December 2, 1970

Honorable Maurice H. Stans Chairman Interdepartmental Savings Bonds Committee Department Commerce Washington, D. C. 20230

Dear Mr. Stans:

As specified by Executive Order 11532, I am nominating Mr. Stephen E. Doyle, Special Assistant to the Director, as my alternate on the Interdepartmental Savings Bonds Committee. Mr. Doyle's telephone number is 395-5180 (code 103) should your Sales Representative wish to contact him.

Sincerely, Clay T. Whitehead Avri 1

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**BJohnston** cc: Dir. 2 -S. Doyle Adm. File

February 20, 1970

## INFORMATION

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Economy

#### MEMORANDUM FOR THE PRESIDENT

Secretary Stans' monthly report of Business Council views on the economy is attached at Tab A. It is summarized below:

(1) There was consensus of opinion that the economy has slowed considerably in the last two months. However, there were divergent views on the desirability of maintaining tight fiscal and monetary policy through the early part of 1970.

(2) The large number of new labor contract negotiations scheduled for 1970 indicates that it will be a crucial year in labor markets. "If corporate managements become convinced that no upturn in demand is likely during 1970, price increases are likely to moderate and layoffs will accelerate, as managements seek to protect profits by reducing labor forces."

(3) The general slowdown in the economy continues to affect the automobile industry. Production in January and February may be 25% below the corresponding period last year.

Peter M. Flanigan

## Attachment

cc: Mr. Flanigan Mr. Whitehead Central Files

**CTWhitehead:ed** 

Commence



THE ASSISTANT SECRETARY OF COMMERCE WASHINGTON, D.C. 20230

MEMORANDUM FOR MR. CLAY T. WHITEHEAD STAFF ASSISTANT THE WHITE HOUSE

SUBJECT: Telecommunications

It would be very helpful to us in our planning to assume greater responsibility in Telecommunications if you would establish communications for us with appropriate personnel in the Department of Defense.

Dr. Richardson of my staff is beginning to survey statutes, prepare departmental orders and plan specific organizations. I want him to confer with DoD representatives to insure that we properly take their needs into account. Will you please assist us?

A brief memo from you to me confirming your intentions would also be helpful. I must prepare budget justifications. I would also like to discuss the matter with Mr. Rooney, the chairman of our appropriations committee.

Tribuer

## February 20, 1970

## MEMORANDUM FOR

Dr. Myron Tribus Assistant Secretary of Commerce for Science and Technology Department of Commerce

I reviewed the report entitled "Planning for Telecommunications System Development in Alaska" sent to me by Don Richardson. I am concerned in two respects.

First, it was never our intention to establish a "blueprint" for telecommunications in Alaska. To attempt to do so would have undesirable political implications, and it would be counter to the spirit of my memorandum which emphasized broad options and alternatives and their costs rather than the development of a rigid plan.

Secondly, I am a little concerned that the level of detail suggested by the report may make the project too ambitious for the time, resources, and objectives laid out.

> Clay T. Whitehead Staff Assistant

cc: Mr. Flanigan Mr. Whitehead Central Files

CTWhitehead:jm

Friday 12/5/69

· alaska

Comprise shows

9:40 Advised Tribus' office that it would not be appropriate to make any kind of announcement about the ATS experiment proposed by the State of Alaska at this time.

> Checked Shapley's office -- Mr. Shapley just wanted to let you know they were sending the paper over. If you have any questions, he'd be glad to answer them.

November 16, 1970

## MEMORANDUM TO THE FILE

## Subject: Telecon with Messrs Lowe/Kandoian concerning Commerce FY 71-72 Budget

I have reviewed the proposed memorandum to OMB concerning the FY 71 supplemental appropriation and the FY 72 Commerce budget with Bob Lowe and Dr. Kandoian. Their reaction was somewhat negative relative to our proposal for FY 71 and extremely negative relative to our proposal for FY 72. I impressed upon them the fact that we had difficulty in negotiating the package with OMB and that it had to be advanced virtually intact in order to assure acceptance of an FY 71 supplemental. The net result of the conversation was that they agreed to the FY 71 proposal including reprogramming of activities, as well as the inference that a staff reduction in Boulder with subsequent transfer of people or slots to Washington was required. They did not accept our recommendation for FY 72 and stated that they wished to reserve the right to take the matter up directly with OMB.

Accordingly, there was an agreement that it was necessary to forward the memo as proposed to OMB, but they did not agree with the plan for FY 72.

SIGNED

George F. Mansur Deputy Director

cc: Mr. Whitehead Mr. Doyle Mr. Hinchman

## EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF TELECOMMUNICATIONS POLICY WASHINGTON, D.C. 20504 November 9, 1970

DIRECTOR

Honorable Myron Tribus Assistant Secretary for Science and Technology Department of Commerce Washington, D.C. 20320

Dear Dr. Tribus:

I have asked Mr. Walter Hinchman to take primary responsibility for the time being for coordination between OT and OTP of the over-all work program. On those matters involving Federal spectrum management support, Mr. Dean is the continuing focal point within the OTP.

By letter of October 14, 1970, we furnished information regarding the assistance desired by the Department of Commerce in support of the Interdepartment Radio Advisory Committee Secretariat. A number of studies and recommendations have been made in recent years which should be useful in structuring the Commerce support program (e.g., on EMC Analysis, data base requirements, automatic data processing, spectrum standards, and spectrum monitoring). I have asked Mr. W. Dean to forward these materials to Dr. Kandoian, and to arrange for further discussions of these topics.

Sincerely,

Clay T. Whitehead

## November 25, 1970

Honorable Robert C. Byrd Chairman, Subcommittee on

Deficiencies and Supplemental<sup>®</sup> Committee on Appropriations United States Senate Washington, D. C. 20510

#### Dear Senator Byrd:

I would like to endorse and support the \$1,000,000 FY 1971 Supplemental requested by the Department of Commerce for telecommunications activities. As a result of Presidential initiatives to strengthen the government's telecommunications policy formulation process, the Department of Commerce (Office of Telecommunications) has been assigned new responsibilities in support of this Office.

We look to the Department of Commerce for the development of an adequate data base and analytical capability to assist the policy activities carried out by this Office. Programs essential to the government, industry, and the public will be delayed and the work of the institute for Telecommunication Sciences seriously jeopardised unless Congress allocates the funds contained in the supplemental budget request.

We therefore urge most strongly favorable action on the Commerce Department's request and appreciate your consideration of this matter.

Sincerely,

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Rept.

Clay T. Whitehead

cc: Honorable Gordon Allott Honorable John O. Pastore Honorable E. Mundt Mu Juliu Richardsa, Ooc FSUrbany:esj cc: Dir. 2 Adm. 1 Reading File

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November 24, 1970

## MEMORANDUM FOR

## CASPAR WEINBERGER

In my memorandum of November 16 concerning Department of Commerce telecommunications support activities and funding for FY 71 and FY 72, a figure of "about \$7.3M" was used in describing the over-all Commerce budget and proposed shifts in staff and type of budgetary support. It has come to my attention that this could be interpreted as recommending a fixed ceiling of this amount, which was clearly not our intent.

The Department of Commerce has informed us that an over-all ceiling of \$7.3M for FY 72 might adversely affect their ability to be responsive to other agency needs. Since the OTP lacks sufficient information at this time either to corroborate or to challenge this contention, we suggest that it be resolved through direct discussions between Commerce and OMB representatives. This is consistent with our decision not to attempt a critical review of other agencies' telecommunications programs during the current round of budget submissions, even though we recognize our responsibilities in this regard for future budget years.

We do wish to emphasize that programs in support of OTP shall have first call on Commerce staff and resources in the telecommunications area, as indicated in the previous memorandum.

Leonge F. Maiseer George F. Mansur

Deputy Director

WHinchman:dc/ed/tw Dr. Mansur CTWhitehead / SDovle Subj File Reading File

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

December 22, 1970

DIRECTOR

MEMORANDUM FOR MR. DON RICE

This will confirm our telephone conversation and my judgment that the proposed reduction in the budget for the Office of Communications in Commerce to \$4.4 million is undesirable. An FY 72 allowance of \$5 million for this activity will be severe but will permit us to undertake necessary reprogramming to meet OTP needs without undue disruption of the basic propogation studies now under way.

Clay T. Whitehead

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

Commercine

Date: December 17, 1970

## Subject: Discussion with Dr. Kandoian

## To: Record

1. On December 17 the undersigned contacted Dr. Kandoian to:

a. Advise him that so far as OTP was aware, GSA was still planning that the Space at 1325 G. Street would go to the OT organization. Kandoian replied that the information available to him was that the National Capital Planning Commission was scheduled to get the space. Further inquiry disclosed that Kandoian's source was a Mr. Albert Dean, in charge of space, etc. for Department of Commerce (189-4186). Situation reported to Steve Doyle with recommendation that Dean be contacted and the GSA wires uncrossed.

b. Request that office space (400 square feet) be provided for W. D. at 1325 G. Street in order to maintain close liaison with Department of Commerce Frequency Management support activities. Kandoian agreed to press to meet this need.

2. Kandoian advised that the Bureau of the Budget mark for Commerce for FY 72 had been received to the extent of \$4.4 M. In this figure, some \$650 K was for support of the IRAC Secretariat of which \$262 K was for "other objects". A further breakdown of this latter figure was requested. This information has been furnished.

Dean, Ja

cc: /Mr. /Whitehead Dr. Mansur Mr. Hinchman Mr. Doyle Mr. Urbany

Comm

Thursday 11/6/69

3:10

Mrs. Friedman from RCA called. She said the President, Mr. Hawkins, will be in town tomorrow and wanted to know if there was any chance for him to see Tom tomorrow afternoon on Alaska Telecommunications.

337-8500

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OFFICE OF THE ASSISTANT SECRETARY OF COMMERCE Washington, D.C. 20230

Aut of Office of Telecommunications

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Subject: Agenda for meeting with Dr. Clay T. Whitehead on Alaska Telecommunication Study

To:

1. Progress since first meeting on September 25, 1969.

Nature and scope of the project-project outline.

Crucial dates and deadlines.

Manpower and budget estimates.

Urgent need to get started.

2. Current status and next steps.

Need for upper level action.

Solution of funding problems.

DoC (Office of Regional Economic Coordination (Economic Development Administration

DoD

NASA

Alaska

Recruiting of staff to man the project.

Proposed policy-recruit from departments or agencies.

Request for services of Dick Gabel

Commerce



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE OFFICE OF EDUCATION WASHINGTON. D.C. 20202

October 8, 1969

MEMORANDUM TO MR. CLAY T. WHITEHEAD

As you suggested in your request for an educator to serve on Alaska Task Force, I contacted Dr. Tribus to give him the name of one of our staff. Dr. Tribus was out of town. His office referred me to Mr. Powers. The following information was passed on to him.

Name: Thomas J. Burns

- Title: Assistant Deputy Associate Commissioner for Elementary and Secondary Education
- Location: U.S. Office of Education, Room 2189A 400 Maryland Avenue, S.W. Washington, D.C. 20202

Phone: Code 13 - 22810

Personal Characteristics: Bright, young, aggressive educator. A man who can get a job done.

Professional Background: Tea

Teacher, principal, State Department of Education. Good knowledge of Federal programs.

Special Experience:

Spent several years in New Hampshire and is familiar with problems of rural education.

I have asked Mr. Burns to establish contact with Mr. Powers.

Frank B. McGettrick

Special Assistant to the Commissioner

December 22, 1970

Zapple Correspondence

Dr. Armig Kandoian Department of Commerce

I discussed with Mr. Whitehead the latest version of your proposed letter to Nicholas Zapple on OT/OTP relationships. Mr. Whitehead feels the primary concern of Mr. Zapple and Senator Pastore is that OT be clearly responsive to OTP needs. He is thus anxious that this aspect be emphasized in your response so as to allay any doubts Senator Pastore may have. Accordingly, I have attempted in the attached formulation of paragraphs 3, 4, and 5 to achieve this while avoiding those areas which are still sensitive. I would appreciate your reaction.

mence

SIGNED Walt Hinchman

Encl.

( Minister )

WHINCHMAN:dc Mr Whitehead Subj. RF

## Alternative Paragraphs

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As you know, Executive Order 11556 established the Office of Telecommunications Policy in the Executive Office of the President, and assigned to the Secretary of Commerce several functions in support of the Director, OTP. These include analysis, engineering and administrative support required by the Director in the discharge of his responsibilities for radio spectrum management, plus such other technical and economic research and related activities as the Director may request. Additionally, the Secretary was charged in E. O. 11556 with conducting research and analysis on radio propagation, radio systems characteristics, and operating techniques affecting the utilization of the radio spectrum, and in the general field of telecommunications sciences, under the policy guidance and direction of the Director, OTP.

In response to this Order, the Secretary on September 20 transferred the 203 man Institute for Telecommunication Sciences (located in Boulder, Colorado) from the Environmental Science Services Administration to the Office of Telecommunications. You may recall that ITS had its origins in the Central Radio Propagation Laboratory which was established in <u>(date ?)</u> as the central U. S. Government competence for radio propagation studies. That mission continues with the new organization in Commerce.

On October 18, the Director of OTP transferred the 21-man IRAC Secretariat to Commerce to provide the nucleus of the spectrum management support function called for in E. O. 11556. Four additional persons will be transferred from the OTP to Commerce in January 1971.

Pine

2 3 DEC 1970

Honorable Maurice H. Stans Secretary of Commerce Washington, D. C. 20230

Dear Mr. Secretary:

I am enclosing a Memorandum of Agreement for your signature to accomplish the transfer of four (4) professional employees, together with appropriate funds, records, and property from the Office of Telecommunications Policy to the Department of Commerce. This action is consistent with previous discussions relative to telecommunications activities being undertaken by your Department under Executive Order 11556, "Assigning Telecommunications Functions."

