Original



EXECUTIVE OFFICE OF THE PRESIDENT

OFFICE OF TELECOMMUNICATIONS POLICY

ACTIVITIES AND PROGRAMS

1973 - 1974

FOREWORD

11

Calendar 1973 was the third full year of operation of the Office of Telecommunications Policy. The following report summarizes the principal activities of the Office in the four broad areas of its concern, and sets forth the principal programs contemplated during the present year. Omitted are those activities related to internal organization and management, and also to routine operations, such as review of legislation referred for comment by the Office of Management and Budget.

TABLE OF	CONTENTS
----------	----------

Page

I.	DOM	ESTIC COMMUNICATIONS	1
	А. В.	Cable Television and Broadband Communications Broadcasting	1 3
		 Public Broadcasting License Renewal Policy Fairness Doctrine 	3 3 4
	C. D. E.	Mobile Communications Data Communications Common Carrier Communications	5 6 7
		 Competitive Communications Services Common Carrier Regulation 	8 9
II.	GOV	ERNMENT COMMUNICATIONS	11
	A. B. C. D.	Federal Communications Policy, Planning and Evaluation Emergency Preparedness Computer-Communications and Privacy Federal-State Communications	11 15 16 17
III.	INTI	ERNATIONAL COMMUNICATIONS	20
	Α.	International Systems and Facilities	20
		 Policy Development and Implementation International Communication Satel- lites for Mobile Communications 	20 21
		a. Aeronautical Satellite Experimentb. Maritime Satellites	21 21
		3. Pacific Basin Facility Planning	22
	в.	International Organization Activities	23
		 United Nations	23 24
		Union	24 26

. 1

W. Washington .

SPECTRUM PLANS AND POLICIES..... IV. 27 Allocation of Spectrum..... Assignment of Frequencies..... Α. 27 в. 28 Emergency Medical Services..... C. 29 Electromagnetic Compatibility Analysis... D. 30 Side Effects Program..... Ε.

ç

30 Spectrum Management Advisors..... F. 31

1 · · · · · ·

Marine

1 20 State State

I. DOMESTIC COMMUNICATIONS

A. Cable Television and Broadband Communications

Broadband cable technology offers the potential for increasing consumer choice in television programming and providing many new communications services. There are two basic characteristics of cable systems that account for this potential. First, a large number of channels can be provided on a modern cable system, since cable is not constrained by the spectrum scarcity that characterizes over-the-air broadcast television. Second, modern cable systems can permit viewer access to particular programs and services by transmission of messages from the viewer's home to the cable system control center. These two basic characteristics represent new dimensions in the provision of and access to programming and communications services for the public. To date, however, most cable systems have operated only as retransmission systems, carrying broadcast television signals to areas where over-the-air reception is marginal, and regulatory policy for cable has developed in the mold of broadcast regulation.

During 1973, OTP provided staff support for the Cabinet Committee on Cable Communications, which was chaired by the Director of OTP. OTP studied the potential economic and social effects of vertical integration in the production, marketing and delivery of information services to consumers; the probable impact of expected cable growth on the broadcast and program production industries and the public; the problem of access to the cable media by all segments of the public and industry; and considerations pertaining to the joint ownership of broadcast, cable, interconnection, and program production facilities.

The conclusions and recommendations of the Cabinet Committee were made public in January, 1974. The Committee's recommended new policy is based upon the principle of separating the cable system owner's control over the medium of communications from control over the messages distributed over that All who might wish to use a cable channel, either for medium. programming purposes or for various information services, could lease it from the cable operator at a published, nondiscriminationatory rate. The Committee concluded that programming, advertising and other information services on cable channels should be allowed to develop on a free and competitive basis, with no more government regulation over the content of this communications medium than is exercised over the print medium. The report of the Committee further concludes that current restrictions against cable ownership by television networks and broadcasters be lifted.

× .

The Committee recognized that the full separations policy should be applied only when the cable industry is more developed and mature than today. Consequently, it recommended a transition period during which the proposed new cable policies would be implemented gradually. There is an immediate need, however, for a national consensus on the directions of cable growth and national policy, preferably reflected in Federal legislation, before cable growth is so extensive that changes would be impracticable. OTP is currently preparing legislation that would implement certain of the Committee's recommendations.

In 1973, OTP also undertook other studies to identify and clarify particular aspects of broadband cable development that require immediate policy considerations. For example, OTP completed a study to determine the most economical ways of conserving and enhancing television services in low density rural areas, where conventional cable technology may not be economically feasible. The study examined in detail some alternative technologies, individually and in combination, which might improve rural television services. Associated system costs were also developed. The study team concluded that broadband communications in rural areas can be provided economically by the application of several television distribution technologies. In light of this conclusion, OTP will evaluate the possible economic benefits of removing the FCC's prohibition against ownership of translator stations by cable systems.

OTP also completed the development of a computerized model to examine in detail the financial performance of a cable system under various conditions. For example, the effects of factors such as tax and depreciation policies, franchise fees, required services, and capital costs on a cable system's rate of return over 15 years can be examined with the computer model. This may prove to be a valuable tool not only for policy analysis, but also for use by local governments considering cable systems for their jurisdictions.

In November, 1973, OTP initiated a study to evaluate the consumer demand for direct subscriber purchase of television programs over cable. This study will consider various categories of programs in assessing consumer demand, and its results will ultimately be used to assess the feasibility and potential impact of subscriber-supported programming. The completed study will be used in developing recommendations for the regulatory policy needed to permit enhanced consumer choice in television program fare while maintaining the availability of advertiser-supported programming.

B. Broadcasting

1. Public Broadcasting

The Public Broadcasting Act of 1967, which created the Corporation for Public Broadcasting, emphasized the role of local stations in serving the needs of their communities. As public broadcasting grew and developed, questions arose regarding the relationships between local stations and national organizations, and concerns were expressed that the system was becoming overly centralized. Many of these concerns were put to rest in 1973 when the Corporation entered into a partnership agreement with the stations and established principles and procedures whereby station representatives would have a major role in the decision-making processes of the system.

The means of establishing a stable source of Federal financial support for public broadcasting was not addressed by the Public Broadcasting Act of 1967. Over the years, many organizations, both in Government and in the public broadcasting community, have searched for a satisfactory method of achieving long-term Federal support which would avoid detailed Government oversight of program content. In 1973, a task force established by CPB completed its work on proposals for the long-range Federal financing of public broadcasting. The report of the task force has been forwarded to members of Congress and the Executive Branch.

OTP is now preparing legislation that will provide for long-term financing of public broadcasting, encourage continued contributions from private sources, and ensure that a substantail portion of Federal funds are channeled directly to local educational stations.

2. License Renewal Policy

and a second and a second state with the second state of the second second second second second second second s

The regulatory license renewal process continues to be characterized by uncertainty and delay, thus injecting an undesirable measure of instability into the broadcasting industry. Legislative reform of the license renewal process is necessary to assure that existing licensees who are satisfactorily serving their communities will have reasonable expectation of license renewal in the face of competing challenges by new applicants. Various suggestions have been offered to remedy the license renewal problem, among which is a proposal to adopt quantitative program standards, which, if met, would virtually assure an incumbent of license renewal. OTP has opposed the adoption of such standards because they would constitute an unwarranted and unnecessary intrusion by Government upon the program judgments of licensees.

On March 13, 1973, OTP submitted legislation to the Congress that would make four revisions in the present broadcast license renewal process: the term of the licenses would be extended from three to five years; policies concerning qualifications would be made through rule-making proceedings; specific procedures would be required in the event that a renewal application is challenged by a competing application, and finally, the FCC would be prohibited from establishing predetermined performance criteria to evaluate renewal applications. Some of these recommendations have been incorporated in the draft bill that was ordered to be reported to the House Commerce Committee. OTP will continue to assist the Congress in the effort to reform the television license renewal process.

3. Fairness Doctrine

The scarcity of channels which characterizes the broadcast industry today requires that those who control broadcast outlets inform their viewers of contrasting points of view on controversial issues of public importance. This "fairness" obligation is now being enforced by the FCC on a case-by-case basis, with the result that individual programming and journalistic judgments of broadcasters are being repeatedly evaluated by government. In a society founded on principles of freedom of expression, this process represents a dangerous intrusion by government into the journalistic function.

Although the Fairness Doctrine (or some similar mechanism) is necessary as long as television broadcast outlets are as limited as they are today, the means of enforcement should be modified in order to minimize detailed governmental supervision of program content. OTP has suggested that the Fairness Doctrine be enforced by a review of a broadcaster's overall performance at license renewal time, rather than in the present case-by-case fashion, and has recommended such an approach in its proposed license renewal legislation. OTP will continue to explore various alternatives for solving the present Fairness Doctrine problem, and will continue to assist the Congress and the FCC in their efforts to enhance free expression in broadcasting and to minimize governmental intervention.

-5-

C. Mobile Communications

In recent years advancing technology has fostered widespread use of mobile communications. However, despite the growth in demand for mobile radio services, insufficient portions of the radio spectrum have been made available for these purposes.

Recent actions by the FCC promise frequency relief by the reallocation of large blocks of frequencies for land mobile use. Additionally, many types of new and spectrumefficient systems have been proposed. Together these developments raised a substantial number of policy issues regarding the use of new spectrum allocations and the institutional structure required to accomodate the demands for new systems and services.

In early 1972, OTP commenced a program, using staff, contract, and Policy Support Division resources to assess the technical, economic and institutional efforts of proposed new systems and services; to formulate policy guidelines for the development of the mobile industry; and to provide for the maximum amount of competition both in the manufacture and sale of equipment and in the actual provision of services to the public.

In September, 1973, OTP completed its study and released its conclusions and recommendations regarding land mobile radio service to the FCC for its consideration. The policy statement recommended an allocation plan that would encourage industry investment in new technologies and services while preserving flexibility and avoiding over-commitment to any particular service or technology. Among other recommendations, OTP suggested that one portion of the spectrum be allocated for all mobile radio services on a competitive, non-rate-regulated basis in order to create an environment that would accommodate numerous competitive suppliers and encourage development of new services and technology. It was also recommended that another portion of the spectrum be allocated to telephone common carriers for the provision of rate-regulated mobile telephone service and ancillary dispatch service as an extension of the regulated telephone service. Further, in order to provide economic incentive for efficient spectrum use, OTP suggested that the Commission adopt a license fee schedule to reflect the scarcity value of the spectrum.

OTP is continuing its study of the potential uses of mobile communications and methods to improve spectrum efficiency; evaluating regulatory proceedings regarding "pseudo common carriers" and assessing the likely impacts of these proceedings on the competitive features of the policy on land mobile radio; and examining the likely effects of crosselasticities of demand for new land mobile services on existing services.

D. Data Communications

Regulatory actions, coupled with rapid advances in computer-communications technology, have raised the potential for significant new offerings of data processing and data communication services.

In recent years, the computer and communications idustries have come to intersect in several important areas. The use of computers in communications has enabled, or made considerably less costly, new modes of transmission, switching, network design, and system administration. Conversely, the use of communications with computers has increased the sharing of data-processing resources and the pooling of information banks. As a result, the remote access to computers has opened up new opportunities in the areas of business, education, and social services, to name only a few.

At the same time, the FCC has taken steps to inject competition into the communications marketplace. It has authorized the entry of new types of "value-added" vendors to institute and operate communications networks providing terminal-to-computer and computer-to-computer communications utilizing technology known as "packet switching." These new entrants are relying in large part on capturing a significant portion of the rapidly expanding market for data communications. The market has not been defined adequately and the probability of successful entry together with the potential for adverse impact on existing carriers has not been determined sufficiently. OTP has initiated studies that will address these concerns. In a related matter, OTP suggested in May, 1973, that a grant of AT&T's application for construction of "data under voice" facilities be conditioned upon tariff provisions that would reflect liberal practices and policies regarding interconnection, usage and resale of such data communications facilities. This would permit individual companies the freedom to design and acquire hardware/software systems to fulfill their own particular digital needs. AT&T has not yet completed its initial construction of "data under voice" facilities nor filed any tariffs for provision of service. Meanwhile, OTP continued to study the questions of shared use, resale and interconnection of common carrier services and facilities.

The subject of "value-added" vendors or "valueadded networks" raises issues similar to those involved in the use and resale of "data under voice" facilities. The FCC has granted two of several such applications under authority of Section 214 of the Communications Act and subject to certain conditions, which narrowly define the scope of the grants. However, as the Commission noted, there are numerous questions yet to be resolved, not the least of which is whether such "value-added networks" should be regulated as common carriers under Title II of the Act since there do not appear to be any natural monopoly characteristics inherent in any of the proposed systems, nor has any grant of exclusive franchises been requested.

OTP has conducted a preliminary analysis of the policy issues posed by the emergence of these new entities and will recommend shortly to the FCC that these considerations be incorporated in a rulemaking proceeding. OTP will continue its evaluation and analysis of these issues and will make its conclusions available to the FCC in the course of that proceeding.

E. Common Carrier Communications

The growing demand for new, diverse and flexible communications services has manifested itself in the emergence of specialized and satellite carriers, a growth in the communications terminal equipment industry, proposals for channel sharing and leasing arrangements, and a trend toward relaxation of current restrictions on use of carrier facilities.

OTP has continued its investigation of the issues involved in these developments with a view toward identifying those common carrier communications services that can be provided on a competitive basis; assessing the appropriateness of responses to competition by monopoly common carriers; and developing policies to assure that noncompetitive communications services are provided in an efficient and innovative manner. Principal studies and findings to date include the following:

1. Competitive Communications Services

a. A major concern relating to the introduction of competition involves present tariff restrictions on resale of communications services and interconnection with the facilities of existing carriers. These restrictions might not only inhibit growth in the communications brokerage markets, but could also retard the development of terminal equipment suppliers as well as specialized and satellite carriers. OTP has identified these restrictions and has assessed the economic benefits that would accrue from their relaxation or removal. Recommendations for tariff modifications, which are necessary to permit the orderly growth of competitive services, are now being formulated.

During the past year, the established carriers b. have moved to adjust their tariffs for selected services in response to actual and potential competition. An evaluation of whether a given competitive response by a monopoly carrier is fair and equitable requires inter alia an investigation of the existence or extent of cross-subsidy between monopoly services and competitive services. In this area, OTP has undertaken studies to evaluate and verify various economic burden tests for cost allocation which have been proposed by established carriers in support of their tariff adjustments. In addition, a comparison has been undertaken of the long-range incremental and fully allocated methods of costing in order to determine an appropriate approach to costing facilities and services in a competitive environment. A related study has been initiated to identify the extent of cross-subsidy between various service categories, e.g., urban to rural, business to residential, toll to local, etc.

Although cross-subsidies can serve to support important social objectives such as uniform availability of telephone service, they also make it difficult to evaluate the fairness of tariff responses in a competitive market. By determining the extent of cross-subsidization in a given service, it is possible to evaluate the desirability of continuing a cross-subsidy for the promotion of social objectives or eliminating the subsidy in the interests of fair competition.

2. Common Carrier Regulation

Although it appears feasible to continue allowing competition in selected segments of the communications markets, this will affect only about 5-10 percent of the total revenues of present common carriers. Most common carrier operations, principally the provision of public telephone service, would continue on a monopoly basis.

