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THE NATIONAL RECONNAISSANCE PROGRAM

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June 4, 1969

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THE NATIONAL RECONNAISSANCE PROGRAM

The Nature of 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 a special panel established by the President's Science Advisor.

The Program is covert and comprises the development, management, and operation of satellites, aircraft, and drones 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 cost of the Program is

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 303 Committee of the National Security Council for operational approval.

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/drone overflight reconnaissance.

What the Program Does

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

The satellite vehicles carry sensors which collect (1) broad coverage search 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 about seven million square miles of land mass at ground resolutions of seven to ten feet. The current system became operational in 1960 and will be replaced in 1971 by an improved search system that will provide significantly longer satellite life, broader area coverage, and finer resolution.

A high resolution satellite photographic mission returns photography of approximately 5000 high priority targets, with ground resolutions of

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*Details on these projects (characteristics, weights, schedules) are given in the Appendix.

one to 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 electromagnetic 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.

National Importance of the Program

Most of this nation's information on USSR strategic offensive systems has been acquired by satellite reconnaissance. In the case of operational ICBM sites within the USSR, our dependence on satellites has been total. Similarly, strategic defensive systems, like the Moscow and Tallinn systems, have been positively detected and identified within the first 45 days of construction by satellite photography and observed closely and repetitively from that time forward.

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% of what the U.S. knows about the strength, equipage, and disposition of Soviet ground forces -- 90% for the Chinese -- is attributable to satellite intelligence.

In special categories like [redacted] or locating SAM defenses in Southeast Asia, satellites have been practically an exclusive intelligence source.

In the field of electronic signal intelligence, satellites have contributed uniquely to our knowledge of the disposition of Soviet air defense radars; this knowledge aids the Strategic Air Command in selecting bomber penetration routes. Satellites have also determined deployment status and operational characteristics of the Soviet ABM system. These are two examples only of a broadly productive program.

Today the United States depends on the National Reconnaissance Program for most of its strategic and tactical information on the world's closed societies.

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.

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. Lacking such an environment, their operation can be challenged on the floor of the United Nations or in the skies of any nation which desired to demonstrate against space espionage.

Long Term Goals of the NRO

The NRO plans to continue to:

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

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

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

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

Ten Year Projections

1. Extension of Current Programs

Based on the present understanding of future needs, the following schedule of launchings is anticipated:

Program*	FY 70	71	72	73	74	75	76	77	78	79	80
PHOTO											
Broad coverage	6	7	4	4	4	3	3	3	3	3	3
High resolution	7	5	5	4	4	4	4	4	4	4	4
SIGINT											
Primary											
Secondary											

2. Possible 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 --

*Additional detail on scheduled launchings is found in the Appendix.

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 developments show promise that such a satellite may soon be technologically feasible. If development continues favorably, consideration will be given to a program start leading to a system of very long-lived satellites which could be operating after 1975.

The MOL program (which is not a part of the NRP) has the objective of developing a very high resolution photographic system which can be operated manned or unmanned. At some point in the future, consideration will be given to establishing an unmanned program within the NRP which utilizes the MOL camera.

A second generation of electronic intelligence collection satellites is being developed now and will be operational during the early 1970's.

[redacted]

There are several possible ways to decrease the cost of photographic satellite operations: (1) to recover the camera and re-use it, (2) to resupply the payload in orbit, and (3) to utilize a photographic system which returns imagery electronically and thus could have a useful life measured in years. The development emphasis and the apparent trend is toward an electro-optical imaging system for surveillance. Recoverable payload and resupply may permit economies for continued operation of current systems but the trend toward reduced launching rates, as shown in the future schedule, appears to provide a small margin to amortize major system changes.

Studies and limited developments are underway in areas such as

[redacted]

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

3. Trends. The increasing success of satellite intelligence col-

lection 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 93% devoted to satellite systems. As satellites have become more effective, it has been possible to reduce the launching rate substantially while increasing intelligence collection. This trend is forecast to continue as indicated in the future year schedule. If there were no new programs, the completion of development now underway and the reducing launch rates would permit a budget decrease as shown in the Appendix. It seems quite clear that there is a steady trend toward long-lived satellites. This trend will continue and will permit economies.

Whether or not there will be manned reconnaissance satellite systems in the 1970's will depend largely upon the demonstration of benefits associated with manned flight resulting from the MOL program.