My staff has coordinated the Memorandum of Agreement with your Office of Telecommunications. I have already signed the Agreement, and if you will do likewise and return a copy to me, we will then proceed with the transfer.

Sincerely,

My PATA MA

Clay T. Whitehead

Enclosure

FSUrbany:lmc:12/23/70

cc: Subject file Reading file CTWhitehead

## MEMORANDUM OF AGREEMENT BETWEEN THE OFFICE OF TELECOMMUNICATIONS POLICY AND THE DEPARTMENT OF COMMERCE

Reorganization Plan No. 1 of 1970, Executive Order 11556, "Assigning Telecommunications Functions," and the Office of Management and Budget Determination Order, effective 1 October 1970, authorize the transfer of certain functions, personnel, funds, records, and resources from the Office of Emergency Preparedness to the Office of Telecommunications Policy.

In consonance with these directives, the Office of Telecommunications Policy and the Department of Commerce hereby enter into an agreement as follows:

1. Effective December 27, 1970, the following personnel currently on the roles of the Office of Telecommunications Policy shall be transferred to the frequency management support activity of the Office of Telecommunications, Department of Commerce.

| Anthony M. Corrado     | Electronic Engineer | GS-14 |
|------------------------|---------------------|-------|
| William D. F. Gamble   | General Engineer    | GS-13 |
| George W. Garber       | Digital Computer    |       |
| The state of the state | Systems Analyst     | GS-13 |
| Bruce Higgins          | Communications      |       |
|                        | Specialist          | GS-14 |

2. Funds for salaries in the amount of \$44,000 shall be transferred to support such personnel, together with appropriate records and property.

3. Physical transfer of the above personnel and associated property shall take place on or about 1 January 1971.

 Coordination of specific details relative to the above transfer shall be accomplished by the administrative staffs of the respective Agencies. 5. This agreement shall be effective December 27, 1970.

Accepted:

4 PATT

Clay T. Whitehead Director, Office of Telecommunications Policy

Maurice H. Stans Secretary of Commerce

Date:

2 3 DEC 1970

Date:

#### December 24, 1970

Commerce

Future meetings Xerox Corp. Chron

Dr. Myron Tribus Senior Vice President for Research and Development Business Products Division Xerox Corporation Xerox Square Rochester, New York 14603

Dear Myron:

Thank you for your nice letter on leaving the government. I was certainly sorry to see you go, for I think it will be very difficult to find someone with both the intelligence and the energy that you brought to your former position in the Commerce Department.

As you noted, the processes of government certainly are not tidy, neither are they speedy, but I believe we are getting squared away in the telecommunications area and making progress about as rapidly as you can expect in the government.

I hope you will maintain your interest in this area in your new position, particularly in the area of computers and communications. I do envy you your return to the private sector for I think there is much constructive to be done there. Should you be coming to Washington in the future, I hope we can have the opportunity to get together.

Best of luck in your new position.

Sincerely,

Clay T. Whitehead

**CTWhitehead:ed** 



THE ASSISTANT SECRETARY OF COMMERCE Washington, D.C. 20230

NOV 2 5 1970

Dr. Clay T. Whitehead Special Assistant to the President Executive Office Building Room 110 Washington, D.C. 20500

Dear Tom:

As I reflect upon the past year and a half and think of the people I have met and worked with during my Federal service, some stand out as having made the work easier, more productive, and more enjoyable. I could not leave without expressing my appreciation to you for giving me pleasant memories of my term of office.

The processes of Government are certainly not tidy! But for me, you have always made them friendly. It has been a pleasure to work with you.

Sincerely,

Tribus

My new address:

Myron Tribus Senior Vice President for Research and Development Business Products Division Xerox Corporation Xerox Square Rochester, New York 14603

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RECEIVED NOV 30 1970

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FEDERAL FIELD COMMITTEE FOR DEVELOPMENT PLANNING IN ALASKA SUITE 400, 632 SIXTH AVENUE ANCHORAGE, ALASKA 99501

September 4, 1969

Honorable Myron Tribus
Assistant Secretary of Commerce for Science and Technology
Room 5884, Main Building
U. S. Department of Commerce
Washington, D. C. 20230

## Dear Mr. Tribus:

Discussions at the just-concluded Alaska Conference on Satellite Telecommunications have underscored what the Field Committee's Communications Working Group and the Governor's Communications Satellite Task Force had earlier concluded: there is an urgent need for the immediate initiation of planning for communications development in Alaska.

The report prepared earlier this year by the Communications Working Group, which sets out the need for communications planning, is enclosed. Its arguments are still valid, with one amendment. The sale of the Alaska Communication System has been announced. The successful bidder, RCA, has pledged to make certain improvements to the system soon after it becomes the owner in July, 1970; but RCA has also indicated an interest in obtaining further expert advice such as would be produced by the proposed study.

Based upon the information made available at the recent conference, and upon the advice of the chairmen of the Communications Working Group and the Governor's Communications Satellite Task Force, I now seek your assistance in obtaining funding for communications planning that would:

- study the existing communications environment of the state to assess the worth of each segment to an integrated space and terrestrial complex;
- 2) translate economic and population growth trends in the state along with the needs of government agencies (such as the Department of Defense, Environmental Sciences Services Administration, and the Federal Aviation Administration) into predictions of communications requirements in fiveyear increments, starting with July, 1970, and extending forward into time as far as available trend estimates will permit;

## Honorable Myron Tribus

- 3) identify unmet public service type communication needs in Native villages as projected by federal agencies (such as the Bureau of Indian Affairs of the Department of the Interior and the Department of Health, Education, and Welfare) and state agencies (such as the Department of Education, the Department of Health and Welfare, and the Department of Public Safety). This would include educational television, medical support, civil defense, and other emergency communications;
- 4) determine the makeup of an optimum system to satisfy the needs of all users in the state from July, 1970, as far as practicable out into the long-range planning period;
- estimate the revenue requirements of the recommended system and identify the revenue resources expected to support those requirements;
- 6) develop and recommend the fundamental concept for traffic flow, switching and control, inter and intrastate, upon which the system recommendation was based.
- 7) study and recommend the administrative apparatus, the statutory authority, and the expertise which must be established by the State of Alaska so that it can effectively guide the development of communications in the state along the lines of the fundamental plan;
- 8). develop and recommend a concept for rate structuring to meet the state's objectives of providing adequate service to the whole population, and of promoting economic development of the bush through promotional rate scales to key industries such as tourist promotion, air travel, news and weather dissemination, etc.;
- 9) recommend revenue sharing and other arrangements which should be developed between the common carrier in Alaska and the common carriers in the Lower 48 to provide Alaskans with the full advantages of direct distance dialing and low-rate, offhour calling and reduce to a minimum the economic penalty imposed by the geographical separation between Alaska and the other states.

We are very much overdue in having this study inaugurated. It should be begun no later than October 1 of this year, and completed by April of 1970. However, because current planning is being carried on by the successful bidder for the Alaska Communication System, it is necessary to obtain by December of this year preliminary findings of the consultant with respect Honorable Myron Tribus

to 1) identification of routes that should plainly be served by microwave installations, and 2) comparison of rates that could be offered for service. to selected locations by space versus terrestrial links. The purpose of the first of these is to avoid unnecessary delay in the engineering and procurement of prime equipment.

Cost of the plan is estimated to be about \$250,000. In our view the work should be performed by an independent communications consultant. My office would assume responsibility for overall supervision of the consultant's analysis and plan, drawing upon advice from the state director of communications, the executive director of the Public Service Commission, the chairman of the Governor's Communications Satellite Task Force, and the chairman of the Communications Working Group--the communications staff officer of the Alaskan Command. This group, as may be seen, is representative of state, industry, federal civilian and military interests.

Believing that it would be your wish, I am furnishing information copies of this letter to the persons identified below.

I will be in Washington next week. While there I would welcome an opportunity to discuss this proposal further with you.

Sincerely yours, hanock

Enclosure

George<sup>7</sup>0. Sharrock Chairman

J. 'D. O'Connell CC: Dr. Walt Radius William Ellis Congressman Howard W. Pollock Senator Ted Stevens Senator Mike Gravel James Hawkins L. Ralph Mecham Don Hall Charles Buck Governor Keith Miller Augie Hiebert General Robert G. Ruegg Dr. Clifford Hartman Charles Northrip

## THE NEED FOR A LONG-RANGE COMMUNICATIONS DEVELOPMENT PLAN FOR ALASKA

Prepared by The Communications Working Group Federal Field Committee for Development Planning in Alaska Robert A. Breitweiser, Lt General USAF, Chairman

A long-range communications development plan for Alaska is urgently required because of the present status of communications capability, presently unmet needs, and current developments that have important consequences for communications. More specifically,

# 1. The present communications system is inadequate.

a. The system is generally filled to capacity and is unable to satisfy a number of current outstanding requirements. The "White Alice" system, a broadband network connecting the Ballistic Early Warning System and the Air Defense complex with their control centers and headquarters, and which provides most of the point-to-point capacity in use today, was planned and installed to meet operational requirements of the US Air Force. The only excess channel capacity built into the system was that which could be justified by the estimated growth of military requirements. It was not until after White Alice was installed and operational that it began to be looked upon as a vehicle for carrying public offering channels of the Alaska Communication System - and finally came to be incorporated into the Defense Communications System. In other words, the backbone system of communications in Alaska was not planned to meet the requirements of both the military and the public. The military demand for service has grown gradually, but public needs for communications services, reflecting Alaska's burgeoning growth since accession to statehood, have grown rapidly. Some needs, such as inter and intrastate TV transmission and computer data channels have never been capable of being satisfied, but economic pressure is beginning to develop behind the demands for those services. Long distance calling to the 48 contiguous states is delayed seriously during peak hours for lack of sufficient channels to carry the load - and for lack of sufficient switchboard and operator capacity to cope with peak demand.

b. The basic communications system throughout the state is aging and obsolescent. The tropospheric scatter and line-ofsight micro-wave it uses are of 1950 technology. They were installed in the mid-fifties, and have been denied the benefits of capital investment for purposes of modernization or expansion since 1959.

c. The White Alice system, depending largely upon tropospheric scatter for transmission across virtually inaccessible terrain is capable of only limited expansion. Traffic estimates indicate that by the time expansion projects could be completed, growing demand will again have outstripped system capacity.

d. The basic communications system throughout the state does not serve the entire "Alaskan Community." The communications system of Alaska, as it now exists, generally services only those areas of military importance or high population density (i.e., Anchorage, Fairbanks and the Aleutian Chain). There are many communities which are not in close proximity to military installations or areas of dense population, that have no communications facilities at all. Examples are those communities in the Second Judicial Division and the Yukon River area. The increase in activity in remote areas during the past year has emphasized the real lack of adequate communications in the state beyond the large population centers and areas of military importance. With the exception of one or two radio schedules per working day, many construction camps, field crews and even sizeable villages have no contact whatscever with the rest of the world. After office hours or on Sundays or holidays it is virtually impossible for the residents of these areas to secure medical aid, call for emergency transportation, or even talk with a doctor who might be able to suggest emergency steps. In the longer view, the inability to extend normal communications into many of the villages deprives . them of the opportunity to receive educational programming in their home environment under a program of the University of Alaska. The alternative of bringing native students out of the villages for education is extremely disruptive to their living patterns and reaches only a fragment of the people. Constant, daily exposure to information, ideas and the English language can be of inestimable value to the development of Alaskan natives. The need for communications to the remote areas is urgent.

2. It is desirable to have a single long-haul system, but pending developments may work against its establishment. It is important that the long-haul system be kept intact within one franchise. Communications demand and revenue potential are either lumped in point locations, such as Anchorage, Fairbanks, Kenai and Juneau, or else are scattered thinly over wide areas and among many very small villages. The total revenue potential within the state is not great, but the expense involved in providing service to outlying areas is by far the greater proportion of overall operating expense. The burden of supporting communications to the sparsely settled areas cannot readily be shared by the urban areas unless the whole system is one economic unit. Two factors tend to fractionalize the system in direct contradiction to the need, recognized by the state and strongly supported by the military, to maintain system integrity.

a. The Alaskan Communications System is to be sold by the Air Force to a private concern. The desire of the commercial owner of ACS, actual or prospective, may be to want to be responsible for only the economically attractive areas and to leave systems in the fringe areas to the military. Once there is a commercial long haul carrier in Alaska, the military cannot expect to get government funding to support the communications requirements of civil populations. It is likely that the trend will be for military communications requirements to transition to military or civilian satellite systems to take advantage of their superior quality and security and the great savings in prospect, as compared to ground-based systems. That circumstance would put service to the remote villages in serious jeopardy.

b. North Slope developments require communication capability now. The second factor tending to break up the unity of the statewide system is the urgent need of the North Slope oil developers to immediately obtain inter and intra-Alaska communications for business purposes and for operation of the planned pipeline to the Gulf of Alaska. If their requirements are not satisfied by the statewide system, they are likely to exercise financial power and great influence to proceed with installing their own communications support system. Communications service to the oil industry is an important source of revenue for the statewide system and should be within the charter of the new owner of the ACS.

3. Expensive communications inhibit economic development particularly in Alaska where other forms of communications such as road, rail, ship or air, are either limited, ulficult, or very expensive. In such circumstances more reliance tends to be placed on electrical communication, given its availability and reasonable economy. There is little prospect for much further reduction in costs for long distance calling through the system in Alaska. Economical operation is a direct result of massive traffic flow and high density utilization of equipment. Present rates are probably as good as can be expected from the present saturated system. The sizable capital investment required to expand it to its limit would work against the prospect of any further economies.

