."
Sponsor: Mr. Evans

H.R. 6052, "To foster the exploration of outer space by providing for the award by the President of the United State in the name of the Congress, of the Congressional Space Medal to astronauts who contribute thereto."
Sponsor: Mr. Teague (Texas)

H.R. 6055, "To provide for the striking of medals in honor of Virgil I. Grissom, Edward H. White II, and Roger B. Chaffee.
Sponsor: Mr. Teague (Texas) and Mr. Fascell

S. 2710, "To provide for the awarding of Congressional Space Medals to Edwin E. Aldrin, Junior, Neil A. Armstrong, and Michael Collins."
Sponsor: Mr. Gurney

S. 2711, "To provide for the awarding of Congressional Space Medals to persons who contribute to the exploration of outer Space."
Sponsor: Mr. Gurney

S.J. Res. 140, "To provide for the striking of medals in honor of American astronauts who have flown in outer space."
Sponsor: Mr. Dodd

(c) Awards

H.R. 9799, "To provide for the presentation of an award in honor of Virgil I. Grissom, Edward H. White II, and Roger B. Chaffee.
Sponsor: Mr. Teague (Calif.)

H.R. 9802, "To foster the exploration of outer space by providing for the presentation by the President of the United States, in the name of the Congress, of the Congressional Space Award to astronauts who contribute thereto."
Sponsor: Mr. Teague (Texas) and Mr. Fascell

II. ERECTION OF MEMORIALS OR OTHER STRUCTURES

H. Con. Res. 8, "To direct the appropriate committees of the House of Representatives and the Senate to consider a memorial to the astronauts who lost their lives in the line of duty."
Sponsor: Mr. Cramer

H.J. Res. 599, "To provide for the establishment of a fitting memorial in the nation's Capital to the American space program and to the brave and dedicated individuals who carry it forward."
Sponsor: Mr. Roybal

S. 2709, "To authorize the erection of a statue to commemorate the manned lunar landing and the placing of the United States flag on the moon."
Sponsor: Mr. Tower

III. ESTABLISHMENT OF MEMORIAL COMMISSIONS

S.J. Res. 9, "To establish a commission to formulate plans for a memorial to astronauts who lose their lives in line of duty in the United States space program."
Sponsor: Mr. Holland

H.J. Res. 465, "Providing for the establishment of the Astronauts Memorial Commission to construct and erect with funds a memorial in the John F. Kennedy Space Center, Fla., or the immediate vicinity, to honor and commemorate the men who serve as astronauts in the U.S. space program."
Sponsor: Mr. Frey

H.J. Res. 835, "Providing for the establishment of the Astronauts Memorial Commission to construct and erect with funds a memorial in the John F. Kennedy Space Center, Florida, or the immediate vicinity, to honor and commemorat the men who serve as astronauts in the United States space program."
Sponsor: Mr. Frey, et. al. (Democrat members of the House Space Committee)

H.J. Res. 836, "Providing for the establishment of the Astronauts Memorial Commission to construct and erect with funds a memorial in the John F. Kennedy Space Center, Florida, or the immediate vicinity, to honor and commemorate the men who serve as astronauts in the United States space program."
Sponsor: Mr. Frey, et. al. (Republican members of the House Space Committee.)

H.J. Res. 857, "Providing for the establishment of the Astronauts Memorial Commission to construct and erect with funds a memorial in the John F. Kennedy Space Center, Florida, or the immediate vicinity, to honor and commemorate the men who serve as astronauts in the U.S. space program."
Sponsor: Mr. Landgrebe and Mr. Dennis

H.R. 13059, "To require the President to appoint a Moon Landing Monument Commission, and for other purposes." (To be located in Washington, D.C.)
Sponsor: Mr. Pucinski

IV. DESIGNATION OF A HOLIDAY OR SPECIAL WEEK COMMEMORATING THE LUNAR LANDING

H.J. Res. 810, "Designating the day which man lands on the moon, and the anniversary of that day each year thereafter as a national holiday to be known as "Space Exploration Day," and for other purposes."
Sponsor: Mr. Tunney

H.J. Res. 820, "Designating Monday, the 21st of July 1969, a legal public holiday in commemoration of Apollo 11."
Sponsor: Mr. Daniel

H.J. Res. 827, "To provide for the establishment of a national holiday commemorating man's landing on the moon."
Sponsor: Mr. Wilson (Charles H.)

