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CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505

AAT-B-1L-1B



BYE-107729-71

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18 February 1971

MEMORANDUM FOR: Director, National Reconnaissance Office

SUBJECT : Phase II System Definition Program for
the EOI SystemREFERENCE : BYE-12571-71, dtd 3 February 1971 / *RAMFS*

1. This memorandum summarizes for your review and concurrence OSP's understanding of the ground rules and objectives of Phase II of the EOI System Definition activity.

2. Phase II was initiated on 4 February 1971 with the objective of developing, for delivery to the Government on 30 September 1971, firm proposals for the various EOI system segments. To this end, three competing contractors

are now at work on the Imaging Satellite segment along with the related tasks for the Receiving Facility and the Operations Facility. Two contractors are at work on Processing Facility proposals. SAMSO plans to initiate on or about 1 March the corresponding Phase II activity for the Data Relay Satellite segment of the system.

3. All of the Phase II contractors have been directed to proceed with the basic Configuration A option and to drop any further consideration of the Configuration B option. However, in accordance with your direction, all contractors have been instructed to perform a series of system optimization studies and subsystem design trade studies during the first two months of Phase II.

4. After delivery of the proposals on 30 September, OSP will conduct a six-week source selection activity with the objective of selecting a contractor team and preparing a program recommendation for your review by 15 November 1971.

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5. On 2 and 3 February, OSP discussed with you the requirements ground rules to be used for Phase II. The following paragraphs summarize our understanding of your guidance on this critical issue.

6. The system will be designed to provide the best image quality consistent with the status of the various technologies and the objectives of the overall program in terms of development time, nonrecurring costs, and operating costs. These considerations have led to a tentative selection of a best nadir [redacted] a signal-to-noise ratio of 5 to 1. The minimum frame size [redacted] will be approximately 2 n.mi. x 2 n.mi.

7. The system capacity will be sized to handle the daily indications warning coverage requirement of approximately [redacted] frames of imagery. The system will have additional capacity to handle increased coverage requirements associated with crisis situations as well as more routine general target surveillance tasks. The system will be configured so as to provide sufficient stereo imagery at better than 12" GSD so that consideration can be given to the eventual phasing out of the GAMBIT-3 system.

8. The various system segments will be arranged so that two imaging satellites will have daily access to the Sino-Soviet bloc at a GSD everywhere better than 27". The imaging satellites will be designed so that daily access can be achieved with one imaging satellite at a worst image quality of approximately 54" GSD; correspondingly, two imaging satellites will give twice daily access at better than 54" GSD.

9. The system will be designed to provide limited area coverage when required. This requirement is currently stated in terms of the capacity to cover a rectangular area 50 n.mi. by 80 n.mi. dimensions in one day (exclusive of cloud coverage considerations). The system capacity will be sized so that daily coverage of a number of such rectangular areas can be provided on any given day if they are sufficiently separated so as not to compete with each other for system time.

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10. The image data return mode will be by data relay satellite to a [redacted] ground site. Several ground facilities arrangements will continue under study during the first two months of Phase II. A tentative selection of [redacted] data relay satellites has been made. Studies are still under way leading to a final selection between a data relay satellite segment based on two [redacted] satellites [redacted]

11. In addition to the general requirements guidance reviewed in the preceding paragraph, the Phase II contractors have been instructed to conduct three specific studies during the first two months of Phase II. First, each of the imaging satellite contractors is examining all considerations relevant to a selection of a data relay satellite configuration. Second, the contractors have been specifically instructed to examine the optical subsystem, transducer subsystem, and the attitude control subsystem with the view towards identifying performance trades which may lead to an overall program advantage. Third, the contractors have been instructed to reexamine the limited area coverage portion of the requirement and to determine the engineering and performance considerations pertaining to the possible [redacted]

This would provide a more flexible alternative mode of operation when area coverage or lines of communication coverage were the paramount objectives.

12. Be assured that OSP will continue to follow closely the thinking and study activities in the Intelligence Community throughout Phase II. Should these activities lead to the need for some minor tuning in the objectives of Phase II, we will do so. If some unexpected new ingredient in the requirement emerges, we will take immediate action to advise you and recommend any program changes necessary.

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13. We are, of course, ready to discuss with you further
as needed any or all of the above considerations.



LESLIE C. DIRKS

Acting Director of Special Projects

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