4. Many requirements exist for communications services to the nearly 200 native villages in Alaska. Most prominent is the need, shared by a group of interests, for establishing reliable and adequate communications to and from the villages where most of the 53,000 Alaskan Natives live. The services which are needed include telephone, telegraph, and TV/radio programming, and the purposes to be served include: normal personal and commercial phone and message service; distribution of alarm or warning messages regarding sea waves, weather or national emergency; support to the programs of a variety of federal and state agencies such as the Bureau of Indian Affairs, Bureau of Land Management, Public Health Service, Fish and Wildlife Service, Forest Service, and others; distress or emergency calls to summon rescue or medical aid for ill or injured persons; distribution of news, weather and other commercial programming; and extension of audio or visual programming from National or State Educational Networks to all Native schools and villages. In the main, these are low potential revenue services, but they carry a great level of importance at the federal and state level and, consequently, reflect a demand for the most efficient and economical communications technology.

5. Alaska is approaching a turning point in the development of its communications structure. The factors and influences cited above all point in the direction of great change in Alaskan communications. The pressing need for expansion of communications in capacity, and into new areas, is certain to lead to planning decisions within the next year for construction of facilities within the following two years. There are two general courses that the overall

development may take. One would be to develop and expand the present system. Some aspects of this appropach do not seem to be desirable.

a. A substantial expansion of present facilities could raise the overall capital investment so high that conversion to modern technology would not be economically feasible for many years. Estimates have been made on expansion projects totaling up to thirty million dollars, and even that much investment would not modernize the technology in use to the point that it would accommodate highly desirable services such as educational television.

b. The cost of extending the present system into the nearly 200 native villages would be prohibitive. Even if funding were available for such a venture, the effect of the capital outlay on the total telecommunications tariff structure in the state would be highly undesirable. Economical calling rates could not be expected in the foreseeable future. The other general direction which development may take is to retire the obsolescent equipment presently in use before making any sizeable further investment in it. A complete new replacement system would have to be engineered and installed to take over the services being provided by the old facilities and to meet the many new demands. A survey of studies on how to provide similar improvements in other parts of the world indicates that application of medern technologies may be very practical and desirable in Alaska and is certainly worthy of study.

6. The extent and the nature of communications development in Alaska can be guided in desirable directions if action is taken scon enough. The time to prepare to influence the development of Alaskan communities is growing critical. The time schedule for the turn over of the Alaska Communication System to a commercial owner is July 1970. Some two million dollars worth of improvement projects, under the recently authorized industrial fund, must be completed by that date. New projects may be planned beforehand by the new owners, but they cannot be started before the date of transfer. Major projects will then be two years or more in implementation. Decisions made in 1969 will determine whether the new facilities of 1972 indicate that Alaska is to be tied for many years to the telecommunications system of its Territorial past,

or whether Alaska is taking advantage of a unique opportunity to move into the modern communications era in one great stride.

In order for the State of Alaska to know what it wants to do in regard to communications development, and to be able to establish the requisite policies and the regulatory apparatus to implement them, it must have the contemplated master plan in hand before the end of 1969. That will provide six or more months for assessment of the compatibility between the plans of the new commercial carrier and the goals of the State, and for any corrective coordination or negotiation found necessary before system cutover. On the basis of an estimate that the study period required for the production of a long range plan is six to nine months, it can be seen that urgent action is required to authorize, fund for, and award the appropriate contract.

## Working Group Members

Lt Gen R. A. Breitweiser, Hq ALCOM Chairman Colonel Amos H. Ross, Jr., Hq ALCOM (J6) Asst Chairman Mr. Jack Edwards, Federal Aviation Administration, Member Mr. Andrew Clark, Alaska Railroad Member Mr. Donald L. Stichler, Bureau of Indian Affairs Member Mr. William Woosley, Bureau of Indian Aflairs Alternate Member Mr. Wayne Gilbert, Bureau of Land Management Member Mr. Harold DeVoe, Federal Communications Commission, Member Mr. Charles L. Buck, State of Alaska Member Mr. Charles C. Culp, U. S.' Public Health Service Member Mr. Gus Norwood, Alaska Power Commission Member Mr. Harry L. Rietze, Department of the Interior Member Lt Cmdr J. G. Williams, U. S. Coast Guard Member

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Mr. Augie Hiebert, Broadcasting Industry Brig Gen James Isbell, Director Alaska Disaster Office Mr. Emil Notti, Alaska Federation of Natives

Commissions

THE WHITE HOUSE WASHINGTON

September 5, 1969

## MEMORANDUM FOR

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Dr. Myron Tribus Assistant Secretary of Commerce for Science and Technology

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Communications capabilities are particularly important to Alaskans, and significant expansion of communication facilities will take place in the near future, with or without adequate planning. Alaskan state government officials have requested assistance in developing costs and evaluating alternative plans for development of intrastate communication services. This should include a survey of needs and opportunities for telecommunications services, alternative technologies and systems for providing those services, and their costs.

However, the type of planning needed is not commonly done in the communications industry because of the incremental growth of the already highly developed communications systems in the continental United States. Because of the increasingly rapid technological and economic change in the telecommunications field, such planning will become increasingly necessary for U. S. communications generally. This situation, therefore, offers an opportunity to stimulate within the communications field more thinking about such problems, as well as being of assistance to the state of Alaska.

I would appreciate it if you would undertake to organize and chair an interdepartmental study to achieve these ends. The study should be organized under the auspices of the Office of Intergovernmental Relations and in cooperation with the Federal Field Committee for Development Planning in Alaska.

Some time this week you should discuss with Governor Boe how coordination with state officials can best be effected. Following that, I would like to introduce you to the Alaskan Congressional delegation so that you can explain the direction of your effort.

Clay T. Whitehead Staff Assistant

CC:

Mr. Flanigan Governor Nils Boe Eugene Cowen (WH) Mr. Kriegsman Mr. Gabel Mr. Hinchman Mr. Whitehead Central Files

CTWhitehead:ed

Edgar C. Hayden

967-5171 [189]

#### A PLAN FOR

TELECOMMUNICATION DEVELOPMENT IN ALASKA

-- Project Outline --

October 15, 1969

Draft II

Scope of project & attack are delineated in marked sections (see CONTENTS).

Prepared by Office of Telecommunications Assistant Secretary for Science and Technology Department of Commerce

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## A PLAN FOR

# TELECOMMUNICATION DEVELOPMENT IN ALASKA

#### SUMMARY

Alaska is at a fork in the road with respect to its public communication facilities. Prior to this time the long-lines communication network in Alaska has been Federally owned. It includes the Alaska Communication System and the White Alice system. These were built primarily to serve defense needs and are currently being operated by the Air Force Communication Service. The Alaska Communication System is being sold to a commercial operator, RCA Global Communications, Inc., being the successful offeror. Transfer is scheduled for July 1, 1970.

Having been constructed primarily to serve defense needs, the existing facilities do not serve adequately the needs of the whole population of the State. Additionally, these facilities are loaded to capacity on most segments, and have only very limited potential for expansion. Because of the great distances involved, the difficult terrain, the extremes of climate and the very wide dispersal of population, communication is of greater than usual importance to Alaskans. It is crucial to personal welfare, public health and safety, commercial development, national

RCA, in its offer to purchase the Alaska Communication System, proposes a program of expansion over a period of several years to improve and extend service. They propose to begin this expansion almost immediately, even before formal transfer of the ACS in July 1970. The expansion proposed is that sort which can be justified on the basis of expected revenue levels within the next few years. Doubt has been raised that expansion solely on this basis can serve State policy to provide the necessary means of communication to the "entire Alaskan Community". Additionally, the proposed expansion relies very heavily on the use of current terrestrial technology, though many Alaskan officials and others feel that satellite relay technology has much to offer for Alaska.

Thus there seems at the moment to be the uncommon opportunity to plan rationally an entire integrated, regional communication system with emphasis on uses, needs and opportunities, rather than to permit it simply to grow incrementally as commonly happens. The situation is similar in principle--and in importance to Alaska--to the westward expansion of the railroad system in the United States in the last century. This opportunity will not always be open. In fact it may very quickly be foreclosed by the commercial investment of substantial capital in an incremental development process forced to depend on short-term expected revenue. Related activities which also may act as constraints or boundary conditions include: 1) construction by COMSAT of an earth station at Talkeetna 90 miles north of Anchorage, 2) proposals for a demonstration of ITV/ETV and remote-area communication via satellite being promoted by Alaska State agencies and the Alaska Congressional delegation, 3) legislati pending in the Alaska legislature on utility regulation, and 4) the critical need for communication to the North Slope oil fields. The time left for planning is very short.

This document outlines the work required to formulate a plan for telecommunication development in Alaska. In intent it puts emphasis on uses, needs and opportunities, but gives due consideration to economic and regulatory factors. It does not presuppose the use of any particular technology; rather it seeks to select technology on the basis of ability to serve stated needs, economic and regulatory factors being considered. In format it is consonant with the discipline of systems analysis. The concept is illustrated by the project organization flow diagram <u>/</u> Ref. <u>8</u>/, a copy of which is attached. Numerals within the various blocks refer a major sections of this document in which related material will be found.

The objective of the project is a plan--a blueprint for telecommunication development in Alaska--in sufficient detail to guide policy making and regulatory agencies in the State of Alaska, but with sufficient flexibility to adjust to unanticipated or unpredictable growth patterns.

Time is of the essence. Certain preliminary results are needed before the end of 1969. Major progress is required by April, 1970, and completion by July, 1970, the scheduled date of transfer of the ACS to commercial hands. It is estimated that preparation of such a Plan for Telecommunication Development in Alaska will require an effort on the order of eight man years, at a cost on the order of \$350,000.

# - A PLAN FOR TELECOMMUNICATION DEVELOPMENT IN ALASKA

# I. BACKGROUND AND OBJECTIVES

# A. Alaskania

Alaska is a land of contrasts, contrasts of topography and climate, of people and culture, of modern technology and primitive subsistence.

It is the largest of the 50 States, having an area of 586,400 square miles. This is about one-fifth the area of the first 48 States, and more than twice the area of Texas. It extends for 1,400 miles in a northwestsoutheast direction and 2,700 miles in a northeast-southwest direction. Its topography ranges from broad, low, coastal plains and river valleys to some of the most rugged terrain to be found on the Continent. It includes the highest point in North America, Mt. McKinley, whose peak is over 20,000 feet in elevation, as well as swamp or muskeg and permafrost at nearly sea level. The average annual temperature is just at the freezing point of water, but summer temperature averages 54°F in the south and 60°F in the north, and winter temperature averages 32°F in the south and -20°F in the north. Extreme recorded temperatures range from 100°F to -78°F. Average annual precipitation varies from 4 inches in the north and northeast to 130 inches in the southeast.

The population of Alaska is quite out of proportion to its area. It was 226,167 in 1960 (it is currently estimated at 275,000 to 300,000). In this statistic it ranked 50th among the States. Over the 20 or more years before 1960, the growth rate was such that the population nearly doubled each 10 years. About 15% of the population is native Eskimo, Indian and Aleut. The four largest urban areas (1960 census) were Anchorage with 44,237 persons, Fairbanks with 13,311, Juneau with 6,797 and Ketchikan with 6,483. These were the only centers with population over 5,000. About 14 other centers had populations above 1,000, including such widely separated towns as Barrow, Bethel, Cordova, Kodiak, Kotzebue, Nome and Wrangell. There were, however, over 300 populated settlements. Some 70% of the population lived in settlements of less than 2,500 persons.

Intercity surface transportation facilities are minimal. Fairbanks, Anchorage and Seward are connected by the Alaska Railway. The highway network in the State is quite small, being confined to the Anchorage and Fairbanks areas, with connections to Valdez, Highway, and thence to the Haines Highway which ends near Juneau. As a result, air transportation is of paramount importance for the movement of persons and goods. Anchorage is one of the world's busy air traffic centers. A recent National Georgraphic Society map /Ref. 1/ shows 235 airports with scheduled air service. The Index /Ref. 1/ to the map contains the comment that 'Even these only hint at Alaska's airmindedness; bush pilots touch down with pontoons or skis in remotest lake or field". There are 135 licensed pilots per 1,000 population, about six times the national average.

The great distances, the rugged terrain and severe weather, and the lack of surface transportation combine with the wide dispersal of population to make communications of crucial importance to personal welfare, public health and safety, commercial development, national defense, and State and Federal administration.

### Communications Background в.

The backbone of the intrastate communications system is made up of the military "White Alice" system, in combination with the Alaska Communication System (ACS), both currently operated by the Air Force Communications Service. These systems were built largely in response to defense needs, but also carry all of the civilian long-lines traffic. Connections to the "lower 48" are via a Canadian microwave line and a Ketchikan-to-Seattle cable. To this skeleton are connected various local exchanges and local drops.

These services are supplemented by HF radio links into the ACS system from remote villages or outposts and from ships in coastal waters. The links are operated by various agencies including the Bureau of Indian Affairs, public health and safety agencies, commercial interests and airlines. About 13 ACS land radio stations provide this service for over 300 land out-stations. About 11 ACS coastal telephone stations provide ship-to-shore telephone service for 1,000 to 1,500 ships operating in Alaskan coastal waters.

Broadcast television exists in Anchorage, Fairbanks, Juneau and Sitka areas, but there are no network connections, either intrastate or interstate, for live or real-time dissemination of program materials. Cable TV distribution systems exist in several cities or towns.

The Alaska Communication System (ACS) was built, starting in 1900, by the Federal Government, primarily to provide communications to the military installations in Alaska. The system includes microwave links, tropospheric scatter circuits, pole lines and high frequency radio circuits. The ACS provides public toll or long distance telephone service by connecting to local telephone exchanges. The local exchanges which feed the long distance system are operated by local telephone companies or by military bases, and are not a part of the ACS. The White Alice system is not part of the ACS, though it does carry toll traffic.

