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THE

NATIONAL RECONNAISSANCE PROGRAM

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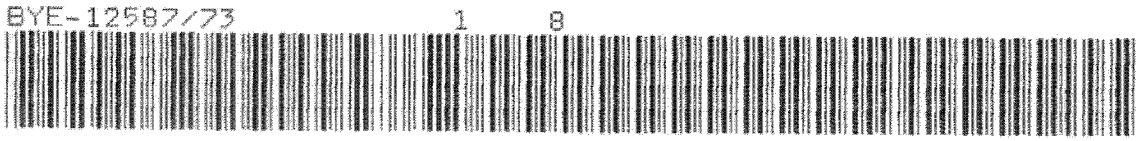
Secretary of Defense



February, 1973

THE NATIONAL RECONNAISSANCE PROGRAM

I. Summary

This document supplements the briefing provided by Dr. McLucas and discusses the National Reconnaissance Program, briefly describing content, goals, budgets and issues, together with a summary of national policy applicable to the program and comments on key interagency relationships. The Secretary of Defense is the executive agent for the National Reconnaissance Program and makes all program decisions consistent with the needs expressed by the intelligence community.

The National Reconnaissance Program comprises intelligence collection overflight operations of the Department of Defense and the Central Intelligence Agency. The program is predominantly satellite reconnaissance, using photographic and electronic sensors. However, aircraft operations are also conducted within the program. The program is one of intelligence collection and usually has relied upon DOD-sponsored developments of boosters, launching facilities,

and tracking and control networks. Since technology advances within the program are oriented to a specific application, they generally have been restricted to operational sensor development with only occasional benefit to other activities.

Satellite reconnaissance is a quasi-legal espionage activity conducted covertly by the National Reconnaissance Office. Satellites are vulnerable vehicles which need a permissive environment for successful operation. The United States government is deeply dependent on overflight reconnaissance, and particularly satellite reconnaissance, for intelligence information.

The long-term goals of the NRP include enhancing collection capability and reducing costs. An important consideration is to insure adequate collection capability to monitor the Strategic Arms Limitation Treaty. In addition to the recently directed developments of an electro-optical imaging satellite and an [redacted] other new program possibilities include improved electronic intelligence satellites, [redacted] and very long-lived satellites.

National satellite reconnaissance policy recognizes the need to operate reconnaissance satellites with great discretion, develop tacit acceptance of these operations as a reasonable national activity, and avoid embarrassment to our allies or confrontation with our enemies in carrying out our operations. These policies, and the special security arrangements resulting from them, have been primary forces in protecting United States reconnaissance operations from the threat of international confrontation. A National Security Council directed interagency study group is currently evaluating the physical threat to our satellite programs in light of the present Soviet anti-satellite capability. The NRO has devoted much effort in recent years studying the problem and developing potential countermeasures.

NASA's and ACDA's interests in earth-sensing satellites require special consideration which can be, and is being, provided through close coordination and cooperation between those agencies and the DOD. The NRO has made U-2 capability available to NASA for civil earth-sensing activities. ACDA has sponsored a series of technical reports on NRP satellite systems oriented toward the verification of a SALT.

In its continuing efforts to transfer capability accruing from the national programs to more specific defense requirements, studies are underway which examine the integration of an NRO satellite with a non-NRO satellite and the potential for tactical use of national collectors.

II. The Program

The National Reconnaissance Program is a single, national program dedicated to the collection, through overflight, of intelligence to meet the needs and objectives of the United States Government. The Secretary of Defense is the Executive Agent for the Program, managing resources of the CIA and DOD in carrying out the mission; he receives program recommendations from an Executive Committee made up of the Deputy Secretary of Defense, the Director of Central Intelligence, and the President's Science Advisor. The Program is managed by the Director of the National Reconnaissance Office, who is an official of the Department of Defense. The technical aspects of the program are reviewed by the Land Panel, a special panel established by the President's Science Advisor. Managerial aspects are reviewed by the President's Foreign Intelligence Advisory Board.

The Program is covert and comprises the development, management, and operation of satellites and aircraft, for photographic or electronic overhead reconnaissance of denied

areas of the world (peripheral reconnaissance is a separate responsibility managed by the Joint Chiefs of Staff).