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 a clear existing capability to destroy U.S. satellites on orbit; this capability is derived from their ABM radar and interceptor systems and, indeed, the

location and characteristics of some of these radars identify them as providing specifically and only an anti-satellite capability. On the other hand, current intelligence estimates state that it is extremely unlikely that the Soviets would intercept U.S. satellites in any circumstance other than as a prelude to general war. Further, the estimates point out that other nations are unlikely to have any significant anti-satellite capability at this time. On the basis of these estimates, there has been little attempt to provide protection for current satellite operations, although a certain amount of research has been accomplished.

If the Soviets were to harrass our satellite reconnaissance operations, it would be difficult and expensive to provide means for assurance of continued photographic intelligence. Upon such an occasion, it might be a useful tactic to respond in kind, intercepting a Soviet reconnaissance satellite in the hope that such action would deter further interference. The U.S. has no capability at present to carry out such an interception with non-nuclear weapons. It would appear prudent to consider acquiring such a capability as an aid to insuring the availability of continued satellite reconnaissance to this nation.

NRP Relationships with NASA: Post-APOLLO Goals

For some time, NASA has been exploring the 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 an inter-agency 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, U. Alexis Johnson's satellite reconnaissance policy committee met again and developed policy to cover this potential danger area. As a result, NASA and the DOD are now 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.

In addition, the President's Science Advisor has sponsored policy studies and requirement conferences in an effort to determine how

available space intelligence photography can be applied to the needs of the civil government without hazarding the security of the National Reconnaissance Program. These studies and conferences have been a strong positive influence in coordinating the needs of the civil community and assisting to plan a reasonable earth-sensing program. In order to encourage further progress, consideration should be given to allotting a small but regular percentage of film from each search satellite to these purposes.

There are two new areas in which NASA could benefit from closer technical ties with the Department of Defense. First, the DOD maintains a reconnaissance wing of SR-71 aircraft whose main purpose, in the event of war, is nuclear strike assessment. At present, some of these aircraft fly training missions and some are stored in flyable condition. Some SR-71's and possibly U-2's could be made available for NASA earth-sensing surveys. Photography from SR-71's should be very useful to NASA and its user community in developing baseline mosaics and in evaluating the possible return to be expected eventually from satellite photography. In addition, aircraft like SR-71s offer many advantages over satellites as sensor carriers: their operating cost is much less than that of satellites, a wide choice of sensors is

possible, the survey of a nation can be carried out faster by aircraft than by satellites, aircraft can be selectively employed, and they need offer no political risks. An intensive program of earth-sensing from aircraft over selected cooperating countries could provide a useful assessment of the utility of earth resources surveys prior to embarking on a very expensive satellite program.

Second, NASA has concluded that its initial earth resources satellite will be more cost-effective if it uses an electronic imaging system, rather than film-recovery cameras. It is quite possible that highly refined electronic imaging sensors will permit economy and improvement in NRP operations in the future. It may be appropriate and mutually advantageous for NASA to make a significant commitment to advancing the technology of high resolution electronic sensors to replace film-camera systems.

NRP Relationships with the Arms Control and Disarmament Agency

The US-USSR discussions of 1968 regarding a Strategic Arms Limitation Treaty brought the Arms Control and Disarmament Agency directly into satellite reconnaissance policy considerations. Concerned that the USSR would not agree to on-site inspection, ACDA 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, ACDA 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. Furthermore, to single out one or some intelligence collection methods now and to pass only that or those to the Soviets, Congress, and the American public would be dangerous and misleading and could evolve a genuine "credibility gap."

An alternative approach exists which could give ACDA the advantages

of satellite reconnaissance without adverse effects on the security protection required by the National Reconnaissance Program. In this approach, the United States would be prepared to negotiate with the Soviets on the basis of an Arms Control Satellite which would be developed by NASA for the ACDA. This satellite could be defined, on the basis of developments of the past decade, such that its performance would be highly credible to the Congress, the press, and the public. Whether operated internationally, bilaterally (NASA and the Soviet Academy), or nationally (NASA alone) the approach offers significant advantages. By working outside the National Reconnaissance Program, ACDA would not need to confront the Soviets (and the rest of the world) either publicly or privately, with the reality of the U.S. intelligence program and would avoid an irreversible confrontation with other nations, Congress and the American public. This approach would also allow the United States to continue its covert reconnaissance program (the NRP) as a unilateral and essential source of basic intelligence. A separate ACDA/NASA program would protect existing intelligence security and could achieve a measurable step toward legalizing satellite observation at little or no risk to U.S. national interests.