The Department of Defense, which originally built the ACS, has in the past followed the practice of selling service to non-military users whenever circuits have been available for this purpose. However, the Department has now adopted the policy of building and owning as little communications equipment as possible, and buying from commercial suppliers as much as it can. This policy has led to the decision to sell the ACS to a commercial concern <u>/Ref. 2, 3</u>/. The expectation of the Defense Department is that it will be able to buy better service at lower cost, since a commercial operator will be in a better position to develop total communication system usage in the State of Alaska.

The Alaska Communication System is being sold to RCA Global Communications, Inc. RCA has agreed to purchase all of the equipment originally offered by the Defense Department for sale as part of the ACS. Of all who bid for purchase of the ACS, RCA offered the greatest rate reductions to users in Alaska. It also has promised to build a backbone microwave system for intrastate trunking, which will allow for future expansion of service. RCA plans to add additional equipment to some of the communication systems which will be retained by the Government. Significant increases in service to remote areas were offered. Finally, the RCA schedule calls for installation of Direct Distance Dialing service by 1970-71. RCA also has offered to purchase half ownership of the ground station which is being built by COMSAT in Talkeetna, Alaska.

#### Current Status С.

Thus, Alaska is at a fork in the road with respect to its public communication services. There seems at the moment to be the uncommon opportunity to plan rationally an entire integrated regional communication system, rather than to permit it simply to grow incrementally as commonly happens. The situation is similar in principle-- and in importance to Alaska -- to the westward expansion of the railroad system in the United States in the last century/Ref. 47. As commerce and industry followed the railroads westward in the lower 48, so they may well follow the communication networks in Alaska. One may hope that development of telecommunications facilities in Alaska can be done with more foresight and order than characterized expansion of the railroad system in the 48 States. This opportunity will not long remain open. In fact it may very quickly be foreclosed by the commercial investment of substantial capital in an incremental development process forced to depend on shortterm expected revenue.

The urgency of the situation has been eloquently articulated in documents of the Federal Field Committee for Development Planning in Alaska. A letter from that committee to the Assistant Secretary of Commerce for Science and Technology and a report of the Communications Working Group organized under the aegis of that Committee /Ref. 67, are attached. The material in these documents forms an important part of the immediate background for this project outline.

#### Project Objectives D.

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In preparation of this outline, emphasis has been placed on potential users, the needs of these users and their satisfaction, and the opportunities for the communication system to be a major influence in the growth of commerce and culture in Alaska. The outline is intended as a basic guide for a task force carrying out the communications planning work. It should not, however, be considered a restriction, particularly with respect to selection of concepts to be considered for the technologic, economic, or legal aspects of communication system development. Specifically it does not presuppose the use of any particular technology or rate structure. Rather, it seeks to examine various alternatives, selection being based on capability to serve stated needs.

The objective of the work outlined is a plan--a blueprint for tele communication development in Alaska. It should be sufficiently flexible to allow adjustment, as time passes, to unanticipated or unpredictable growth patterns. It should offer for selection suitable alternative concepts for orderly development of telecommunication capability in as concrete a form as seems possible. It should be developed in sufficient detail to be directly useful as a guide to telecommunication planning. It should be presented in a format immediately responsive to the needs of policy making and regulatory agencies of the State of Alaska.

To reiterate, the consequence of the effort should not be just a "study report," but a plan for system development.

# II. DEMAND FOR TELECOMMUNICATION SERVICES

It has been pointed out that the existing long-lines telecommunication services in Alaska have been developed largely in response to military needs. There is nearly unanimous agreement among the interested parties that telecommunication facilities should in the future be developed to serve the "whole Alaskan community". In developing such a telecommunication system, it is necessary to evaluate actual and potential demand for service. This is not an easy or straightforward task because it involves extrapolation and forecasting or prediction.

# A. Needs and Opportunities

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In discussions with officials responsible for operating the current communications system and with officials of various agencies of the State of Alaska, there was repeated expression of the need for certain particular types of communication service. In some cases the need was a consequence of current pressure for expansion or improvement in quality of existing services; in others it arose from a lack of service. The two communication needs most frequently articulated were 1) expansion and quality improvement of trunking to the lower 48 States and Pacific Basin nations (especially Japan), and 2) provision of some sort of public communication service to most if not all of the 300 populated settlements.

The backbone of Alaskan communications, the White Alice system and the Alaska Communication System, appear to be saturated (with perhaps exceptions in isolated segments). The largest amount of communication traffic in Alaska is currently generated by defense, defense-related, and Federal administrative activities. In many segments there is a large visible backlog of demand. Direct expansion of existing facilities is, for most network segments, impractical without serious reduction in quality. Some segments are already marginal in this respect. The addition of wideband services for data transmission or television seems out of the question.

Interstate trunking facilities are overloaded, and in some cases of marginal quality. They are not amenable to expansion by simple overbuilding. It is predictable that the greatest traffic densities will occur between large population centers having a supply-and-demand relationship. For Alaska (especially Anchorage) the complementary centers lie in the lower 48 States. It is also significant that about 80% of Alaska's export traffic is with Japan.

Communication with remote settlements is in many cases nonexistent. In others it is unreliable, inadequate, o available only on a limited schedule at pre-arranged times. The primary, but not sole, concerns are for traffic having to do with personal health and safety, and with school and public safety administration.

Perhaps surprisingly, television service was given high priority both in interstate trunking and communication with remote settlements. In the former, the desire was for reception of regular network programming, especially news, from the lower 48 States. In the latter service, the primary concern was for distribution of instructional TV (ITV) and educational TV (ETV) to remote settlements for use in connection with school programs.

A fleet of 1,000 to 1,500 ships is licensed to operate in the coastal waters of Alaska. Currently these use HF radio-telephone. They will shortly be required (by FCC regulation) to convert from double sideband AM to single sideband transmission or to shift to VIIF operation. The former involves considerable expense to the shipowner (estimated at \$3,000), an investment significantly greater than the investment in equipment in current use (\$300-\$1,000). In part, this is expected as a consequence of a major shift to VHF in the lower 48 and a concentration of manufacturing on equipment for VHF. The cost of VHF shipboard equipment would be comparable to that of current double sideband AM equipment, but the network of shore stations required to utilize it does not exist in Alaska.

The importance to the State of air transport was pointed out earlier. Much communication traffic is generated in connection with airline operations. Examples are reservation information, cargo and passenger manifests, accounting data, collection and distribution of weather information, flight scheduling, and traffic control.

The development of the commercial potential of the remote areas is closely linked with the existence or development of communication facilities. A current example of high visibility is development of oil production of the North Slope. Other potential examples are the development of copper, coal and lumber resources, and off-shore gold deposits.

These needs are only those most often expressed. They represent basic or fundamental requirements. There are many others. Attached is a copy of an Outline of User Potential prepared by the Alaska Governor's Satellite Communications Task Force /Ref. 7/, identifying a large number of demand sources. This list of demand sources (as well as additional similar information from the same and other sources) can serve as a starting point for demand estimation.

#### Demand Estimation Β.

For each demand source discovered, the types of service desired and the probable geographical points of delivery of the service must be determined. Also, the quantity of each service required must be estimated. It may be convenient to break down the process of demand estimation into the estimation of demand in the following classes:

- 1) Visible satisfied demand, as measured by current traffic levels,
- Visible unsatisfied demand, as measured by the backlog of service requested but not supplied on network segments which are satur-2) ated or are not capable of the type of service requested,
- Invisible demand; that induced demand which would become evident 3) if service were available,

4) Speculative capacity; capability provided for stimulation of, or as an incentive to, development, or to provide some public service as a matter of policy.

Demand in the first and second classes can be determined by examination of operating records of the existing carriers. Some such information is now being assembled by the Air Force Communication Service. Certain requests for services not now being satisfied already have been made known and are a matter of record. Demand in the third and fourth classes will be more difficult to estimate. The need for communications follows the growth of population and the growth of business and industry. Therefore, the extrapolation of communication needs is closely allied to the prediction of economic and population trends. The initial demand level, and the rate of growth of demand, are vital factors in planning the process of system development. They not only determine the required initial system capability, and the required rate of growth of that capability, but also (aside from possible subsidy) determine the justifiable pattern of capital investment. This may in turn determine the economic viability of certain otherwise satisfactory technological alternatives.

Thus demand data should be stated as a function of time, in increments amenable to planning and implementing the expansion of telecommunications facilities. These data are required as input to the work delineated in Section IV. They form the basis for much of that work. III. CRITERIA FOR EVALUATION OF ALTERNATIVE SYSTEMS

It is desirable to organize an explicit activity to specify a set of criteria against which to evaluate the suitability of each alternative system configuration. It should be pointed out that this phase of a systems analysis procedure results only in specifying the criteria and not in estimating their relative importance, except to delete those tentative candidates that are obviously unimportant, or irrelevant.

For purposes of efficiency, it is of advantage to stratify the set of possible criteria into a number of subject categories. For this project these will include (at least):

- 1) Engineering criteria,
- 2) Economic criteria,

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- 3) Regulatory criteria,
- 4) Demand criteria.

The task of the activity established under this section is to develop in full detail a set of criteria, treating factors such as those listed above, appropriate for evaluation of alternative systems which may be generated under Section IV. These criteria must reflect the needs and opportunities to which the telecommunication system is expected to be responsive (Section II). They may also reflect such properties as efficiency, cost effectiveness and reliability. They must take account of any constraints or limitations (boundary conditions) which may be found applicable (Section VI).

It is important to keep an active interface between generation of criteria and generation of alternative system configurations because the performance of system alternatives must be characterized in terms of factors to which the criteria can be related. An obvious example is to ensure that system cost information is developed as a function of system configuration if cost versus service is to be a criterion. Each criterion must be related to some really significant aspect of system performance; if it is not, the criterion is irrelevant.

# IV. SYNTHESIS OF ALTERNATIVE TELECOMMUNICATION SYSTEMS\*

It has been stated that the objective of the work outlined is a plan--a blueprint for telecommunication development in Alaska. The output from the work delineated in this section should be alternative telecommunication system models which can be judged or rated against the various criteria of performance. It may not be sufficient to produce some single plan, or a "best" plan in the technical sense, since final selection may involve the setting of priorities on alternative social objectives. This function is a matter for the judgment of those responsible for State policy. To make such policy decisions there is needed an objective statement of the expected performance of various alternatives which have been (or may be) proposed, and a statement of the probable, or possible, consequences of adopting these alternatives.

Any alternative system model must include at least three major system elements treating different, but interrelated, aspects of the problem. These elements are 1) technological--the telecommunication network, 2) economic--costs, rates and revenues and 3) legal--regulations and international agreements. The three sub-sections of this Section deal with these elements in turn. Though the subjects are separated for ease of description, it must be recognized that they are coupled in any specific system alternative. Thus the economic and regulatory problems related to a microwave circuit will differ from those related to a satellite circuit. In the final presentation the three elements of an alternative system model should be properly integrated so that judgment of system value is facilitated.

It is important to keep in mind the primary emphasis on potential users, the needs of these users and their satisfaction, and the opportunity for the communication system to be a major influence in the growth of commerce and culture in Alaska. That is to say, any system model proposed should be user oriented.

# A. Operational Concepts and Network Configurations

As architects say that "form follows from function", so it may be said that "network configuration follows from operational concept". To be successful, any operational concept for a public telecommunication network must be responsive to the needs and desires of the network users. Thus the starting point for network synthesis is the demand data developed under Section II.

\* Throughout this Section, for reasons of convenience, an arbitrary distinction is made between the words "system" and "network". The word "system" will be used to denote the entire telecommunication structure, including such <u>hardware</u> as electronic equipment and transmission lines or routes, and such <u>software</u> as rate structures, revenue sharing agreements and regulatory apparatus. The word "network" is used to denote the <u>hardware</u> portions of a telecommunication "system". Basically, the problem of network synthesis is to break the total spectrum of users and services into "groups" in such fashion that the collection of groups can be served by a realizable network at a supportable, or justifiable, level of cost. The realization of the network consists of discovering an appropriate network topology, and selecting from the pool of available technologies those which best satisfy the functional requirements of each segment of the topological matrix. The trick is to do the user grouping and the network segmentation in a fashion that takes "best" advantage of the available technologies.

Traditionally, user grouping and network segmentation have been done almost exclusively on a geographical basis--probably because transmission lines or routes go from point A to point B on a geographical grid, and broadcast type services cover very limited areas. With the advent of satellite communication, network configuration is no longer limited by this geographical concept. For example, in Alaska the totality of telephone users in small bush communities--say those of less than 300 persons--might be considered a "user group". This "group" might be served by a single "network segment" composed of a satellite transponder and a ground control and switching station. With a random access demand assigned operational concept for this segment, this geographically dispersed user group is served from a single network node, which exists conceptually but not geographically. Thus the concepts of "user group" and "network segment" take on a broader meaning.

Such departure from conventional approaches is emphatically to be encouraged in trying to synthesize a telecommunication network to serve the needs of the "whole Alaska community". The question is not, "How can satellite relay technology (or any other specific technology) be applied to the Alaskan problem?" but rather, "What operational concepts and network configurations can make best use of available technology to serve Alaskan telecommunication needs?"

Thus telecommunication network synthesis begins with the development of an integrated network operational concept which will satisfy the indicated demand, and in which the following (at least) are delineated:

- 1) The principles of user grouping,
- 2) Network topology and segmentation,
- 3) Choice of transmission technology for each network segment,
- The principles of traffic flow, switching and control at each network node.

In carrying out this exercise it would, of course, be a mistake to insist rigidly that present existing facilities must form the basic core of the future network. However, it may be just as great a mistake to ignore completely the existence of these facilities.

Thus, a second step is to evaluate the existing network -- its current capacity, the types and levels of service provided, expansion possibilities and limitations, its potential life -- and to determine the applicability and worth of each of its segments to an integrated network.