H.J. Res. 829, "Designating the 21st day of July in each year as Lunar Day."
Sponsor: Mr. Dorn

H.J. Res. 837, "Designating the third week in July of each year as "National Man in Space Week."
Sponsor: Mr. Price

H.R. 12916, "To make 'Lunar Landing Day' a legal public holiday."
Sponsor: Mr. Fascell

H.R. 13105, "To provide the Space Exploration Day shall be a legal public holiday which shall be celebrated on the third Monday in July."
Sponsor: Mr. McClory

S. 2629, "Designating the third Monday in July of each year a legal public holiday to be known as 'National Achievement Day.'"
Sponsor: Mr. Hatfield

S. 2672, "Designating July 20 of each year as a legal public holiday to be known as 'Moon Landing Day.'"
Sponsor: Mr. Ribicoff

S. 2679, "Designating July 20 of each year as a legal public holiday to be known as 'Manned Lunar Landing Day.'"
Sponsor: Mr. Byrd (W.Va.)

V. EXPRESSIONS OF GRATITUDE TO THOSE INVOLVED IN THE SPACE EFFORT

H.Res. 487, "Expressing the commendation and gratitude of the House to the men and women of the national space program on the occasion of the Apollo 11 mission."
Sponsor: Mr. Miller (Calif.), Mr. Teague (Tex.), and Mr. Fulton (Pa.)

H.Res. 489, "Expressing the commendation and gratitude of the House to the men and women of the national space program on the occasion of the Apollo 11 mission."
Sponsor: Mr. Teague (Tex.)

S. Res. 224, "Commending the Apollo 11 astronauts on their successful lunar expedition."
Sponsor: Mr. Mansfield and Mr. Dirksen

S. Res. 225, "Expressing the commendation and gratitude of the Senate to the men and women of the national space program on the occasion of the Apollo 11 mission."
Sponsor: Mr. Gurney

VI. MISCELLANEOUS

H. Res. 479, "Urging all Americans to display the flag of the United States in honor of the Apollo 11 mission."
Sponsor: Mr. Clark

H.J. Res. 824, "Authorizing the President to proclaim 'Moon Day' and providing for the striking of medals and for the issuance of a commemorative postage stamp in honor of Apollo 11."
Sponsor: Mr. Anderson (Calif.)

H.R. 2762, "To provide for the issuance of a special postage stamp in commemoration of man's first moon-orbit flight and first escape from earth's gravity."
Sponsor: Mr. Fulton (Pa.)

H.R. 13228, "To provide that the half dollar shall bear the official symbol of the Apollo 11 flight."
Sponsor: Mr. Casey

JUN 17 1969

C:A:bss A-24106f

Honorable George P. Miller
Chairman, Committee on Science
and Astronautics
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

This responds to Mr. Charles F. Ducander's request for the views of the National Aeronautics and Space Administration on H.J. Res. 775, "To authorize the President to award appropriate medals honoring those astronauts whose particular efforts and contributions to the welfare of the Nation and of mankind have been exceptionally meritorious."

The joint resolution would authorize the President to award a medal of appropriate design to any astronaut who, in the performance of his duties, shall have distinguished himself by exceptional meritorious efforts and contributions to the welfare of the Nation and of mankind. It would be permanent legislation covering actions in the future. It would also authorize the President to award such medals posthumously and retroactively.

The National Aeronautics and Space Administration recommends adoption of the joint resolution.

There are a number of awards for which astronauts, and other participants in the national space program, are eligible. They include the Presidentially awarded "Medal of Freedom" and "National Medal of Science" as well as NASA's medals for exceptional service, exceptional bravery, exceptional scientific achievement, outstanding leadership and distinguished service.

