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REQUIREMENTS DETERMINATION

INFORMATION AND DIGITIZED DATA COMMUNICATIONS

REQUIREMENTS OF THE AGENCY AND, AS APPROPRIATE,

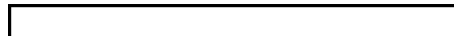
THE INTELLIGENCE COMMUNITY

PHASE I REPORT

(RESUME OF REQUIREMENTS
CURRENTLY BEING ADDRESSED)

PREPARED BY: Office of Communications
Communications Engineering

JUNE 1974



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SECTION I - INTRODUCTION

A. Purpose

The Office of Communications has been charged with determining the information and digitized data communication requirements of the Agency and, as appropriate, the Intelligence Community. The purpose of such a determination is to ensure that those requirements are met by the Office of Communications in a timely fashion and to permit that Office to ensure the appropriate programming of the required assets.

Periodically, either on their own initiative or in response to queries from the Office of Communications or the Deputy Director for Management and Services, various Agency or Intelligence Community components levy requirements on the Office of Communications for support to individual programs or units. The possibility exists for requirements to be overlooked or to become known only in a time frame not conducive to support in the most effective manner. The present requirements determination will be beneficial in assuring that the broad range of communication needs are known and met, both individually and collectively, and that they are met with the most efficient use of resources. Thus, the study should be of benefit both to the supporting Office and to the components possessing the requirements.

A thorough understanding and review of the communication requirements is especially desirable at this time. Reduction in the number of Agency personnel overseas has, in some instances, resulted in a transfer of support functions from overseas to Headquarters with a resultant increase in communication requirements for support information. Efforts, both by this Agency and others, to convert increasing percentages of their reporting from dispatch to electrical form result in yet other increased requirements. The increased use of automatic data processing in the day to day business of the Agency with the proliferation of remote computer terminals in the Headquarters area creates a whole new set of problems. The

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growth of data communications, until recently very limited in scope, requires greater attention to the support of that area. The need to improve personnel productivity overseas by precluding multiple keying and manual media conversion of material to be transmitted electrically requires the application of new technology in several areas including communications. Developing requirements for near real time exchange of data between remote locations and Headquarters and for bulk transmission of data also present new problems. The need to support such diverse and increased requirements with severely limited assets makes it necessary that those assets be utilized as effectively as possible. The effort in that direction is well served by early and thorough knowledge of the full range of communication requirements.

B. Scope

This requirements determination is concerned, at least initially, with the staff narrative message, data transmission, voice and facsimile areas. It does not address video requirements, certain compartmented project requirements, or covert communications. Communications mechanisms supporting the latter requirements are recognized as a vital function of the Office of Communications, but the requirements themselves are (and in many cases must be) determined by other means.

Requirements of the Agency itself are addressed comprehensively. Requirements of the Intelligence Community are addressed where the Office is charged with providing support or where the element is housed in Agency facilities, e.g., the Intelligence Community Staff.

For purposes of this study, the term "narrative information" is used to denote communications which are generated by and/or intended for use of a human, i.e. - readable narrative material. The term "data" is used to denote communications which are generated by and/or intended for input to a data processing system, i.e. - digital material.

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This report does not address the mechanisms by which the Office of Communications supports the requirements. It is intended to be a compendium of the requirements themselves.

The means of satisfying those requirements vary from the provision only of secure transmission means, with the customer providing and operating the terminal equipment, to the provision of media conversion, retrieval capability, transmission continuity assurance and other diverse services.

C. Method

The requirements determination is being conducted in three phases. Phase I, the subject of this report, deals with those requirements which are the object of already existing or planned communications systems. The report contains the compilation of such requirements, including both those implied and those specifically levied. Phase II of the determination will address those requirements presently projected by OC or recently developed by users but not yet addressed by existing or planned communications systems. Phase III will attempt to unearth requirements which exist but which have not yet been stated and those requirements which previously have not been well-defined or quantified and to establish a means for their definition. Subsequent to completion of the final report, the capabilities and plans of the Office of Communications will be compared with the total requirements for communications support and recommendations may be made for modification, elimination or addition of communications programs.

Due to the status of the requirements being addressed, the Phase I study has been performed largely within the Office of Communications. This report is, however, being made available to users for their validation or comment. Later phases will require increasing input from user components.

The method employed in Phase I included a review of the documentation on operational or planned communications systems to determine the requirements against which

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they were directed. It also included a review of Directorate responses to previous requests for statements of requirements for communications support in particular years and a review of several previous studies of communications requirements.

D. Observations

In many instances the requirements against which existing or planned communications systems were developed were not well defined and quantified in advance. Particularly in earlier years, communication requirements (whether levied by users or developed by the Office of Communications and validated by users) were initially stated in rather general terms with detailed definition being developed jointly by OC and the users as the concept of the required support system was evolving. At times, customer requirements have had to be ferreted out by OC when it became apparent that a new activity would require a different type or level of communications support.

The observation of these facts is not surprising nor disturbing. The absence of detailed or quantified information relative to a requirement in its early stages is not unique to communications as a technical support service. It is common in the provision of such services, an excellent example being the automatic data processing area. Customers of technical support services have often been described as being poor at stating their requirements. Such a description does a disservice to the customer. Generally some technical knowledge of the support system is required in order to state a requirement in terms which are useful to the provider of the service. The customer does not normally possess this knowledge and a dialogue between the customer and the support element is thus necessary to define and quantify a requirement and the supporting mechanism.

Additionally, requirements often do not become defined until the means of achieving them are available. Rapid developments in technology, either within or outside the communications area, often make possible services

which are worthwhile but which were not previously requested since they were thought to be unachievable. This often limits the ability of customers to project or define requirements beyond a short time frame.