In Summary

The United States government is deeply dependent on overflight

reconnaissance, and particularly satellite reconnaissance, for information on closed societies. Satellites are vulnerable vehicles which must have a permissive environment for successful operation. Satellite reconnaissance is a quasi-legal espionage activity conducted covertly by the National Reconnaissance Office.

A national satellite reconnaissance policy, begun at the instance of President Eisenhower and continuing to the present, 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. If this protection should fail, and our satellites encountered harrassment, it would appear wise to have a non-nuclear interceptor capability available as a psychological and real countermeasure.

NASA's and ACDA's interests in earth-sensing satellites requires special consideration which can be, and is being, provided through close coordination and cooperation between those agencies and the DOD. It appears that significant benefits would accrue through the DOD (1) making

an SR-71 or U-2 capability available to NASA for civil earth-sensing activities, and (2) encouraging NASA to sponsor a major program in readout technology. It appears possible that ACDA, with extensive NASA commitments, could take the initiative for development of a US-USSR Arms Control Satellite.

DATA APPENDIX

INFORMATION ON ACTIVITIES OF THE NRP

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INFORMATION ON ACTIVITIES OF THE NRP

1. Photographic Satellites

a. CORONA. A medium resolution, broad-coverage search system which began operating in 1960 is scheduled for phase-out in 1971. Typically, seven or eight 10-14 day CORONA missions are flown per year and, on the average, each provides about 7.0 million square miles of photography at resolutions of seven to twelve feet.

b. HEXAGON. A second generation search system which will cover 20 million square miles per 45-day mission at resolutions of two and one-half to five feet. HEXAGON will cover a swath of 280 miles from a normal operating altitude of 82 miles -- about double the swath of CORONA. With its improved resolution, HEXAGON will also satisfy many surveillance requirements. First flight is scheduled for December 1970, 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, six GAMBIT missions are flown per year and an average mission returns photography of 5,000 high priority targets, at ground resolutions of one to three feet.

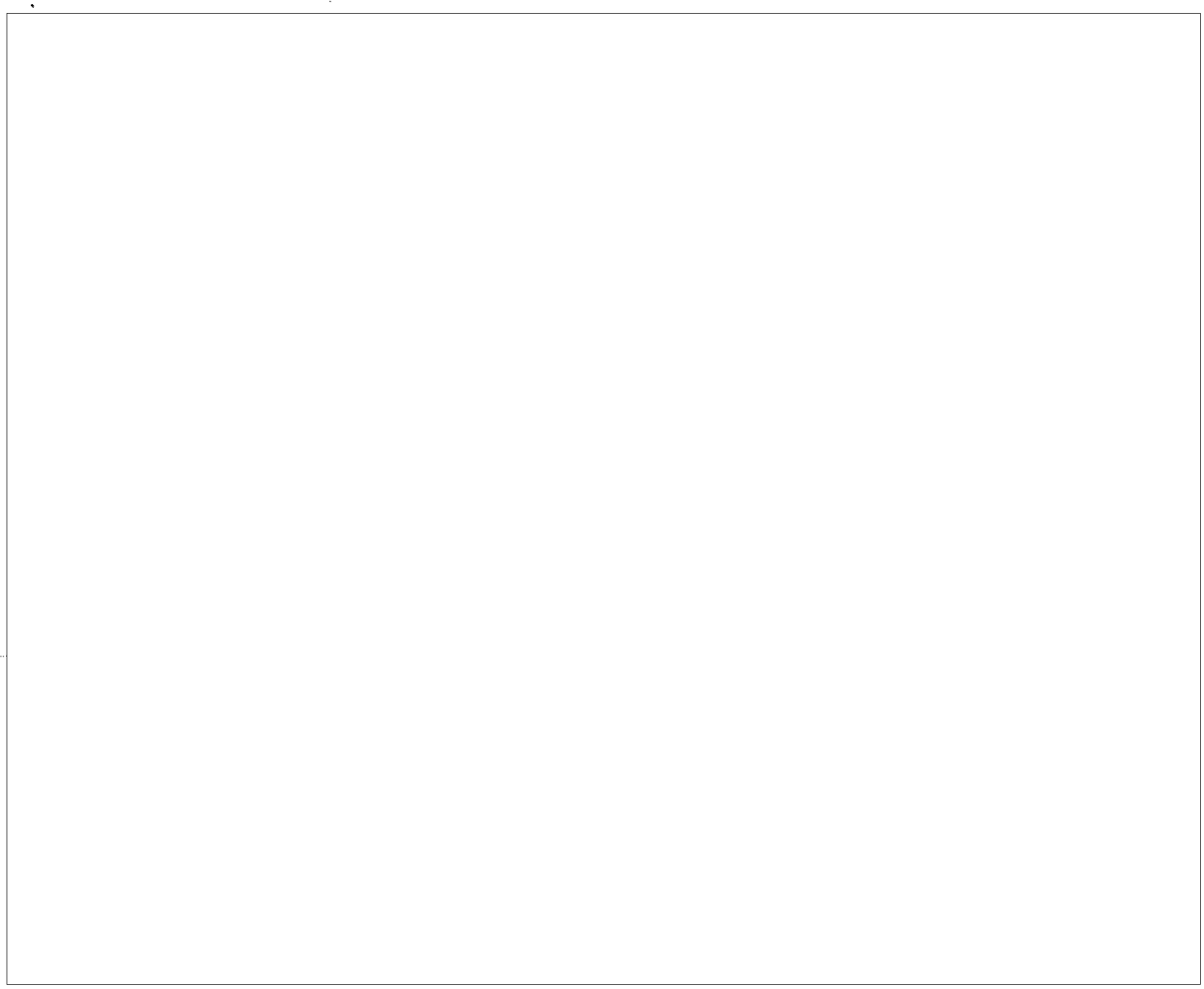
Plans call for increasing GAMBIT's time-on-orbit to 20 days and improving its resolution [redacted]

