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MEMORANDUM FOR: Director of Finance
Director of Logistics
Director of Medical Services
Director of Security
Director of Personnel
Director of Training
Director of Joint Computer Support

THROUGH : Deputy Director for Administration 15 AUG 1975

SUBJECT : Communications Requirements Determination

1. The attached Communications Requirements Determination Report represents the culmination of considerable effort by the Communications Requirements Determination Working Group. It provides the Office of Communications with a comprehensive compilation of the Agency's communications needs in the areas specified and is being forwarded to each addressee for future reference. The report consists of a general section providing background information, and supplemental sections prepared as separate annexes for each Directorate containing the requirements and projections received during the collection process.

2. The contribution to this effort by each member of the Working Group has been appreciated. If there are any questions or comments relating to this report, please contact [redacted] 25X1

25X1 [redacted]

25X1 [redacted]

Director of Communications

Attachment:
Communications Requirements Determination, Final Report 25X1

[redacted]

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COMMUNICATIONS
REQUIREMENTS DETERMINATION
FINAL REPORT

REQUIREMENTS DETERMINATION

INFORMATION AND DIGITIZED DATA COMMUNICATIONS REQUIREMENTS OF THE AGENCY AND, AS APPROPRIATE, THE INTELLIGENCE COMMUNITY

FINAL REPORT

PREPARED BY: Office of Communications
Communications Engineering

JUNE 1975

25X1

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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 Administration, 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 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 planning 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 with the staff narrative message, data transmission, voice, facsimile and video areas. Video requirements surfaced thus far have been very minimal and therefore are not addressed as a separate category. Instead, they are addressed with the data transmission requirements in Section II.A. This requirements determination does not address certain compartmented project requirements or covert communications. Communications mechanisms supporting these 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.

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

This requirements determination is being conducted in three phases. Phase I dealt with those requirements which were the object of already existing or planned communications systems. Due to the nature of those requirements, the Phase I Report was performed largely within the Office of Communications. It was then forwarded to all Agency components for validation and comment via their individual representatives to the Communications Requirements Working Group. Phase II of the determination addressed those requirements projected by the Office of Communications or recently developed by users but not yet addressed by existing or planned communications systems. Due to the long period of time required for most Agency components to conduct an indepth review of their present and future communications requirements, and fully coordinate their responses, the users were requested to provide long range projections on future communications requirements at the time they validated the Phase I Report. This effectively served as a means to gather the information necessary for the Phase II portion of the requirements determination. The comments, new requirements and projections received during this process, as well as the secure voice survey, have now been incorporated in this report. Phase III served primarily as a validation process of all listed requirements although some new requirements were identified as well as a few minor modifications and corrections which have been included in this the Final Report. The Office of Communications is presently engaged in the planning, development, and installation of new communications systems and the upgrading of presently existing systems and services based on the information contained in this Report as well as other sources. The present capabilities and plans of the Office of Communications

are being compared with the total requirements for communications support and recommendations may be made for modification, elimination or addition of communications programs.

D. Observations

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.

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 observations 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.

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 of 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 Section II through VI of this report contains varying degrees of detail and varying numbers of parameters.

SECTION II - DIGITIZED DATA COMMUNICATIONS 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 Building 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 25X1 that [redacted] 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 25X1 maximum capacity of [redacted] terminals. However, a practical capacity, due to clustering and other factors, is [redacted] 25X1 25X1 The number of remote terminals installed has increased 25X1 from [redacted] in FY-1969, to [redacted] in FY-1971, to [redacted] in FY-1974. 25X1 While certain portions of the system are fully utilized, it continues to enjoy unused capacity as a whole. Current projections by OJCS encompassing all of the Agency's needs indicate that a maximum of [redacted] terminals will be required 25X1 by the end of FY-1975, a maximum of [redacted] in FY-1976, and 25X1 25X1 a maximum of [redacted] in FY-1977. The maximum data rate of the Grid system in its present form is 9600 bps. In addition to the Grid system several remote terminals included in the above projections, requiring coaxial cables, which the Grid system in its present form cannot accommodate, have been provided on a one-for-one basis.

B. Interconnection of Computer Terminals Located at Various Locations in the Headquarters Area

Several Agency components located throughout the Washington metropolitan area have requirements for data exchange with ADP Centers located in the Headquarters Building.

