

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

THE NRO STAFF

26 December 1978

MEMORANDUM FOR MR. JAMES W. BOGINIS, DIRECTOR, COMMUNITY
LEGISLATIVE AND LIAISON OFFICE

SUBJECT: NRP Space Shuttle Utilization Plan

The updated DNRO report "Transition Plan for Defense and Intelligence Satellites to the Space Transportation System" is attached for forwarding to the House Appropriations Committee. The DNRO report is updated for NRO programs only.

The report is provided relative to your 8 December request and to satisfy the House Appropriations Committee request for a report by 1 January 1979.

J. D. Hill
J. D. HILL
Director

Attachment
Updated Report,
BYE-13473-78 ~~W~~
~~Atch, BYE-13131-78~~

HEXAGON/GAMBIT

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NATIONAL RECONNAISSANCE PROGRAM

UTILIZATION OF THE SHUTTLE

I. INTRODUCTION

Exploitation of the Space Transportation System (STS) by the National Reconnaissance Office (NRO) will be vital to the nation's intelligence collection capability. The NRO currently operates [redacted] satellite systems and [redacted] signals intelligence satellite systems. The impact of the STS upon these systems and on future systems is the subject of intensive NRO study.

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The Director of the NRO (DNRO) led a detailed study of the transition of NRO and DOD payloads to the Shuttle in August 1978. The results of this study are documented in a DNRO report titled "Transition Plan for Defense and Intelligence Satellites to the Space Transportation System," (attached). This report also documented several accelerated transition options. The accelerated transition options have not been selected for various programmatic and budgetary reasons.

This paper will update the August 1978 Transition Plan prepared by the DNRO to reflect the present NRO plans for exploitation of the Shuttle and to provide the information requested in the 27 July 1978 classified addendum to the FY 79 House Appropriations Committee markup. This paper is being written when the budgeting/programming cycle is on-going and the final NRO program is in a state of flux. The final program makeup will be submitted as part of the FY 80 Congressional Budget Justification Book.

II. SATELLITE PROGRAMS

GAMBIT AND HEXAGON

The GAMBIT and HEXAGON programs have no plans for transition to the Shuttle. Both programs phase out in the 1984/1985 time frame.



HEXAGON/GAMBIT/[redacted]

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SHUTTLE SORTIE SEARCH SYSTEM

The Shuttle Sortie Search System is an entirely new program which will be designed, developed and operated to perform the area search mission with a Shuttle orbiter pallet-mounted camera flown on a sortie basis. This will be the first Shuttle-based as well as first Shuttle-launched intelligence mission. Proof of concept flights using HEXAGON hardware in FY 82-84 will serve as pathfinders to evaluate Shuttle environment and develop refurbishment techniques, payload specialist procedures and Shuttle mission control capabilities. A systems definition phase will use data from the pathfinder phase to optimize camera design, evaluate man-in-the-loop functions, exploit Shuttle traffic models, and optimize the pallet to equipment like the standard test rack. The first flight of the optimized system would occur in 1984 from Vandenberg AFB.

OTHER STUDIES

The NRO is now and will continue through funds in the FY 80 budget request to evaluate other potential intelligence capabilities of the Shuttle in research and development studies such as: Erectable Structures, Orbiter Utilization study, Advanced Imaging Techniques and other studies. The costs of NRO transition to the Shuttle is summarized in Table 1.

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III. EXPENDABLE LAUNCH VEHICLES

The Expendable Launch Vehicle (ELV) Titan-III will launch the majority of NRO payloads until the advent of the Shuttle. The remaining prime launches are shown in Table 2.

In addition to the remaining prime launches, the NRO has planned a backup capability of one complete Titan-34D booster with an option to procure two sets of long lead materials in FY 1981. The backup capability will assure launch support of the critical operational NRO payloads until the STS has demonstrated launch reliability. The initial Titan-34D vehicle will provide backup for [redacted] and the long lead materials will provide backup for [redacted]

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The procurement decisions are keyed to Shuttle development milestones. The complete vehicle is now on contract. The long lead sets' funding decision will be made in FY 81 after the planned first Shuttle Orbital Flight Test.

The ELV and ELV launch services costs are shown in Tables 3 and 4, respectively.

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TABLE 2

REMAINING LAUNCHES
ON
EXPENDABLE LAUNCH VEHICLES

BOOSTER TYPE	PROGRAM	FY 79	80	81	82	83	84	85	TOTAL
T-IIID	HEXAGON	H-15	H-16	H-17					3
T-34D	HEXAGON				H-18	H-19	H-20		3
T-34D/IUS									(b)(1) (b)(3)
T-IIIC									
T-IIIB	GAMBIT	G-50	G-52		G-53	G-54	G-51		5
ATLAS-F									
TOTAL									

NOTE: P-989 Spacecraft ride piggyback on HEXAGON T-IIID launches.

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TABLE 3
EXPENDABLE LAUNCH VEHICLE/PROPELLANTS
COST FOR NRP PROGRAMS FY 80 TO 84
(\$ IN MILLIONS)

	<u>FY 80</u>	<u>FY 81-84</u>	<u>FY 80-84</u> <u>TOTAL</u>
<u>TITAN IIIB/AGENA</u>			
<u>GAMBIT</u> Vehs 50-54	2.5	11.9	14.4
<u>TITAN IIIC/TRANSTAGE</u>			
<u>TITAN IIID</u> <u>HEXAGON</u> Vehicles 16-17			
	1.9	1.5	3.4
<u>TITAN 34D</u> <u>HEXAGON</u> Veh 18 Veh 19-20			
	4.1 26.3	3.4 56.9	7.5 83.2
<u>ATLAS</u>			

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TABLE 4
LAUNCH RELATED COSTS FOR EXPENDABLE BOOSTERS
(\$ in Millions)

<u>PROGRAM</u>	<u>FY 80</u>	<u>FY 81-84</u>	<u>FY 80-84 TOTAL</u>
GAMBIT	13.6	73.9	87.5
HEXAGON	14.2	68.3	82.5

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NOTE: These costs include Launch Vehicle Integration, Launch Pad Costs and Production Phase down costs. (Propellants have been included with the booster).

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[Redacted]

2/ Includes production phase down costs.

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