Further, only in recent years have management techniques been increasingly employed which permit and often require longer range, more detailed, and better quantified projections of requirements.

In the context of this communications requirements determination, the observation of a frequent lack of firm definition and quantification of needs is not viewed as a negative result. Rather, it is viewed as a validation of the desirability of the current review and the probable usefulness thereof, both initially and on a continuing basis.

E. Requirements Considerations

There are many means by which communications requirements can be characterized, even when fully defined and quantified. These include the broad categories of volume of information to be handled, the medium in which the information must be accepted by and output by the supporting system, and the criticality and sensitivity of the information.

In unique instances, due to the need to interface with existing systems or for other technical reasons, the requirement as levied by the customer is quite specific with respect to speed of transmission, information code employed, link control procedures or similar technical parameters. More characteristically, the requirement can and should be stated in terms of the result desired, including limiting factors only to the extent necessary, leaving to the technical support office the discretion of determining the precise means of assuring that result. In this manner the technical competence as well as the available and developing assets of the supporting office can best be used.

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An almost universal requirement parameter is information or data volume. It is frequently not one of the more vital considerations when the supporting mechanism is a totally new system. In that instance, while the volume consideration affects the sizing and cost of the system, it often does not impact greatly on the technology required or the difficulty of satisfying the requirement to the extent that the information medium, criticality, sensitivity and end use do. It is, conversely, of great importance in imposing additional workloads on existing systems which may result in a need for significant modification or even replacement of a system before its obsolescence.

It is thus vital that newly developed support systems be sized to accommodate not only current volumes but also reasonably predictable increases. This can best be achieved if components requiring communications support practice the art of long range planning to the maximum feasible extent and provide their requirements to the support component, even in rough form, at the earliest possible time. The support systems can then be developed with sufficient flexibility to accommodate future expansion.

Due to the variety of means by which communications requirements can be characterized, and since the needed specificity of the requirements varies greatly with the particular application, the compilation of communications requirements in Sections II through VI of this report contains varying degrees of detail and varying numbers of parameters. Only that which is believed to represent the actual customer requirement is stated.

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SECTION II - DIGITIZED DATA COMMUNICATION REQUIREMENTS

The following requirements are those considered to fall within the broad area of communications generated by and/or intended for input to a data processing system rather than that of human readable narrative material.

A. Interconnection of Headquarters Area Remote Terminal Devices with ADP Centers

THERE IS A REQUIREMENT FOR AN EXTENSIVE NUMBER OF REMOTE TERMINAL DEVICES LOCATED IN USER AREAS TO COMMUNICATE DIRECTLY WITH THE AGENCY ADP CENTERS.

This requirement commenced with a series of individual requests for the interconnection of various remote terminal devices throughout the Headquarters building with the several ADP centers. It grew to the extent that it became necessary for the Office of Communications to develop a standard means of providing such service. The Headquarters Data Distribution Grid system resulted. In preparation for that system, it was forecast that [] remote devices would be installed in the building through FY-1976 for information up to and including TOP SECRET. This was accepted as a reasonable projection. The Data Distribution Grid system, as installed, has a maximum capacity of [] terminals. However, a practical capacity, due to clustering and other factors, is []. The number of remote terminals installed has increased from 16 in FY-1969, to [] in FY-1971, to [] in FY-1973. While certain portions of the system are fully utilized, it continues to enjoy unused capacity as a whole.

[] TERMINALS, THE PRACTICAL CAPACITY OF THE INSTALLED SYSTEM, IS CONSIDERED TO REPRESENT THE PRESENT MAGNITUDE OF THE REQUIREMENT. PROJECTIONS BY OJCS INDICATE THAT [] TERMINALS WILL BE REQUIRED IN FY-1975 AND [] IN FY-1976.

B. Terminal and Control Switch and Resource Allocator

THERE IS A REQUIREMENT FOR REMOTE TERMINAL DEVICES TO BE AUTOMATICALLY TERMINATED IN THE OJCS COMPUTER CENTER, FOR THOSE DEVICES SINGLY OR IN GROUPS TO BE SWITCHABLE FROM ONE COMPUTER SYSTEM TO ANOTHER, AND FOR QUALITY CONTROL TO BE EXERCISED AT THE INTERFACE POINT.

The large and growing number of remote terminal devices which must be interconnected with the OJCS computer center greatly exceeds that which can be terminated in any one of the six large scale computer systems in that center. It also exceeds that which can be terminated in a single front-end processor such as may be utilized in that center. A need exists, in the event of failure of one or more large scale computers or front-end processors, for their workload to be switchable in whole or in part to another system. Future multi-purpose use of the terminals further requires termination control. A further need exists to be able to perform quality assurance checks and troubleshooting on the terminal circuits. That composite requirement is to be met by the OJCS Terminal and Control Switch and Resource Allocator currently being defined by OJCS and OC.

THAT SYSTEM IS TO BE SIZED TO ACCOMMODATE AN EVENTUAL REMOTE TERMINALS AND TO INTERFACE WITH UP TO SIX LARGE SCALE PROCESSORS OR THREE FRONT-END PROCESSORS. THAT IS CONSIDERED TO BE THE CURRENT MAGNITUDE OF THE REQUIREMENT.

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C. Interconnection of Headquarters Area Data Access Centers with ADP Centers

THERE IS A REQUIREMENT FOR A LIMITED NUMBER OF DATA ACCESS CENTERS (DAC) IN THE HEADQUARTERS AREA TO COMMUNICATE

WITH THE ADP CENTERS. DATA ACCESS CENTERS WILL BE LOCATED IN THE KEY, AMES AND CHAMBER OF COMMERCE BUILDINGS, THE SEVERAL LOGISTICS DEPOTS, AND THE HEADQUARTERS BUILDING. THIS IS CURRENTLY CONSIDERED TO REPRESENT THE MAGNITUDE OF THE REQUIREMENT. THE UPPER LIMIT COMMUNICATIONS SPEED REQUIREMENT FOR ANY SINGLE DEVICE WITHIN A DAC IS CONSIDERED TO BE 9600 BPS.