The National Reconnaissance Program is responsive directly to the intelligence collection requirements and priorities established by the United States Intelligence Board. The National Reconnaissance Office sends its plans and schedules for both satellite and aircraft reconnaissance overflights directly to the 40 Committee of the National Security Council for operational approval.

A. Program Background

The essential background of the National Reconnaissance Program begins shortly after the May 1, 1960 loss of a U-2 aircraft engaged in overflight reconnaissance of the Soviet Union. In the aftermath of this event, faced with the loss of reconnaissance capability over the USSR, President Eisenhower directed the National Security Council to review intelligence collection alternatives, such as satellite reconnaissance. As a result of this review and subsequent deliberations, the reconnaissance satellite projects of the Department of Defense and the Central Intelligence Agency were consolidated into a single, national program to

be managed by a special arrangement designed to enhance covert operation and assure successful achievement of program objectives. By the Spring of 1962 these organizational adjustments culminated in the establishment of a National Reconnaissance Program which was to be managed by a National Reconnaissance Office--a single, national agency responsible for satellite photographic and signal intelligence collection operations, satellite mapping and geodesy, and aircraft over-flight reconnaissance.

B. What the Program Does

The National Reconnaissance Program uses aircraft and satellites as its collection vehicles.

The satellite vehicles carry sensors which collect (1) broad coverage search and surveillance photography, (2) high resolution spotting and surveillance photography, and (3) signal (communication and electronic) intelligence.*

A typical broad-coverage satellite photographic mission produces photography of over twenty-five million square miles of land mass at ground resolutions of two to seven feet, of which almost 70 percent is cloud-free. Such

*Details on these projects are given in the Appendix.

a mission also produces special coverage suited specifically to mapping and charting purposes. The current system became operational in 1971 and is an improved search and surveillance system providing significantly longer satellite life, broader area coverage, and finer resolution than its predecessor which became operational in 1960.

A high resolution satellite photographic mission returns about 15,000 photographs with ground resolutions of [redacted] three feet. The current system became operational in 1963 and has been improved repeatedly to increase its orbital life and resolving power.

Some satellites are designed and operated to collect electro-magnetic signal emissions which originate from Soviet or Chinese Communist radars and communication devices. The collected intelligence reveals the status, locations, and characteristics of key weapon systems such as the Soviet anti-ballistic missile system.

C. National Importance of the Program

Satellite reconnaissance is undoubtedly the single most important tool available to the nation for the detection and assessment of foreign offensive capabilities. Satellites have been the sole means of identifying and locating all

Soviet and Chinese offensive missile launchers; virtually all new major weapon system developments have been first identified by overhead collectors. And it is primarily satellites which provide the confidence in verification that permitted the President to enter Strategic Arms Limitation Agreements.

Information providing the basis for significant reassessment of Soviet and Chinese Communist ground force strength and capability to supply and reinforce units in conflict along the periphery of Communist nations is derived largely from satellite reconnaissance, either directly or by implication. The Defense Intelligence Agency estimates that 65 percent of what the U.S. knows about the strength, equipage, and disposition of Soviet ground forces--90 percent for the Chinese--is attributable to satellite intelligence.

In special categories like observing the Lop Nor Test Site, or locating SAM defenses in Southeast Asia, satellites have been practically an exclusive intelligence source.

In the field of electronic signal intelligence, NRP satellites routinely provide detailed information on

Soviet and Chinese electronic order of battle locations, surface to air missile related radars and Soviet ABM radars in a virtually continuous electronic surveillance of the entire Sino Soviet land mass. Communications intelligence vehicles provide locations of most Soviet and Chinese emitters and dedicated collection from selected links. Telemetry data are also collected from Soviet missiles and satellites from pre-launch checkout to re-entry or on-orbit operation.

Today the United States depends on the National Reconnaissance Program for most of its strategic and tactical information on the world's closed societies. This dependence would be magnified further by U.S. withdrawal from foreign bases.