Thirdly, the details of each segment or function of an integrated network must be delineated, including (at least) these factors:

- 1) Kinds or types of service,
- 2) Capacity and other aspects of performance,
- 3) Adaptability to orderly incremental expansion to meet demand estimates.

Costs with various operational concepts and network configurations must be estimated, including:

- 1) Initial installation costs to meet immediate service needs,
- 2) Add-on costs to expand service to follow estimated demand growth,
- Yearly operating and maintenance cost at each stage of development.

Finally, total behavior of the integrated network must be studied under various operational assumptions, both favorable and unfavorable, so that overall expected performance can be stated. It would be highly desirable to state the trade-off function between performance (service) and cost at various stages of development, since final selection and implementation becomes a matter of judgment, and subject to policy determinations.

### Rate Structures and Revenue Sharing Β.

3)

5)

For the various network alternatives which emerge from sub-section A of Section IV, rate structures must be developed which reflect, in appropriate degree, the following considerations (at least):

- The provision of adequate, or at least essential, service to the whole population at "reasonable" or "affordable" rates, 1)
- The promotion of economic development through favorable rate structures, possibly including selective, differential or 2) promotional rates,
- 3) The provision for distribution of instructional or educational material,
- The provision of such advantages as low-rate off-hour calling, 4)
- The necessity to provide reasonable revenue for system support.

As a part of the rate-structuring process, concepts for revenue sharing between the common carrier in Alaska and those in the other 49 States must be developed which will promote the following ends (at least):

- 1) The provision of direct distance dialing at reasonable rates on an interstate (as well as intrastate) basis,
- 2) The reduction to a minimum of the economic penalty caused by the geographic separation between Alaska and the other States.

That revenue sharing agreements are an important consideration is indicated by RCA's estimate that only 25% of their anticipated revenue from the ACS would be derived from intrastate traffic, while 75% would be derived from interstate traffic.

The rate structures derived may well vary from one stage of system development to the next. If so, they must be stated at each stage.

The basic conflict in any rate structuring problem is between 1) keeping rates low enough to encourage adequate use of the network and to provide socially desirable services at reasonable rates, and 2) raising enough revenue to support the network and to provide a reasonable return to the investors. To the degree to which these requirements do not overlap (i.e., can independently be satisfied), the system is able to operate at a profit, or without subsidy.

Using rate structures derived above and the demand or usage estimates generated under Section II, the potential revenue from operation of the various alternatives must be estimated at each stage of development. This is not necessarily a straightforward problem, since demand will, in some degree, depend on rates in an unpredictable manner. Nevertheless, some estimate is required.

The income required for network support at various stages of development must be estimated from cost data derived under sub-section A of this Section. The difference between expected revenue and required income, i.e., (ER-RI), will be a measure of the ability of the system to be self-supporting (if the difference is positive) or of the necessity for a subsidy (if the difference is negative) under the given rate structure and revenue sharing agreement.

The output from work done under this sub-section should include recommendations for rate structures and revenue sharing arrangements suited to each of the alternatives generated under sub-section A. If subsidy is required--as seems likely to be the case, especially during the initial stages of development--possible sources of such subsidy should be identified, together with the mission and goals of the source agency which would motivate subsidization. The ability of potential sources to pay must be taken into consideration. The following (at least) may serve as examples:

### Source

State government 1)

2) Federal Government

Geographic rate averaging 3)

# Motivation for Subsidization

To support policy of providing essential communications for the "whole Alaskan community". To support State functions, e.g., health and education services.

To provide "readiness to serve" capability for defense installations. To support Federal functions, e.g., BIA, BIM, FAA services.

To allow profitable high traffic density segments of the system to helpsu port segments which are essential but have low traffic density.

# Regulatory Concepts and Administrative Structures

Two basic problems in public utility regulation are to determine the degree of competition permitted and to control monopoly profits. In the traditional regulating process for communication carriers the degree of competition permitted has been very small and profits have been regulated on the basis of a percentage of the capital investment of the carrier. Both of these traditions are now being challenged. One important aspect of this study will be to review these basic concepts in the light of Alaska's special problems at this crossroads in its development of communication services.

At the time of writing this proposal, legislation for public utility regulation is being considered in the Alaska legislature. The State does not yet have the full means for performing the regulatory function. Alaska must now develop those concepts, and establish that structure required to guide the development of communications along the lines of any plan which may be evolved.

To implement regulatory policy, and to guide and control communications utility growth, the State must now do the following (at least):

- 1) Legislate suitable statutory authority,
- 2) Establish an appropriate administrative agency, and
- 3) Provide the necessary expertise within its agencies for
- carrying out regulatory policy and for guiding communications development.

An important part of this study will be to develop and recommend a suitable structure for State regulation of a public communications utility, giving special attention to Alaska's specific needs and to the alternative system configurations which may be evolved.

To implement the concepts and structures developed and recommended under this sub-section, Alaska State legislation ultimately will be needed. While it is not expected that the output of this portion of the work be actual draft legislation, it should be presented in a form well suited to translation into such legislation.

In addition to State regulation, the impact of national and international policy and regulation must be examined and reported. For example, policy for domestic satellite systems is not yet fully worked out, and there are questions yet to be resolved about the sharing of facilities between international and remote domestic (like Hawaii and Alaska) operations. In another instance, FCC regulations on allowable emission types in ship-to-shore telephone service may impact on the desirability of various means for providing this service, which is of importance to a significant group of Alaskans.

14

# X v. EVALUATION OF ALTERNATIVES AND RECOMMENDATIONS

It is one thing to propose a configuration for a telecommunication system such as is here being considered, but quite another to predict its performance in real life. For example, it is known that traffic volume depends not only on desire for service but also on rates. The dependence on rates is not well known. Thus the problem of estimating system revenue is a difficult one--one that is largely unsolved in general, and in the telecommunications field in particular. Although one can state the engineering capability of the system to handle estimated demand, it is a much more difficult problem to determine probable traffic patterns, given a rate schedule. Thus it is essential that careful thought be given to the formulation of system models, whose behaviour can be tested under a variety of assumptions.

The proof of system performance is the ability to satisfy evaluation criteria which are deemed important. Thus for each alternative system generated, measures of system performance must be developed. These measures must quantify a factor for which the criteria provide either a value scale or a go/no-go judgment. Thus system performance measures must be developed in the same areas in which evaluation criteria are developed. (Section III).

When the performance of a system has been evaluated against suitable criteria, an objective statement of system behaviour can be made, at least with respect to the factors measured. Acceptance or rejection of a system, selection of system operating parameters, or selection among alternative systems, requires that the several measured factors be weighted according to importance (or that the evaluation scores be reduced to a common value scale). The assignment of "importance" weights is a matter of judgment to be made by those responsible for setting policy.

Thus, for each system, the product to be delivered at this stage of the project must include 1) a description of system configuration adequately detailed to allow implementation to proceed from it, and 2) objective statements of system performance relative to the measured and evaluated factors to provide the basis for decision or selection. It is of utmost importance that these two types of information be fully and carefully documented.

# X A. Project Organization

One concept for the logical organization of the major tasks outlined in this proposal is shown diagrammatically in Reference 8. This illustration shows the basic precedences, prerequisites, and contingencies involved in organizing and prosecuting the various tasks. Being a simplified diagram, it makes no pretence of showing all possible variants of function and relationship. The basic concept shown can be developed, in detail, as specific means are identified for getting the work done.

# X B. Boundary Conditions

In carrying out the tasks outlined in Sections II through V the existence, and practical consequences, of several boundary conditions must be recognized. These may take the form of rigid constraints, or of flexible--but reactive-interfacing with activities of other agencies. These may control or limit freedom of action in prosecuting the project.

Among rigid constraints is the fact that the ACS is being sold to RCA Global Communications, Inc., and that operational transfer of the system is scheduled for July 1970. A second constraint is the fact that a satellite communication ground station is currently under construction at Talkeetna, Alaska, and is scheduled for completion in mid-1970.

There are several interfacing situations which yet have some degree of flexibility, but are almost certain to limit or influence the scheduling or the scope of the work to be done. They will require immediate discussion--and perhaps negotiation--with the parties involved. The following are noted:

1) RCA already has engineered some plans for immediate expansion or improvement of the ACS. Some of these plans call for construction to begin before the transfer date, perhaps as early as January of 1970. The impact of these plans on the long-range development planning process must be assessed promptly, and any remedial action required must be delineated at the earliest possible date.

2) The ultimate owner and operating agent of the microwave line from Talkeetna to Anchorage is not yet decided. Actions instituted by several potential agents are pending before the FCC.

3) The oil field development on the North Slope makes urgent the need for communication to that area. A franchise for service within that area is under consideration by the Alaska Public Service Commission, but trunking to the area is inadequate.

4) The combine planning the trans-Alaska pipeline is planning its own communication and telemetering system along the pipeline. The question of whether this service ought rather to be provided by common carrier, and if so by what means, needs to be addressed immediat 5) Legislation for public utility regulation is already under consideration in the Alaska legislature. The content of this legislation, and its relation to legislation which may arise from work done under this proposal, must be evaluated quickly.

6) A formal proposal is being made for immediate demonstration of ITV/ETV in remote towns and of basic communication to remote areas via satellite relay. While the temporary nature of the proposed installations seems to pose no direct threat to longer-term planning, the success or failure of the demonstration could result in strong and unexpected pressures on the planning or implementation processes.

7) A problem is developing in the ship-to-shore telephone service. FCC regulations requiring changeover from double sideband to single sideband emission in the HF band may force the change under circumstances where the option to shift to VHF is not viable because of the lack of shore service, or of any plans to provide that service.

These are the boundary conditions which have so far been discovered and seem significant. There is, however, no positive assurance that they are the only ones, or that others will not develop.

## C. Resources

Sources of the required kinds of expertise to carry out the work will have to be identified and recruited. For some of the tasks, appropriate expertise is available in various state and federal agencies. For others, commercial or institutional assistance will have to be obtained. Until the details of how the work should proceed are worked out, accurate cost estimates cannot be made. For the meantime, a rough estimate of the resources required to carry out the work is outlined below. The manpower and costs are estimated to be as follows:

| Outline           | Manpower<br>Required | salary<br>Ecolts  | Expanse |
|-------------------|----------------------|-------------------|---------|
| Section<br>II 4x1 | 2 = 2 man-years      | \$ <b>80,</b> 000 | \$7,000 |
|                   | /4 = 1/2             | 25,000            | 1,000   |
|                   | 1/2) = 4             | 160,000           | 7,500   |
|                   | /4 = 1               | 50,000            | 2,000   |
|                   | 3/4 = 3/4            | 37,500            | 5,000   |
| TOTAL             | 8/man-years          | \$350,000         | 22,500  |

There are numerous agencies, both Federal and state, which have a direct interest or stake in telecommunications planning for Alaska. Many of these have already been identified. An attempt should be made to identify all such agencies, and to solicit their guidance, their help, and--where appropriate--their financial support.

# REFERENCES AND ATTACHMENTS

# A. References

 Map of Alaska, Index to Map of Alaska, National Geographic Society, Washington, D. C., Catalog item 203.

2. Request for Offers: Alaska Communication System, Air Force Communications Service Attachment A: Communications Services Involved in the Transfer Attachment B: Communications Facilities Available for Transfer Attachment C: ACS Rates and Tariffs Attachment D: Informational Data--Traffic Projections, Per Capita Revenue, Community Population Attachment E: Private Leases and Contracts.

- 3. 'Disposal of the Alaska Communication System," <u>Alaska Review of</u> <u>Business and Economic Conditions</u>, March 1967, Institute of Social, Economic, and Government Research, University of Alaska, College, Alaska.
- 4. <u>The Economic Theory of the Location of Railways</u>, by Arthur Mellen Wellington, John Wiley and Sons, New York, 1887.
- The White House Staff, letter to Hon. Myron Tribus, Assistant Secretary of Commerce for Science and Technology, September 25, 1969, over the signature of Clay T. Whitehead.
- 6. Federal Field Committee for Development Planning in Alaska, letter to Hon. Myron Tribus, Assistant Secretary of Commerce for Science and Technology, September 4, 1969, over the signature of George O. Sharrock. Attachment: The Communications Working Group, Federal Field Committee for Development Planning in Alaska, Robert A. Breitweiser, Lt. General, USAF, Chrm., report entitled The Need for a Long-Range Communications Development Plan for Alaska.
  - 7. Satellite Communication Task Force, State of Alaska, <u>Governor's</u> <u>Position Paper on Communications, Outline of Potential</u> <u>Users</u>, September 17, 1969, over the signature of A. G. <u>Hiebert</u>, Chrm.