D. Interchange of Data Transmissions Between Agency Headquarters and Other Agencies and Remote Locations

THERE IS A REQUIREMENT FOR THE AGENCY HEADQUARTERS TO EXCHANGE DATA TRANSMISSIONS ON A NON-REAL TIME RECORD BASIS WITH DISTANT AGENCY LOCATIONS AND WITH OTHER AGENCIES AND CONTRACTORS.

This requirement commenced with, and remains almost solely in, the Science and Technology Directorate. It is analogous to the exchange of "cables" in the narrative message area, does not involve direct connection between the originator and the recipient of a transmission, requires continuity and control procedures to be employed by the communications facilities involved to protect against non-delivery, and requires structuring and formatting of a transmission to be acceptable to the communications systems employed. A relay function is required on the part of one or more communications facilities to effect eventual delivery from the originator to the recipient. Some transmission originators or recipients are directly connected with the Headquarters building data communications (DATACOM) facility while others are reached through remote data communications facilities which are in turn connected with DATACOM. The record transmission of data by the Agency is of recent origin and is as yet small in volume when

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compared with the transmission of narrative messages. It is, however, growing at a vastly greater rate and will surely surpass the narrative message volume in the future.

Numbers of transmissions processed by DATACOM under this requirement have grown from 5,252 in FY-1969, to 8,180 in FY-1971, to 14,357 in FY-1973. Numbers of data records processed have grown from 8 million in FY-1969, to 21.5 million in FY-1971, to 67.5 million in FY-1973. Planning projections developed by the Office of Communications in 1970 and validated by DDS&T components as good for planning purposes included predicted volumes of 13 to 16 million records in FY-1971 and 19 to 24 million records in FY-1973. In each year, the actual record volume has far exceeded the planning projections. Projections made at that time for future years were:

FY-1974	28 to 35 million records
FY-1975	29 to 86 million records
FY-1976	30 to 90 million records
FY-1977	30 to 90 million records

Third quarter figures indicate an estimated FY-1974 rate of 76 million records.

New projections were obviously required and were developed to permit realistic sizing of the data switching system (DATEX) being built for DATACOM.

THE DATA TRANSMISSION AND
RECEPTION REQUIREMENT OF THE
AGENCY HEADQUARTERS IS CONSIDERED
TO BE UP TO 200 MILLION RECORDS
BY FY-1977.

Among the major facilities directly interfaced with DATACOM under this requirement are the OJCS computer center; a customer terminal co-located with DATACOM, NPIC, [redacted] two DDS&T remote locations. DDS&T and DDI remote terminals in the Headquarters Building may be directly connected with

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the DATACOM Switch (DATEX) to provide real-time dissemination and origination of data messages. Data transmissions are exchanged, either directly or indirectly, with some 25 other military and contractor locations.

An interface link is to be established between the DATACOM facility and the military AUTODIN message and data switching network. A significant increase is anticipated in the number of remote non-Agency facilities with which data transmissions are exchanged. It is further anticipated, however, that many of those facilities will be reached via the AUTODIN network and the [redacted] network and will not require direct interfaces with DATACOM.

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THE DATEX SYSTEM WILL HAVE AN INITIAL CAPABILITY TO TERMINATE DIRECTLY [redacted] REMOTE TRAFFIC CIRCUITS RANGING FROM 150 BPS TO 50 KBPS AND IS READILY EXPANDABLE TO [redacted] SUCH CIRCUITS BY ADDING THE NECESSARY PERIPHERAL EQUIPMENT. THIS IS CONSIDERED TO EXCEED THE REQUIREMENT THROUGH 1977.

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The DATEX System will accommodate more than [redacted] lines. However, this will result in a reduction in throughput speeds during peak traffic flow periods.

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E. Direct Data Access from Headquarters User Offices to Remote Non-Agency Sites

THERE IS A REQUIREMENT FOR SEVERAL AGENCY COMPONENTS TO ACCESS DIRECTLY UNCLASSIFIED DATA BASES OF OTHER GOVERNMENT AGENCIES OR COMMERCIAL ORGANIZATIONS.



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THERE IS A REQUIREMENT FOR SEVERAL AGENCY COMPONENTS TO ACCESS DIRECTLY CLASSIFIED DATA BASES OF OTHER GOVERNMENT ORGANIZATIONS.

Requirements under this category currently include access by a dedicated Office of Security facility in the Headquarters Building to biographic files at Fort Holabird, Maryland, and access by dedicated terminals in the Data Access Center in the Headquarters Building to the COINS (Community On-Line Information System) at NSA. There are CRS requirements to access the SIGINT On-Line Information System (SOLIS) facility at NSA, the DoD Documentation Center facility at Cameron Station, Alexandria, Virginia, and DIA. There is also a requirement for a secure data circuit between OTR and



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F. Data Transmission from the



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THERE IS A REQUIREMENT IN DDS&T/OEL FOR THE TRANSMISSION OF DATA FROM THE BY FY-1976. 9600 BPS CAPABILITY WILL BE SUFFICIENT FOR SEVERAL YEARS.

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This requirement does not demand a dedicated transmission path but would require part time use of a 9600 BPS link between the cited points.

25X1 G. Data Transmission from a DDS&T/OEL Remote Location [REDACTED]

25X1 THERE IS A REQUIREMENT IN THE SCIENCE AND TECHNOLOGY DIRECTORATE FOR FOUR VOICE BANDWIDTH CHANNELS BETWEEN AN OEL REMOTE LOCATION AND [REDACTED] BY FY-1976.