III. Policies Supporting the Program

When the first U-2 photography of the USSR was produced (in 1956), President Eisenhower directed that it be protected--as an ultra-sensitive espionage product--in a special security system. In 1960, when the first satellite reconnaissance photographs were produced, President Eisenhower directed that they be similarly protected and placed them in a compartment of the same special security system.

During 1961 and early 1962, the Soviets made a number of private overtures to the U.S. protesting the use of satellites for reconnaissance. In 1962, the question of the legitimacy of satellite reconnaissance began to appear as an important pre-condition to international negotiations on disarmament and on the peaceful uses of outer space. In response to increasing pressure, the President asked a Committee of Principals, acting under the leadership of Ambassador U. Alexis Johnson, to formulate a national policy which would (1) maintain United States freedom of action to conduct reconnaissance satellite operations unilaterally, (2) prevent foreign political and physical interference with those operations, (3) prevent accidental or forced disclosure of the details

of the operations or end-products of the United States reconnaissance program, and, at the same time, (4) permit the United States to continue to work toward disarmament and international cooperation in space.

A national policy supporting these goals was recommended by this Committee, approved by the President on July 10, 1962, and issued in NSC Action 2454. Essentially, the policy enjoins the United States to (1) operate its reconnaissance satellites with great discretion, (2) work toward developing tacit acceptance of these operations, and (3) avoid embarrassment to our allies or confrontation with our enemies.

The Committee of Principals, the NSAM 156 Committee, is still charged with review of satellite reconnaissance policy planning. The Committee is maintaining interest in the public acceptability of Earth Resources Satellite programs as well as the information aspects of satellite reconnaissance as it pertains to future SALT negotiations.

As a result of careful satellite reconnaissance policy planning, the United States is enjoying, at this time, an international political situation which provides all the advantages of tacit acceptance without the hazards inherent

in open discussion or confrontation. It is critically important to nourish the conditions which contribute to such an atmosphere, for reconnaissance satellites require a permissive environment--political and physical--for successful operation.

IV. Long Term Goals of the NRO

The NRO plans to continue to:

A. Conduct a covert program to collect intelligence through the overflight of denied territory.

B. Seek methods to reduce the cost of such collection.

C. Improve the responsiveness of collection systems to intelligence needs.

D. Advance satellite reconnaissance techniques in order to improve collection capabilities and respond to new collection needs.

V. New Programs

Although satellite reconnaissance is conducted as a covert program, its hardware and techniques are developed, procured, and used in "the open," whenever possible. For example, the program uses Air Force launching facilities at Vandenberg Air Force Base, it shares the Satellite Test Facility at Sunnyvale, and uses satellite recovery capabilities in Hawaii. The bulk of the program's hardware--boosters and spacecraft--is readily available to any organization. As a general rule, only the payload is handled under special security. The NRP budget for new technology reflects this arrangement, being oriented essentially toward improved payloads.

At present, photographic satellites return data by ejecting capsules which are aerially recovered. It has long been desired to return imagery electronically, thus permitting nearly immediate intelligence analysis. Further, an electronic imaging satellite might have a longer useful life on orbit and thus be more economical than present systems. Recent decisions have led to a program start which will result in a system of very long-lived electro-optical imaging satellites which will be operating after 1976.

A second generation of electronic intelligence collection satellites became operational during the late 1960's and early 1970's. Two of the new satellite systems operate in synchronous orbit. It may be expected that, during the decade of the 1970's, there will be further improvements of such systems taking advantage of observations from the altitude of synchronous orbit where long continuous periods of observation are possible.

If the Space Transportation System becomes a reality, satellites of the NRP will be transported to orbit by the shuttle. The potential impact on the NRP is being examined at this time. While introducing several problems, the shuttle concept may afford a replenishment or repair capability for extending the life of the reconnaissance satellites. Present sizing and configuring of the shuttle are based on NRP payload requirements since a significantly large number of STS flights will be carrying NRP payloads.

Studies and limited developments are underway in areas such as radar surveillance satellites (which offer the advantage of an

[redacted] Such techniques can augment current reconnaissance capabilities and will be evaluated during the 1970's.

