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WASHINGTON, D.C.

OFFICE OF THE DEPUTY DIRECTOR

23 December 1985

MEMORANDUM FOR THE DEPUTY DIRECTOR OF CENTRAL INTELLIGENCE

SUBJECT: Continuation of HEXAGON Program

In response to your inquiry, I have prepared approximate costs for continuing the HEXAGON program. In this continued program, only essential changes would be made to the satellite; the launch vehicle would be the Shuttle; and water recovery of the reentry capsules would replace the present mid-air retrieval scheme. The earliest availability for launch would be mid-1989 with subsequent launches at one-year intervals. All program costs from vehicle procurement through film processing are included:

Then Year Dollars in Millions

<u>Program</u>	<u>FY86</u>	<u>FY87</u>	<u>Cost to Complete Thru FY95</u>	<u>TOTAL</u>
1 vehicle	70	230	700	1000
2 vehicles	100	250	1350	1700
6 vehicles	130	420	3800	4350

We have also revisited the concept of Shuttle retrieval and refurbishment. In this concept, we would buy two vehicles and fly each one on alternate years for a total of four missions. The earliest launch would be mid-1989. The program costs for this option are shown below:

Then Year Dollars in Millions

<u>Program</u>	<u>FY86</u>	<u>FY87</u>	<u>Cost to Complete Thru FY95</u>	<u>TOTAL</u>
2 vehicles/4 missions	70	260	2450	2780

The major components of the final HEXAGON system (Vehicle 20) were completed over two years ago. Reinstating the program today to meet an FY 1989 availability would require a large FY 1986 expenditure. The need for a three-vehicle [] constellation and the [] will likely be questioned. Congress could require that a HEXAGON continuation be funded in part from within programmed NRP funds by holding to a dual [] program. In the event you decide to pursue the HEXAGON continuation, the following should be considered. For the period 1986-1995, [] vehicle procurements are scheduled to accelerate availabilities by

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approximately two years, with two additional vehicles being procured and launched. The recurring cost of each vehicle will exceed \$500M and each STS launch charge will exceed \$100M. The total cost avoidance of this reduced [] program would be about [] over this ten-year period. The savings obtained by not pursuing a three-vehicle IMCS would not be sufficient to offset the cost of a continued multi-vehicle HEXAGON program.

(b)(1)
(b)(3)

The cost of continuing the HEXAGON program is unattractive in the fiscally constrained environment that currently exists. However, the Shuttle-based HEXAGON-type system, employing a palletized HEXAGON camera, could be made integral to the Shuttle at a cost significantly less than the continued HEXAGON program. However, under this concept I don't believe it would be wise to cut back on the currently planned [] program. This plan, which is similar to a previously approved and later cancelled program, could also be used to protect against future collection shortfalls such as those caused by the [] launch failure. Imagery collection, however, would be limited by the smaller film load (one-fourth of a current HEXAGON mission); the short duration of each mission (7-10 days of Shuttle on-orbit time); and the prevailing weather over intelligence targets. Many of the highest priority targets may not be acquired due to the limited time available to "wait out the weather." The first flight could occur by spring 1988 with repeat flights as needed. The program costs for this option are listed below. These costs assume dedicated Shuttle missions. As the palletized camera requires only 40 percent of the Shuttle capacity, a ride share is possible. Assuming full ride share, a cost savings of \$80M per launch is possible.

(b)(1)
(b)(3)
(b)(1)
(b)(3)Then Year Dollars in Millions

<u>Program</u>	<u>FY86</u>	<u>FY87</u>	<u>Cost to Complete Thru FY95</u>	<u>TOTAL</u>
1 payload/1 mission	30	180	90	300
1 payload/5 missions	30	180	690	900

Finally, you should be aware of the discussions members of my Staff are having with the CIA COMIREX member. They are exploring the feasibility of flying the Large Format Camera on a Shuttle mission. If your concern is mainly centered on degraded satisfaction of imagery requirements for agronomic intelligence, this lower resolution system may be sufficient.

At your convenience, I can discuss any of the above.



J. D. Hill

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