25X1 This requirement addresses the need for secure, real time transmission, without loss of quality, [REDACTED] [REDACTED] for analysis by linguists available in the Headquarters area but not at the remote location. 25X1

H. Data Dissemination

The dissemination of data to the intended recipient, either at Headquarters or at remote locations, is not as complex a process as is the dissemination of narrative information. This is due to its nature (essentially non-readable) and to the limited number of components having the requirement to receive it or the capability to make use of it. This dissemination, unlike that of narrative information, does not require analysis of a substantial portion of a transmission. Rather, it is determined by information appearing at the very beginning of a transmission such as a project or operation name. Also, copies of outgoing data transmissions are not normally disseminated. It is none the less important that incoming data transmissions be compartmented and delivered to the appropriate component.

THERE IS A REQUIREMENT THAT DATA TRANSMISSIONS RECEIVED AT HEAD-QUARTERS BE ANALYZED TO THE NECESSARY DEGREE TO DETERMINE THE APPROPRIATE RECIPIENT, BASED ON READING REQUIREMENTS PROVIDED BY USER COMPONENTS, AND THAT THE DATA BE PROVIDED IN THE AGREED UPON MEDIUM TO THE RECIPIENTS.

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This requirement is satisfied in some instances by over the counter or courier delivery from the DATACOM facility and in others by electrical delivery to an automatic data processing facility.

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SECTION III - NARRATIVE INFORMATION COMMUNICATION
REQUIREMENTS

The following requirements are those considered to fall within the broad area of communications generated by and intended for the use of a human, i.e., readable narrative material.

A. Exchange of Narrative Information Between Agency Headquarters and Agency Field Stations

THERE IS A REQUIREMENT FOR THE RELIABLE, SECURE AND RAPID (BUT NON-REAL TIME) EXCHANGE OF NARRATIVE INFORMATION BETWEEN AGENCY HEADQUARTERS AND ITS FIELD STATIONS AND LATERALLY BETWEEN FIELD STATIONS.

This requirement includes the need for the exchange of administrative, operational, and intelligence information via the Agency's staff communications teletype network. That network includes stations and bases [] in [] overseas areas. The requirement is satisfied by the interconnection of several sub-networks in the various geographical areas. While, for reasons of volume or other considerations, direct links are maintained between a number of remote stations and Headquarters, the information exchange is generally accomplished via one or more relay processes.

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THE NUMBER OF FIELD STATIONS SERVICED UNDER THIS REQUIREMENT AND THE TOTAL VOLUME OF TRAFFIC HANDLED VARIES ONLY SLIGHTLY FROM YEAR TO YEAR. THE TRAFFIC VOLUME INCREASES BY APPROXIMATELY SIX PERCENT PER YEAR. THE NUMBER OF STATIONS APPROXIMATES [] IT IS CONSIDERED THAT WHILE THE NOTED VARIANCES WILL CONTINUE, THE MAGNITUDE OF THIS REQUIREMENT WILL NOT CHANGE SUBSTANTIALLY OVER THE NEXT SEVERAL YEARS.

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Due to the code, equipment, and procedures utilized in the staff communications network, it is vulnerable to an error rate which, while not interfering with the readability of textual information, is generally not satisfactory for the passage of information for which an extremely high degree of accuracy is required, e.g., information to be used as a direct input to a data processing system.

B. Dedicated Network Requirements

Several Agency components require the interconnection of a group [redacted] in closed communications networks rather than as a part of the staff network. The reasons for such closed network operation include operational control, special security considerations, and a need for non-association with the Agency and with the other closed networks. The components with such requirements are the Office of Security, the

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1. Office of Security Network

The Office of Security operates its own communications network with facilities located in Room GE31 of the Headquarters

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[redacted]
ing facility serves as the hub of this network. The information exchanged within this network is essentially informal and unformatted and is not interchanged into other networks for transmission or dissemination purposes.

THERE IS A REQUIREMENT FOR THE OFFICE OF SECURITY TO POSSESS AND OPERATE A PRIVATE COMMUNICATIONS NETWORK INTERCONNECTING ITS HEADQUARTERS AND FIELD FACILITIES AND FOR THE INFORMATION EXCHANGED WITHIN THAT NETWORK NOT TO BE INTERCHANGED INTO ANY OTHER NETWORK EITHER FOR TRANSMISSION OR DISSEMINATION PURPOSES.

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THERE IS A REQUIREMENT FOR DEDICATED NARRATIVE ELECTRICAL COMMUNICATION FACILITIES TO BE MAINTAINED AT [REDACTED]

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4.

[REDACTED]

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That exchange of information is almost wholly of an unclassified nature and is accomplished via the Military Automatic Digital Network (AUTODIN) and leased circuits. Both the transmission facilities and the terminal equipment employed are provided by AUTODIN rather than by the Office of Communications. Agency facilities are used to encrypt and/or exchange the limited volume of classified information required by the [REDACTED] operation. At Headquarters, the Agency [REDACTED] interchange of such information is accomplished by telecopier or courier delivery.

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THERE IS A REQUIREMENT FOR THE AGENCY NETWORK TO ACCOMMODATE THE ENCRYPTION AND/OR EXCHANGE OF A LIMITED AMOUNT OF CLASSIFIED INFORMATION BETWEEN [REDACTED] REMOTE LOCATIONS AND THE WASHINGTON HEADQUARTERS.

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For the distribution of information collected at its remote locations, [REDACTED] main-

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[REDACTED]

transmission facilities and equipment.

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THERE IS A REQUIREMENT FOR THE [] TO DISSEMINATE COLLECTED INFORMATION TO SUBSCRIBERS VIA UNCLASSIFIED TELETYPE CIRCUITS. THOSE SUBSCRIBERS CURRENTLY NUMBER 18. THE CRS HAS A REQUIREMENT TO RECEIVE [] FIELD ORIGINATED REPORT TRAFFIC FOR FILING, INDEXING, PUBLICATION GENERATION, ETC.