VI. Trends

The increasing success of satellite intelligence collection and the increasing sensitivity of the U.S. to international confrontation have caused a decreasing emphasis on covert aircraft programs. The NRP budget is now about 95 percent devoted to satellite systems. As satellites have become more effective, it has been possible to reduce the launching rate substantially while increasing intelligence collection. It seems quite clear that there is a steady trend toward long-lived satellites. With continuing pressure to reduce the overall intelligence budget coupled with the direct interest of the Congress in sizing the NRP budget, we are constantly seeking ways to achieve our mission at reduced cost.

VII. Possibilities of Satellite Interdiction

Since the legality of satellite espionage is an unsettled matter, the possibility of some nation attempting to destroy U.S. reconnaissance satellites has long been a matter of concern. The Soviets have demonstrated a capability which could be used to destroy U.S. satellites in near-earth orbit. Despite this apparent capability, National Intelligence Estimates conclude that it is extremely unlikely the Soviets would take hostile action against our reconnaissance satellites in any circumstances other than as a preclude to general war. While China probably now has a marginal capability to interfere with our satellites through the use of nuclear weapons, no fully developed Chinese anti-satellite capability, either nuclear or non-nuclear, is anticipated for some time. On the basis of these estimates, there has been little attempt to provide physical protection for current satellite operations, although a certain amount of research has been accomplished.

Recently, Dr. Kissinger requested a review of the Soviet threat. A study group, chaired by ODDR&E, is presently accomplishing the review.

VIII. Relationships

A. NRP Relationships with NASA

For some time, NASA has been approaching use of satellite-borne sensors to locate and study earth resources. Experiments involving hand-held cameras operated by GEMINI and APOLLO astronauts have not been politically offensive to other nations, largely because the photographs are at a fairly gross resolution, the "targets" are carefully selected, the film is reviewed by a United States Intelligence Board security panel before it is released to the public, and hostile states such as the USSR and Red China are either not overflown or not now photographed. Future possible NASA applications, involving oceanography, forestry, geology, geography, and agriculture, must be planned and controlled very carefully, for the line between economic research photography and economic intelligence photography is very thin and casual experimentation could trigger challenges to the legitimacy of not only the NASA earth-sensing program but of the National Reconnaissance Program. In 1966, Ambassador U. Alexis Johnson's satellite reconnaissance policy committee, the NSAM 156 Committee, met again and

developed policy to cover this potential danger area. Within the guidelines established by that committee, NASA and the NRO have been proceeding on a cooperative basis in planning a NASA earth-sensing program which will meet our nation's scientific needs without jeopardizing its ability to gather intelligence from space. More recently, the 156 Committee recommended the approval of Dr. Kissinger for NASA to be permitted to fly a higher resolution earth terrain camera on its forthcoming SKYLAB mission.

In addition, the President's Science Advisor, with the endorsement and support of the Director of Central Intelligence and the Deputy Secretary of Defense, sponsors a committee with membership from the non-defense agencies which identifies ways in which space intelligence photography can be used by these agencies within the present security and policy regulations and provides a channel for passing these needs to USIB's Committee on Imagery Requirements and Exploitation. This Committee has had a strong positive influence in coordinating the needs of the civil community and assisting to plan a reasonable earth-sensing program.

B. NRP Relationships with the Arms Control and Disarmament Agency

The SALT talks have brought the Arms Control and Disarmament Agency directly into satellite reconnaissance policy considerations. In 1968, concerned that the USSR would not agree to on-site inspection, the NSAM 156 Committee proposed to negotiate with the USSR on the assumption that the United States was prepared to accept "enforcement by maximum, or if necessary, exclusive reliance on national means of verification. . ." (for the United States, this expression means "satellite reconnaissance"). In addition, in order to support its proposal, the Department of State recommended declassifying the fact that the U.S. is conducting satellite reconnaissance, disclosing to the Soviets that reconnaissance satellites are our main reliance for verification, briefing Congress on our reconnaissance capabilities, and informing the press and public--gradually but officially--along the same lines. After discussion within the United States Intelligence Board and key affected government agencies, it was decided that disarmament discussions with the USSR could proceed effectively, and possibly more effectively, by restricting the U.S. delegation

to use of the expression "national means of verification" with no reference to our satellite reconnaissance program. It was pointed out that disclosure is an irreversible step which could have profoundly adverse effects on national security. after reviewing the positions of the Agency Heads regarding the necessity and proprietary of disclosing the "fact of" satellite reconnaissance, Dr. Kissinger reaffirmed the present no-disclosure policy.