The latter, which is generally considered to be NASA's highest award, is given to any person in the Federal service who by distinguished service, ability or courage has personally made a contribution representing substantial progress to aeronautical or space exploration in the interest of the United States. The contribution must be so extraordinary that other forms of recognition by NASA would be inadequate. Individual astronauts have, in the past, qualified for some of the above-mentioned medals and have been awarded them.

Presumably, those astronauts who also serve in the military are eligible and may be qualified, from time to time, for military awards and decorations for deeds incident to their astronautical activities. Suggestions have been made that certain astronauts be awarded the Congressional Medal of Honor, the Nation's highest military award which is given for "conspicuous gallantry and intrepidity in combat at the risk of life above and beyond the call of duty." Up until now, space exploration, although hazardous, has not been considered an appropriate basis for that award.

There appears to be no medal which can be used to squarely recognize the unique role of astronauts and the special kind of courage that it takes to pit ones life, stamina, intelligence and experience against the hazards of space exploration. NASA believes that H.J. Res. 775 provides a proper authorization for such recognition.

If the joint resolution is enacted, it is expected that the President would call upon the Institute of Heraldry, United States Army (See 10 U.S.C. 4594) to provide appropriate services in connection with the design of the medal and that he would request the Philadelphia Mint to strike, pursuant to 31 U.S.C. 368, appropriate dies for the medals so designed.

NASA recognizes that the work of space exploration is in its essence a team endeavor involving the dedication of many people in the military services, in the civilian branches of government

service and in industry. Such contributions are, of course, recognizable under other awards but, as indicated above it is believed that the unique status of the astronauts and the unique burdens placed upon them justify the award of the special medals that would be authorized by the joint resolution.

The Bureau of the Budget has advised that there would be no objection to the presentation of this report to the Congress and that enactment of H.J. Res. 775 would be in accord with the program of the President.

Sincerely yours,

Original signed by
Robert F. Allnutt

Robert F. Allnutt
Assistant Administrator
for Legislative Affairs

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Mr. Wilfred H. Rommel
Assistant Director for
Legislative Reference
Bureau of the Budget
Washington, D.C. 20503

Dear Mr. Rommel:

Attached are proposed comments from the National Aeronautics and Space Administration on H.J. Res. 835 and H.J. Res. 836, identical bills, "Providing for the establishment of the Astronauts Memorial Commission to construct and erect with funds a memorial in the John F. Kennedy Space Center, Florida, or the immediate vicinity, to honor and commemorate the men who serve as astronauts in the United States space program."

This office understands the Bureau of the Budget's position on the so-called astronaut bills which have been introduced heretofore, and that the Bureau now expects to favor only H.J. Res. 775 or similar legislation. However, we request that the Bureau carefully consider the possibility of adopting a favorable view of memorial legislation similar to H.J. Res. 835 and H.J. Res. 836. While H.J. Res. 775 provides for the award of medals to individual astronauts, there is no provision for a physical monument commemorating the contributions of the astronauts who have participated in the space program for the benefit of the Nation and mankind. United States citizens and visitors from other nations would profit from the establishment of some such memorial which would provide an opportunity for them to honor the astronauts and to refresh their memory regarding the historical significance of this Nation's

exploration of outer space. We would call attention particularly to the fact that H.J. Res. 835 and H.J. Res. 836 would involve no cost to the taxpayer. We would also call attention to the fact that every member of the House Committee on Science and Astronautics joined in sponsoring these resolutions.

In a telephone conversation with Congressman Frey this morning, it was indicated to me that there was a desire on the part of many other members to co-sponsor H.J. Res. 835 and H.J. Res. 836, and to seek passage before the recess on August 13, so that some appropriate action could be taken in connection with the Joint Meeting of the House and Senate to honor the Apollo 11 crew in September. Congressman Frey further indicated to me that it was his desire to seek to have the House Administrative Committee hold hearings on H.J. Res. 835 and H.J. Res. 836 next week, but that Chairman Frank Thompson of the Subcommittee on Library and Memorials had indicated to him that a statement of NASA's views on this matter was a prerequisite to such a hearing.