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It is anticipated that none of the requirements cited will change significantly in magnitude in the foreseeable future.

C. Exchange of Narrative Information Between Agency Headquarters and Other Government Agencies

THERE IS A REQUIREMENT FOR NARRATIVE INFORMATION TO BE EXCHANGED BETWEEN THE AGENCY AND OTHER CIVIL AND MILITARY AGENCIES OF THE GOVERNMENT.

This requirement for the transmission and receipt of messages to and from other government agencies both at domestic and overseas points includes the exchange of administrative and intelligence information with the National Security Agency, the military services, the Department of State, the Federal Bureau of Investigation, the Drug Enforcement Administration, and the Secret Service among others. This exchange is accomplished primarily via a relay process involving interface links between the Agency's staff communications network and the networks of other agencies.

IT IS ANTICIPATED THAT INCREASING EMPHASIS BEING PLACED ON ECONOMIC, NARCOTICS AND OTHER AREAS WITH WHICH THE AGENCY HAS NOT BEEN INVOLVED TO A MAJOR EXTENT IN THE PAST WILL RESULT IN A CONTINUING INCREASE OVER THE NEXT SEVERAL YEARS IN BOTH THE NUMBER OF AGENCIES WITH WHICH COMMUNICATION IS REQUIRED AND IN THE VOLUME OF INFORMATION HANDLED.

D. Exchange of Narrative Information Between Agency Headquarters and Contractor Facilities

THERE IS A REQUIREMENT FOR ADMINISTRATIVE AND TECHNICAL INFORMATION TO BE EXCHANGED BETWEEN THE AGENCY AND A NUMBER OF COMMERCIAL CONTRACTORS.

This requirement, non-real time in nature, results from the fact that a number of commercial firms are engaged in classified contracts with the Agency. A means must be provided for the timely exchange of contractual and technical information in a secure fashion. To avoid the hazards inherent in permitting contractor access to the staff communications network, each requirement of this nature is satisfied by the provision of a dedicated manually operated link between the Agency Headquarters and the contractor facility.

IT IS NOT ANTICIPATED THAT THE MAGNITUDE OF THIS REQUIREMENT WILL CHANGE SIGNIFICANTLY EITHER WITH RESPECT TO THE NUMBER OF FACILITIES SERVICED OR THE VOLUME OF INFORMATION.

E. Dedicated Narrative Circuit Requirements of Agency Components

Various Agency components require the capability to exchange information on an informal operational basis via dedicated (non-shared, non-switched) circuitry with individual remote Agency and non-Agency activities.

THERE IS A REQUIREMENT FOR FULL TIME CIRCUITRY TO BE AVAILABLE BETWEEN THE AGENCY AND NON-AGENCY ACTIVITIES LISTED BELOW FOR USE BY THE TWO END POINTS FOR INFORMAL OPERATIONAL INFORMATION EXCHANGE.

HQS. COMPONENT

REMOTE LOCATION

DDS&T/OSI
DDS&T/OEL

DDI/OSR

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F. Dissemination Requirements

The Office of Communications and, at present, several other Agency components have the responsibility for providing dissemination, distribution and file and reference services on all information received or originated electrically in the Headquarters area. The total responsibility for provision of these services will be assumed by the Office of Communications for all categories of traffic, Agency and non-Agency, with the implementation of the Cable Dissemination System beginning in FY-1975.

1. CIA Operations Center Requirements

THERE IS A REQUIREMENT FOR THE CIA OPERATIONS CENTER TO RECEIVE, NOT LATER THAN RECEIPT BY THE DISSEMINATION FACILITY, A COPY OF VIRTUALLY EVERY INCOMING AND OUTGOING MESSAGE ORIGINATED BY OR ADDRESSED TO AN AGENCY HEAD-QUARTERS AREA COMPONENT.

As a result of certain security and administrative considerations, some categories of messages are exempted from this requirement. Since those categories, and the percentage that they represent of the total message volume, vary from time to time, the capability must exist to include or exclude any given category. The basic capability must exist, however, for virtually the total message volume to be made available to the Operations Center.

2. ADP Center Requirements

THERE IS A REQUIREMENT FOR ONE OR MORE HEADQUARTERS ADP CENTERS TO RECEIVE, IN MACHINE LANGUAGE FORM, A COPY OF VIRTUALLY EVERY INCOMING AND OUTGOING MESSAGE ORIGINATED BY OR ADDRESSED TO AN AGENCY HEAD-QUARTERS AREA COMPONENT.

Messages received in machine language form by an ADP Center would be for input to indexing, filing, and retrieval systems and for availability to intelligence analysts. The number of messages so handled might initially be quite low and a given category of message may be added to or deleted from this requirement from time to time. It is anticipated, however, that within several years the majority of messages would be included.

3. Dissemination Based on Reading Requirements

THERE IS A REQUIREMENT FOR ACTION, INFORMATION, AND CONFIRMATION COPIES OF ALL HEADQUARTERS ORIGINATED OR ADDRESSED MESSAGES TO BE PROVIDED TO THE APPROPRIATE AGENCY COMPONENTS AS DETERMINED BY READING REQUIREMENTS PROVIDED BY THE COMPONENTS.

Some dissemination will be determined automatically by comparison of messages with computer-stored dictionaries representing user requirements while, in other cases, it will be determined by similar comparison by cable analysts. The provision of copies will in some instances be in electrical form to a teleprinter in the component area while, in other cases, it will be in page copy form subsequent to a reproduction process. The method of determining dissemination will depend on the degree to which the requirement can be structured. The method of delivery will depend on such factors as component operating hours, component message volume, and similar considerations.