THERE IS A REQUIREMENT FOR A LIMITED NUMBER OF DATA ACCESS CENTERS (DAC) IN THE HEADQUARTERS AREA TO COMMUNICATE WITH THE ADP CENTERS LOCATED IN THE HEADQUARTERS BUILDING. THE UPPER LIMIT COMMUNICATIONS SPEED REQUIREMENT FOR ANY SINGLE DEVICE WITHIN A DAC IS CONSIDERED TO BE 9600 BPS.

DAC's were installed to meet the occasional data exchange needs of components not having convenient access to the Headquarters ADP Centers. They contain a variety of equipment primarily intended for the transfer of quantities of data too large for exchange via small, low speed remote terminals and for the use of components not possessing their own terminals.

THERE ARE REQUIREMENTS FOR REMOTE TERMINALS OF VARYING TYPES LOCATED THROUGHOUT THE WASHINGTON METROPOLITAN AREA TO EXCHANGE DATA WITH ADP CENTERS LOCATED IN THE HEADQUARTERS BUILDING. THE UPPER LIMIT COMMUNICATIONS SPEED REQUIREMENT FOR ANY SINGLE DEVICE WITHIN ONE OF THESE REMOTE TERMINALS IS CONSIDERED TO BE 9600 BPS.

In addition to the DAC's covered above, numberous Agency components located outside of the Headquarters Building have specific requirements for exchange of data with the ADP Centers within the Headquarters Building. These requirements range from small, single user, interactive terminals for accessing the Agency's timesharing system, to large special purpose remote computer terminals which interface computer centers at their locations with computers in the Headquarters Building.

C. 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 will require additional termination control. The need also exists to be able to perform quality assurance checks and troubleshooting on the terminal circuits. This composite requirement is to be met by the OJCS Terminal and Control Switch and Resource Allocator currently being defined by OJCS and OC.

THE TERMINAL AND CONTROL SWITCH AND RESOURCE ALLOCATOR IS TO BE SIZED TO ACCOMMODATE AN EVENTUAL [redacted] REMOTE TERMINALS AND TO INTERFACE WITH UP TO SIX LARGE SCALE PROCESSORS OR THREE FRONT-END PROCESSORS. 25X1

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.

It is anticipated that in the not too distant future, Agency components may well have requirements for the exchange of data with distant Agency locations. One such OL projection is discussed at the end of this section. [redacted] PAGE D-6

25X1

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 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 14,357 in FY-1973. Numbers of data records processed have grown from 8 million in FY-1969, to 75 million in FY-1974. Planning projections developed by the Office of Communications in 1970 and validated by other 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

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 collocated with DATACOM, NPIC, [redacted] 25X1 25X1
[redacted]ote terminals in the Headquarters Building may be directly connected with 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 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 25X1
and will not require direct interfaces with DATACOM.

THE DATEX SYSTEM WILL HAVE AN INITIAL CAPABILITY TO TERMINATE DIRECTLY 16 REMOTE TRAFFIC CIRCUITS RANGING FROM 150 BPS to 50 KBPS AND IS READILY 25X1
EXPANDING TO [redacted] SUCH CIRCUITS BY ADDING THE NECESSARY PERIPHERAL EQUIPMENT. THIS IS CONSIDERED TO EXCEED THE REQUIREMENT THROUGH 1977.

25X1 ILLEGIB [redacted]

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

25X1

THE OFFICE OF LOGISTICS ANTICIPATES THE POSSIBLE NEED FOR THE [redacted] TO EXCHANGE DATA WITH HEADQUARTERS.

25X1

OL, Procurement Management Staff advises that with the advent of CONIF III approximately the first quarters of FY-1976, they anticipate the possible need for the [redacted] to access the computer for information exchange.

25X1

E. Data Exchange Between Headquarters and Overseas Field Stations

THERE IS A REQUIREMENT TO PROVIDE A COMMUNICATIONS SYSTEM FOR THE EXCHANGE OF DATA BETWEEN HEADQUARTERS AND SELECTED OVERSEAS FIELD STATIONS. THE SYSTEM MUST BE CAPABLE OF EXPANSION TO ALLOW FOR ADDITIONAL DATA EXCHANGE AS NEW REQUIREMENTS ARE DEFINED AND APPROVED.