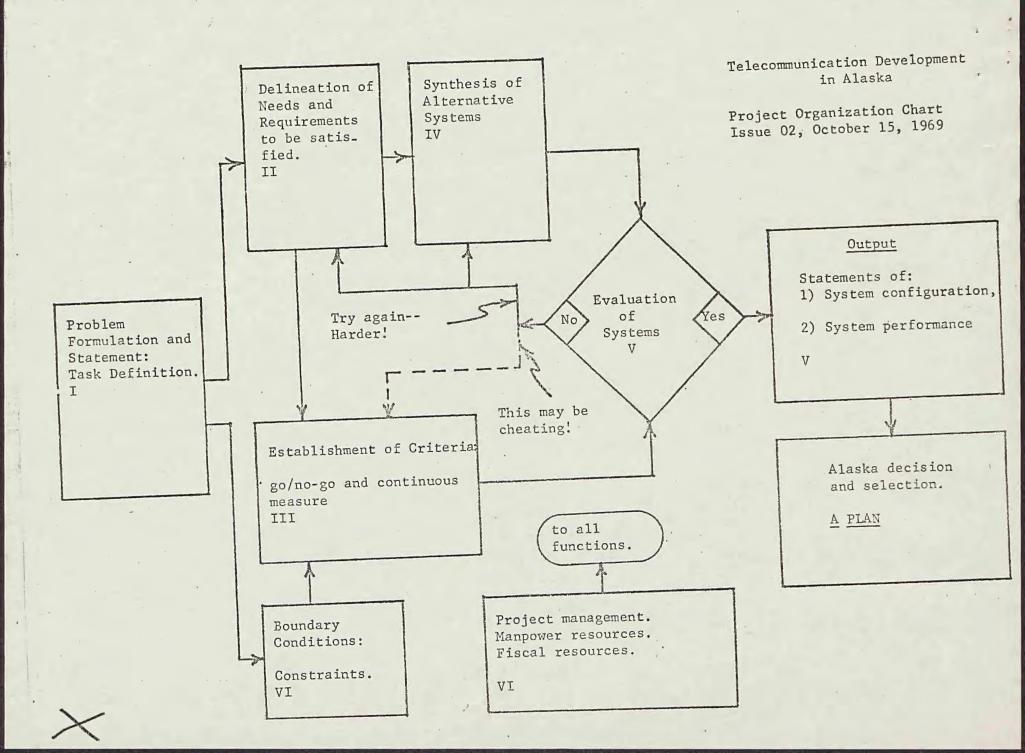
X 8. Project Organization Chart: Issue 02., October 15, 1969.

# B. Attachments

.....

Copies of references 5, 6, 7, 8.

19





OFFICE OF THE ASSISTANT SECRETARY OF COMMERCE Washington, D.C. 20230

Date: Nov. 6, 1969

Attn of: Edgar C. Hayden

Subject: ALASKA TELECOMMUNICATIONS STUDY

To: Dr. Clay T. Whitehead

c)

d)

e)

1. Nature and scope of the project

See project outline, especially sections or items marked in red. Copy of outline is attached.

 Crucial dates or deadlines (for boundary conditions see pp. 16 & 17 of outline). Dates are noted on attached graphs.

| a) | November 6, 1969 | Alaska PSC meeting<br>Federal Field Committee for Development<br>Planning in Alaska & Alaska Governors'<br>Satellite Communication Task Force plan<br>to request deferment of hearing on issuance<br>of certificates of convenience and<br>necessity to RCA. |
|----|------------------|--|
|    |                  |  |

- b) November 10, 1969 Last date for filing protest with Alaska PSC over issuance of certificates of convenience and necessity to RCA.
  - January 1, 1970 Earliest date of PSC hearing on RCA application, <u>hopefully</u>. It is not known whether hearing can be postponed, or if so for how long. <u>Some study results needed for this</u> <u>hearing</u>!
    - April 1, 1970 Federal Field Committee for Development Planning in Alaska target date for completion of study.

July 1, 1970 Transfer of Alaska Communication System to RCA. Commencement of operational control of system by RCA. Commencement of RCA's expansion program.

- NOTE 1: Federal Field Committee's estimate of latest date for start of study is October 1, 1970.
- NOTE 2: A new PSC law for Alaska is to be considered in the second session of the State legislature, which meets after the first of the year. Some of the results of this study should be relevant to that pending legislation.

### 3. Manpower and budget

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Presuppositions:\*

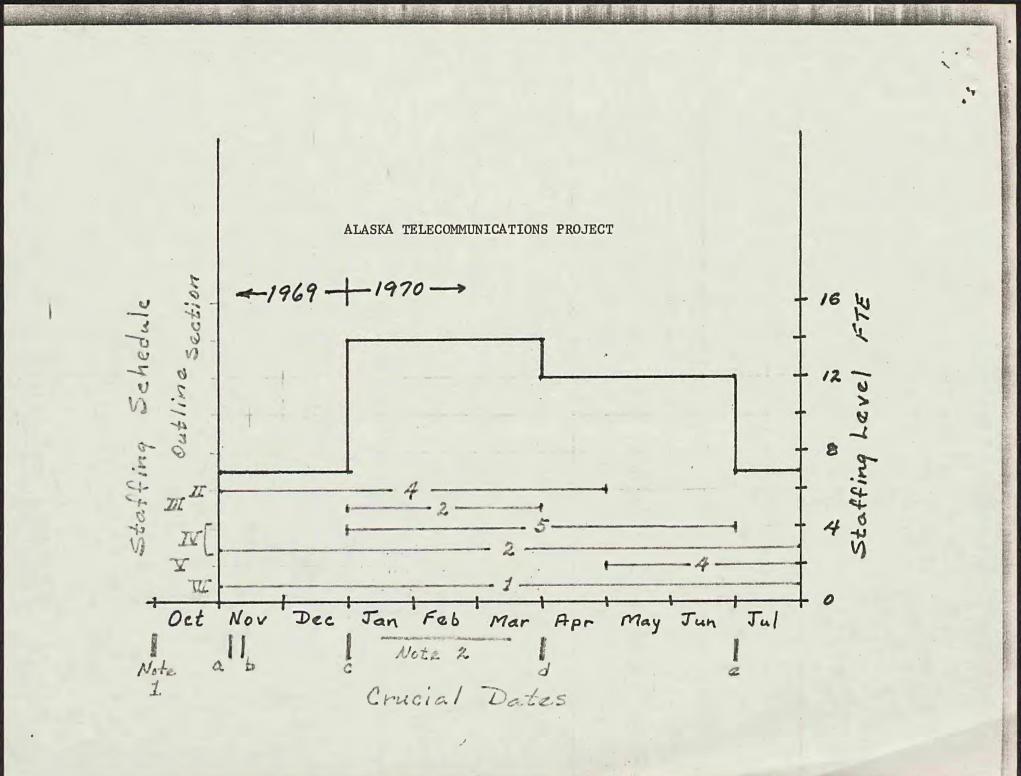
- a) Basic demand data is available; needs to be assembled and translated into suitable form for system design.
- b)  $A_{\mu g}^{\vee}$ , salary; 0. H. = 100% of salary
- c) Clerical =  $\frac{1}{2}$  FTE

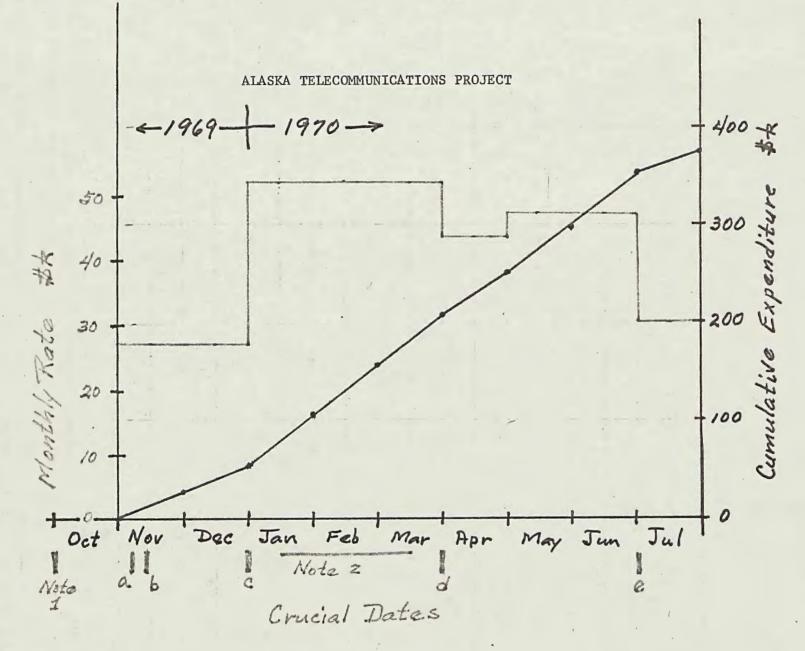
|     | ne Program<br>on <u>Element</u> | FTE<br>X<br><u>Years</u> | Man<br><u>Years</u> | Unit<br><u>Cost</u> | Salary<br>&<br>Overhead | Expense<br>&<br><u>Travel</u> |
|-----|---------------------------------|--------------------------|---------------------|---------------------|-------------------------|-------------------------------|
| II  | Demand                          | 4x1/2                    | 2                   | \$40.0k             | \$ 80.0k                | \$7.0k                        |
| III | Criteria                        | 2x1/4                    | 1/2                 | 50.0k               | 25.0k                   | 1.0k                          |
| IV  | Synthesis                       | (2x3/4)+(5x1/2)          | 4                   | 40.0k               | 160.0k                  | 7.5k                          |
| v   | Evaluation                      | 4x1/4                    | 1                   | 50.0k               | 50.0k                   | 2.0k                          |
| VI  | Management                      | 1x3/4                    | 3/4                 | 50.0k               | 37.5k                   | 5.0k                          |
|     |                                 |                          |                     |                     |                         |                               |
|     |                                 | TOTALS                   | 8 1/4               |                     | 352.5k                  | 22.5k                         |

<sup>\$375.0</sup>k

\*NOTE: Staffing and expenditures schedules are approximate only. They do not show explicit provision for the output of preliminary results needed for Alaska PSC hearing on RCA certification. This is an estimate, not a plan.

2





Wednesday 11/5/69

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5:15 Checked with Tribus' office to see who would be attending the meeting tomorrow morning at Il o'clock.

It will be Edgar Hayden, John Richardson, and possibly John Powers.

Do you want Kriegsman or Gabel to sit in on the meeting?

# Tuesday 10/28/69

11/6 11/6

11:25 Bob

Eob Powers, Office of Telecommunications at Commerce, (189) 5171 advises that Mr. Tribus has had his meeting with the working group on Alaska communications and would like to get together with you and discuss the results of that meeting and where we should go next.

The first time that would be available for Dr. Tribus would be a week from Thursday -- November 6th. They suggest 11 a.m.

Edgar Hayden, Robert Powers, R. C. Kirby, John Richardson, and Walt Hinchman would be the ones who they would like to attend the meeting.

(K

(He indicates Tribus' secretary feels very badly if she has to change any of the meetings she has set up. ')

THE ASSISTANT SECRETARY OF COMMERCE NAS WASHINGTON, D.C. 20230

MEMORANDUM TO DR. CLAY T. WHITEHEAD

Subject:

1963

Alaska Project

Attached is the information about the policy level persons you promised to contact to help assure firm supporting services for the Alaska communications project. In addition to these Federal agencies, you were to urge funding from Alaska through Governor Boe's office.

I appreciate very much your helping in this way to assure adequate resources for the project. I do feel, as I expressed in your office, that various deadlines are putting us under pressure to begin work as quickly as possible.

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tachments

EXECUTIVE OFFICE BUILDING WHITE HOUSE Washington, D. C.

To: Security Officer, White House Police Main Lobby, EOB

Please admit the following appointments on November 6 1969 for (Mr.) (Mt\$1)/(Miss) Clay T. Whitehead , Agency White House .

in

| Name |   | Time             | Name | * * | Tim | 10 |
|------|---|------------------|------|-----|-----|----|
| Name |   | <br>and a second |      |     |     |    |
|      |   | <br>•            |      |     | 1.5 |    |
|      | • |                  |      |     |     |    |

11:00 a.m.

29 State State And Street alteret

FORM WH-25

Hayden, Edgar Powers, Robert Richardson, John Tribus, Myron

| Meeting Room: | 110     | Secretary: Eva Daughtrey |
|---------------|---------|--------------------------|
| Meeting noon. | -       |                          |
|               | • • • • | Telephone Ext. 2786      |
| • • • •       |         | Date: 11/5/69            |

# FUNDS DESIRED

| Commerce | \$100K |
|----------|--------|
| Defense  | 100K   |
| NASA     | 100K   |
| Alaska   | 100K   |

### Department of Defense

## Staff already contacted:

Mr. T. J. O'Brien Deputy Director Office of Telecommunications Policy

together with

Mr. William Ellis

### Current Status:

Mr. Ellis has indicated that DoD will supply "some" money and staff. The amount is not yet determined.

### Policy level contact:

Honorable Barry J. Shillito Assistant Secretary Installations and Logistics 11-55254

### Request:

Resources not to exceed \$100K. These may be contributed in the form of staff or money. If the contribution is in the form of staff, that support should be appropriate to the needs of the project.

National Aeronautics and Space Administration

## Staff already contacted:

Dr. Walter Radius Communications Program Office

together with

6.3

Mr. Russ Burke Mr. Jerry Rosenberg

### Current status:

Dr. Radius offers NASA support in identifying sub-problems which should be given to private contractors and in setting up the contracts. He suggested going to Administrator Paine for money support.

### Policy level contact:

Dr. Thomas O. Paine Administrator, NASA 13-36931

### Request:

Resources not to exceed \$100K. These may be contributed in the form of NASA staff, NASA contractor staff, or money. If the contribution is in the form of staff, that support should be appropriate to the needs of the project.



## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON, D.C. 20546

December 4, 1969

OFFICE OF THE ADMINISTRATOR

MEMORANDUM TO: Mr. Clay T. Whitehead The White House

Subject: Status of ATS-I Experiments Proposed by the State of Alaska

As you requested, here is a statement on the current status of the proposed Alaska-ATS experiments for your use in connection with the announcement of Mr. Tribus' assignment on Alaska communications.

It looks as if it will be possible to conduct the experiments but at this time there are still a number of unresolved problems of technical compatibility. Thus, it would be premature to announce that they are going ahead.

From our standpoint, it is important that whatever is put in your announcement indicates that the use of ATS satellites is <u>experimental</u> in nature, not operational. Also, the context should be clear that NASA is not giving Alaska special treatment, i.e., this is a part of a broader program of user experiments using capacity that has become available on NASA's experimental ATS satellites.

Let me know if we can be of further help.