Effective government regulation of monopolies is necessary in order to assure quality service to the public at reasonable cost. But detailed oversight and regulation of an enterprise as large as the telephone industry, for example, are both difficult and costly. Therefore, OTP is exploring means whereby policy-established incentives for improved public performance could be substituted for detailed regulation.

a. OTP has completed a major study of the FCC's Uniform System of Accounts for common carriers in order to identify what operating incentives, if any, are provided by this regulatory reporting system. The study has shown that because costs throughout the common carrier industry are classified by facilities, whereas revenues are classified by service, the reasonableness of a given rate of return for a specific service under review is not easily ascertainable. In addition, this accounting method greatly hinders the evaluation of proposed tariff revisions in a competitive market and provides little incentive for minimizing investment or operating costs or for incorporating new and more efficient technologies. Accordingly, OTP has undertaken a study of alternative accounting methods, including one that would establish the geographical area of a given telephone exchange as a cost/revenue center. Separate accounting for each exchange area would permit comparison of the relative cost, profitability and efficiency of all exchange areas across the nation, thereby encouraging improved performance in those areas that are marginal.

b. OTP has also undertaken a study of usagesensitive pricing, which has been proposed by some carriers as an alternative to the present flat rate pricing approach for local telephone service. This method of pricing, which is now used for long-distance telephone service and for the supply of other utility services such as electrical power and natural gas, would enable the pricing of local telephone service to reflect the degree of actual use by various customers. OTP will continue its investigation of this and other approaches to the pricing and costing of communications services during 1974.

c. A related concern is the high capital intensity of the common carrier industry. OTP is conducting a study of common carrier depreciation policies to determine whether capital might be generated internally under various depreciation alternatives. The study analyzes various depreciation methods and assesses their impact on revenue requirements, rates, rates of return, profits, cash flow, etc. It also incorporates the use of a simulation model which is capable of evaluating the rate at which the introduction of new technologies can reduce both capital and operating costs. OTP will continue its investigation of depreciation alternatives and will make its findings available to the FCC and the common carrier industry.

II. GOVERNMENT COMMUNICATIONS

A. Federal Communications Policy, Planning and Evaluation

The Federal Government spends roughly seven billion dollars per year on telecommunications systems and services. Every federal agency makes some use of telecommunications and many agencies are involved to a greater or lesser degree in telecommunications research and development, planning, design, procurement, and system operation. OTP has been assigned the responsibility to coordinate these Executive Branch telecommunications activities, to formulate policies and standards, to identify and recommend appropriate remedies for competing, overlapping, duplicative or inefficient programs, and to evaluate the ability of existing and planned systems to meet national security and emergency preparedness requirements.

To accomplish these responsibilities, OTP requires the cooperation and assistance of those Federal departments and agencies most heavily involved in the telecommunications area. The first step in obtaining the necessary cooperation was the establishment, in 1972, of the Council of Government Communications Policy and Planning. This Council, chaired by the Director of OTP, currently includes policy level representatives from the Departments of State, Treasury, Defense, Justice, Commerce, and Transportation, and from the General Services Administration, the National Aeronautics and Space Administration, and the Central Intelligence Agency.

The next step was to establish a more formalized planning and coordination process designed to achieve many of OTP's objectives through the day-to-day activities of the operating departments and agencies. To accomplish this, OTP instituted a formal Government Communications Planning Program. This program was initiated by the issuance of OTP Circular No. 12 in October, 1973.

The objectives of the Government Communications Planning Program are: first, to identify all the communications activities and resources of the Federal Government; second, to determine the needs for effective information-exchange among the various departments and agencies; third, to promote economy in the Government's use of communications, through sharing of facilities, elimination of duplication, and effective use of commercial services; and finally, to encourage the use of communications to improve productivity and enhance coordination of Federal Government activities.

The objective which underlies the Government Communications Planning Program is to encourage each department and agency to undertake more explicitly documented long-term planning for its use of communications and to disclose these plans for interagency coordination at the earliest feasible time. Interagency coordination will be accomplished in two stages. During the first stage, planning for systems which provide operational communications support in one of four critical mission areas, will be coordinated among the agencies most directly involved in such missions, while plans for administrative and other types of communications will be coordinated by the General Services Administration. The coordinated plans which emerge from this stage will then be reviewed by OTP and coordinated across the mission areas in the second stage. Since the greatest potential for sharing facilities and eliminating duplication exists among agencies with similar mission requirements, we expect most of the results of this program to be accomplished during Stage I.

The four mission areas in which operational communications requirements are coordinated are: Environment, Law Enforcement, National Security, and Transportation. In each of these areas, the participating agencies have been identified, a lead agency has been designated to assure that the coordination takes place, and specific coordination procedures have been established. The General Services Administration (GSA) is also in the process of establishing the planning procedures necessary in its area of responsibility.

The next significant milestone in the Government Communications Planning Program will be the submission of summary plans covering each of the five areas to OTP on August 15, 1974. Review and analysis of those plans will establish the first benchmark against which future progress in both planning and coordination can be measured.

Some of the coordination activities which OTP was carrying out prior to initiating the Government Communications Planning Program will be gradually phased into that program. One example of this is the coordination of existing and planned radio navigation aids operated or used by various elements of the Federal Government. During 1972, OTP began to work with the affected Federal departments and the Office of Management and Budget (OMB) to (1) coordinate the navigation satellite programs of the various departments, (2) determine the minimum mix of navigation aids and systems to meet government and civil requirements, and (3) structure a coordinated national navigation program. The first step was to be the designation of a single system for long-range general purpose navigation. This step was held in abeyance during 1973 to await the results of an OMB-directed joint study by the Department of Transportation (DOT) and the Department of Defense (DOD) leading to an agreement on the selection of a single national navigation system. The response to this request, originally due in July, was not submitted by DOT until December. The study was not performed jointly with the Defense Department and did not address the entire radio navigation picture. Rather, it dealt only with one element of the navigation problem, the selection of a system for navigation within the coastal region of the United States.

OTP has informed OMB that to accept the recommended action on this system without the comprehensive plan we have been seeking will only continue the trend of proliferation of radio navigation systems rather than achieving the objective of satisfactory radio navigation system coverage and performance with the minimum number of systems.

During 1974, OTP will continue its efforts to bring about the development of a comprehensive radio navigation systems plan, including designation of the radio navigation systems which the Government will continue to support in the future. This will be accomplished largely within the framework of the Government Communications Planning Program.

Another effort which is being phased into the Planning Program is the previous OTP effort to review and analyze the many different Federal Government satellite communications programs. This effort was initiated in 1972, and was to have been concluded in 1973. It involved the collection of detailed information about every federally sponsored satellite program with a capability for serving as a communications relay. This information was to be analyzed to identify satellite systems which could be eliminated, consolidated with other systems, or expanded to serve additional users.

Budgetary restrictions hampered this effort during 1973. Other developments reduced the potential for early results from this effort. The cancellation of NASA's plans for developmental communications satellites after ATS-F not only eliminated one set of costly government programs but also reinforced OTP's belief that many of the services needed by the Government can be supplied by private communications satellite ventures. During 1973, the Defense Department contracted to meet tactical communications needs with a

- N. S. M. W. W. S. LANDER . W. MARCH MAN BACK.

commercial satellite, and NASA is now planning for commercial ownership of satellites to provide tracking and data relay communications.

Other activities begun in earlier years led to concrete results during 1973. In 1972, OTP determined that there would be no clear advantage to the consolidation of the two largest telephone networks in the Federal Government: the military's AUTOVON and GSA's Federal Telecommunications Systems. Rather, OTP requested the Defense Department to pursue studies and a joint field test with GSA to determine the least costly means for Defense activities to make long distance calls to locations not served by AUTOVON. In December 1973 the Defense Department forwarded the results of the DOD/GSA study and field test. To reduce toll charges, DOD has indicated now that it will allow each Defense installation to use the FTS wherever it would save money to do so. Previously, the use of the FTS by any military activity had to be approved by the Office of the Secretary of Defense. These steps opened the way for optimum use of the FTS by all Government agencies, based on its cost and performance characteristics.

In October 1972, the Office of Management and Budget asked OTP to lead an interagency evaluation of the audiovisual communications activities of the Federal Government. This effort was undertaken, in part, in response to charges by Congressman Barry Goldwater, Jr. that the Federal Government was producing too many motion pictures in-house and that there was incompatibility and duplication among the audio-visual facilities and products of Federal departments and agencies. There were also reports in the press that the Government was the nation's largest film-maker and was spending over four hundred million dollars a year producing motion picture films.

The study investigated in some detail the different types of audio-visual activities in which Federal agencies engaged. It found that government film-making was a relatively small percentage of all Federal Government audio-visual acitivities. The study also found that while two-thirds of the Government's film production during 1972 was performed under contract, some Federal agencies still retain extensive, under-utilized in-house film production facilities, in apparent conflict with Federal policy established by the Office of Management and Budget in Circular A-76.

OTP also initiated action in a related area at the request of Congressman Torbert Macdonald. The action arose from a study by the General Accounting Office which showed that during early 1973, four Federal agencies produced radio spots which violated the provisions of a 1972 Appropriations Act. The study also found that two Federal agencies were using a relatively costly form of toll-free telephone service to disseminate these radio spots and that two other Federal agencies were using a less expensive toll-free service.

At the request of Congressman Macdonald, OTP has developed draft guidelines governing the use of such radio spots and toll-free services by Federal agencies. These guidelines would place content and format restrictions on federally produced radio spots, designed to curb practices which are illegal, propagandistic, or which go too far towards performance of reporting or editorial functions which should be undertaken by the radio stations themselves. Criteria for the use of toll-free telephone services are also included to minimize the cost to the Government of disseminating radio spots.

B. Emergency Preparedness

The purpose of the emergency preparedness program is to insure that national and Federal communications resources will be available and applied, in emergencies, to meet the most critical national needs. This is a demanding task, because of the numerous contingencies that must be provided for. Emergency communications plans and capabilities must comply with three basic principles: first, maximum dual use of facilities for both emergency and routine operations; second, balanced survivability among communications and the facilities which are supported by communications; and third, focusing of responsibility to assure accomplishment.

Policies and plans for managing the nation's telecommunications resources during war emergencies or natural disasters were completed during 1972 and submitted to the various Federal agencies for them to prepare supporting plans. Draft supporting plans were completed and coordinated during 1973. Final plans should be completed during 1974.

In 1973 OTP and the FCC agreed, as a result of an overall review of the restoration priority requirements, that the OTP and FCC restoration priority orders should be revised so that the two orders constitute a single priorities system. These revisions will be accomplished in 1974.

During 1973 OTP continued to participate in NATO Civil Communications Emergency Planning programs. OTP provides the senior U.S. civil representative to the NATO Joint Communication-Electronic Committee (NJCEC) which is responsible for coordinated Civil/Military advice and policy recommendations to the NATO Council on all communication-electronic matters affecting NATO.

During 1973 the OTP Emergency Broadcast System (EBS) Procedures Manual was rewritten to clarify and simplify the procedures and incorporate changes resulting from Government and industry coordination. OTP assisted the Federal Communications Commission in rewriting their EBS Rules and Standard Operating Procedures (SOP's) to assure consistency between the FCC and OTP documents. The Manual, Rules and SOP's will be published and distributed in early 1974 and will improve the effectiveness and efficiency of the EBS. Also in 1973, steps were taken to develop more viable contingency procedures to supplement the normal EBS activation procedures. The new contingency procedures will allow national leaders, to communicate with the American public through the surviving commercial radio and television facilities if the use of normal EBS activation procedures is precluded by an enemy attack. By providing a capability independent of prearranged telephone facilities to a specified location, the new procedures will be much more flexible and survivable than existing contingency procedures for EBS activation. These new procedures will be implemented in 1974.

C. Computer Communications and Privacy

Computer-communications or teleprocessing is a new technology which is emerging from the joining of computer technology and communications technology. By using communications to interconnect user terminals and computers, it provides remote access to computer capacity, remote access to stored data, and communications between terminal users. The subject is important and timely because more and more Federal departments and agencies are turning to teleprocessing as a means to facilitate governmental services and functions. The development of teleprocessing techniques represents the most dramatic change in computer utilization in the last decade.

The anticipated shift to the computer network mode of operation by the majority of Federal computer installations will result in a demand for more commercial data communications channels and wider ranges of service offerings. Similar pressures from the private sector have already resulted in the emergence of competitive, specialized communications carriers, as well as in proposals for the establishment of services based upon new technologies, such as communications satellites and "packet switching." There appears to be a trend towards establishing Government-operated teleprocessing systems and services as opposed to privately operated (leased) services. During 1974, OTP will evaluate this trend and try to determine the economies to be realized by each of the various means for providing telecommunications services, including the economies which might accrue from network consolidation. The hybrid computer-communications system model, developed in 1973, is available to support this effort, when adequate data on Government data system plans becomes available.

Another problem is the growing concern that the interconnection of data banks poses a threat to individual rights of privacy. A rational approach to the problem of security, privacy, and confidentiality of information contained in computer data banks is both feasible and necessary. OTP intends to work with other Government agencies to develop proposals to increase the rights of individuals to control the dissemination of and access to, informaton regarding themselves, when such information is exchanged or transferred over telephone and other telecommunications systems. It is presently unclear whether some or all of these proposals will call for new legislation dealing with telephone recording devices and Government data banks or data networks. It may well be that legislation will be required for some aspects of the privacy proposals, but administrative regulation or guidelines could suffice for other aspects, such as the data network problems.

D. Federal-State Communictions

One of OTP's assigned responsibilities is to coordinate federal assistance to State and local governments in the telecommunications area. Our objectives in this area are: (1) to eliminate any duplication in development of demonstration programs, (2) to assure that conflicting requirements of different Federal programs do not inhibit the efficient development of State and local government telecommunications systems, (3) to preclude the emergence of an undesirable degree of operational or technical control by Federal agencies over State and local government telecommunications systems, and (4) to encourage the coherent development of telecommunications systems for the delivery of public services, especially emergency services, by State and local governments.

The first major effort undertaken in this area was to encourage nationwide implementation of the Emergency Telephone Number 911. This number has been reserved by the telephone companies for use as a universal emergency number for several years. However, local governments must make provisions to receive such calls and refer them to the appropriate agency for action. Local governments have been slow to make these arrangements, for several reasons: (1) disagreements among police, fire, and other emergency agencies over answering arrangements, (2) belief that the cost to the local government would be very high, (3) uncertainty about how to cope with telepone service areas which cut across local government boundaries, or (4) waiting to see if the Federal Government is going to pay the costs for such systems.

To get the implementation of 911 moving, OTP concluded that it was essential to do two things: (1) dispel doubts about the feasibility and cost of 911 service which are due to misinformation or ignorance, and (2) clarify the Federal Government's own role in planning and funding local 911 systems. To accomplish the first, OTP funded a comprehensive study of the experience of present users of 911 service. The study resulted in a handbook specially designed for State and local officials answering many of the questions which typically arise when 911 service is considered. To accomplish the second, OTP has developed a national policy governing the federal government's role with respect to 911 service. The policy states that the Federal Government will encourage nationwide implementation of 911, but will not fund the costs of operating 911 systems. It encourages cooperation among neighboring jurisdictions so that the relatively inexpensive basic 911 service can be used, in preference to demanding very costly services from the telephone companies to automatically divert every call to the proper answering point.