THE VOLUME OF MESSAGES DISSEMINATED IN THE HEADQUARTERS AREA CURRENTLY AVERAGES 125,000 PER MONTH, AND IS INCREASING AT A RATE OF SIX PERCENT PER YEAR.

4. Intelligence Watch Officer Group Requirements

THERE IS A REQUIREMENT FOR INCOMING INTELLIGENCE MESSAGES TO BE DELIVERED, EXCEPT UNDER SPECIFIED CONSTRAINTS, TO THE INTELLIGENCE WATCH OFFICER GROUP FOR EDITING AS REQUIRED AND FOR CONVERSION INTO FINISHED INTELLIGENCE PRODUCTS FOR DISSEMINATION TO THE INTELLIGENCE COMMUNITY. FOLLOWING SUCH EDITING AND CONVERSION, THERE IS A REQUIREMENT FOR THE PRODUCTS TO BE ENTERED BACK INTO THE COMMUNICATIONS NETWORK FOR TRANSMISSION AS APPROPRIATE.

5. Reference Service Requirement

THERE IS A REQUIREMENT FOR A CENTRAL MESSAGE REFERENCE SERVICE TO BE MAINTAINED FROM WHICH AUTHORIZED AGENCY COMPONENTS MAY OBTAIN ADDITIONAL COPIES OF MESSAGES WITHIN 90 DAYS OF TRANSMISSION OR RECEIPT.

6. Field Station Dissemination

AT REMOTE AGENCY LOCATIONS, OVERSEAS, SERVED BY OTHER THAN THE HEADQUARTERS COMMUNICATIONS COMPLEX, THERE IS A REQUIREMENT FOR PAGE COPIES OF INCOMING AND OUTGOING MESSAGES TO BE PROVIDED TO STATION PERSONNEL AS DETERMINED BY THE CHIEF OF STATION.

SECTION IV - FACSIMILE COMMUNICATION REQUIREMENTS

Requirements for facsimile communications are few in comparison with those in other categories. The requirements give evidence of increasing, however, and this fact coupled with their unique nature warrant addressing them as a separate category.

A. Requirement for Inter-Agency Facsimile Capability for Intelligence Report Coordination

In its production of Intelligence Reports, the CIA Operations Center has a need to coordinate the content of such reports in draft with other members of the Intelligence Community prior to their publication. For certain types of reports, the time available for coordination and the fact that coordination is accomplished simultaneously with several Community members preclude the use of the narrative message or data networks for this purpose. Other community members have a similar requirement in the production of their reports. For this purpose, as well as those instances where a single copy of a document must be exchanged informally between Community members, a facsimile transmission network has been established. That network, referred to as the WASHFAX net, consists of single Long Distance Xerox (LDX) encrypted full duplex (simultaneous transmission and reception) systems at the White House, Department of State, NMCC, DIA, NPIC, and NSA and two such systems in the CIA Operations Center. Either of the two systems at CIA can be placed on-line with any other member of the net. Normally, coordination of a document is accomplished by transmission of a draft to the appropriate Community members via the WASHFAX net and discussion of the document with the members via secure voice facilities.

The creation of new categories of reports, the current volume of documents exchanged via the existing network, the transmission speed limitation of that network, and the fact that inter-Agency coordination difficulties frequently show up as a problem area in post-mortems of crises all indicate that an inter-Agency document coordination system with capability greater than that

of the WASHFAX net is required. Such a requirement has been stated by the Operations Center. While on-line text editing capability is thought to be a longer term requirement, the immediate need is for higher speed and more nearly simultaneous transmission capability to Community members. The Treasury Department and a DDS&T [] must also be added to the document coordination network in the near future.

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THERE IS A REQUIREMENT FOR A RAPID AND SECURE MEANS OF COORDINATION OF DOCUMENTS AMONG MEMBERS OF THE INTELLIGENCE COMMUNITY. THOSE MEMBERS CURRENTLY INCLUDE THE CIA, WHITE HOUSE, DEPARTMENT OF STATE, NMCC, DIA, NPIC, and NSA AND WILL INCLUDE THE TREASURY DEPARTMENT BY MID-1974 AND A DDS&T [] BY JULY 1975. WITHIN APPROXIMATELY A TWO-YEAR TIME FRAME THE REQUIREMENT WILL INCLUDE ON-LINE TEXT EDITING CAPABILITY AT ALL NETWORK TERMINALS, IF THIS PROVES TO BE FEASIBLE. IN THE INTERIM, THE REQUIREMENT IS FOR AUGMENTATION OR REPLACEMENT OF THE WASHFAX NETWORK TO PROVIDE MORE RAPID (AT LEAST SIX PAGES PER MINUTE) TRANSMISSION CAPABILITY WITH SIMULTANEOUS TRANSMISSION TO SEVERAL RECIPIENTS IF POSSIBLE.

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B. Requirement for Intra-Agency Headquarters Area Facsimile Service

A number of Agency offices in the Headquarters area have a need for the informal, rapid and secure exchange of documents for information or coordination purposes in instances where the courier service is not sufficiently timely. This need is currently satisfied by the installation of XEROX Telecopiers in those offices and by the utilization of the Agency secure voice (KY-3)

25X1 network for transmission purposes by means of acoustic coupling. Some [] offices are currently equipped with this capability.

THERE IS A REQUIREMENT FOR A LIMITED NUMBER OF AGENCY OFFICES IN THE HEAD-QUARTERS AREA TO EXCHANGE GRAPHIC AND NARRATIVE INFORMATION INFORMALLY, RAPIDLY AND SECURELY AND TO DO SO WITH A FREQUENCY WHICH DOES NOT WARRANT DEDICATED FULL-TIME FACSIMILE SERVICE. THE NUMBER OF OFFICES REQUIRING THIS SERVICE WILL UNDOUBTEDLY INCREASE BUT NOT AT A SIGNIFICANT RATE.