Sincerely yours,

Robert F. Allnutt

Robert F. Allnutt
Assistant Administrator
for Legislative Affairs

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DRAFT REPORT
ON H.J. RES. 835
AND H.J. RES. 836

Honorable Samuel N. Friedel
Chairman, Committee on House
Administration
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

This is in response to your request for comments from the National Aeronautics and Space Administration on H.J. Res. 835 and H.J. Res. 836, identical bills, "Providing for the establishment of the Astronauts Memorial Commission to construct and erect with funds a memorial in the John F. Kennedy Space Center, Florida, or the immediate vicinity, to honor and commemorate the men who serve as astronauts in the United States space program."

H.J. Res. 835 and H.J. Res. 836 would establish a five-member Commission, appointed by the President and empowered to erect and maintain a memorial on real property of the United States at the John F. Kennedy Space Center, Florida, or its immediate vicinity, in honor of the United States astronauts. The Commission would be authorized to determine the form and design of such memorial, and to accept donations of real property and services to carry out the purposes of the Act. Any real property of the

United States which the Commission determines, with Presidential approval, to be a suitable site for such memorial, would be transferred without reimbursement to the Commission. The measure would not authorize the appropriation of funds for the erection or maintenance of the memorial, and would provide that the authority conferred pursuant to the joint resolution would lapse unless (1) the erection of the memorial authorized therein is commenced within four years from the date of its passage, and (2) before beginning construction of such memorial, the Commission certifies that funds are available in an amount sufficient to insure completion of such memorial.

Over the past several years a number of suggestions have been made for ways in which the exploration and sacrifices of astronauts should be officially recognized. Suggestions have been made that military awards or decorations be given them, that special medals be awarded and that memorials or other permanent structures recording their work be erected.

The National Aeronautics and Space Administration is now on record with your Committee as favoring H.J. Res. 775, which would authorize the President to award a medal of appropriate design to any astronaut who, in the performance of his duties, shall have distinguished himself by exceptionally meritorious

efforts and contributions to the welfare of the Nation and of mankind. It would be permanent legislation covering actions in the future, and would also authorize the President to award such medals posthumously and retroactively.

A permanent memorial designed to commemorate the work of the astronauts would provide visitors from this and other nations with a tangible reminder of the significance of the United States space program and of the contributions made by the astronauts who have participated in it.

In view of the foregoing, the National Aeronautics and Space Administration would interpose no objection to the adoption by the Congress of H.J. Res. 835 and H.J. Res. 836.

The Bureau of the Budget has advised that, from the standpoint of the Administration's program, there is no objection to the submission of this report to the Congress.

Sincerely yours,

THE WHITE HOUSE
WASHINGTON

Date Sept. 19, 1969

TO: Tom Whitehead

FROM: Peter Flanigan (Jon Rose)

FYI X

Draft reply

Please Handle

File

Other remarks

NASA

Tom White - Lead

THE WHITE HOUSE

WASHINGTON

August 11, 1969

To: Alex Butterfield

From: C. William O'Neill CWO

NASA Testimony In Executive Session August 5 before the Committee on Aeronautical and Space Sciences, Dr. Paine headed a detailed NASA presentation of the alternatives for future planetary and manned flight programs. Dr. von Braun dealt with a manned expedition to Mars in the 1980's as a focus for a space program in the 1970's. The presentation was not a proposed program, but showed what is technically feasible for the US and USSR. For a manned trip to Mars in 1981, only the space station/mission module and the space shuttle, which are common to any future manned flight program, would have to be started in FY 1971. The Committee was interested in the presentation and in the new concept of low cost through commonality and reusability of equipment. Dr. Paine believes that the leaders and most of the Senate Space Committee members will respond positively to a Presidential request for a strong space program with clear goals. At Sen. Smith's suggestion, the transcript of this hearing will be published.

cc: Ken Cole