To provide an additional source of continuing information for local governments considering 911 service, OTP has arranged for a 911 Information Center to be established in the Department of Commerce.

During 1974, OTP will seek to identify other telecommunications issues which, like 911, involve responsibilities of State and local officials but have national impact. We are receiving assistance in this effort from the International Association of Chiefs of Police and the Associated Public Safety Communications Officers.

During 1972, the Law Enforcement Assistance Administration was pursuing studies leading toward the establishment of a telecommunications satellite system for the law enforcement community. Noting the lack of concrete justification for a national law enforcement satellite system, OTP encouraged LEAA early in 1973 to focus additional effort on determining actual requirements. LEAA then initiated a project including (1) an analysis of user requirements for the next 10 years; (2) development of the network implementation plan; and (3) development of interface guidelines. OTP participates in the Steering Group for this project and, as more information concerning the requirements develop, OTP will provide additional policy guidance on such issues as privacy protection and the relative degree of Federal versus State control over law enforcement telecommunications systems.

III. INTERNATIONAL COMMUNICATIONS

A. International Systems and Facilities

1. Policy Development and Implementation

The international communications industry has been the object of numerous reviews over the years by both Executive branch agencies and Congressional committees. Existing organizational arrangements are largely the result of statutory policies and ad hoc regulatory decisions that have evolved over time.

In order to remove some of the uncertainty resulting from prior industry reviews and to provide an orderly framework for future development of the industry, OTP issued in 1973 a broad statement of objectives and policies to guide industry and Government activities in international communications. Within this policy framework, review and examination of regulatory and industry performance has continued. While the existing structure has worked relatively well over the years, complexities have been introduced which raise questions concerning the efficiency of existing procedures and arrangements. Proposals for dealing with some of these questions were circulated within the Executive branch and are still under consideration.

As a partial outgrowth of this process, legislation has been developed to amend the Communications Satellite Act of 1962. The amendments reflect changes that have occurred in satellite communications since the original legislation was enacted. The myriad of technical, economic, and organizational uncertainties which existed then has since been resolved. Many of the Act's special provisions which were designed to insure the success of this Nation's pioneering venture into space communications have achieved their purpose and are no longer needed. The global communications satellite system envisioned by the Act has been established and is operated under the permanent agreements for the International Telecommunications Satellite Organization (INTELSAT) which came into force in early 1973. The Communications Satellite Corporation (COMSAT) is now a relatively mature commercial common carrier and has established a new corporate subsidiary to participate in satellite systems and services which are separate from the INTELSAT system.

Another U.S. international communications objective is to secure fair trade opportunities for U.S.developed technology and products and enhance our competitive position in the world communications market. Despite acknowledged technological superiority in telecommunications equipment development, the United States has experienced an unfavorable balance of trade in recent years. OTP is working with agencies primarily responsible for trade development to reverse this trend.

2. International Communication Satellites for Mobile Communications

a. Aeronautical Satellite Experiment

In early 1971, OTP issued policy guidelines concerning the development of a national program on satellite communications for international civil aviation operations. In furtherance of this program, OTP worked during 1973 with DOT/FAA and the Department of State on a Memorandum of Understanding between the European Space Research Organization (ESRO), Canada, and the FAA covering a joint program to test the use of satellites for improving air traffic control. At year's end, the three parties reached a tentative agreement on the Memorandum, which is now being reviewed within the Executive Branch.

The purpose of this Aerosat program is to explore ways of using satellite capabilities to improve the cost effectiveness of oceanic enroute services, including the possibility of combining or reducing air traffic control facilities. The evaluation will be conducted using satellite channels provided by a new industry/Government entity. Canada will own approximately six percent of the entity, and the balance will be owned by ESRO and a private U.S. communications corporation in equal shares.

This international arrangement is the result of nearly three years of difficult negotiations involving OTP and other U.S. agencies with U.S. industry and foreign entities.

b. Maritime Satellites

International discussions continue, primarily in the Intergovernmental Maritime Consultative Organization (IMCO), concerning the provision of satellite communications to civilian ships on the high seas.

The Soviet Union and the West Europeans, led by the United Kingdom, advocate that a new international organization be created to provide global maritime communication services by satellite. The U.S. believes that such a decision, at this time, would be premature and that substantially more economic and technical analysis is required before an informed judgment can be made. No definitive organizational decision should be taken in our view prior to the April 1975 worldwide Plenipotentiary Conference sponsored by IMCO to consider the establishment of maritime communication satellite facilities.

IMCO's Panel of Experts (POE) on Maritime Satellites met twice in 1973 to consider the economic and technical problems associated with the creation of such services. OTP actively participated in the POE meetings and played a coordinating role in developing a policy position with interested Governmental agencies, particularly the Department of State, the Department of Transportation (Coast Guard) and the Commerce Department (Maritime Administration).

OTP will continue to promote efforts to identify requirements for international maritime services without prejudging the operational or organizational means to provide such services.

At the same time, OTP has supported the development of a maritime satellite capability to meet U.S. Navy requirements between 1974-76. Limited commercial satellite services for maritime users will be furnished by this same satellite.

3. Pacific Basin Facility Planning

and the second sec

A review of new underseas cable facility planning for the Pacific Basin was conducted during the year and complements an earlier study developed by OTP for the Atlantic region. Two original analytical studies supported this effort. A traffic demand forecast through 1980 was developed for the Pacific Basin and served as input to an economic analysis of alternative system configurations. The economic analysis considered the comparative costs of several underseas cable and satellite transmission facilities for meeting future U.S. requirements. The studies developed the relative costs and economies associated with cable and satellite facilities under varying assumptions of utilization which should facilitate decisions affecting future Pacific Basin planning.

B. International Organization Activities

1. United Nations

Reactivation of the UN Working Group on Direct Broadcast Satellites (DBS) was the most significant communications-related development in the United Nations during 1973. The Working Group met in June 1973 to review recent technological developments. The United States Delegation, of which OTP was a member, made a state-of-the-art presentation to provide perspective to both technical and economic aspects of direct satellite broadcasting.

In the U.S. view, the prospect of broadcasting signals directly to unaugmented home receivers from communication satellites is still in the distant future. Nevertheless, there is widespread apprehension among nations about such potential use of the emerging technology. Within UNESCO and the UN, resolutions have been adopted to establish new regulatory controls over satellites broadcasting directly into the home. The U.S. voted against both resolutions as being premature and failing to address the fundamental question of how to maintain the principle of free flow of ideas and information in international communications.

The Working Group will meet again in March 1974 to explore further the DBS-related problems posed by the technology and efforts to regulate it. The findings of this Working Group's second meeting will be considered by the Legal Subcommittee of the UN Committee on the Peaceful Uses of Outer Space in early summer 1974. OTP will actively participate with the State Department, USIA, FCC, and other interested Governmental agencies in the formulation and presentation of the United States position on DBS.

In support of the Government's efforts in the area of direct broadcast satellites, OTP undertook a contract study which developed a cost-analysis of utilizing DBS technology for education in three developing nations. Several nations are actively studying or planning the use of satellites to provide greatly increased educational opportunities. We anticipate that one or more of these nations will approach the U.S. for financial, satellite launch, and technical assistance during the next few years.

Previous cost studies have failed to include important cost factors. Usually these studies have emphasized satellite and other "hardware" costs while omitting or underestimating the "software" production and community costs. The study shows that the satellite cost is likely to be 1% or less of the total system cost for a large country. OTP, in conjunction with AID, held a seminar to review the results of this study; approximately 100 academic, industrial, and governmental representatives from the United States and abroad attended.

In a related matter, OTP participated in a July 1973 meeting of the Committee of Experts convened by UNESCO and the World Intellectual Property Organization. The meeting determined that sufficient consensus exists to hold a diplomatic conference to consider a "Draft Convention Relating to the Distribution of Program-Carrying Signals Transmitted by Satellite." This Conference will be held in Brussels in spring 1974.

2. INTELSAT

A milestone in international communications was passed February 12, 1973 with the entry into force of the Definitive Agreements of the International Telecommunications Satellite Organization (INTELSAT). It marked the end of a decade of development of this commercial organization which has grown from 14 original Signatories to over 80 member nations, and the beginning of a period of transition for itself and for COMSAT, the U.S. Representative.

COMSAT itself entered a new role--one in which it no longer holds a controlling vote in the governing body and a role as Manager of INTELSAT which is now limited to the technical and operational management of the satellite system.

Against the backdrop of a growing number of proposed new satellite systems and services, COMSAT's role as U.S. Representative and the guidance it receives from the Government in this role will be of continuing importance. Careful coordination between OTP, State Department, and FCC, the statutory advisers to the U.S. Representative, will be required. Matters requiring governmental guidance may include further facilities planning, the transferral of traffic between the U.S. Mainland and Hawaii, Alaska, and Puerto Rico from INTELSAT to the newly authorized domestic communication satellite systems, or issues involving overall national policy and foreign policy considerations.

3. International Telecommunication Union

The International Telecommunication Union (ITU) is a specialized agency of the United Nations comprising 143 member administrations. As one of its purposes, the ITU maintains and extends international cooperation for the utilization and improvement of telecommunications of all kinds. During the past year, considerable OTP staff effort was devoted to ITU-related activities due to an exceptionally heavy ITU international conference schedule.

Following more than a year's preparatory work, a Plenipotentiary Conference was held in Spain during September and October 1973 to review and revise the ITU Montreux Convention of 1965. OTP provided a Delegation Vice Chairman and other supporting staff for the Conference. The results of the Conference were generally compatible with U.S. interests and the essential structure of the ITU remains unchanged. In 1974, the new Convention will be submitted to the Senate for its advice and consent.

During April 1973, an ITU World Administrative Telegraph and Telephone Conference was held in Geneva to update the international telegraph and telephone regulations which were last revised in 1958. OTP participated both in the Conference preparatory work and as a member of the U.S. Delegation. Controversial matters addressed by the Conference included traffic routing and financial settlement of accounts. As a result of satisfactory compromise solutions reached at the Conference, the U.S. became a signatory to the telephone regulations for the first time. The new agreements are greatly simplified in form and, subject to the advice and consent of the Senate, will enter into force in September 1974.

Under OTP guidance, U.S. proposals for the April 1974 ITU World Administrative Radio Conference on Maritime Telecommunications have been completed and forwarded via the Department of State to the ITU Secretary General. The Conference will revise existing international maritime radio regulations and provide procedures for the initial application of space communication techniques in the maritime service. OTP has engaged in extensive international discussions preparatory to the World Conference.

OTP representatives participated in all phases of the U.S. preparatory work for the XIII Plenary Assembly of the ITU International Radio Consultative Committee (CCIR) scheduled for the summer of 1974. The Assembly will address the development of an improved technical base for international radio communication systems. In October 1973, OTP participated in an International Working Party on satellite orbit utilization in preparation for the CCIR 1974 Study Group meeting. OTP participated in a working group of the ITU World Plan Committee which reviewed changes implemented during the previous year involving the work of the Committee. Revisions were made and will be in effect until the next general meeting of the Committee in 1975. The work of the World Plan Committee is intended to facilitate the development of the international telecommunications network and to help administrations in planning improved international services.

OTP also participated in the meeting of the Regional Plan Committee for Latin America which is held at four year intervals. The principal purpose of the Regional Plan Committee is to develop a general plan for the regional international telecommunications network to help in planning international telecommunications services.

4. CITEL

OTP provided a member of the U.S. Delegation to the annual Inter-American Telecommunications Conference (CITEL) meeting in Brazil. CITEL is a specialized agency of the Organization of American States and, since its reorganization in 1971, has become increasingly active as a regional telecommunications body. As a result, it provides a very useful forum for discussion and resolution of telecommunications problems of common inter-American concern. The July 1973 Conference provided a beneficial opportunity to discuss issues which arose later in the year at the ITU Plenipotentiary Conference. The U.S. Delegation also presented U.S. views on the ITU World Administrative Radio Conference on Maritime Telecommunications to be held in April 1974 in Geneva.

IV. SPECTRUM MANAGEMENT AND POLICIES

There is intense national and international competition for the use of the radio spectrum for all forms of radio transmissions (radio communications, navigation, broadcasting, radar, air traffic control, etc.). In the United States, the Federal Government is the largest single user of the spectrum. It is OTP's responsibility to assign frequencies for these uses and to coordinate all Federal Government activities related to spectrum management and planning. This includes cooperating with the FCC to develop plans for more effective use of the entire spectrum for both governmental and nongovernmental purposes.

Specific tasks involved fall essentially into categories of allocation and assignment of frequencies; planning to meet Government and non-Government uses; electromagnetic compatibility analysis; and side effects of electromagnetic radiation.

A. Allocation of Spectrum

والمراجع فالمراجع فالمراجع فالمراجع فالمراجع والمراجع و

Executive Order 11556 requires that OTP, among other things, "develop and coordinate with the FCC, a comprehensive long-range plan for improved management of the electromagnetic spectrum resources." OTP and the FCC continue to conduct a cooperative review of the spectrum resource to determine how future requirements can best be accommodated.

During the last three years more than 9,000 MHz of spectrum, formerly reserved for exclusive Federal Government use, were made available for use by non-Federal Government interests. Continued efforts are being made to increase Government/non-Government sharing of the spectrum, including development of alternate allocation tables to meet National requirements through 1985. In this regard, last year OTP completed an analysis of the Government's projected needs between 100 and 1215 MHz to the 1985 time frame. As a result, it was foreseen that the Government's increasing communicationselectronics requirements in such areas as national defense, law enforcement, resource management, marine and air safety will require that approximately an additional 100 MHz be made available for Government use. OTP informed the FCC of its recommendations and joint discussions are still underway on this matter.

One new effort, commenced in 1973 and continuing, is to determine whether or not the analytical methods of demand forecasting can be used for projecting spectrum requirements. Such projections would be based upon forecasted sales of communication-electronic systems, and could be useful in preparing for World Administrative Radio Conferences. Also, a proposed experiment was conceived in which Government users of the frequency band 2700-2900 MHz would "lease" spectrum space. Economists have expressed the opinion that introduction of such a concept would provide a greater incentive to more efficient spectrum use. The concept is currently under study by both GAO and OMB to assess its feasibility and to determine whether legislation is necessary prior to undertaking the experiment.

B. Assignment of Frequencies

In 1973 OTP processed approximately 50,000 frequency assignment actions involving U.S. Government radio stations; developed procedures and accumulated data necessary to permit implementation of a reporting system for on-the-air use of frequency bands between 30 and 420 MHz; prepared the U.S. position for a new frequency assignment plan for oceanographic and ocean data transmission for promulgation by the International Oceanographic Commission and the World Meteorological Organization; completed the first five-year program to review and revalidate all frequency assignments to Government radio stations; and commenced development of a ten-year plan for spectrum needs for fixed radars. The need for this program was precipitated mainly by an indication of increased radar use for air traffic control purposes.