C. Requirements for Dedicated Point-to-Point Facsimile Service

A small number of Agency components have a requirement for facsimile service to a single point and with sufficient frequency to warrant the provision of dedicated point-to-point facsimile capability.

THERE IS A REQUIREMENT ON THE PART OF DDS&T/OEL FOR A DEDICATED FACSIMILE SYSTEM BETWEEN THE

[]

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25X1 This requirement arises from the need for the exchange of analog data, engineering drawings and [] DACOM facsimile units have been installed at the two points and the system has undergone operational evaluation and been placed in operation. (Note: This communications circuit is a wide-band, high-speed, multiplexed data link which is used for the transmission of data, facsimile and voice signals.)

25X1 THERE IS A REQUIREMENT ON THE PART OF DDS&T/OD&E FOR A DEDICATED FACSIMILE SYSTEM BETWEEN [] AND A CONTRACTOR.

25X1 The OD&E [] is expected to be operational in June 1974. The requirement arises from the need to exchange information from documents and engineering drawings.

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THERE IS A REQUIREMENT ON THE PART
OF DDS&T/OTS FOR A DEDICATED FACSIMILE
SYSTEM BETWEEN THE SOUTH BUILDING AND
THE OTS ENGINEERING LAB

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This requirement arises from the inadequacy of the thrice-weekly courier service for rapid document transmission in support of quick-reaction technical projects. The DACOM system will be used to satisfy this requirement with installation expected in the early summer of 1974.

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SECTION V - VOICE COMMUNICATION REQUIREMENTS

A great deal of the Agency's day to day business must be conducted over the telephone. The needs in this area are both inter-Agency, intra-Agency, Agency/contractor and personal. The telephone facilities are used for both classified and unclassified information. A variety of voice communications systems exist to fill this need. These include the Black unclassified system, the Red Button system (utilizing the black instruments), the Gray system, the Agency Green system, miscellaneous small private or secure systems for special uses, and long distance secure voice [redacted] (via satellite and military systems) overseas. The voice requirements and the related systems are as follows:

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A. Non-Secure Voice Requirement

For the informal, non-record exchange of unclassified information inter-Agency, intra-Agency, Agency/contractor and personal unsecured telephone service is needed accessible to virtually every Agency or contractor employee housed in Agency facilities. For this purpose [redacted] unsecured telephone instruments are provided in the Agency's Headquarters area facilities. Intra-Agency calls are routed through one of several Agency switches by the dialing of a four digit number and access to an external telephone is gained via a normal trunk circuit by the dialing of a "9" followed by the appropriate telephone number. Since the number of Agency employees is expected to stabilize or decrease rather than increase in the future, and since the number and ready availability of unclassified instruments and lines in comparison with that of secure instruments and lines is out of proportion with the percentage of telephone calls which are of a classified nature, the need for unclassified instruments and lines will most likely decrease over the next several years. This is, in fact, desirable as a security measure to reduce the probability of the inappropriate use of the unclassified system for the discussion of classified information.

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THERE IS A REQUIREMENT FOR NON-SECURE VOICE COMMUNICATIONS CAPABILITY TO BE READILY ACCESSIBLE TO VIRTUALLY EVERY AGENCY AND CONTRACTOR EMPLOYEE HOUSED IN AGENCY FACILITIES FOR THE EXCHANGE OF UNCLASSIFIED INFORMATION. THE [REDACTED] INSTRUMENTS CURRENTLY MEETING THIS NEED IS A MAXIMUM AND THE NUMBER WILL DECREASE OVER THE NEXT SEVERAL YEARS. THE NUMBER OF UNCLASSIFIED LINES, AND LINES PER INSTRUMENT, CURRENTLY EXCEED THE REQUIREMENT.

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B. Intra-Agency Secure Voice Requirement

Since much of the Agency's day to day business dealing with classified matters of various security levels requires extensive informal coordination and information exchange with a timeliness not afforded by courier or other delivery means, there is a need in virtually every Agency component for secure telephone service approved for the SECRET level (including operational matters). In a large number of components there is a need for such service approved for the highest security levels including TOP SECRET multiple codeword. These needs exist both within the Headquarters building and among the Headquarters building and other Agency locations. They are currently addressed by the Red Button system on Black instruments, which is available only within the Headquarters building and which is approved only for SECRET non-operational information, by the Agency Green system which is available within and among Agency Headquarters area buildings, and which is approved for all categories of information, and by several small private systems for special uses. Although the Red Button system is approved for discussion of SECRET non-operational information, it is not a secure voice system as there is no encryption of the signals and no physical protection of the system other than the fact that it is contained solely within the Headquarters building. This system is a four-digit dial system which does

not provide an interface capability with other systems of the Agency or other agencies. Approximately [] Red Button lines are currently in service with some [] instruments. The Green system is a point-to-point encrypted four digit dial system with limited interface to other buildings and agencies. The Green system switch is in the Headquarters building and provides a maximum of [] lines with each line accommodating one call director and up to six subscriber instruments. 25X1
25X1