Willis H. Shapley Associate Deputy Administrator

Enclosure



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON, D.C. 20546

December 4, 1969

REPLY TO ATTN OF:

SC/RBM/sl

TO : Mr. W. Shapley/ADA

FROM : Dr. R. B. Marsten/SC

SUBJECT: Proposed NASA Contribution to Alaska Press Release

The National Aeronautics and Space Administration has under active review and consideration a proposal submitted November 12, by the Governor of Alaska, entitled "A Proposal For Satellite Communications Demonstration for Alaska." The proposal describes a user experiment developed in response to NASA's announcement on June 13, 1969, offering the use of the ATS-I and III satellites to potential users of communication satellite technology to permit them to assess the validity of their applications in an actual operating environment. Governor Miller had indicated to NASA on August 18, 1969, his intent to submit such a proposal and had asked NASA's assistance in developing one. NASA sent a delegation to the Governor's Conference on Satellite Telecommunications, held in late August at Anchorage, and has since had several meetings with the Chairman and Members of the Committee established by the Governor to develop the proposal.

The proposal is directed toward providing relatively longterm demonstrations of two types of satellite services: instructional TV and radio voice broadcast. Instructional TV programming material generated at the University of Alaska will be transmitted from a ground station near Fairbanks, via ATS-I, to three remote-area receiving stations located at Kodiak, Fort Yukon, and Nome. Earth stations will be provided by the Communications Satellite Corporation and by RCA Globecom. Transmissions would be made during five hours each day. The VHF-radio voice broadcast experiment consists of two elements, an educational radio service and a public safety and record service. The educational service programs originate from the University of Alaska and from Alaska radio stations. This material will be transmitted through the VHF transponder on ATS-I to receivers in remote locations not served by the TV earth stations. The public safety and record service will operate between selected sites in Alaska through the VHF transponder on ATS-I. About one hour each day would be devoted to these experiments.

The proposal is being actively reviewed to establish compatibility of proposed equipment and schedule with ATS-I.

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R. B. Marsten Director, Communications Programs



THE ASSISTANT SECRETARY OF COMMERCE Washington, D.C. 20230

DEC 1 5 1969

MEMORANDUM FOR CLAY T. WHITEHEAD Staff Assistant The White House

Subject:

Your Memorandum of November 24, 1969

I appreciate your sending the memoranda to NASA and DoD regarding contributions to our interdepartmental study on telecommunications planning for Alaska.

As to the public announcement of the Alaskan study, release was scheduled for December 12, as coordinated with you.

The Gibson letter to you dated November 20, 1969, in which DoD demurs at our Interdepartmental Group approach and recommends instead that the study proceed under the Federal Field Committee for Development Planning in Alaska ("The Committee"), to be advised by RCA and other Alaska-based carriers, alone, indicates a developing problem.

If you wish to reply at all it might take the following line:

The Interdepartmental Group approach still seems preferable, because:

- Sharrock's request itself asks for a study by an independent entity. That is what the Committee would be getting.
- RCA is by no means excluded from providing input, because it can advise the Interdepartmental Group just as easily as it could advise the Committee.
- There are significant uses of Alaskan telecommunications throughout the whole Government. (As between military and civilian agency ACS business for FY 1966, published figures show that roughly 60 percent was military and 40 percent civilian agency).
- The developmental nature of Alaska makes decisions now crucial to the State and to the Nation as a whole.

Enclosed for your use if you wish is a draft letter to Gibson conveying these ideas.

7.1.

nclosure

#### DRAFT

Mr. Glenn V. Gibson Deputy Assistant Secretary of Defense Installations and Logistics Department of Defense Washington, D. C. 20301

Dear Mr. Gibson:

This replies to your letter of November 20, 1969, concerning telecommunications planning for Alaska. We were glad to learn that the Department of Defense is prepared to participate in the interdepartmental study.

As to how the study is to be undertaken, however, the Interdepartmental Group approach still seems preferable to us.

George Sharrock's request, dated September 4, 1969, on behalf of the Federal Field Committee for Development Planning in Alaska ("The Committee"), itself asks for a study by an independent agency. This is what the Committee would be getting.

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There are, of course, significant uses of Alaskan telecommunications throughout the whole Government. (Published figures show that, as between military and civilian agency ACS business for FY 1966, roughly 60 percent was military and 40 percent civilian agency.) With the Alaskan's future development at stake, we believe that the Interdepartmental Group, including qualified representatives from the various agencies, free of self-interest, would be in a singular position to take a comprehensive, unbiased, long view of the appropriate role of telecommunications in the developmental process in the State.

The developmental nature of Alaska makes decisions now crucial to the State and to the Nation as a whole.

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Sincerely,

Clay T. Whitehead Staff Assistant



DEC 15 1969

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THE ASSISTANT SECRETARY OF COMMERCE

Washington, D.C. 20230

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The developmental nature of Alaska makes decisions now crucial to the State and to the Nation as a whole.

Sincerely,

Clay T. Whitehead Staff Assistant OFFICE OF THE ASSISTANT SECRETARY OF COMMERCE Washington, D.C. 20230

Reply to Attn of: John Richardson Subject:

Report on Foreign Travel (OECD Segment)

#### Myron Tribus To:

Date:

### Purpose

One purpose of the trip was to attend the June 22-23, 1970 meeting in Paris of the Panel on Data Communications of the Computer Utilization Group (CUG) of the Committee for Science Policy (CSP) of the Directorate for Scientific Affairs of the Organization for Economic Cooperation and Development (OECD). The Panel on Data Communications was newly established following a recommendation arising from the meeting of June 4-5, 1970, of an ad-hoc Policy Panel of the CUG.

The purpose of the meeting of the Panel on Data Communications was to formulate a study program dealing with policy issues of computer/telecommunications interaction, responsive to the recommendation of the ad-hoc Policy Panel. The purpose of the study program is to assist OECD member governments to formulate and implement policies that will address the changes and the opportunities that computer/telecommunications technologies are certain to bring.

Quoting from the report of the Policy Panel:

"OECD, representing a homogenous group of industrially advanced nations, is in an excellent position to meet this challenge, and could reflect the national focus on an international basis by:

- (i) Encouraging and stimulating national policy discussions in the field of information and communication policy.
- (ii) Initiating policy-oriented studies in this area to assess the existing problem-solving potential and its use.

(iii) Providing an exchange of information and common orientation on new initiatives taken by Member governments towards integrated communication networks, nationally and internationally."

#### Background

At its twelfth session on March 19-20, 1970, the Committee for Science Policy decided that the program of the OECD on computer technology should be reoriented toward policy issues of concern to member-country governments. As a consequence the ad-hoc Policy Panel was formed. Its meeting of June 4-5, 1970 resulted in the following recommendations:

"The policy issues...above should constitute the main headings of the 1971 programme of the Computer Utilization Group (CUG), namely: policy implications of computer technology; inter-relation of computers and communications; computer man power and education policies; efficiency audit.

"The Policy Panel suggests that the CSP give urgent consideration to devising a committee structure that would enable the OECD to undertake a long-term integrated programme...."

The present Panel on Data Communications was organized presumably in partial response to these recommendations. The recommendations were consistent with United States objectives to direct effort toward broader issues of computers related to their socio-economic impact as contrasted with a "catalogue" approach narrowly describing usage. U.S. objectives also were to pull existing diverse OECD computer efforts together.

These U.S. objectives were motivated from a desire to generate interest in the "three C's" of information technology: computers, communications, and content.

### Meeting Highlights, with Observations Thereon

The following presentations were made:

1. "Manufacturer's View of Telecommunications,"

#### A. J. Henry, I.B.M., France.

- "Applications and Network Requirements for Remote Data Processing," Friedrich Schreiber, Siemans AG, Munich.
- "User's View of Telecommunications," Dieter Kroneberg, Societe Internationale de Telecommunications Aeronautiques (SITA), France.
- "User's Demand for Telecommunication Services,"
   T. Chenevix-Trench, Scientific Control Systems, Limited, London.

### Presentation of I.B.M.

Mr. Henry surveyed the topics of data transmission, data communication, terminals, tariffs and regulations, company management, and company objectives in straight forward terms. Perhaps his most important point was that whereas in 1965 the value of ADP to a firm was measured by the dollar value of clerical and machinery resources that it displaced, its value is being measured by different criteria today and will be measured by different criteria in the future. The most valuable consequences of ADP techniques in business today appear to be shortening the "turn-around-time." By 1975 ADP will be most valuable for both tactical and strategic decision-making in business policy. Mr. Henry expressed strong approval for the present trend toward digital data transmission.

### Presentation of SITA

SITA was described as an example of the international application of data communications. SITA consists of 136 member airline companies operating in 81 countries with a total of 137 centers inter-connected by a network made up of 232 national or international shared circuits.

The number of messages on the whole network was 270 million in 1968. About 70% of the traffic concerns seat reservations; 30% pertains to lost baggage and other operational messages. On a peak day some 200,00 messages would be handled. Major obstacles to the SITA operation are found in inadequacy of local lines and in inflexibility of tariff structures. Similar applications of world-wide data networks now in existence are those in meteorology, world health, and international police.

### Presentation on the German System

Dr. Schreiber gave an exhaustive and scholarly characterization of various communications networks as to their actual and desirable properties for various information uses such as voice and data. His paper provides a basis for classifying different networks and for making decisions on future network development.

It is the task of the Consultative Committee on International Telephone and Telegraph (CCITT) of the International Telecommunications Union (ITU) to standardize different data networks internationally. The first CCITT meeting on the subject is scheduled for November, 1970 in Geneva.

Evidentally after analysis the German Post, Telephone and Telegraph (PTT) has decided to adapt the existing voice public telephone network to data rather than to build separate data network. This adaptation will be achieved by selectively conditioning lines for data transmission, by selectively providing the relatively few broadband lines needed, and by providing adaptive devices (modems) that will perform the necessary function of conversion from the computer mode to the telecommunications mode. This is an extremely important policy decision by Germany because the investment in adapting the existing network may very well foreclose the option of providing a seperate network especially designed for data transmission. It will be extremely important to observe Germany's experience to see whether this foreclosure of options will be a common pattern for other countries.

# Presentation on British Demand Study

T. Chenevix-Trench reported on an exhaustive demand study commissioned by the British Post Office on data communications. Three main themes of the study were (1) forecasting of technology and demand, (2) how to measure the contribution of data transmission to the national economy, and (3) the demand for high speed data transmission services. Very large growth rates of 40% to 60% per year for terminals was forecast. Three contributions of data transmission to the national economy were identified: (1) automation of operations forced by shortages of skilled labor and stimulated by the desire for shorter transactions, (2) improved short term or tactical planning such as scheduling of operations or routing of traffic, and (3) strategic decision-making to improve the process of making correct basic decisions with significant long-term consequences.

The results of the study were that very few requirements for switched, very fast, broadband networks (greater then 10 kilobits per second) were found. The demand for visual display units will be great. There will be need for store-and-forward services. The most frequent pattern of use of data transmission is for only one-half hour per day or so from many small establishments as contrasted to continuous usage by a few large establishments.

There was a firm recommendation that United Kingdom not build any separate high speed data network now or for the next five years. It was difficult to predict future need for such a network because of the scarcity of existing information on broadband usage. It is presumed that if a high-speed data network is required the need will only emerge and become clear after five years from now.

Data transmission rates of 2 kilobits per second, available on present voice channels, will clearly be inadequate within five years. Data transmission rates of 10 kilobits per second would meet the foreseen needs for five to eight years. Right now a first-class service at 10 kilobits per second is an urgent need of the U.K.

Demand for such services will depend very greatly on the marketing efforts of the Post Office.

Broadband data transmission services for the future may be able to be integrated with videophone networks or with broadband information cable networks, depending on the development of the technology.

#### Results of the Meeting

The meeting resulted in the drafting of a statement

of the terms of reference of the panel. The panel is renamed as "Panel on Policy Issues of Computer/Telecommunications Interaction" In the terms of reference the purpose of the panel was stated to assist member governments by

- "(a) Surveying the state of the art and trends in the development of information utilities with specific reference to systems existing and planned in each Member country.
  - (b) Analysing possible fields of applications and their data processing and communications requirements.
  - (c) Identifying and evaluating alternative policies that Member countries might follow in exploiting the information utility concept.
  - (d) Recommending actions that Member countries might take in formulating and implementing their policies in this field."

A work plan was to be proposed by the Chairman, assisted by the Secretariat, of the panel and circulated for approval shortly. The next meeting was set for October, 19-21, 1970. It is to be devoted to the Membercountry surveys of the state of the art and trends in the development of information utilities.

#### Evaluation

From the OECD point of view the subject of the combination of the computer and communications technologies will be an important topic for attention. Some indication of its importance is provided by the following quotations from speeches by Eric Kierans, Minister of Communications for Canada.

"I would like to give some "suppose that" examples of what might be involved if key Canadian data banks, because of the economies of scale possible in large systems, were to be located beyond our borders. Suppose, and

the stakes are too high for just supposing, that Canada enacts laws to protect its citizens from unauthorized use of private information gathered about them. Suppose it were decided that medical, legal or credit information about individual Canadians could not be divulged without the consent of those individuals or appropriate authorities. Suppose that computer-assisted education breaks through its cost limitations, becomes a reality and that all the programs originate in another country. Suppose that vital Canadian economic and resources information, on the grounds of economic efficiency, is stored in another country. Or suppose that under a Canadian court order a search is made of the records of a Canadian business and those records are stored in a computerized information system outside of Canada. In all these hypothetical cases, the value of Canadian policy and legislation could be seriously compromised. To discover how many of these suppositions might have substance in terms of actual developments in Canada, I have directed the Department of Communications to compile an inventory of computerized information systems now serving Canadian needs to determine those which may be located beyond the borders of this country.

In short, we are still at the stage, in this area, of attempting to collect basic information. But we are going about collecting that information in the full knowledge that a state which, for whatever reasons, cannot apply its own laws and regulations to its own citizens is a state which has lost control of its future."

