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BYEMAN
CONTROL SYSTEM

~~(S)~~ NATIONAL RECONNAISSANCE OFFICE
WASHINGTON, D.C.

THE NRO STAFF

4 February 1975

MEMORANDUM FOR MR. PLUMMER

SUBJECT: Follow-on Mapping Capability - HEXAGON

DMA is continuing their evaluation of the HEXAGON mapping options--Option 1, buy two more Mapping Camera Systems (MCS) for SV-17 and SV-18 and Option 4, delay use of MCSs for SV-11 and SV-12 until SV-17 and SV-18--based on the performance and cost data provided to them on 21/22 January 1975. DMA has indicated informally that Option 4 will not meet their needs and that they prefer buying one more MCS now and another after the Metric Pan Study is complete. They intend to make this recommendation to Dr. Hall tomorrow.

The purchase of one MCS at a time will probably increase the unit cost by about $2M (to $11.7M) because of piece-part and subcontract inefficiencies at Itek and General Electric (manufacturer of the MCS reentry vehicle).

The memorandum at the right is intended to summarize your position to Dr. Hall. It does not recommend either Option 1 or Option 4 and assumes that you do not wish to make a value judgment on the collection impact from the delay expected in Option 4. The memorandum also reports the status of the ASD(I) decision, provides cost data for the options and the results of the collection analysis. The Staff view is that both Options 1 and 4 are low risk with respect to cost, schedule, and meeting technical specifications.

Request you sign the memorandum.

HAROLD P. WHEELER JR.
Colonel, USAF
Director

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WASHINGTON, D.C.

OFFICE OF THE DIRECTOR

MEMORANDUM FOR DR. HALL

SUBJECT: Follow-on HEXAGON Mapping Capability

I have reviewed the options for providing a continuing mapping capability in conjunction with the currently approved HEXAGON program. Of the original options presented to you on 14 and 17 January 1975, you concluded that only Option 1 (buy two more MCSs) and Option 4 (delay two MCS missions until the last two HEXAGON flights) offer viable alternatives. In either case, you indicated that a study of Metric Pan System feasibility should be accomplished. My review was based on the schedule data at TAB A and the performance and cost data at TAB B.

My assessment of the technical, cost and schedule risk of these two options is that the risk is acceptable for both cases. After reviewing the analysis in TAB B, I conclude that after SV-18, the high priority requirement satisfaction level for the two options will be nearly equal. For these high priority requirements, a coverage delta in Option 4 as compared to Option 1 would range from about 17% less area and 11% fewer SIOP targets after SV-12 in 1976; to 5% and 0.1% after SV-18 in 1980. If this delay is unacceptable then Option 1 should be selected.

As you know, the cost and schedule data at TAB B is predicated on an early decision in this matter.

J. W. Plummer

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Schedule Data (TAB A)
Analysis (TAB B)

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HEXAGON MAPPING MISSION

HEXAGON	SV- 9	10	11	12	13	14	15	16	17	18
SCHEDULE	OCT'74	APR'75	OCT'75	APR'76	OCT'76	APR'77	OCT'77	OCT'78	OCT'79	OCT'80
MAPPING CAMERAS MM 205' H(1) 95' V	*	*	*	*	*	*	*	*	(3)	(3)
GEODETIC PACKAGE MX(2) 85' H 75' V					*	*	*	(3)	(3)	(3)

NOTE:
(1) VALUES ARE 90% CEP FOR HORIZONTAL; 90% LINEAR FOR VERTICAL
(2) GEODETIC PACKAGE REDUCES ORBIT ERRORS TO 30' INTRACK, 30' ACROSSTRACK AND 30' VERTICAL (1σ) VS CURRENT 90, 60, 30 WITH DOPPLER BEACON SYSTEM
(3) POSSIBLE ADDITIONAL MCS AND GEOPAC PROCUREMENTS

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HEXAGON FOLLOW-ON MAPPING OPTIONS

	OPTION 1 (Buy MCSs for SV-17 and 18)	OPTION 4 (Slip MCS Missions from SV-11 and 12 Until SV-17 and 18)	DIFFERENCE (Option 1 minus Option 4)
Go-ahead required by:	ASAP	July 1975	-
Mission Accomplishment (%)			
A. Through 1976 (SV-12)			
(1) Priority 1-4 Area	47	30	17
(2) Priority 5 Area	4	2	2
(3) SIOP, Current Accuracy Requirement	88	77	11
(4) SIOP, Projected Accuracy Requirement (GEOPACs after SV-13)	0	0	0
B. Through 1978 (SV-16)			
(1) Priority 1-4 Area	70	60	10
(2) Priority 5 Area	7	0	7
(3) SIOP, Current Accuracy Requirement	97	95	2
(4) SIOP, Projected Accuracy Requirement (GEOPACs after SV-13)	50	50	0
C. Through 1980 (SV-18)			
(1) Priority 1-4 Area	75	70	5
(2) Priority 5 Area	29	7	22
(3) SIOP, Current Accuracy Requirement	97.3	97.2	0.1
(4) SIOP, Future Accuracy Requirement (GEOPACs after SV-13)	65	65	0
Cost (FY76-81)	$25.4M	$11.5M	$13.9M
Cost Phasing			
FY-76	$ 9.7	-	9.7
FY-77	9.7	4.8	4.9
FY-78	2	3.1	-1.1
FY-79	2	1.55	.45
FY-80	2	1.70	.30
FY-81	-	0.35	-.35

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