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 is to determine the technical characteristics of known radars. It also has a good capability for locating new signals and providing locations for EOB updating.

[redacted]



f. P-11. This name refers to a special purpose secondary satellites responsive to a wide vareity of SIGINT needs. Most frequently they are 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. CORONA), separated at altitude, and then spin-stabilized in orbit.

3. Launching Schedules

Programs	FY69	70	71	72	73	74
CORONA	7	6	4	0**	0	0
HEXAGON	0	0	3	4	4	4
GAMBIT	8	7	5	5	4	4
POPPY	0	1	1	(1)	-	(1)
STRAWMAN	2	2	1	-	-	-
P-11	4	3	4	4	4	4

*No major configuration change from current program
**Two systems in reserve

NOTE: Parenthesis indicates not yet approved by NRP Executive Committee.

4. Ten Year Projections

Programs	FY70	71	72	73	74	75	76	77	78	79	80
CORONA	6	4	0	0	0	0	0	0	0	0	0
HEXAGON	0	3	4	4	4	3	3	3	3	3	3
GAMBIT	7	5	5	4	4	4	4	4	4	4	4
POPPY	1	1	1	0	1	0	0	0	0	0	0
STRAWMAN	2	1	0	0	0	0	0	0	0	0	0
P-11	3	4	4	4	4	3	2	2	1	2	1

5. System Characteristics

Payload	Booster	Payload Weight	Lifetime
CORONA	Thorad/Agena	4, 280	14-20 days
HEXAGON	Titan III D	22, 500	30-45 days
GAMBIT	Titan III B/Agena	8, 550	14-18 days
POPPY	Thorad/Agena	1, 200 (4 balls)	> 1 year
STRAWMAN	Thorad/Agena	3, 900	> 6 months
P-11	Passenger on CORONA / 405 HEXAGON		> 9 months

6. NRP Financial Program (Satellites)

(Million $)

Programs	FY69	FY70	FY71	FY72	FY73	FY74
CORONA						
Launches	7	6	4	-	-	-
Costs	$ 47	$ 27	$ 17	$ 2		
HEXAGON						
Launches	-	-	3	4	4	4
Costs	$ 218	$ 182	$ 193	$ 203	$ 181	$ 178
GAMBIT						
Launches	8	7	5	5	4	4
Costs	$ 137	$ 167	$ 137	$ 122	$ 112	$ 112
POPPY, P-11 and STRAWMAN						
Launches	1	3	2	1	0	1
Costs	$ 79	$ 58	$ 52	$ 41	$ 39	$ 36

Programs	FY69	FY70	FY71	FY72	FY73	FY74
Mission Support (SCF, AFSPPF, etc.) Costs	$ 99	$104	$115	$102	$ 99	$ 96
Support R&D (AR/AT, Photo, Vulnerability, etc.) Costs	$ 26	$ 29	$ 43	$ 38	$ 32	$ 30
Totals	$843	$788	$810	$743	$679	$635

NOTES:

1. Data is consistent with cost estimates in the Five Year Defense Program (FYDP).

2. These costs make no provision for new systems (such as readout) for launch, but do include technology efforts.

4. Two additional CORONA systems will be available for launch in FY 1971 or 1972 if needed.