Throughout the SALT ratification process, there was much speculation in the press regarding the use of reconnaissance satellites as the means of verification; however, Congress did not require any further explanation regarding the means nor the reliability of the proposed verification procedure. This approach is expected to be pursued in the next round of SALT negotiations.

IX. NRP Charter

The present NRP operating charter is an Agreement between the DOD and CIA dated 11 August 1965. It is the third of a series of Agreements, the first two being inefficient in that no direct chain of command was established. The present Agreement was based on the recommendations of the President's Foreign Intelligence Advisory Board. The Agreement has served its purpose well; however, the DNRO has recommended to Mr. Laird that current NRP management procedures would be strengthened with substantial authoritative backing such as a National Security Council Intelligence Directive or alternatively, a revised charter which accounts for 7½ years of evolution.

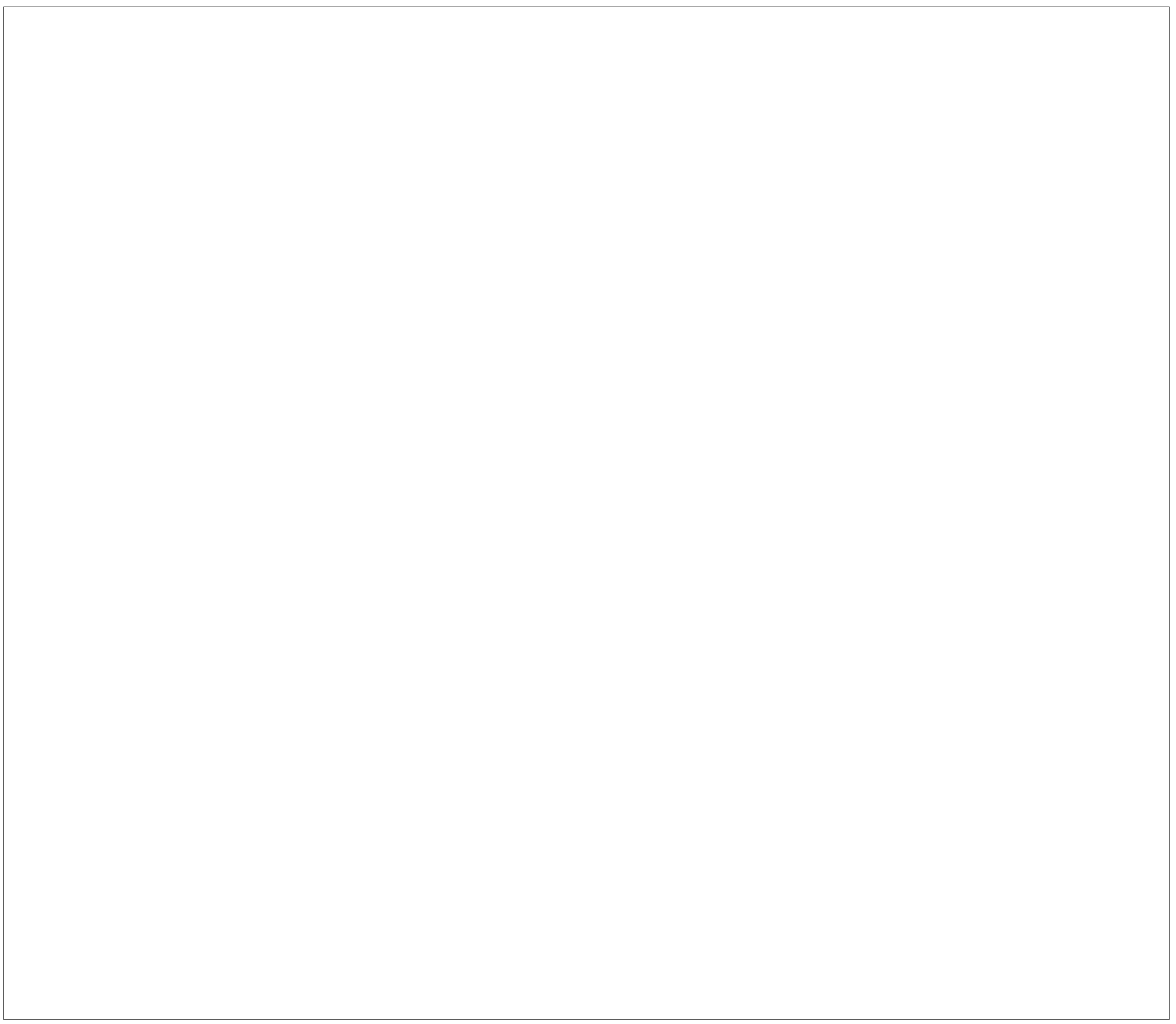
X. Key Subjects Facing the NRO During the Next Five Years