During the compilation of communications requirements for this report, several Agency components advised they anticipated the future need to exchange data with overseas field stations. Requirements for this service were neither "firm" nor well defined as they were projected based on the development of projects and program which were themselves not fully defined nor approved. Some firm requirements have now been levied in this area and are listed here along with the future projections which have been made. The resources available for the exchange of data with overseas locations are, of course, not without limitations and therefore, require careful planning and close coordination. Where other than a dedicated data circuit is required, for optimum utilization and cost effectiveness, the circuit may have to be shared with other Agency users and for other purposes such as secure voice, facsimile, etc. In addition, where these circuits have an impact on manpower, space, security, and other field station conditions, they must be coordinated fully with the responsible component(s).

THE OFFICE OF MEDICAL SERVICES DESIRES THE CAPABILITY TO EXCHANGE MEDICAL INFORMATION IN DIGITIZED FORM AT ALL STATIONS WHERE THEY HAVE MEDICAL TECHNICIANS AND/OR PHYSICIANS. IN DEVELOPING THIS CAPABILITY, A TEST CIRCUIT WITH ASSOCIATED PERIPHERAL EQUIPMENT IS BEING ESTABLISHED BETWEEN HEADQUARTERS AND A [redacted] REMOTE LOCATION. 25X1

The Office of Medical Services (OMS) would like to develop, at the earliest possible date, a capability for the secure exchange of digitized data with all stations at which they have medical technicians and/or physicians to permit transmission of biomedical data signals and other medical information. Computer analysis of this data will be performed with the results being transmitted directly back to the field station with a drop copy to be printed in OMS at Headquarters. In developing this service, a test circuit with associated peripheral equipment is being established between OMS Headquarters and a [redacted] remote location. The peripheral equipment is scheduled for delivery to the remote location in mid-June 1975 and testing should begin soon thereafter. The data required will be 2400 bps and will be provided as a "part time" AVD port on the present multiplex system through SKYLINK serving the remote site. Policy and operating decisions as to expansion of this service will be made based on the results of this initial text circuit. 25X1

THE OFFICE OF FINANCE DESIRES THE CAPABILITY TO EXCHANGE FINANCIAL DATA BETWEEN HEADQUARTERS AND OVERSEAS FIELD STATIONS.

The Office of Finance is developing a system for the reporting of financial and accounting information which will require field stations to send coded financial data to Headquarters to be either manually processed or directly input to computer systems. Complete financial information for each station will be available at Headquarters and it will be necessary to provide each station with a capability to query the Headquarters data bank with a very short turn-around time. Predetermined monthend reports will also be sent to the field stations.

F. 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.

25X1

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. There is also a requirement for a secure data circuit between OTR and [redacted]

25X1

G. 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 nonetheless important that incoming data transmissions be compartmented and delivered to the appropriate component.

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

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.

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 [redacted] in [redacted] 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. 25X1 25X1

THE NUMBER OF FIELD STATIONS SERVICED UNDER THIS REQUIREMENT AND THE TOTAL VOLUME OF TRAFFIC HANDLED VARIES ONLY SLIGHTLY FROM YEAR TO YEAR. THE NUMBER OF STATIONS APPROXIMATES [redacted] IT IS CONSIDERED THAT WHILE THE NOTED VARIANCES WILL CONTINUE, THE MAGNITUDE OF THIS REQUIREMENT WILL NOT CHANGE SUBSTANTIALLY OVER THE NEXT SEVERAL YEARS. 25X1

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, may render it unsatisfactory for the passage of information for which an extremely high degree of accuracy is required.

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. Among the components with such requirement is the Office of Security. 25X1

1. Office of Security Network

The Office of Security operates its own communications network with facilities located in Room GE31 of the Headquarters building, the [redacted] 25X1 25X1 The Headquarters building 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.

25X1 THERE IS A REQUIREMENT FOR THE OFFICE OF SECURITY TO POSSESS AND OPERATE A PRIVATE COMMUNICATIONS NETWORK INTERCONNECTING ITS HEADQUARTERS [redacted] FACILITIES AND FOR THE INFORMATION EXCHANGED WITHIN THAT NETWORK NOT TO BE INTERCHANGED INTO ANY OTHER NETWORK EITHER FOR TRANSMISSION OR DISSEMINATION PURPOSES.