Of particular significance in 1973, OTP completed its efforts to develop and implement the first measurement and monitoring capability for directly measuring the Government's use of the radio spectrum. Together with the recently inaugurated usage reporting system required by all Government users, this monitoring capability should enable more efficient management of the spectrum and provide a broader data base on which to forecast spectrum demand.

Also, in October 1973, OTP issued a preliminary report on VHF television broadcasting frequency assignment criteria which has been submitted to the FCC for consideration.

The report concluded that existing separation criteria are conservative and there is sufficient evidence to indicate that, with the application of currently available technical measures, a substantial number of additional VHF television broadcasting channels could be assigned in the major 100 markets in the United States, without adversely affecting those already operating in accordance with current FCC rules. Accordingly, the report recommended that the current FCC Television Assignment Criteria should be reviewed and revised, taking into account the current state of the radio art, experience gained in the past twenty years, and technical measures which can be applied readily to permit additional use of the valuable VHF television broadcasting spectrum allocations.

C. Emergency Medical Services

OTP in cooperation with the IRAC and the FCC, prepared a report in 1973 which emphasized the need for a comprehensive communications plan for emergency medical services. Such a plan, providing for a major expansion of frequencies standardized across the country for maximum efficiency, was designed in cooperation with HEW and submitted to the FCC for implementation. This plan, according to medical authorities could lead to the saving of thousands of lives each year. Major recommendations of the plan include:

- Standardized national radio frequencies for EMS units en route to and at the scene of medical emergencies.
- 2. Paging systems for EMS and the general medical community.
- 3. Ambulance dispatching and direction service.
- 4. Communications networks for biomedical telemetry, to permit, for example, a doctor at a hospital to monitor the electrocardiograms of patients in an ambulance to give instructions to medical attendants.
- 5. Specialized medical data handling and voice circuits for exclusive use by doctors.
- An Emergency Medical Radio Service that would be similar to and have the same status and protection under the FCC Rules and Regulations as the Police and Fire Radio Services.

The plan is flexible enough to offer state and local EMS authorities a variety of ways for meeting their individual needs, while still standardized enough to assure that vehicles of various jurisdictions could communicate with each other and with each other's hospitals. The plan is also supportive of and consistent with the recently enacted Emergency Medical Systems Act of 1973 which provides that funds used for emergency medical services shall, among other things, provide a substantial component of communications responsive to emergency medical needs.

D. Electromagnetic Compatibility Analysis

The ever increasing exploitation of the advantages to be gained by the application of communication-electronic technology has created congestion in the use of the limited radio frequency spectrum. Unfortunately, due to the state of the radio art, the bulk of new space telecommunication requirements must be satisfied in the same portions of the radio spectrum which currently are occupied heavily by Government and non-Government space and terrestrial systems.

Increased telecommunication requirements in support of national defense, resource management, safety of life, law enforcement, and space exploration dictate the need for improved spectrum engineering if serious losses of life and property are to be averted. Moreover, detailed analysis of potential interference situations must be undertaken prior to large expenditures of funds if U.S. space and terrestrial communication requirements of the future are to be projected with the necessary degree of confidence.

Accordingly, in late 1972, OTP developed and promulgated a set of management procedures (OTP Circular 11) requiring all Government agencies to submit their frequency plans well in advance, with the objective of ensuring a critical review of frequency spectrum availability for Government communication-electronic systems prior to the commitment or expenditure of public funds. During 1973, OTP's experience with the application of these procedures confirmed emphatically that the procedures are appropriate and can meet the desired objectives. Specific areas analyzed include a comprehensive cross analysis of collision avoidance, aeronautical and maritime satellites, navigation satellites and radio altimeters, all in the 1535-1660 MHz band; a Defense communications satellite system, terrestrial microwave systems, an earth resource satellite and a next-generation meterological satellite system, all in the 7125 to 8400 MHz portion of the spectrum.

E. Side Effects Program

In response to much apprehension and some evidence about the hazards of electromagnetic radiations to man in particular and to the environment in general, OTP continues to oversee the five year "Program Assessment of Biological Hazards of Non-Ionizing Electromagnetic Radiation," which formally commenced in FY 1974. The program is a coordinated multi-agency effort involving surveillance, testing, and research to determine the potential hazards to man and his environment from non-ionizing electromagnetic radiations. It examines the potential biological impact of other nonionizing radiations and also will continue to investigate the problems, requirements and activities related to possible nonbiological side effects of electromagnetic energy, e.g., the effects on electronic systems, devices, components, and materials.

During 1973, primary emphasis was placed on implementation and development of procedures to ensure coordination in assessing the biological effects of non-ionizing electromagnetic radiations. The biological effects of other types of non-ionizing radiations, such as lasers and ultrasonics, were also considered. These studies will continue in 1974. The second annual progress report will be released within the first quarter of the year.

F. Spectrum Management Advisors

Three advisory bodies assist OTP in conducting spectrum management activities:

1. Interdepartment Radio Advisory Committee -composed of representatives of 16 Government agencies having major communication-electronic operations, plus a liaison representative from the Federal Communications Commission. The Committee met 23 times in FY 1973 and developed recommendations to OTP on numerous policy issues related to spectrum management. The associated subcommittees (Frequency Assignment, Spectrum Planning, and Technical) provide extensive support and inputs.

2. Frequency Management Advisory Council -comprised of recognized authorities from industry, universities, and research organizations. The Council met four times in FY 1973 to overview Government spectrum-related activities and provide recommendations to OTP.

3. Electromagnetic Radiation Management Advisory Council -- comprised of experts in the fields of electrical engineering, biological research, and medicine. This body met five times in FY 1973 to overview Government activities as regards possible biological effects of non-ionizing (radio) radiations and provide recommendations and suggested courses of action to OTP in its role of Government-wide program coordinator in this field.

STATEMENT BY

17

CLAY T. WHITEHEAD, DIRECTOR

OFFICE OF TELECOMMUNICATIONS POLICY

before the

Subcommittee on Treasury, Postal Service and General Government Honorable Tom Steed, Chairman Appropriations Committee U.S. House of Representatives

April 1, 1974
STATEMENT BY

CLAY T. WHITEHEAD DIRECTOR

OFFICE OF TELECOMMUNICATIONS POLICY

Mr. Chairman and members of the Subcommittee, I appreciate the opportunity to discuss with you the budget request of the Office of Telecommunications Policy (OTP) for Fiscal Year 1975. I believe you have our Budget Estimates for the upcoming year. With your permission, I would like to submit for the record a more detailed statement of the 1973-1974 Activities and Programs for our Office.

OTP has requested \$9,512,000 for Fiscal Year 1975, an increase of \$7,442,000 over our Fiscal Year 1974 appropriation. Most of this increase, \$6,098,000, represents a transfer of the funding for the technical and analytical support provided to OTP by the Office of Telecommunications, Department of Commerce, transferred from the Commerce budget to our own budget. This transfer and consolidation is the result of suggestions of this Subcommittee, your counterpart in the Senate, as well as the House and Senate Appropriations Subcommittees for State, Justice, Commerce, and Judiciary.

The \$6,098,000 requested in our budget for Commerce support activities includes an increase of \$1,717,000 (and 23 additional positions) for the support program itself. Most of this increase is necessitated by the rapid growth and change in the Federal Government's use of radio frequencies. This requires a larger number of frequency assignment requests to be processed and increases the workload of technical analysis needed to keep that growing number of communications, mavigation, and radar systems from interfering with one another. OTP is now processing approximately 5,000 frequency assignment actions per month, we have implemented procedures requiring all Government agencies to submit their frequency plans well in advance so that spectrum availability can be evaluated prior to the commitment or expenditure of public funds.

In addition, \$1,100,000 is requested for our program of outside studies and research beyond the scope of our staff or that of the OT support group. We have reviewed carefully the need for this program of studies, especially considering the inclusion of the Commerce support in our budget, and have concluded that it is by far the most effective and least expensive way of meeting research needs that require highly specific expertise or large research teams too expensive to retain on a full-time basis. The remaining \$244,000 increase is to provide for eight additional fulltime employees, to reimburse GSA for the cost of leased space (as required by law this year), and to cover other minor increases in general expenses. I would like to point out that the past year has been a very active one for OTP, and I would like briefly to highlight some of this activity.

In the field of public safety communications, OTP has prepared, in cooperation with other agencies, a comprehensive plan for emergency medical services. This plan provides for nationwide standardized frequencies for emergency medical use, specialized medical data handling circuits, communications networks for biomedical telemetry, and other features designed to provide rapid communications capability in medical emergency situations. Medical authorities have stated that this program could lead to the saving of thousands of lives each year. OTP has also continued its implementation of the "911" universal emergency telephone number.

In October 1973, OTP initiated a formal program for the planning and coordination of the Federal Government's telecommunications systems and services. The objectives are to identify communications activities and resources, to promote economy through sharing of facilities and elimination of duplication, and to encourage the use of more efficient communications to improve productivity. The program requires each department to document its long-term planning for communications and to submit plans for interagency coordination at an early date. The first reports under this program are to be submitted in August of this year.

In the area of cable television, the President's Cabinet Committee on Cable, for which OTP provided staff support, completed its study and published its report. OTP is now preparing legislation, to be introduced later this year, that would implement certain recommendations of the Committee.

With regard to broadcasting, OTP submitted legislation to the Congress in 1973 proposing a revision of the FCC broadcast license renewal procedures. We have also developed legislation to provide long-term financing for the Corporation for Public Broadcasting, and we have forwarded to the FCC a preliminary report on VHF broadcast frequency assignments that may lead to new television stations to expand the viewers' choices in many localities.

In other areas, we have prepared legislation to amend the Communications Satellite Act of 1962 to reflect changes in international satellite communications that have occurred over the last twelve years and to clarify procedures for the establishment of new international satellite systems. We have submitted policy recommendations to the FCC regarding frequency allocation and regulatory procedures for land mobile radio services. If adopted, these recommendations would result in the increased availability of economical two-way mobile radio and car telephone services for small businesses, local governments and private citizens. Two years ago, a similar CTP policy recommendation in the area of domestic satellites was adopted by the FCC, and that policy is now on the verge of implementation; this month, we shall witness the launch of the first domestic communications satellite for service to the United States.

We shall continue our studies of regulatory procedures and industry structure for common carrier communication services, especially with regard to the introduction of new technologies, with the objective of making these services available to the American public in a more efficient and effective manner.

I am prepared to discuss these and other matters with the Subcommittee, and I particularly welcome the opportunity to discuss these matters with the new members of the Subcommittee and familiarize them with the programs and policies of our Office.

FOREWORD

Calendar 1973 was the third full year of operation of the Office of Telecommunications Policy. The following report summarizes the principal activities of the Office in the four broad areas of its concern, and sets forth the principal programs contemplated during the present year. Omitted are those activities related to internal organization and management, and also to routine operations, such as review of legislation referred for comment by the Office of Management and Budget.

TABLE OF CONTENTS

			2
I.	DOI	MESTIC COMMUNICATIONS	1.
	Α.	Cable Television and Broadband	-
	в.	Broadcasting	3
		1. Public Broadcasting 2. License Renewal Policy	3
		3. Fairness Doctrine	4
	C. D.	Mobile Communications	5
	E.	Common Carrier Communications	7
		 Competitive Communications Services Common Carrier Regulation 	8 9
II.	GO	VERNMENT COMMUNICATIONS 1	1
	A.	Federal Communications Policy,	
	D	Flanning and Evaluation	1
	в.	Emergency Preparedness	5
•	C.	Computer-Communications and Privacy 1	6
	D.	rederal-State Communications 1	7
III.	INT	TERNATIONAL COMMUNICATIONS 2	0
	Α.	International Systems and Facilities 20	0
		1. Policy Development and	
		2. International Communication Satel-	C
		lites for Mobile Communications 2:	1
		a. Aeronautical Satellite	
		Experiment	L
		b. Maritime Satellites 2	L
		3. Pacific Basin Facility Planning 22	2
	в.	International Organization Activities 23	3
		1. United Nations	3
		2. INTELSAT.	1
		3. International Telecommunication	
		Union	ł
		4. CITEL	5

Page

SPECTRUM PLANS AND POLICIES..... IV. 27 Allocation of Spectrum..... Α. 27 Assignment of Frequencies..... в. 28 Emergency Medical Services..... C. 29 Electromagnetic Compatibility Analysis ... D. 30 Side Effects Program..... Spectrum Management Advisors..... E. 30 F. 31

I. DOMESTIC COMMUNICATIONS

A. Cable Television and Broadband Communications

Broadband cable technology offers the potential for increasing consumer choice in television programming and providing many new communications services. There are two basic characteristics of cable systems that account for this potential. First, a large number of channels can be provided on a modern cable system, since cable is not constrained by the spectrum scarcity that characterizes over-the-air broadcast television. Second, modern cable systems can permit viewer access to particular programs and services by transmission of messages from the viewer's home to the cable system control center. These two basic characteristics represent new dimensions in the provision of and access to programming and communications services for the public. To date, however, most cable systems have operated only as retransmission systems, carrying broadcast television signals to areas where over-the-air reception is marginal, and regulatory policy for cable has developed in the mold of broadcast regulation.

During 1973, OTP provided staff support for the Cabinet Committee on Cable Communications, which was chaired by the Director of OTP. OTP studied the potential economic and social effects of vertical integration in the production, marketing and delivery of information services to consumers; the probable impact of expected cable growth on the broadcast and program production industries and the public; the problem of access to the cable media by all segments of the public and industry; and considerations pertaining to the joint ownership of broadcast, cable, interconnection, and program production facilities.

The conclusions and recommendations of the Cabinet Committee were made public in January, 1974. The Committee's recommended new policy is based upon the principle of separating the cable system owner's control over the medium of communications from control over the messages distributed over that All who might wish to use a cable channel, either for medium. programming purposes or for various information services, could lease it from the cable operator at a published, nondiscriminationatory rate. The Committee concluded that programming, advertising and other information services on cable channels should be allowed to develop on a free and competitive basis, with no more government regulation over the content of this communications medium than is exercised over the print medium. The report of the Committee further concludes that current restrictions against cable ownership by television networks and broadcasters be lifted.

The Committee recognized that the full separations policy should be applied only when the cable industry is more developed and mature than today. Consequently, it recommended a transition period during which the proposed new cable policies would be implemented gradually. There is an immediate need, however, for a national consensus on the directions of cable growth and national policy, preferably reflected in Federal legislation, before cable growth is so extensive that changes would be impracticable. OTP is currently preparing legislation that would implement certain of the Committee's recommendations.

In 1973, OTP also undertook other studies to identify and clarify particular aspects of broadband cable development that require immediate policy considerations. For example, OTP completed a study to determine the most economical ways of conserving and enhancing television services in low density rural areas, where conventional cable technology may not be economically feasible. The study examined in detail some alternative technologies, individually and in combination, which might improve rural television services. Associated system costs were also developed. The study team concluded that broadband communications in rural areas can be provided economically by the application of several television distribution technologies. In light of this conclusion, OTP will evaluate the possible economic benefits of removing the FCC's prohibition against ownership of translator stations by cable systems.