A. Long-term Plan for Photo Reconnaissance

We presently use HEXAGON for wide area cover and GAMBIT for high resolution close up pictures of targets of high interest. When the KENNEN system becomes operational in 1976, it will produce pictures of good quality in near real time; however, the KENNEN imagery will not show details

D. Tactical Application for Satellite Reconnaissance

We are entering the era of tactical reconnaissance by satellites. The USIB has recognized ocean surveillance as a valid requirement; other tactical uses, Army and Air Force, are being defined. There will be some organizational and operational problems in applying the covert and centrally managed NRP satellite resources to these tactical purposes. Nevertheless, satellites are inherently adaptable to many purposes and many customers; therefore, to avoid fragmentation and duplication of effort, a firm high level management control, like the NRO, will continue to be useful.



DATA APPENDIX

INFORMATION ON ACTIVITIES OF THE NRP

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1. Photographic Satellites

a. CORONA. A medium resolution, broad-coverage search system which began operating in 1960 was phased out in 1971. Typically, seven or eight 10-14 day CORONA missions were flown per year and, on the average, each provided about 7.0 million square miles of photography at resolutions of seven to twelve feet. The final CORONA mission was flown in May 1972.

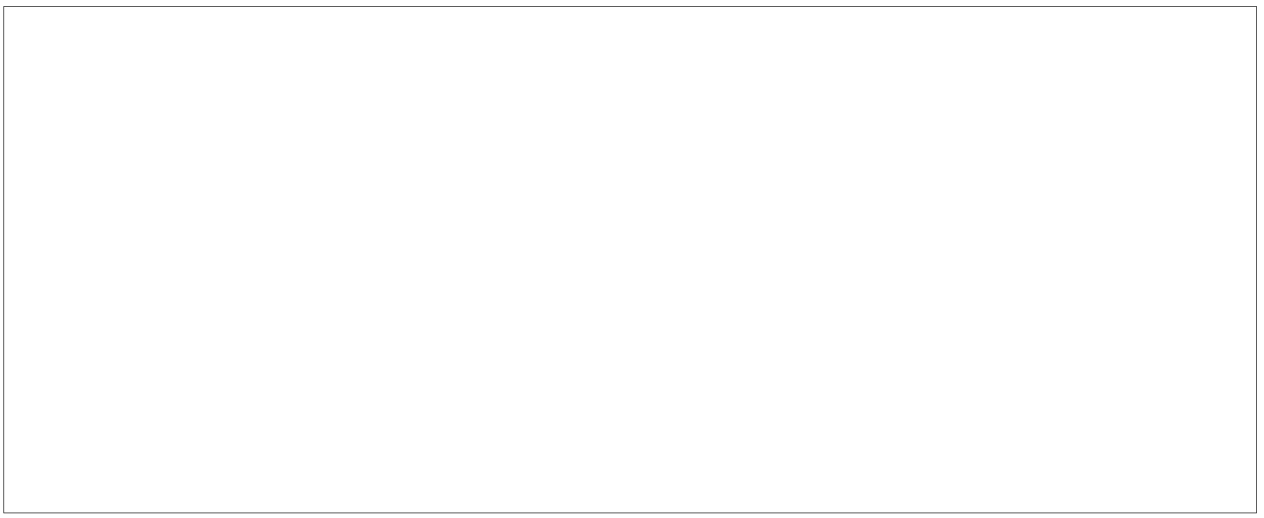
b. HEXAGON. A second generation search system which currently covers almost 28 million square miles per 60-day mission at resolutions of approximately two to five feet. HEXAGON covers a swath of 280 miles from a normal operating altitude of 82 miles--about double the swath of CORONA. With its improved resolution, HEXAGON also satisfies many surveillance requirements. First flight was in June 1971, subsequent flights in January, June and October 1972, and three or four successful launchings per year are planned for the program's lifetime, which is estimated to be ten years or more.