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 COMMUNICATIONS IS REQUIRED AND IN THE VOLUME OF INFORMATION HANDLED.

E. 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 messages received or originated electrically in the Headquarters area. The total responsibility for provision of these services will be assummed by the Office of Communications for all categories of traffic, Agency and non-Agency, with the implementation of the Cable Dissemination System in the fourth quarter of FY-1976. (NOTE: The services referred to here apply solely to the distribution, etc. of messages based on such parameters as IN number, cite, message and reference numbers, etc. File and reference services based on subject matter are performed by CRS and DDO/ISG.)

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 HEADQUARTERS 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 HEADQUARTERS 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

4. 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.

5. Field Station Dissemination

25X1

AT REMOTE AGENCY LOCATIONS, [redacted] 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. Requirements 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) network for transmission purposes by means of acoustic coupling. Some thirty offices are currently equipped with this capability.

THERE IS A REQUIREMENT FOR A LIMITED NUMBER OF AGENCY OFFICES IN THE HEADQUARTERS 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.

B. 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.

C. Requirements to Include a Limited Facsimile Service Capability Between Headquarters and Overseas Field Stations

Several Agency components have advised they anticipate the need for a limited Facsimile service capability to overseas field stations for the exchange of documents, graphic material, photographs, etc., within the next few years. While no firm requirements have been received for this service, the Office of Communications considers it a requirement to include at least a minimal capability for this service in future planning. The service should be expandable to provide for additional usage as needed.

THERE IS AN IMPLIED REQUIREMENT TO INCLUDE A LIMITED CAPABILITY FOR FACSIMILE SERVICE BETWEEN HEADQUARTERS AND SELECTED OVERSEAS FIELD STATIONS.

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] and (via satellite and military systems) overseas. The voice requirements and the related systems are as follows: 25X1

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. 25X1

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.

25X1

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 TOPSECRET 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, by the Headquarters Gray system serving the Headquarters building and also 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 [redacted] Red Button lines are currently in service with some [redacted] 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

25X1
25X1

25X1 provides a maximum of [redacted] lines with each line accommodating one call director and up to six subscriber instruments. The Gray system is a four-digit dial system with a maximum 25X1 capacity of [redacted] subscriber lines, of which virtually all are presently in service, with approximately [redacted] instruments. 25X1 This system is a non-encrypted, physically protected system, completely isolated from both the Black and Red Button systems. It is interfaced with the Agency Green system.

25X1 An internal [redacted] line capacity switch serves the NPIC building and a [redacted] ine capacity switch serves the 25X1 [redacted] Both of these switches function in the same manner as the Headquarters Gray system switch. They are interfaced with the Headquarters' Green and Gray systems and form the intra-Agency TOPSECRET, multiple codeword approved network.

A recent survey of user secure voice requirements emphasized the urgent need for a substantial upgrading of present secure voice capabilities in this area. First, the results unquestionably demonstrated that classified conversations (even though crudely disguised) are being conducted over the non-secure Black telephone system due to the unavailability or inaccessability of appropriate classified service, (particularly at Agency outbuildings). Secondly, it confirmed that the Red Button system is being used to discuss SECRET operational information and quite possibly TOPSECRET, codeword information. The DDO and the Office of Security have expressed concern over the vulnerability of the Red Button system and recommended it be replaced with a fully secure system at the earliest possible time.

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 TOPSECRET MULTIPLE CODEWORD LEVEL INFORMATION FOR INTRA-AGENCY USE. THE EXISTING SERVICE IS ALMOST FULLY COMMITTED WITH SERVICE REQUESTS CONTINUING TO BE RECEIVED. THERE IS A REQUIREMENT TO SUBSTANTIALLY EXPAND SECURE VOICE SERVICE, TO SEVERAL

AGENCY OUTBUILDINGS AND REPLACE THE PRESENT RED BUTTON SYSTEM WITH A FULLY SECURE SERVICE OF AT LEAST EQUAL CAPACITY WITH THE CAPABILITY FOR EXPANSION. ALL SECURE VOICE SYSTEMS (EXCLUDING SPECIAL PURPOSE SYSTEMS) SHOULD BE FULLY INTER-CONNECTED.