OTP also completed the development of a computerized model to examine in detail the financial performance of a cable system under various conditions. For example, the effects of factors such as tax and depreciation policies, franchise fees, required services, and capital costs on a cable system's rate of return over 15 years can be examined with the computer model. This may prove to be a waluable tool not only for policy analysis, but also for use by local governments considering cable systems for their jurisdictions.

In November, 1973, OTP initiated a study to evaluate the consumer demand for direct subscriber purchase of television programs over cable. This study will consider various categories of programs in assessing consumer demand, and its results will ultimately be used to assess the feasibility and potential impact of subscriber-supported programming. The completed study will be used in developing recommendations for the regulatory policy needed to permit enhanced consumer choice in television program fare while maintaining the availability of advertiser-supported programming.

B. Broadcasting

1. Public Broadcasting

The Public Broadcasting Act of 1967, which created the Corporation for Public Broadcasting, emphasized the role of local stations in serving the needs of their communities. As public broadcasting grew and developed, questions arose regarding the relationships between local stations and national organizations, and concerns were expressed that the system was becoming overly centralized. Many of these concerns were put to rest in 1973 when the Corporation entered into a partnership agreement with the stations and established principles and procedures whereby station representatives would have a major role in the decision-making processes of the system.

The means of establishing a stable source of Federal financial support for public broadcasting was not addressed by the Public Broadcasting Act of 1967. Over the years, many organizations, both in Government and in the public broadcasting community, have searched for a satisfactory method of achieving long-term Federal support which would avoid detailed Government oversight of program content. In 1973, a task force established by CPB completed its work on proposals for the long-range Federal financing of public broadcasting. The report of the task force has been forwarded to members of Congress and the Executive Branch.

OTP is now preparing legislation that will provide for long-term financing of public broadcasting, encourage continued contributions from private sources, and ensure that a substantail portion of Federal funds are channeled directly to local educational stations.

2. License Renewal Policy

The regulatory license renewal process continues to be characterized by uncertainty and delay, thus injecting an undesirable measure of instability into the broadcasting industry. Legislative reform of the license renewal process is necessary to assure that existing licensees who are satisfactorily serving their communities will have reasonable expectation of license renewal in the face of competing challenges by new applicants. Various suggestions have been offered to remedy the license renewal problem, among which is a proposal to adopt quantitative program standards, which, if met, would virtually assure an incumbent of license renewal. OTP has opposed the adoption of such standards because they would constitute an unwarranted and unnecessary intrusion by Government upon the program judgments of licensees.

On March 13, 1973, OTP submitted legislation to the Congress that would make four revisions in the present broadcast license renewal process: the term of the licenses would be extended from three to five years; policies concerning qualifications would be made through rule-making proceedings; specific procedures would be required in the event that a renewal application is challenged by a competing application, and finally, the FCC would be prohibited from establishing predetermined performance criteria to evaluate renewal applications. Some of these recommendations have been incorporated in the draft bill that was ordered to be reported to the House Commerce Committee. OTP will continue to assist the Congress in the effort to reform the television license renewal process.

3. Fairness Doctrine

The scarcity of channels which characterizes the broadcast industry today requires that those who control broadcast outlets inform their viewers of contrasting points of view on controversial issues of public importance. This "fairness" obligation is now being enforced by the FCC on a case-by-case basis, with the result that individual programming and journalistic judgments of broadcasters are being repeatedly evaluated by government. In a society founded on principles of freedom of expression, this process represents a dangerous intrusion by government into the journalistic function.

Although the Fairness Doctrine (or some similar mechanism) is necessary as long as television broadcast outlets are as limited as they are today, the means of enforcement should be modified in order to minimize detailed governmental supervision of program content. OTP has suggested that the Fairness Doctrine be enforced by a review of a broadcaster's overall performance at license renewal time, rather than in the present case-by-case fashion, and has recommended such an approach in its proposed license renewal legislation. OTP will continue to explore various alternatives for solving the present Fairness Doctrine problem, and will continue to assist the Congress and the FCC in their efforts to enhance free expression in broadcasting and to minimize governmental intervention.

C. Mobile Communications

In recent years advancing technology has fostered widespread use of mobile communications. However, despite the growth in demand for mobile radio services, insufficient portions of the radio spectrum have been made available for these purposes.

Recent actions by the FCC promise frequency relief by the reallocation of large blocks of frequencies for land mobile use. Additionally, many types of new and spectrumefficient systems have been proposed. Together these developments raised a substantial number of policy issues regarding the use of new spectrum allocations and the institutional structure required to accomodate the demands for new systems and services.

In early 1972, OTP commenced a program, using staff, contract, and Policy Support Division resources to assess the technical, economic and institutional efforts of proposed new systems and services; to formulate policy guidelines for the development of the mobile industry; and to provide for the maximum amount of competition both in the manufacture and sale of equipment and in the actual provision of services to the public.

In September, 1973, OTP completed its study and released its conclusions and recommendations regarding land mobile radio service to the FCC for its consideration. The policy statement recommended an allocation plan that would encourage industry investment in new technologies and services while preserving flexibility and avoiding over-commitment to any particular service or technology. Among other recommendations, OTP suggested that one portiom of the spectrum be allocated for all mobile radio services on a competitive, non-rate-regulated basis in order to create an environment that would accommodate numerous competitive suppliers and encourage development of new services and technology. It was also recommended that another portion of the spectrum be allocated to telephone common carriers for the provision of rate-regulated mobile telephone service and ancillary dispatch service as an extension of the regulated telephone service. Further, in order to provide economic incentive for efficient spectrum use, OTP suggested that the Commission adopt a license fee schedule to reflect the scarcity value of the spectrum.

OTP is continuing its study of the potential uses of mobile communications and methods to improve spectrum efficiency; evaluating regulatory proceedings regarding "pseudo common carriers" and assessing the likely impacts of these proceedings on the competitive features of the policy on land mobile radio; and examining the likely effects of crosselasticities of demand for new land mobile services on existing services.

D. Data Communications

Regulatory actions, coupled with rapid advances in computer-communications technology, have raised the potential for significant new offerings of data processing and data communication services.

In recent years, the computer and communications idustries have come to intersect in several important areas. The use of computers in communications has enabled, or made considerably less costly, new modes of transmission, switching, network design, and system administration. Conversely, the use of communications with computers has increased the sharing of data-processing resources and the prooling of information banks. As a result, the remote access to computers has opened up new opportunities in the areas of husiness, education, and social services, to name only a few.

At the same time, the FCC has taken steps to inject competition into the communications marketplace. It has authorized the entry of new types of "value-added" vendors to institute and operate communications networks providing terminal-to-computer and computer-to-computer communications utilizing technology known as "packet switching." These new entrants are relying in large part on capturing a significant portion of the rapidly expanding market for data communications. The market has not been defined adequately and the probability of successful entry together with the potential for adverse impact on existing carriers has not been determined sufficiently. OTP has initiated studies that will address these concerns. In a related matter, OTP suggested in May, 1973, that a grant of AT&T's application for construction of "data under voice" facilities be conditioned upon tariff provisions that would reflect liberal practices and policies regarding interconnection, usage and resale of such data communications facilities. This would permit individual companies the freedom to design and acquire hardware/software systems to fulfill their own particular digital needs. AT&T has not yet completed its initial construction of "data under voice" facilities nor filed any tariffs for provision of service. Meanwhile, OTP continued to study the questions of shared use, resale and interconnection of common carrier services and facilities.

The subject of "value-added" vendors or "valueadded networks" raises issues similar to those involved in the use and resale of "data under voice" facilities. The FCC has granted two of several such applications under authority of Section 214 of the Communications Act and subject to certain conditions, which narrowly define the scope of the grants. However, as the Commission moted, there are numerous questions yet to be resolved, not the least of which is whether such "value-added networks" should be regulated as common carriers under Title II of the Act since there do not appear to be any natural monopoly characteristics inherent in any of the proposed systems, nor has any grant of exclusive franchises been requested.

OTP has conducted a preliminary analysis of the policy issues posed by the emergence of these new entities and will recommend shortly to the FCC that these considerations be incorporated in a rulemaking proceeding. OTP will continue its evaluation and analysis of these issues and will make its conclusions available to the FCC in the course of that proceeding.

E. Common Carrier Communications

The growing demand for new, diverse and flexible communications services has manifested itself in the emergence of specialized and satellite carriers, a growth in the communications terminal equipment industry, proposals for channel sharing and leasing arrangements, and a trend toward relaxation of current restrictions on use of carrier facilities.

OTP has continued its investigation of the issues involved in these developments with a view toward identifying those common carrier communications services that can be provided on a competitive basis; assessing the appropriateness of responses to competition by monopoly common carriers; and developing policies to assure that noncompetitive communications services are provided in an efficient and innovative manner. Principal studies and findings to date include the following:

1. Competitive Communications Services

a. A major concern relating to the introduction of competition involves present tariff restrictions on resale of communications services and interconnection with the facilities of existing carriers. These restrictions might not only inhibit growth in the communications brokerage markets, but could also retard the development of terminal equipment suppliers as well as specialized and satellite carriers. OTP has identified these restrictions and has assessed the economic benefits that would accrue from their relaxation or removal. Recommendations for tariff modifications, which are necessary to permit the orderly growth of competitive services, are now being formulated.

b. During the past year, the established carriers have moved to adjust their tariffs for selected services in response to actual and potential competition. An evaluation of whether a given competitive response by a monopoly carrier is fair and equitable requires inter alia an investigation of the existence or extent of cross-subsidy between monopoly services and competitive services. In this area, OTP has undertaken studies to evaluate and verify various economic burden tests for cost allocation which have been proposed by established carriers in support of their tariff adjustments. In addition, a comparison has been undertaken of the long-range incremental and fully allocated methods of costing in order to determine an appropriate approach to costing facilities and services in a competitive environment. A related study has been initiated to identify the extent of cross-subsidy between various service categories, e.g., urban to rural, business to residential, toll to local, etc.

Although cross-subsidies can serve to support important social objectives such as uniform availability of telephone service, they also make it difficult to evaluate the fairness of tariff responses in a competitive market. By determining the extent of cross-subsidization in a given service, it is possible to evaluate the desirability of continuing a cross-subsidy for the promotion of social objectives or eliminating the subsidy in the interests of fair competition.

2. Common Carrier Regulation

Although it appears feasible to continue allowing competition in selected segments of the communications markets, this will affect only about 5-10 percent of the total revenues of present common carriers. Most common carrier operations, principally the provision of public telephone service, would continue on a monopoly basis.

Effective government regulation of monopolies is necessary in order to assure quality service to the public at reasonable cost. But detailed oversight and regulation of an enterprise as large as the telephone industry, for example, are both difficult and costly. Therefore, OTP is exploring means whereby policy-established incentives for improved public performance could be substituted for detailed regulation.

a. OTP has completed a major study of the FCC's Uniform System of Accounts for common carriers in order to identify what operating incentives, if any, are provided by this regulatory reporting system. The study has shown that because costs throughout the common carrier industry are classified by facilities, whereas revenues are classified by service, the reasonableness of a given rate of return for a specific service under review is not easily ascertainable. In addition, this accounting method greatly hinders the evaluation of proposed tariff revisions in a competitive market and provides little incentive for minimizing investment or operating costs or for incorporating new and more efficient technologies. Accordingly, OTP has undertaken a study of alternative accounting methods, including one that would establish the geographical area of a given telephone exchange as a cost/revenue center. Separate accounting for each exchange area would permit comparison of the relative cost, profitability and efficiency of all exchange areas across the nation, thereby encouraging improved performance in those areas that are marginal.

b. OTP has also undertaken a study of usagesensitive pricing, which has been proposed by some carriers as an alternative to the present flat rate pricing approach for local telephone service. This method of pricing, which is now used for long-distance telephone service and for the supply of other utility services such as electrical power and natural gas, would enable the pricing of local telephone service to reflect the degree of actual use by various customers. OTP will continue its investigation of this and other approaches to the pricing and costing of communications services during 1974.

c. A related concern is the high capital intensity of the common carrier industry. OTP is conducting a study of common carrier depreciation policies to determine whether capital might be generated internally under various depreciation alternatives. The study analyzes various depreciation methods and assesses their impact on revenue requirements, rates, rates of return, profits, cash flow, etc. It also incorporates the use of a simulation model which is capable of evaluating the rate at which the introduction of new technologies can reduce both capital and operating costs. OTP will continue its investigation of depreciation alternatives and will make its findings available to the FCC and the common carrier industry.

II. GOVERNMENT COMMUNICATIONS

A. Federal Communications Policy, Planning and Evaluation

The Federal Government spends roughly seven billion dollars per year on telecommunications systems and services. Every federal agency makes some use of telecommunications and many agencies are involved to a greater or lesser degree in telecommunications research and development, planning, design, procurement, and system operation. OTP has been assigned the responsibility to coordinate these Executive Branch telecommunications activities, to formulate policies and standards, to identify and recommend appropriate remedies for competing, overlapping, duplicative or inefficient programs, and to evaluate the ability of existing and planned systems to meet national security and emergency preparedness requirements.

To accomplish these responsibilities, OTP requires the cooperation and assistance of those Federal departments and agencies most heavily involved in the telecommunications area. The first step in obtaining the necessary cooperation was the establishment, in 1972, of the Council of Government Communications Policy and Planning. This Council, chaired by the Director of OTP, currently includes policy level representatives from the Departments of State, Treasury, Defense, Justice, Commerce, and Transportation, and from the General Services Administration, the National Aeronautics and Space Administration, and the Central Intelligence Agency.

The next step was to establish a more formalized planning and coordination process designed to achieve many of OTP's objectives through the day-to-day activities of the operating departments and agencies. To accomplish this, OTP instituted a formal Government Communications Planning Program. This program was initiated by the issuance of OTP Circular No. 12 in October, 1973.

The objectives of the Government Communications Planning Program are: first, to identify all the communications activities and resources of the Federal Government; second, to determine the needs for effective information-exchange among the various departments and agencies; third, to promote economy in the Government's use of communications, through sharing of facilities, elimination of duplication, and effective use of commercial services; and finally, to encourage the use of communications to improve productivity and enhance coordination of Federal Government activities.

The objective which underlies the Government Communications Planning Program is to encourage each department and agency to undertake more explicitly documented long-term planning for its use of communications and to disclose these plans for interagency coordination at the earliest feasible time. Interagency coordination will be accomplished During the first stage, planning for systems in two stages. which provide operational communications support in one of four critical mission areas, will be coordinated among the agencies most directly involved in such missions, while plans for administrative and other types of communications will be coordinated by the General Services Administration. The coordinated plans which emerge from this stage will then be reviewed by OTP and coordinated across the mission areas in the second stage. Since the greatest potential for sharing facilities and eliminating duplication exists among agencies with similar mission requirements, we expect most of the results of this program to be accomplished during Stage I.

The four mission areas in which operational communications requirements are coordinated are: Environment, Law Enforcement, National Security, and Transportation. In each of these areas, the participating agencies have been identified, a lead agency has been designated to assure that the coordination takes place, and specific coordination procedures have been established. The General Services Administration (GSA) is also in the process of establishing the planning procedures necessary in its area of responsibility.