An internal system, similar to the above but non-encrypted, serves the NPIC building and has a [] line capacity. Another such system with a [] line capacity serves the [] The NPIC and [] [] systems are interfaced with the Headquarters building and form the intra-Agency TOP SECRET multiple codeword approved network. 25X1
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THERE IS A REQUIREMENT ON THE PART OF VIRTUALLY EVERY AGENCY COMPONENT FOR READILY ACCESSIBLE SECURE VOICE SERVICE APPROVED FOR SECRET LEVEL INFORMATION AND ON THE PART OF A LARGE NUMBER OF AGENCY COMPONENTS FOR SERVICE APPROVED FOR TOP SECRET MULTIPLE CODEWORD LEVEL INFORMATION FOR INTRA-AGENCY USE. THE EXISTING SERVICE IS ALMOST FULLY COMMITTED WITH SERVICE REQUESTS CONTINUING TO BE RECEIVED. EXISTING CAPABILITY IS INADEQUATE FOR CURRENT NEEDS. IN FACT, THE FREQUENT USE OF THE NON-SECURE SYSTEM FOR CLASSIFIED INFORMATION (EVEN WHEN CRUDELY DISGUISED) INDICATES THAT A SIGNIFICANT INCREASE IN CAPABILITY IS REQUIRED WITH RESPECT TO THE NUMBERS OF LINES AND INSTRUMENTS AND TO THE INTERCONNECTION OF THE VARIOUS AGENCY BUILDINGS AND SYSTEMS. A RECENT SURVEY OF USER REQUIREMENTS IN THIS AREA CONFIRMED THE NEED FOR A SIZEABLE EXPANSION OF OUR PRESENT SECURE VOICE CAPABILITIES AND THE NEED FOR FULL INTERCONNECTABILITY OF ALL SUCH SYSTEMS.

Secure voice communications between Headquarters and a DDS&T/OEL [redacted] [redacted] are provided via dedicated point-to-point links and a manual switchboard in the Headquarters Telephone Facilities Branch. (Note: These communications circuits are wide-band, high-speed, multiplexed data links which are used for the transmission of data, facsimile and secure voice.)

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C. Secure Voice Requirement for Inter-Agency and Agency/Contractor Conversation

There is a need on the part of many Agency components for Secure Voice communications with other agencies. This need is currently met by the provision of dedicated Green lines between the Operations Center and the White House and between [redacted] and the [redacted] a Green line to the Atomic Energy Commission, [redacted] Gray lines with [redacted] instruments in the Headquarters building, and limited interfacing of the Green and Gray systems. The Gray system is primarily administered by and serving the National Security Agency but provides limited service to other agencies as well. Interfaces are also provided between the Agency Green system and Military, Department of State, and White House Secure Voice systems. The existence of these and other secure voice systems, the poor voice quality on interfaced conversations, and the limited number of points reachable by any single system and by the total configuration, all render the existing systems less than adequate even for current needs.

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There is also a need for Secure Voice communications between Agency components and contractor facilities. This need is met by dedicated point-to-point links between the Headquarters Telephone Facilities Branch and the contractor facilities, via a manual switchboard.

THERE IS A REQUIREMENT ON THE PART OF A LARGE NUMBER OF AGENCY COMPONENTS FOR SECURE VOICE SERVICE APPROVED FOR TOP SECRET

MULTIPLE CODEWORD INFORMATION FOR INTER-AGENCY AND AGENCY/ CONTRACTOR USE. IMPROVEMENT IN ALL THE AREAS OF WEAKNESS PREVIOUSLY CITED IS REQUIRED TO PROVIDE SERVICE WHICH IS SATISFACTORY ENOUGH TO MAKE UNNECESSARY THE USE OF THE NON-SECURE TELEPHONES FOR THE DISCUSSION OF CLASSIFIED INFORMATION.

D. Dedicated Voice Communication Requirements

1. Headquarters Communications Complex Intercom Requirement

WITHIN THE HEADQUARTERS COMMUNICATIONS COMPLEX THERE IS A REQUIREMENT FOR A SECURE, RAPID, AND DEDICATED VOICE INTERCOM SYSTEM FOR THE COORDINATION OF ACTIVITIES WITHIN THAT COMPLEX.

2. Special Project Secure Voice Requirement

THERE IS A REQUIREMENT ON BEHALF OF A SPECIAL PROJECT FOR A TERMINAL OF THE POINT-TO-POINT TO BE MAINTAINED IN THE HEADQUARTERS BUILDING.

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E. Headquarters to Overseas Station Secure Voice Requirement

THERE IS A REQUIREMENT FOR A LIMITED SECURE VOICE COMMUNICATIONS CAPABILITY BETWEEN AGENCY HEADQUARTERS AND THE OVERSEAS STATIONS.

The Agency's satellite communications network will provide a limited capability for Agency controlled Secure Voice communications between Headquarters and overseas stations. Initially, such calls will have to be pre-scheduled and will be limited to two at any one time in

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either the Atlantic or Pacific areas. Such satellite-carried calls can be interfaced into the Headquarters Green system but require manual switchboard handling. Heretofore, overseas Secure Voice service was normally limited to that available through the Military Automatic Secure Voice Communications (AUTOSEVOCOM) network, in which network plain text of a conversation is accessible to non-Agency personnel at certain switch points.

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SECTION VI - INFORMATION COMPARTMENTATION REQUIREMENTS

The Agency communications systems and facilities including those performing both inter-Agency and intra-Agency narrative message, data, voice and facsimile exchange functions and those performing dissemination and distribution functions within the Agency process a wide variety of information. This includes Agency staff information, classified and unclassified information of other agencies, SI and codeword information, Restricted Handling information, technical communications information with a potential impact on the security of the Agency network, messages with a "Prescribed and Limited" distribution, and other categories of information with varying degrees of sensitivity. It is essential that such information and data be accessible at each stage of processing to only those persons or activities who have been identified to the Office of Communications as possessing the appropriate clearances and access approval.

THERE IS A REQUIREMENT FOR THE APPROPRIATE COMPARTMENTATION AND HANDLING WITHIN THE COMMUNICATIONS NETWORK OF EVERY CATEGORY OF INFORMATION IDENTIFIED TO THE OFFICE OF COMMUNICATIONS IN SUCH FASHION AS ENSURES THAT NO INFORMATION BECOMES ACCESSIBLE TO UNAUTHORIZED PERSONS OR ACTIVITIES.

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