C. Inter-Agency Secure Voice Requirements

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 Agency and other Agencies, [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 the 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.

25X1 25X1

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 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. Secure Voice to Distant [redacted] Locations 25X1

Several Agency components require a secure voice capability with other Agency components or contractors at distant locations [redacted] Those needs are 25X1
presently met by dedicated point-to-point narrowband links between the Headquarters Telephone Facilities Branch and the distant facilities via a manual switchboard. The voice quality provided by the present HY-2 narrowband vocoders is not considered satisfactory.

SEVERAL AGENCY COMPONENTS HAVE REQUIREMENTS FOR SECURE VOICE SERVICE TO DISTANT [redacted] 25X1
LOCATIONS. A SIGNIFICANT IMPROVEMENT IN VOICE QUALITY OVER THE PRESENT SERVICE IS NECESSARY.

E. Dedicated Voice Communication Requirements

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.

F. Requirement for Secure Voice Between Headquarters and Overseas Field Stations and Between Overseas Field Stations

The Agency's satellite communications system, SKYLINK, provides a limited capability for Agency controlled Secure Voice communications between Headquarters and overseas field stations and between field stations having a SKYLINK terminal. There are presently [redacted] active SKYLINK 25X1
25X1 terminals with [redacted] more scheduled for installation in
25X1 FY-1975 and approximately [redacted] additional terminals planned for installation each year thereafter through FY-1980. Present satellite capacity limits the number of calls to two at a given time in either the Atlantic or Pacific areas.

A single secure voice call between field stations can be made with a manual switchboard connection at Headquarters. This does, however require two voice channels and, if the stations are using the same satellite, no other call can take place at that time. Only one Agency component has requested field station to field station secure voice service, although it is reasonable to expect that as this capability is expanded additional components will desire to use it in this manner. At present, all calls via this system must be prescheduled. They can be interfaced into the Headquarters Green system with a manual switchboard connection at Headquarters. 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.

THERE IS A REQUIREMENT FOR A LIMITED SECURE VOICE COMMUNICATIONS CAPABILITY BETWEEN AGENCY HEADQUARTERS AND OVERSEAS FIELD STATIONS AND BETWEEN OVERSEAS FIELD STATIONS. THE PRESENT SKYLINK SERVICE IS TO BE EXPANDED TO ALLOW AT LEAST SIX SIMULTANEOUS CALLS/SATELLITE AND INCORPORATE A DIRECT DIAL CAPABILITY.

G. Requirement to Provide Overseas Secure Voice to Other Agencies

25X1

[redacted]

THERE IS A REQUIREMENT TO MAKE AVAILABLE THE AGENCY'S OVERSEAS SECURE VOICE SERVICE TO OTHER AGENCIES.

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.

ROUTING AND RECORD SHEET

SUBJECT: (Optional)
Communications Requirements Determination

FROM:
D/CO

STAT

EXTENSION

NO.
OC-M-75-531

DATE

TO: (Officer designation, room number, and building)	DATE RECEIVED	DATE FORWARDED	OFFICER'S INITIALS	COMMENTS (Number each comment to show from whom to whom. Draw a line across column after each comment.)
1. DDI				
2. EO/OC		18 AUG 197		
3. AEO/OC		18 AUG 1975		
4. PLANS STAFF	8/18	8/21		→ Rather than ask Mike to wade through this -- would you review and let me know is there anything new and startling he should be aware of? Thanks STAT STAT STAT
5. EO/OL		22 AUG 1975		
6. OL/PHPS		8/22		
7. OL/PMS		8/26		
8.				
9.				
10. OL/PPPS		8/28		
11.				Also route to any other interested parties.
12.				
13.				
14.				
15.				

STAT

MEMORANDUM FOR: [redacted]

also looked at this and nothing new or startling seems to be in it.

Jerry

MIKE: Will leave it up to you if you want to work through this!

[redacted]

22 AUG 1975

8/21/75
(DATE)

STAT

FORM NO. 1 AUG 54 101 REPLACES FORM 10-101 WHICH MAY BE USED. (47)