The next significant milestone in the Government Communications Planning Program will be the submission of summary plans covering each of the five areas to OTP on August 15, 1974. Review and analysis of those plans will establish the first benchmark against which future progress in both planning and coordination cam be measured.

Some of the coordination activities which OTP was carrying out prior to initiating the Government Communications Planning Program will be gradually phased into that program. One example of this is the coordination of existing and planned radio navigation aids operated or used by various elements of the Federal Government. During 1972, OTP began to work with the affected Federal departments and the Office of Management and Budget (OMB) to (1) coordinate the navigation satellite programs of the various departments, (2) determine the minimum mix of navigation aids and systems to meet government and civil requirements, and (3) structure a coordinated national navigation program. The first step was to be the designation of a single system for long-range general purpose navigation. This step was held in abeyance during 1973 to await the results of an OMB-directed joint study by the Department of Transportation (DOT) and the Department of Defense (DOD) leading to an agreement on the selection of a single national navigation system. The response to this request, originally due in July, was not submitted by DOT until December. The study was not performed jointly with the Defense Department and did not address the entire radio navigation picture. Rather, it dealt only with one element of the navigation problem, the selection of a system for navigation within the coastal region of the United States.

OTP has informed OMB that to accept the recommended action on this system without the comprehensive plan we have been seeking will only continue the trend of proliferation of radio navigation systems rather than achieving the objective of satisfactory radio navigation system coverage and performance with the minimum number of systems.

During 1974, OTP will continue its efforts to bring about the development of a comprehensive radio navigation systems plan, including designation of the radio navigation systems which the Government will continue to support in the future. This will be accomplished largely within the framework of the Government Communications Planning Program.

Another effort which is being phased into the Planning Program is the previous OTP effort to review and analyze the many different Federal Government satellite communications programs. This effort was initiated in 1972, and was to have been concluded in 1973. It involved the collection of detailed information about every federally sponsored satellite program with a capability for serving as a communications relay. This information was to be analyzed to identify satellite systems which could be eliminated, consolidated with other systems, or expanded to serve additional users.

Budgetary restrictions hampered this effort during 1973. Other developments reduced the potential for early results from this effort. The cancellation of NASA's plans for developmental communications satellites after ATS-F not only eliminated one set of costly government programs but also reinforced OTP's belief that many of the services needed by the Government can be supplied by private communications satellite ventures. During 1973, the Defense Department contracted to meet tactical communications needs with a commercial satellite, and NASA is now planning for commercial ownership of satellites to provide tracking and data relay communications.

Other activities begun in earlier years led to concrete results during 1973. In 1972, OTP determined that there would be no clear advantage to the consolidation of the two largest telephone networks in the Federal Government: the military's AUTOVON and GSA's Federal Telecommunications Rather, OTP requested the Defense Department to Systems. pursue studies and a joint field test with GSA to determine the least costly means for Defense activities to make long distance calls to locations not served by AUTOVON. In December 1973 the Defense Department forwarded the results of the DOD/GSA study and field test. To reduce toll charges, DOD has indicated now that it will allow each Defense installation to use the FTS wherever it would save money to do so. Previously, the use of the FTS by any military activity had to be approved by the Office of the Secretary of Defense. These steps opened the way for optimum use of the FTS by all Government agencies, based on its cost and performance characteristics.

In October 1972, the Office of Management and Budget asked OTP to lead an interagency evaluation of the audiovisual communications activities of the Federal Government. This effort was undertaken, in part, in response to charges by Congressman Barry Goldwater, Jr. that the Federal Government was producing too many motion pictures in-house and that there was incompatibility and duplication among the audio-visual facilities and products of Federal departments and agencies. There were also reports in the press that the Government was the nation's largest film-maker and was spending over four hundred million dollars a year producing motion picture films.

The study investigated in some detail the different types of audio-visual activities in which Federal agencies engaged. It found that government film-making was a relatively small percentage of all Federal Government audio-visual acitivities. The study also found that while two-thirds of the Government's film production during 1972 was performed under contract, some Federal agencies still retain extensive, under-utilized in-house film production facilities, in apparent conflict with Federal policy established by the Office of Management and Budget in Circular A-76.

OTP also initiated action in a related area at the request of Congressman Torbert Macdonald. The action arose from a study by the General Accounting Office which showed that during early 1973, four Federal agencies produced radio spots which violated the provisions of a 1972 Appropriations Act. The study also found that two Federal agencies were using a relatively costly form of toll-free telephone service to disseminate these radio spots and that two other Federal agencies were using a less expensive toll-free service.

At the request of Congressman Macdonald, OTP has developed draft guidelines governing the use of such radio spots and toll-free services by Federal agencies. These guidelines would place content and format restrictions on federally produced radio spots, designed to curb practices which are illegal, propagandistic, or which go too far towards performance of reporting or editorial functions which should be undertaken by the radio stations themselves. Criteria for the use of toll-free telephone services are also included to minimize the cost to the Government of disseminating radio spots.

B. Emergency Preparedness

The purpose of the emergency preparedness program is to insure that national and Federal communications resources will be available and applied, in emergencies, to meet the most critical national needs. This is a demanding task, because of the numerous contingencies that must be provided for. Emergency communications plans and capabilities must comply with three basic principles: first, maximum dual use of facilities for both emergency and routine operations; second, balanced survivability among communications and the facilities which are supported by communications; and third, focusing of responsibility to assure accomplishment.

Policies and plans for managing the nation's telecommunications resources during war emergencies or natural disasters were completed during 1972 and submitted to the various Federal agencies for them to prepare supporting plans. Draft supporting plans were completed and coordinated during 1973. Final plans should be completed during 1974.

In 1973 OTP and the FCC agreed, as a result of an overall review of the restoration priority requirements, that the OTP and FCC restoration priority orders should be revised so that the two orders constitute a single priorities system. These revisions will be accomplished in 1974.

During 1973 OTP continued to participate in NATO Civil Communications Emergency Planning programs. OTP provides the senior U.S. civil representative to the NATO Joint Communication-Electronic Committee (NJCEC) which is responsible for coordinated Civil/Military advice and policy recommendations to the NATO Council on all communication-electronic matters affecting NATO.

During 1973 the OTP Emergency Broadcast System (EBS) Procedures Manual was rewritten to clarify and simplify the procedures and incorporate changes resulting from Government and industry coordination. OTP assisted the Federal Communications Commission in rewriting their EBS Rules and Standard Operating Procedures (SOP's) to assure consistency between the FCC and OTP documents. The Manual, Rules and SOP's will be published and distributed in early 1974 and will improve the effectiveness and efficiency of the EBS. Also in 1973, steps were taken to develop more viable contingency procedures to supplement the normal EBS activation procedures. The new contingency procedures will allow national leaders, to communicate with the American public through the surviving commercial radio and television facilities if the use of normal EBS activation procedures is precluded by an enemy attack. By providing a capability independent of prearranged telephone facilities to a specified location, the new procedures will be much more flexible and survivable than existing contingency procedures for EBS activation. These new procedures will be implemented in 1974.

C. Computer Communications and Privacy

Computer-communications or teleprocessing is a new technology which is emerging from the joining of computer technology and communications technology. By using communications to interconnect user terminals and computers, it provides remote access to computer capacity, remote access to stored data, and communications between terminal users. The subject is important and timely because more and more Federal departments and agencies are turning to teleprocessing as a means to facilitate governmental services and functions. The development of teleprocessing techniques represents the most dramatic change in computer utilization in the last decade.

The anticipated shift to the computer network mode of operation by the majority of Federal computer installations will result in a demand for more commercial data communications channels and wider ranges of service offerings. Similar pressures from the private sector have already resulted in the emergence of competitive, specialized communications carriers, as well as in proposals for the establishment of services based upon new technologies, such as communications satellites and "packet switching." There appears to be a trend towards establishing Government-operated teleprocessing systems and services as opposed to privately operated (leased) services. During 1974, OTP will evaluate this trend and try to determine the economies to be realized by each of the various means for providing telecommunications services, including the economies which might accrue from network consolidation. The hybrid computer-communications system model, developed in 1973, is available to support this effort, when adequate data on Government data system plans becomes available.

Another problem is the growing concern that the interconnection of data banks poses a threat to individual rights of privacy. A rational approach to the problem of security, privacy, and confidentiality of information contained in computer data banks is both feasible and necessary. OTP intends to work with other Government agencies to develop proposals to increase the rights of individuals to control the dissemination of and access to, informaton regarding themselves, when such information is exchanged or transferred over telephone and other telecommunications systems. It is presently unclear whether some or all of these proposals will call for new legislation dealing with telephone recording devices and Government data banks or data networks. It may well be that legislation will be required for some aspects of the privacy proposals, but administrative regulation or guidelines could suffice for other aspects, such as the data network problems.

D. Federal-State Communictions

One of OTP's assigned responsibilities is to coordinate federal assistance to State and local governments in the telecommunications area. Our objectives in this area are: (1) to eliminate any duplication in development of demonstration programs, (2) to assure that conflicting requirements of different Federal programs do not inhibit the efficient development of State and local government telecommunications systems, (3) to preclude the emergence of an undesirable degree of operational or technical control by Federal agencies over State and local government telecommunications systems, and (4) to encourage the coherent development of telecommunications systems for the delivery of public services, especially emergency services, by State and local governments.

The first major effort undertaken in this area was to encourage nationwide implementation of the Emergency Telephone Number 911. This number has been reserved by the telephone companies for use as a universal emergency number for several years. However, local governments must make provisions to receive such calls and refer them to the appropriate agency for action. Local governments have been slow to make these arrangements, for several reasons: (1) disagreements among police, fire, and other emergency agencies over answering arrangements, (2) belief that the cost to the local government would be very high, (3) uncertainty about how to cope with telepone service areas which cut across local government boundaries, or (4) waiting to see if the Federal Government is going to pay the costs for such systems.

To get the implementation of 911 moving, OTP concluded that it was essential to do two things: (1) dispel doubts about the feasibility and cost of 911 service which are due to misinformation or ignorance, and (2) clarify the Federal Government's own role in planning and funding local 911 systems. To accomplish the first, OTP funded a comprehensive study of the experience of present users of The study resulted in a handbook specially 911 service. designed for State and local officials answering many of the questions which typically arise when 911 service is considered. To accomplish the second, OTP has developed a national policy governing the federal government's role with respect to 911 service. The policy states that the Federal Government will encourage nationwide implementation of 911, but will not fund the costs of operating 911 systems. It encourages cooperation among neighboring jurisdictions so that the relatively inexpensive basic 911 service can be used, in preference to demanding very costly services from the telephone companies to automatically divert every call to the proper answering point.

To provide an additional source of continuing information for local governments considering 911 service, OTP has arranged for a 911 Information Center to be established in the Department of Commerce.

During 1974, OTP will seek to identify other telecommunications issues which, like 911, involve responsibilities of State and local officials but have national impact. We are receiving assistance in this effort from the International Association of Chiefs of Police and the Associated Public Safety Communications Officers.

During 1972, the Law Enforcement Assistance Administration was pursuing studies leading toward the establishment of a telecommunications satellite system for the law enforcement community. Noting the lack of concrete justification for a national law enforcement satellite system, OTP encouraged LEAA early in 1973 to focus additional effort on determining actual requirements. LEAA then initiated a project including (1) an analysis of user requirements for the next 10 years; (2) development of the network implementation plan; and (3) development of interface guidelines. OTP participates in the Steering Group for this project and, as more information concerning the requirements develop, OTP will provide additional policy guidance on such issues as privacy protection and the relative degree of Federal versus State control over law enforcement telecommunications systems.

III. INTERNATIONAL COMMUNICATIONS

A. International Systems and Facilities

1. Policy Development and Implementation

The international communications industry has been the object of numerous reviews over the years by both Executive branch agencies and Congressional committees. Existing organizational arrangements are largely the result of statutory policies and ad hoc regulatory decisions that have evolved over time.

In order to remove some of the uncertainty resulting from prior industry reviews and to provide an orderly framework for future development of the industry, OTP issued in 1973 a broad statement of objectives and policies to guide industry and Government activities in international communications. Within this policy framework, review and examination of regulatory and industry performance has continued. While the existing structure has worked relatively well over the years, complexities have been introduced which raise questions concerning the efficiency of existing procedures and arrangements. Proposals for dealing with some of these questions were circulated within the Executive branch and are still under consideration.

As a partial outgrowth of this process, legislation has been developed to amend the Communications Satellite Act of 1962. The amendments reflect changes that have occurred in satellite communications since the original legislation was enacted. The myriad of technical, economic, and organizational uncertainties which existed then has since been resolved. Many of the Act's special provisions which were designed to insure the success of this Nation's pioneering venture into space communications have achieved their purpose and are no longer needed. The global communications satellite system envisioned by the Act has been established and is operated under the permanent agreements for the International Telecommunications Satellite Organization (INTELSAT) which came into force in early 1973. The Communications Satellite Corporation (COMSAT) is now a relatively mature commercial common carrier and has established a new corporate subsidiary to participate in satellite systems and services which are separate from the INTELSAT system.

Another U.S. international communications objective is to secure fair trade opportunities for U.S.developed technology and products and enhance our competitive position in the world communications market. Despite acknowledged technological superiority in telecommunications equipment development, the United States has experienced an unfavorable balance of trade in recent years. OTP is working with agencies primarily responsible for trade development to reverse this trend.

2. International Communication Satellites for Mobile Communications

a. Aeronautical Satellite Experiment

In early 1971, OTP issued policy guidelines concerning the development of a national program on satellite communications for international civil aviation operations. In furtherance of this program, OTP worked during 1973 with DOT/FAA and the Department of State on a Memorandum of Understanding between the European Space Research Organization (ESRO), Canada, and the FAA covering a joint program to test the use of satellites for improving air traffic control. At year's end, the three parties reached a tentative agreement on the Memorandum, which is now being reviewed within the Executive Branch.

The purpose of this Aerosat program is to explore ways of using satellite capabilities to improve the cost effectiveness of oceanic enroute services, including the possibility of combining or reducing air traffic control facilities. The evaluation will be conducted using satellite channels provided by a new industry/Government entity. Canada will own approximately six percent of the entity, and the balance will be owned by ESRO and a private U.S. communications corporation in equal shares.

This international arrangement is the result of nearly three years of difficult negotiations involving OTP and other U.S. agencies with U.S. industry and foreign entities.

b. Maritime Satellites

International discussions continue, primarily in the Intergovernmental Maritime Consultative Organization (IMCO), concerning the provision of satellite communications to civilian ships on the high seas.

The Soviet Union and the West Europeans, led by the United Kingdom, advocate that a new international organization be created to provide global maritime communication services by satellite. The U.S. believes that such a decision, at this time, would be premature and that substantially more economic and technical analysis is required before an informed judgment can be made. No definitive organizational decision should be taken in our view prior to the April 1975 worldwide Plenipotentiary Conference sponsored by IMCO to consider the establishment of maritime communication satellite facilities.

IMCO's Panel of Experts (POE) on Maritime Satellites met twice in 1973 to consider the economic and technical problems associated with the creation of such services. OTP actively participated in the POE meetings and played a coordinating role in developing a policy position with interested Governmental agencies, particularly the Department of State, the Department of Transportation (Coast Guard) and the Commerce Department (Maritime Administration).