c. GAMBIT. A high resolution surveillance/technical intelligence system which began operating in 1963. Typically, four GAMBIT missions are flown per year and an average mission returns 15,000 photographs at ground resolutions of [redacted] three feet. Mission life has been extended to 24 days with a 30 day lifetime expected to be realized beginning early in 1973.

2. Signal Intelligence Satellites

a. POPPY. A long-life, broad-band SIGINT search system for locating new and unusual signals and determining their position. POPPY is also used to locate selected radars for updating the Electronic Order of Battle (EOB). This satellite is flown in a 500 n.m. orbit and has an operating life of over one year.

b. STRAWMAN. A multi-purpose, broad-band, high-sensitivity, near-earth-orbit (275 n.m.) SIGINT system whose primary function was to determine the technical characteristics of known radars. It also had a good capability for locating new signals and providing locations for EOB updating. The final STRAWMAN was launched in July 1971.



f. P-11. This name refers to a special purpose secondary satellite responsive to a wide variety of SIGINT needs. Most frequently it is used for directed coverage of a specific nature, such as anti-ballistic missile search, technical intelligence collection on certain radars, and low capacity multi-channel COMINT. P-11s are launched as secondary payloads on other satellites (e.g. HEXAGON), separated at altitude, and then spin-stabilized in orbit.

3. NRP Financial Program (Millions TOA)

	FY 73	FY 74	FY 75	FY 76	FY 77	FY 78
Aircraft and Support Programs:						
U-2 Aircraft Support:						
CIA-NRP	5.3	5.8	5.9	6.1	6.2	6.3
(a) Air Force	15.9	-	-	-	-	-
Subtotal	21.2	5.8	5.9	6.1	6.2	6.3
Mission Support: (Photographic Materials and Processing, Area 51 Operations)						
NRP	23.1	23.7	24.3	24.7	25.1	25.4
R&D Support: (Countermeasures R&D, General R&D)						
NRP	3.7	3.9	4.1	4.2	4.3	4.4
Aircraft and Support Total	48.0	33.4	34.3	35.0	35.6	36.1
Satellite Programs:						
Photographic Systems:						
CORONA	0.4	-	-	-	-	-
HEXAGON	206.2	205.0	229.8	226.8	246.3	234.0
GAMBIT	127.1	106.7	136.2	145.3	171.0	156.5
GAMBIT Improvements	5.0	25.2	23.3	17.6	11.6	8.0
COMINT/ELINT Systems:						
STRAWMAN	1.2	-	-	-	-	-
P-11	21.2	21.8	22.9	24.1	25.3	25.8

(a) Starting with FY 1974, these changes may move from the NRP to regular Air Force budget.

	FY 73	FY 74	FY 75	FY 76	FY 77	FY 78
Mission Support: (Satellite Control Facilities, Westover Photo Facility, Propellants, Misc. Operating)						
NRP	77.3	85.4	94.1	95.1	90.5	86.5
				-	-	-
R&D Support: (Applied Research, Advanced Development, Vulnerability R&D, Photo R&D, Misc. Development)						
NRP	22.4	31.0	32.5	34.2	35.9	37.7
Satellite Total						
Satellite Planned Launches:						
Photographic Systems:						
HEXAGON	4	3	3	3	3	3
GAMBIT	3	4	3	3	3	3
KENNEN						
Subtotal						
COMINT/ELINT Systems:						
P-11 Rides	1	3	1			