OTP will continue to promote efforts to identify requirements for international maritime services without prejudging the operational or organizational means to provide such services.

At the same time, OTP has supported the development of a maritime satellite capability to meet U.S. Navy requirements between 1974-76. Limited commercial satellite services for maritime users will be furnished by this same satellite.

3. Pacific Basin Facility Planning

alisatian si sakaran

:

11日本の日本の第二 11日本の

A review of new underseas cable facility planning for the Pacific Basin was conducted during the year and complements an earlier study developed by OTP for the Atlantic region. Two original analytical studies supported this effort. A traffic demand forecast through 1980 was developed for the Pacific Basin and served as input to an economic analysis of alternative system configurations. The economic analysis considered the comparative costs of several underseas cable and satellite transmission facilities for meeting future U.S. requirements. The studies developed the relative costs and economies associated with cable and satellite facilities under varying assumptions of utilization which should facilitate decisions affecting future Pacific Basin planning.

B. International Organization Activities

1. United Nations

Reactivation of the UN Working Group on Direct Broadcast Satellites (DBS) was the most significant communications-related development in the United Nations during 1973. The Working Group met in June 1973 to review recent technological developments. The United States Delegation, of which OTP was a member, made a state-of-the-art presentation to provide perspective to both technical and economic aspects of direct satellite broadcasting.

In the U.S. view, the prospect of broadcasting signals directly to unaugmented home receivers from communication satellites is still in the distant future. Nevertheless, there is widespread apprehension among nations about such potential use of the emerging technology. Within UNESCO and the UN, resolutions have been adopted to establish new regulatory controls over satellites broadcasting directly into the home. The U.S. voted against both resolutions as being premature and failing to address the fundamental question of how to maintain the principle of free flow of ideas and information in international communications.

The Working Group will meet again in March 1974 to explore further the DBS-related problems posed by the technology and efforts to regulate it. The findings of this Working Group's second meeting will be considered by the Legal Subcommittee of the UN Committee on the Peaceful Uses of Outer Space in early summer 1974. OTP will actively participate with the State Department, USIA, FCC, and other interested Governmental agencies in the formulation and presentation of the United States position on DBS.

In support of the Government's efforts in the area of direct broadcast satellites, OTP undertook a contract study which developed a cost-analysis of utilizing DBS technology for education in three developing nations. Several nations are actively studying or planning the use of satellites to provide greatly increased educational opportunities. We anticipate that one or more of these nations will approach the U.S. for financial, satellite launch, and technical assistance during the next few years.

1111

Previous cost studies have failed to include important cost factors. Usually these studies have emphasized satellite and other "hardware" costs while omitting or underestimating the "software" production and community costs. The study shows that the satellite cost is likely to be 1% or less of the total system cost for a large country. OTP, in conjunction with AID, held a seminar to review the results of this study; approximately 100 academic, industrial, and governmental representatives from the United States and abroad attended.

In a related matter, OTP participated in a July 1973 meeting of the Committee of Experts convened by UNESCO and the World Intellectual Property Organization. The meeting determined that sufficient consensus exists to hold a diplomatic conference to consider a "Draft Convention Relating to the Distribution of Program-Carrying Signals Transmitted by Satellite." This Conference will be held in Brussels in spring 1974.

2. INTELSAT

A milestone in international communications was passed February 12, 1973 with the entry into force of the Definitive Agreements of the International Telecommunications Satellite Organization (INTELSAT). It marked the end of a decade of development of this commercial organization which has grown from 14 original Signatories to over 80 member nations, and the beginning of a period of transition for itself and for COMSAT, the U.S. Representative.

COMSAT itself entered a new role--one in which it no longer holds a controlling vote in the governing body and a role as Manager of INTELSAT which is now limited to the technical and operational management of the satellite system.

Against the backdrop of a growing number of proposed new satellite systems and services, COMSAT's role as U.S. Representative and the guidance it receives from the Government in this role will be of continuing importance. Careful coordination between OTP, State Department, and FCC, the statutory advisers to the U.S. Representative, will be required. Matters requiring governmental guidance may include further facilities planning, the transferral of traffic between the U.S. Mainland and Hawaii, Alaska, and Puerto Rico from INTELSAT to the newly authorized domestic communication satellite systems, or issues involving overall national policy and foreign policy considerations.

3. International Telecommunication Union

The International Telecommunication Union (ITU) is a specialized agency of the United Nations comprising 143 member administrations. As one of its purposes, the ITU maintains and extends international cooperation for the utilization and improvement of telecommunications of all kinds. During the past year, considerable OTP staff effort was devoted to ITU-related activities due to an exceptionally heavy ITU international conference schedule.

Following more than a year's preparatory work, a Plenipotentiary Conference was held in Spain during September and October 1973 to review and revise the ITU Montreux Convention of 1965. OTP provided a Delegation Vice Chairman and other supporting staff for the Conference. The results of the Conference were generally compatible with U.S. interests and the essential structure of the ITU remains unchanged. In 1974, the new Convention will be submitted to the Senate for its advice and consent.

During April 1973, an ITU World Administrative Telegraph and Telephone Conference was held in Geneva to update the international telegraph and telephone regulations which were last revised in 1958. OTP participated both in the Conference preparatory work and as a member of the U.S. Delegation. Controversial matters addressed by the Conference included traffic routing and financial settlement of accounts. As a result of satisfactory compromise solutions reached at the Conference, the U.S. became a signatory to the telephone regulations for the first time. The new agreements are greatly simplified in form and, subject to the advice and consent of the Senate, will enter into force in September 1974.

Under OTP guidance, U.S. proposals for the April 1974 ITU World Administrative Radio Conference on Maritime Telecommunications have been completed and forwarded via the Department of State to the ITU Secretary General. The Conference will revise existing international maritime radio regulations and provide procedures for the initial application of space communication techniques in the maritime service. OTP has engaged in extensive international discussions preparatory to the World Conference.

OTP representatives participated in all phases of the U.S. preparatory work for the XIII Plenary Assembly of the ITU International Radio Consultative Committee (CCIR) scheduled for the summer of 1974. The Assembly will address the development of an improved technical base for international radio communication systems. In October 1973, OTP participated in an International Working Party on satellite orbit utilization in preparation for the CCIR 1974 Study Group meeting. OTP participated in a working group of the ITU World Plan Committee which reviewed changes implemented during the previous year involving the work of the Committee. Revisions were made and will be in effect until the next general meeting of the Committee in 1975. The work of the World Plan Committee is intended to facilitate the development of the international telecommunications network and to help administrations in planning improved international services.

OTP also participated in the meeting of the Regional Plan Committee for Latin America which is held at four year intervals. The principal purpose of the Regional Plan Committee is to develop a general plan for the regional international telecommunications network to help in planning international telecommunications services.

4. CITEL

OTP provided a member of the U.S. Delegation to the annual Inter-American Telecommunications Conference (CITEL) meeting in Brazil. CITEL is a specialized agency of the Organization of American States and, since its reorganization in 1971, has become increasingly active as a regional telecommunications body. As a result, it provides a very useful forum for discussion and resolution of telecommunications problems of common inter-American concern. The July 1973 Conference provided a beneficial opportunity to discuss issues which arose later in the year at the ITU Plenipotentiary Conference. The U.S. Delegation also presented U.S. views on the ITU World Administrative Radio Conference on Maritime Telecommunications to be held in April 1974 in Geneva.

IV. SPECTRUM MANAGEMENT AND POLICIES

There is intense national and international competition for the use of the radio spectrum for all forms of radio transmissions (radio communications, navigation, broadcasting, radar, air traffic control, etc.). In the United States, the Federal Government is the largest single user of the spectrum. It is OTP's responsibility to assign frequencies for these uses and to coordinate all Federal Government activities related to spectrum management and planning. This includes cooperating with the FCC to develop plans for more effective use of the entire spectrum for both governmental and non-

Specific tasks involved fall essentially into categories of allocation and assignment of frequencies; planning to meet Government and non-Government uses; electromagnetic compatibility analysis; and side effects of electromagnetic radiation.

A. Allocation of Spectrum

Executive Order 11556 requires that OTP, among other things, "develop and coordinate with the FCC, a comprehensive long-range plan for improved management of the electromagnetic spectrum resources." OTP and the FCC continue to conduct a cooperative review of the spectrum resource to determine how future requirements can best be accommodated.

During the last three years more than 9,000 MHz of spectrum, formerly reserved for exclusive Federal Government interests. Continued efforts are being made to increase Government/non-Government sharing of the spectrum, including development of alternate allocation tables to meet National requirements through 1985. In this regard, last year OTP completed an analysis of the Government's projected needs between 100 and 1215 MHz to the 1985 time frame. As a result, it was foreseen that the Government's increasing communicationselectronics requirements in such areas as national defense, law enforcement, resource management, marine and air safety will require that approximately an additional 100 MHz be made available for Government use. OTP informed the FCC of its recommendations and joint discussions are still underway on this matter.

One new effort, commenced in 1973 and continuing, is to determine whether or not the analytical methods of demand forecasting can be used for projecting spectrum requirements. Such projections would be based upon forecasted sales of communication-electronic systems, and could be useful in preparing for World Administrative Radio Conferences. Also, a proposed experiment was conceived in which Government users of the frequency band 2700-2900 MHz would "lease" spectrum space. Economists have expressed the opinion that introduction of such a concept would provide a greater incentive to more efficient spectrum use. The concept is currently under study by both GAO and OMB to assess its feasibility and to determine whether legislation is necessary prior to undertaking the experiment.

B. Assignment of Frequencies

In 1973 OTP processed approximately 50,000 frequency assignment actions involving U.S. Government radio stations; developed procedures and accumulated data necessary to permit implementation of a reporting system for on-the-air use of frequency bands between 30 and 420 MHz; prepared the U.S. position for a new frequency assignment plan for oceanographic and ocean data transmission for promulgation by the International Oceanographic Commission and the World Meteorological Organization; completed the first five-year program to review and revalidate all frequency assignments to Government radio stations; and commenced development of a ten-year plan for spectrum needs for fixed radars. The need for this program was precipitated mainly by an indication of increased radar use for air traffic control purposes.

Of particular significance in 1973, OTP completed its efforts to develop and implement the first measurement and monitoring capability for directly measuring the Government's use of the radio spectrum. Together with the recently inaugurated usage reporting system required by all Government users, this monitoring capability should enable more efficient management of the spectrum and provide a broader data base on which to forecast spectrum demand.

Also, in October 1973, OTP issued a preliminary report on VHF television broadcasting frequency assignment criteria which has been submitted to the FCC for consideration.

The report concluded that existing separation criteria are conservative and there is sufficient evidence to indicate that, with the application of currently available technical measures, a substantial number of additional VHF television broadcasting channels could be assigned in the major 100 markets in the United States, without adversely affecting those already operating in accordance with current FCC rules. Accordingly, the report recommended that the current FCC Television Assignment Criteria should be reviewed and revised, taking into account the current state of the radio art, experience gained in the past twenty years, and technical measures which can be applied readily to permit additional use of the valuable VHF television broadcasting spectrum allocations.

C. Emergency Medical Services

OTP in cooperation with the IRAC and the FCC, prepared a report in 1973 which emphasized the need for a comprehensive communications plan for emergency medical services. Such a plan, providing for a major expansion of frequencies standardized across the country for maximum efficiency, was designed in cooperation with HEW and submitted to the FCC for implementation. This plan, according to medical authorities could lead to the saving of thousands of lives each year. Major recommendations of the plan include:

- Standardized national radio frequencies for EMS units en route to and at the scene of medical emergencies.
- 2. Paging systems for EMS and the general medical community.
- 3. Ambulance dispatching and direction service.
- 4. Communications networks for biomedical telemetry, to permit, for example, a doctor at a hospital to monitor the electrocardiograms of patients in an ambulance to give instructions to medical attendants.
- 5. Specialized medical data handling and voice circuits for exclusive use by doctors.
- 6. An Emergency Medical Radio Service that would be similar to and have the same status and protection under the FCC Rules and Regulations as the Police and Fire Radio Services.

The plan is flexible enough to offer state and local EMS authorities a variety of ways for meeting their individual needs, while still standardized enough to assure that vehicles of various jurisdictions could communicate with each other and with each other's hospitals. The plan is also supportive of and consistent with the recently enacted Emergency Medical Systems Act of 1973 which provides that funds used for emergency medical services shall, among other things, provide a substantial component of communications responsive to emergency medical needs.

D. Electromagnetic Compatibility Analysis

The ever increasing exploitation of the advantages to be gained by the application of communication-electronic technology has created congestion in the use of the limited radio frequency spectrum. Unfortunately, due to the state of the radio art, the bulk of new space telecommunication requirements must be satisfied in the same portions of the radio spectrum which currently are occupied heavily by Government and non-Government space and terrestrial systems.

Increased telecommunication requirements in support of national defense, resource management, safety of life, law enforcement, and space exploration dictate the need for improved spectrum engineering if serious losses of life and property are to be averted. Moreover, detailed analysis of potential interference situations must be undertaken prior to large expenditures of funds if U.S. space and terrestrial communication requirements of the future are to be projected with the necessary degree of confidence.

Accordingly, in late 1972, OTP developed and promulgated a set of management procedures (OTP Circular 11) requiring all Government agencies to submit their frequency plans well in advance, with the objective of ensuring a critical review of frequency spectrum availability for Government communication-electronic systems prior to the commitment or expenditure of public funds. During 1973, OTP's experience with the application of these procedures confirmed emphatically that the procedures are appropriate and can meet the desired objectives. Specific areas analyzed include a comprehensive cross analysis of collision avoidance, aeronautical and maritime satellites, navigation satellites and radio altimeters, all in the 1535-1660 MHz band; a Defense communications satellite system, terrestrial microwave systems, an earth resource satellite and a next-generation meterological satellite system, all in the 7125 to 8400 MHz portion of the spectrum.

E. Side Effects Program

In response to much apprehension and some evidence about the hazards of electromagnetic radiations to man in particular and to the environment in general, OTP continues
to oversee the five year "Program Assessment of Biological Hazards of Non-Ionizing Electromagnetic Radiation," which formally commenced in FY 1974. The program is a coordinated multi-agency effort involving surveillance, testing, and research to determine the potential hazards to man and his environment from non-ionizing electromagnetic radiations. It examines the potential biological impact of other nonionizing radiations and also will continue to investigate the problems, requirements and activities related to possible nonbiological side effects of electromagnetic energy, e.g., the effects on electronic systems, devices, components,

During 1973, primary emphasis was placed on implementation and development of procedures to ensure coordination in assessing the biological effects of non-ionizing electromagnetic radiations. The biological effects of other types of non-ionizing radiations, such as lasers and ultrasonics, were also considered. These studies will continue in 1974. The second annual progress report will be released within the first quarter of the year.

F. Spectrum Management Advisors

Three advisory bodies assist OTP in conducting spectrum management activities:

1. Interdepartment Radio Advisory Committee -composed of representatives of 16 Government agencies having major communication-electronic operations, plus a liaison representative from the Federal Communications Commission. The Committee met 23 times in FY 1973 and developed recommendations to OTP on numerous policy issues related to spectrum management. The associated subcommittees (Frequency Assignment, Spectrum Planning, and Technical) provide extensive support and inputs.

2. Frequency Management Advisory Council -comprised of recognized authorities from industry, universities, and research organizations. The Council met four times in FY 1973 to overview Government spectrum-related activities and provide recommendations to OTP.

3. Electromagnetic Radiation Management Advisory Council -- comprised of experts in the fields of electrical engineering, biological research, and medicine. This body met five times in FY 1973 to overview Government activities as regards possible biological effects of non-ionizing (radio) radiations and provide recommendations and suggested courses of action to OTP in its role of Government-wide program coordinator in this field.

The second second second second second second second second

OTP BUDGET SUMMARY

-

(\$000)

	FY-74 <u>Estimate</u>	FY-75 Estimate	Increase <u>(Decrease)</u>
Personnel Compensation			
Total Permanent Positions: Consultants and Other: Benefits	\$1,360 165 122	\$1,377 195 133	\$ 17 30 <u>11</u>
Grand Total:	\$1,647	\$1,705	\$58
Travel	109	109	0
Reimbursement to Another Agency for Administrative Services	80	80	0
Other Expenses	290	420	130
Studies and Research	590	1,100	510
Support Program	· • • •	6,098	6,098
Total Obligations Appropriation	\$2,716* \$2,070*	\$9,512 \$9,512	\$6,796 \$7,442

*The \$646,000 difference between the FY-74 obligations and appropriation is a result of:

Carry over of Studies and Research funds from FY-73 \$590 Supplemental Appropriation for Pay Act increase 56

Net effect on obligation \$646

Consultants with specialized expertise:

Bruce Owen	-	Economics
Stanley Besen	-	Economics
Ken Greenawalt	-	Law - Privacy
George Mansur	-	Technical
Cecil Thompson	-	Economics
Mavis (Max) Polk	-	Navigation Systems
Walter Radius	-	International Communications
Abbott Washburn	-	International Communications

FY 74 contracts utilizing specialized expertise:

Computer Sciences Corp.	 Navigation systems technical analysis
Temple, Barker & Sloan	- Management and financial consulting services for Cable Demonstration Program
MITRE	 Computer model of CATV financial performance
Systems Applications, Inc.	 Extension of demand forecasting techniques to spectrum planning
GE	 Develop computer-communications trade-off model

132 152

OFFICE OF TELECOMMUNICATIONS POLICY WASHINGTON

Contracts foregone (±)? MY effort on attractive PSD projects? Support prog ang grade & overall

OFFICE OF TELECOMMUNICATIONS POLICY EXECUTIVE OFFICE OF THE PRESIDENT WASHINGTON, D.C. 20504

February 14, 1974

To: John Eger

From: Will Dean

Subject: Money OTP has saved the Federal Government

The following is forwarded in response to your memorandum of February 11, 1974, on the above subject:

o The Federal Government is critically dependent upon communications-electronics systems for the fulfillment of its responsibilities (national defense, resource management, safety of life, law enforcement, research, etc.). These systems must use the radio frequency spectrum.

O A principal task of the Director of Telecommunications Policy in the frequency area is to ensure that the Government's ever-increasing dependence upon communicationselectronics is achieved in such a manner as to satisfy the operational requirements of the agencies, and at the same time create a minimum of impact upon the limited natural resource known as the radio frequency spectrum.

o In meeting the above responsibility, dollar savings are not realized on the basis of budgetary reductions, but rather on the basis of ensuring that funds requested by the President and appropriated by the Congress for the procurement of new communications-electronics systems are expended in such a way as to ensure that interference is not caused to or received by communications-electronics systems already in being.

 The magnitude of the foregoing task can be gathered from the fact that, according to EIA estimates, the Federal Government is procuring factory communications-electronics sales to the extent of \$10 to \$12 billion a year. Additionally, it is estimated that current investment of the Federal Government in such systems is of the order of \$50 billion. Specific examples of the investments involved are as follows:

- <u>1535-1660 MHz</u> This area has recently received extensive analysis to determine what actions are necessary to obtain necessary levels of confidence that the several expensive systems planned therein will be met in a satisfactory manner. It is estimated that approximately \$100 million is currently invested by the Federal Government in this portion of the spectrum with potential expenditures, both Government and non-Government, amounting to several billion dollars.
 - -- MARSAT The Department of Commerce MARAD experiment is estimated to be on the order of \$15 million; the follow-through for an operational system \$100 million; with an estimated cost per ship of \$20K. This compares favorably with COMSAT's estimates of \$78 million for three satellites, two ground stations, plus launch costs; with an additional cost of \$25K to \$40K per ship.
 - -- AEROSAT COMSAT estimates \$60 million for development; \$2 to \$3 million for a limited number of ground terminals; and \$8 to \$9 million for flight test of the satellite; i.e., approximately \$100 million for the development of the system. Additionally, FAA estimates aircraft installations would cost on the order of \$25K per aircraft.
 - -- CAS The cost of Collision Avoidance Systems ranges from \$1,000 for cheap version to \$10 to \$65K for a sophisticated system. There being 133,000 general aviation aircraft, 20,000 in the DOD inventory, and 3,000 commercial aircraft, the total cost for CAS would be several billion.
 - -- Altimeter DOD estimates \$50 million would be involved if it became necessary to remove existing altimeters from this portion of the spectrum to accommodate CAS.
 - -- Defense Navigation Satellite System DOD estimates \$148 million for the initial phase and an additional \$500 million through the mid-1980's to full system implementation.
- <u>7/8 GHz</u> Another area receiving intensive study involves 7/8 GHz. Current investment by the Federal Government in this portion of the spectrum is estimated to be on the order of \$350 million, with a planned investment of an additional \$400 million.

-2-

- -- Defense Satellite Communication Systems It is estimated \$214.8 million has been invested to date, with projected expenditures for the next five years on the order of \$400 million. A recently announced contract involving six airborne earth stations alone involves \$69.5 million to improve the command, control and communications elements.
- -- Additionally, it is estimated that FAA and the military services have approximately \$150 million invested in terrestrial transportable and microwave systems in this same portion of the spectrum.
- Another example of an OTP area wherein dollars in the form of savings, per se, are not identifiable but the benefits of proper spectrum planning are evident, is EMS. The Office developed a communication plan which would provide the central nervous system for improved Emergency Medical Services to the general public. The medical profession has estimated that 200,000 lives could be saved per year through the availability of effective, efficient, and rapid emergency medical services.
- An example of an area wherein OTP is in fact saving Federal Government funds is in the area of Side Effects. OTP has developed and put into effect a coordinated intergovernmental Five-Year Research Program to determine whether electromagnetic radiations create harmful effects upon people and the environment. OTP is serving as coordinator to ensure that the basic objectives of the program are clearly defined, being pursued, and that duplication does not exist among the respective agencies. The estimated budget involved this year is on the order of \$6 million; research being conducted by 14 government agencies--principally DOD, HEW, and EPA.

In short, it is the function of OTP to serve as a policeman and ensure that the vast quantities of costly communications-electronics procured by the Federal Government operate in a manner which will ensure that the investment is well placed and that the effects of such operations are not harmful. The consequences of not taking such action would result in not only the loss of the extensive monies involved, but also, and more importantly, the loss of resources, including life and property.

W. Dean. Jr.

0

0

2 + , Th

OFFICE OF TELECOMMUNICATIONS POLICY EXECUTIVE OFFICE OF THE PRESIDENT WASHINGTON, D.C. 20504

March 1, 1974

To: John Eger

From:

Charles Joyce

Subject Cost Savings

> We have identified cost savings associated with three specific projects, which are illustrative of the kind of savings which can be accrued through coordination.

1) A savings of \$41,000 per year in leased circuit costs resulting from changes in procedures and requirements for the Emergency Broadcast System.

2) A projected savings of \$1.8 million annually once DOD and GSA fully implement coordinated multiplex planning.

3) A cost avoidance due to the cancellation of one of the three radio navigation programs targeted to cover U.S. waterways. Depending on how extensively the cancelled programs would have been deployed, it would have cost between \$43 million and \$200 million to build and \$10 million to \$50 million annually to operate. In addition, users would have had to spend about \$450 million for additional receivers for the third system. Cancellation of the program avoids these costs.

Details are attached.

Attachments

HIngold/2-27-74/njb

An actual \$41,000 per year reduction in leased circuit costs results from changes in Emergency Broadcast System (EBS) procedures and requirements for circuitry from the President's location to points of entry into the EBS.

DHall/2-27-74/njb

Savings

Centralized management of Government multiplex systems now being accomplished jointly by DOD and GSA at the direction of OTP is projected to reduce the cost of military and civil leased communications facilities by about \$1.8 million annually. This is based on a study by the General Accounting Office of 200 circuits presently employed on a point-to-point mode not using multiplexing techniques, and projected identifiable savings to one half (2000 circuits) of the some 4000 circuits used by DOD and GSA which appear to be susceptible to multiplexing. This saving does not take into account the anticipated substantial economy of cost avoidance for future requirements which will be accomodated by Federal Government multiplex systems. While this saving cannot be measured in dollars, it is anticipated that it will run into hundreds of thousands on an annual recurring basis over time.

OFFICE OF TELECOMMUNICATIONS POLICY EXECUTIVE OFFICE OF THE PRESIDENT WASHINGTON, D.C. 20504

February 27, 1974

MEMORANDUM

FOR: Charlie Joyce

FROM: Max Polk

SUBJECT: OTP Action Resulting in Cost Savings

OTP's efforts in the Navigation field during the past year has resulted in identifiable cost savings of between 43-200 million dollars in investment and 10-50 million dollars annual operating costs by preventing the implementation of a separate system for rivers and harbors navigation (Atch 1).

In addition we have also probably saved the civil users about 450 million dollars in redundant navigation receiver costs (Atch 2).

The Department of Transportation (Coast Guard) has specified three areas for marine navigation - high seas, coastal confluence and harbors and harbor entrances. Navigation requirements were defined and delineated for each of these areas and development of separate systems for each area was undertaken. OTP did not really question the requirements that were stated for each area of operation but, since the systems for each area extended into and provided coverage to its adjacent area, OTP asked how the systems under consideration interfaced with each other. Last year when the Coast Guard requested funds for implementing a system for the Coastal Confluence zone we noted that there was no reference to this system's impact on the Rivers and Harbors System (RIHANS) and also that development work was continuing on the RIHANS system. As a result we recommended to OMB that approval for implementing the Coastal Confluence system be withheld until the Coast Guard had determined whether we needed both a Coastal Confluence and RIHANS system or whether we needed only one of these in conjunction with the high seas system.

As a result of the OTP action forcing an analysis of the best solution of systems to meet the overall navigation need the Coast Guard has determined that both a Coastal Confluence and RIHANS system are not needed. Accordingly they have directed that work towards developing a separate rivers and harbors system be stopped and are proposing LORAN C, the system originally proposed for the Coastal Confluence area alone, be designated for both Coastal Confluence and rivers and harbors areas.

• •

Cost of Rivers and Harbors Navigation System

The Rivers and Harbors Navigation system is not sufficiently developed to ascertain a firm cost but it is possible to get a good picture of the cost by using the most promising candidate at the present time. This is a system being developed by TRACOR of Austin, Texas, under Coast Guard contract.

Service Segment Costs:

Each Service Segment & Installation	\$ 680,729
Real Estate & Land Preparation	150,000
Management Fee	50,000
* Labor Differential & Inflation	136,000
	\$1,016,729

Rounded off to:

\$1,000,000

* Labor estimate based on 1973 Texas labor rate

Annual Operating Costs:

Minimum of six men per	service	segment	
@25000/man			150,000
Maintenance and upkeep	0108		100,000
Total			250,000

System Costs:

The systems implementation plan was not fully developed but it is anticipated that a minimum of 43 service segments would be needed to cover the major traffic in the U.S. Rivers and Harbors areas. The estimate to provide coverage to all areas of high interest including Great Lakes and Alaska run as high as 200 separate service segments, therefore, we can get an optimistic (43 installations) and a pessimistic (200 installations) estimate of cost.

1. Investment Costs

2

	Optimistic Pessimistic	43x1,000,000 200x1,000,000	-	43,000,000 200,000,000
•	Annual Operating	Costs		
	Optimistic Pessimistic	43x250,000 200x250,000		10,750,000 50,000,000

ATTACHMENT 1

Cost to Users of Separate RIHANS System

I. Recreational Boating

Pleasure Craft Population	
Class A (less than 16 ft.)	5,262,994
Class I (16 to 26 ft.)	2,336,820
Class II (26 to 40 ft.)	285,306
Class III (40 to 65 ft.)	69,176
Total	8,008,000

Class A boats would not be expected to buy any navigation equipment. No class 1 would need to buy a LORAN C receiver in addition to a RIHANS receiver but at least 0.1% probably would if both were available. Class 2 boats would probably install both systems on 15% of the boats and class 3 would probably install both systems on at least 50% of the boats so redundant population would be --

Class	1	23,368
Class	2	42,796
Class	3	34,588
		100,752

Class 1 would be expected to use low cost positioning determining equipment (PDE) for the RIHANS system @\$350.

Class 2 would be expected to use about 80% low cost PDE 0\$350 and about 20% automatic equipment at \$10,000.

Class 3 would be expected to use about 20% low cost PDE @\$350 and about 80% automatic equipment at \$10,000.

Therefore cost savings not having two systems:

1	23,368x350)	=	8,178,800
2	34,437x350)	=	12,051,950
	8,359x10,	,000	=	83,590,000
3	6,918x	350	=	2,421,300
	27,670x10,	,000	=	276,700,000
			-	382,942,050
	1 2 3	1 23,368x350 2 34,437x350 8,359x10, 3 6,918x 27,670x10,	1 23,368x350 2 34,437x350 8,359x10,000 3 6,918x 350 27,670x10,000	1 23,368x350 = 2 34,437x350 = 8,359x10,000 = 3 6,918x 350 = 27,670x10,000 =

II. Commercial Users

Total Commercial U.S. Registry 5 tons	
or more as of 1/1/73	54,436
Fishing Craft 5 tons or more	19,350
Non-fishing	35,086

World Fleet 100 tons or more as of 1971 55,041

ATTACHMENT 2

If there were two separate systems about 2/3's of the fishing craft would need LORAN C for off-shore fishing as well as the RIHANS equipment. Of these it is estimated about 1/2 would have low cost RIHANS equipment and about 1/2 automatic equipment.

Therefore, redundant equipment cost would be:

6450x350	//), =	2,257,500
6450x10,000	=	64,500,000
		66,757,500

The majority of the Commercial, or fleet ships would have a high seas system installed so unless LORAN C was required for the Coastal Confluence in addition to the RIHANS system one would not expect redundant installation of LORAN C equipment. Probably no more than 10% of these ships would have both LORAN C and low cost RIHANS, therefore, potential cost savings would be:

3509x350 = 1,178,150

III. Total Savings to users:

Pleasure Boat Fisherman Commercial Fleet 382,942,050 66,757,500 1,178,150 \$450,877,700