"But whatever the complexities involved, I am convinced that if we in Canada lose control of this essential information industry any effort to maintain a distinct Canadian political entity would be futile."<sup>2</sup>

<sup>1</sup> Eric Kierans, "Canada and the Computer Utility," a Speech before the Information Processing Society, Ottawa, January 14, 1970.

<sup>2</sup> Eric Kierans, "The Computer: Some Canadian Options," a speech before the Montreal Chapter of the Data-Processing Management Association, February 19, 1970.

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From the U. S. point of view there is a need for clarification of objectives in order to arrive at the proper level of effort the U. S. should invest in this OECD panel. This particular panel is several levels down in the OECD hierarchy. It appears to have limited resources--almost inadequate to the task of properly handling such a significant subject. Unless the panel can organize itself and the resources it can command very effectively, the U. S. role can be little more than to lend encouragment and to supply information.

The U. S. as a member of OECD would have interest directed toward OECD progress as a whole and also directed toward U. S. self-interest within the OECD community. In either case the objectives of U. S. participation in this panel are not yet clearly defined. Do they center on strengthening the OECD Member-country community in this area? Do they center on U. S. markets within OECD or world markets for OECD member countries? Does the U. S. press the concept of an information utility with massive and convenient exchange of all sorts of data information as an approach to world harmony?

From the point of view of U. S. interest in the field itself, quite apart from its OECD membership, the technology and utilization of this field can be advanced by pursuing the topic within other frameworks as well. The proper distribution of U. S. effort on the subject, among OECD and other possible domestic and international foci of interest should be explored by Andrew Aines, of the Office of Science and Technology, and myself.

Finally, the meeting did not make clear the extent and adequacy of interlocking arrangements with this panel and its sister panels, if any, and to the CUG itself.

To sum up, continued U. S. participation in this panel's work will be desirable at about the level devoted by the other countries in order to generate awareness, interest, attention, and action on information technology and information utilities within the OECD. Executive Branch concern with U. S. national policy in this area needs to find other media.

cc: Andrew Aines (OST) Carl Wait (U. S. Mission to OECD, Paris)

### THE WHITE HOUSE

WASHINGTON

August 19, 1970

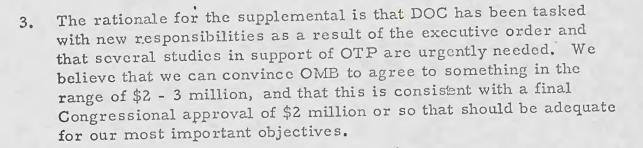
### MEMORANDUM FOR

Dr. Myron Tribus Assistant Secretary of Commerce for Science and Technology

Until now, our discussions of telecommunications have focused primarily on two areas: (1) the functions of the OTP and the DOC, and (2) the scope and size of the DOC supplemental appropriations for FY 71. In order to make sense of these, however, it seems that we should also address at this time a broader range of related issues: (3) rationale for the supplemental, (4) future plans for DOC program and organization, (5) management procedures to assure effective support of OTP objectives by DOC and related OTP support of DOC plans and programs, and (6) administrative arrangements for transfer of frequency assignment personnel to DOC.

I think it is clear from our previous discussion that we cannot arrive at an appropriate supplemental figure without considering the rationale to be developed for OMB and Congress. Further, OTP support of the DOC proposals before OMB and Congress has to be contingent on this broader penspective. I have set out below our views on these six areas as a basis for our discussions.

- 1. We are agreed that the statement of the functions of DOC in this area is to be broad to permit whatever studies and support efforts in telecommunications might subsequently be agreed to by OTP and DOC.
- OMB feels that a supplemental for DOC of \$1 2 million is appropriate. We have not yet had the opportunity to review the DOC plans in detail, but feel that something between the OMB concept and the tentative \$5 million DOC figure is -----desirable.



-2-

Major changes in the organization or expenditures of DOC in connection with telecommunications may meet with significant resistence in Congress as is evidenced by the deletion of funding for NECAF in FY 71. Legislation may be required to establish the kind of operation DOC and OTP would like. Accordingly, planning to support a Bureau of Telecommunications must be extensive and rigorous, and the matter should be thoroughly coordinated with both Executive and Congressional branches of Government. This topic should be the subject of a continuing dialogue between OTP and the DOC.

5. See attached sheet.

4.

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6. Previous discussions between Lowe and Richardson of DOC and Mansur have led to a tentative agreement that the functions and personnel of the IRAC Secretariat should be transferred to DOC at the earliest practicable date. Since the function of the IRAC Secretariat is currently being performed with twenty-one people, it was also agreed that 21 organizational positions and funding corresponding to the salaries of the Secretariat (approximately \$300,000) would be transferred to DOC. Administrative arrangements remain to be completed and it is recommended that Commerce work with Ray O'Connell to plan space\_ and facilities so that the transfer can be effected within sixty to ninety days.

> Clay T. Whitehead Special Assistant to the President

Attachment

cc: Mr. Whitehead Central Files COORDINATION ARRANGEMENTS BETWEEN OTP AND DOC

1. The Director, OTP, should approve the work statements for all major contract studies executed in support of OTP responsibilities.

2. The Director, OTP, should be provided at least 15 days in advance of any public release, the results of all studies undertaken by DOC in support of OTP responsibilities.

3. Requests from the Director, OTP, for information or analyses will receive priority over other tasks undertaken by DOC in the spectrum management area.

4. The Director, OTP, shall keep the Secretary of Commerce fully informed on current and planned programs and activities, and the Secretary shall afford the Director the opportunity to review in advance DOC submissions to OMB and the Congress that are to be undertaken in support of OTP.

5. There should be free and frequent informal contact between the staff of OTP and the staff of DOC in the telecommunications area, except that any changes in the scope and activities of either office shall be coordinated only by the Director of OTP and an appropriate official of the Department.

6. The Director, OTP, and the stnior DOC official in the telecommunications areas should meet frequently and periodically to assure that the programs and activities of the two offices are in accord.

### August 19, 1970

# POINTS FOR DISCUSSION WITH MYRON TRIBUS

# A. Total Supplemental Budget

Doubt he can hire more than 100 new people, or have them on board for more than 4 months on the average in FY 1971.

This is 33 man years or \$710,000 including overhead.

Doubt more than \$1.5 million could be justified or expended for contract research.

Allow additional \$290,000 to accommodate early hiring of top level people and miscellaneous startup expenses.

Hence maximum supplemental would be about \$2.5 million.

(Should OTP get full \$3.3 million, we would transfer 40 spaces, up to ten people, and appropriate funds -- about \$750,000. We would also undertake an additional \$500,000 of contract research. This would reduce Commerce supplemental needed to \$1.25 million. See TAB A.)

Suggest Commerce submit a figure somewhat higher than \$2.5 million and we will try to get OMB to compromise on \$2.5 million, assuming OTP does not get its full budget request.

# B. Distribution of Total Work Effort

We would prefer following distribution of effort for FY 1971.

| Frequency Assignment | 33%  |
|----------------------|------|
| Systems Analysis     | 20%  |
| Technology           | 25%  |
| Propagation          | 15%  |
| Administration       | 7%   |
|                      | 100% |

Effort in first two areas should be responsive to needs and priorities of the Director, OTP. We would expect that practically all of the contract research would be in these areas, and that the in-house manpower in these two areas would be split 75% Frequency Management and 25% Systems Analysis.

(My estimate of impact of these goals is at TAB B).

# C. Agreement on Procedures

(OTP Controls and Memorandum of Agreement.) My suggestions are at TAB C. George Mansur is preparing memorandum on this.

# OTP BUDGET ALTERNATIVES

# Alternatives

land in the

| Total Budget (\$ Millions) | 2.0      | 2.0       | 3.3       |
|----------------------------|----------|-----------|-----------|
| OTP End Strength           | 42       | 52        | 52        |
| Position Structure         | Existing | Preferred | Preferred |

| Expenditure Plan (\$ Thousand | <u>ls)</u> |       |       |
|-------------------------------|------------|-------|-------|
| Staff                         | 1030       | 1030  | 1030  |
| Carryovers                    |            | 150   | 50    |
| Contracts & Consultants       | 490        | 340   | 1000  |
| Other Costs                   | 230        | 230   | 230   |
| Transfer to Commerce          | 250        | 250   | 990   |
| TOTAL                         | 2.000      | 2.000 | 3.300 |

# ILLUSTRATIVE COMMERCE WORK PROGRAM AND BUDGET

| AREA                 | SPAC              | ES  | CONTRACTS | TOTAL BUDGET |      | <u></u> |             |
|----------------------|-------------------|-----|-----------|--------------|------|---------|-------------|
|                      | Available         | New | New       | Available    | New  | Total   | % of Effort |
| Frequency Assignment | 41 <sup>1</sup> / | 40  | 750       | $460^{1/2}$  | 1135 | 1595    | 34%         |
| Systems Analysis     |                   | 21  | 750       |              | 900  | 900     | 20%         |
| Technology           | 45                | 19  |           | 965          | 135  | 1100    | ,24%        |
| Propagation          | 33                |     |           | 7001/        |      | 700     | 15%         |
| Administration       |                   | 20  |           |              | 330  | 330     | 7%          |
| TOTAL                | 119               | 100 | 1500      | 2125         | 2500 | 4625    | 100%        |

1/ \$210,000 and 10 people currently available in propagation area have been shifted to Frequency Management.

PROPOSED CONTROLS FOR DIRECTOR, OTP TO APPLY TO OTP SUPPORT PORTIONS OF COMMERCE WORK PROGRAMS

- 1. Director to approve work statements for all contract studies in OTP support areas.
- 2. Results of all OTP support studies -- contract and in-house -along with supporting information and analysis, if requested, are to be provided to the Director, OTP at least 15 days before any public release of the results by the Department of Commerce, its employees or contractors.
- 3. Requests from the Director for information, analysis and reports will be given priority over other tasks within the Frequency Assignment Work Program.
- 4. Direct communication between OTP staff and all personnel in Commerce performing OTP support tasks is authorized.



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U.S. DEPARTMENT OF COMMERCE

USCOMM-DC 1218 Per

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To : C.T. Whitehead

From: R. Lowe, Acting Director

Here is some background information on Mr. Kandoian for your meeting with him at 4:15 P.M.

arrived ofter your meeting started

INTERNATIONAL TELEPHORE AND TELEGRAPH CORPORATION.

212-752-6000 X:283

DATE July 10, 1979

SUBJECT Department of Commerce Appointee

Mr. S. R. Donnellon

O. S. Ostberg (C)CO

1.

Regarding your note and T. H. Casey's memorandum of July 7, 1970, both Mr. Cookson and myself and Mike Poylo would recommend the appointment of:

Mr. A. G. Kandoian 495 Orchard Place Ridgewood, New Jersey 07450 Phone: (201) 444-4765

to the position of Director of Telecommunications in the Department of Commerce. Mr. Kandoian is especially well qualified in the field of Telecommunications and I am sure that Dr. Busignies would also personally endorse his nomination.

OSO:sb Enc: 7/2/70 Letter-T. H. Casey to K. Perkins cc: A. E. Cooksen Dr. H. Busignies (enc) M. C. Poylo Referance: NEWS DEPARTMENT (19)

12/30/52

BIOGRAPHY

Nearly five years have elapsed since biographies of ITT executives were brought up to date. Please help us to prevent errors in future stories shout you by filling in the blanks below: (Where applicable, please give dates)

| Place and  |  |  |  |  |  |
|--|--|--|--|--|--|
| Name La. A. Bandolan RuDate of Birth   | h Van, Armonia - 11/28/1911              |  |  |  |  |
| Current home address 122 Rodney Street                                       | -City and<br>State Glen Rock, New Jersey |  |  |  |  |
| Positions held with ITT beginning with first and s                           | howing approximate dates:                |  |  |  |  |
| Jr. Engineer - 1935  | Laboratory Director - 1954               |  |  |  |  |
| Engineer - 1937  | Vice President - 1958                    |  |  |  |  |
| Sr. Engineer - 1940  |  |  |  |  |  |
| Division Head - 1945   |  |  |  |  |  |
| Significant business affiliation prior to joining IT                         | T, including war record:                 |  |  |  |  |
| Joined TTET upon graduation from college.                                    |  |  |  |  |  |
| No war record.   |  |  |  |  |  |
|  |  |  |  |  |  |
| Education: High school: Central Nigh School Springfield, Mass.               |  |  |  |  |  |
| College or University; degrees: BS F   | larvard University, 1934, Gum Taulo      |  |  |  |  |
| <u></u>  | Iarvard University, 1935                 |  |  |  |  |
| Significant memberships and/or civic honors llor                             | n. Mention award, Eta Kappa Hu (1945);   |  |  |  |  |
| Fellow - Institute of Radio Engineers; Member of Mervard Engineering Society |  |  |  |  |  |
| Starried to Sane E. Kandoian   |  |  |  |  |  |
| Calldren Janet Kandoian, Ellen Mandoian, Mar                                 | icy Kandolan                             |  |  |  |  |

FOR RELEASE

Armig G. Kandoian has been elected Vice President of Engineering at ITT Communication Systems, Inc., Paramus, N. J., it was announced today by General Roy H. Lynn, President.

1964

Mr. Kandolan, a former Vice President of ITT Federal Laboratories, Nucley, N. J., has been with the ITT System since 1935 and is a widely recognized authority on global communications, aids to navigation, ultra-high frequency techniques, radar, and antennas.

He joined ITT as a student engineer and was transferred to the babefatories when they were organized in 1941. He was named Director of the Communication Laboratory in 1955, Vice President of Communications in 1958, and Vice President and General Manager of ITT Laboratories in 1960. As Seneral Manager, he directed the research and development activities of more than 3,000 engineers and supporting personnel in projects ranging from submarine and satellite communication progrems to the multimillion dollar European Area Communications Plan. Early in his career, he played a major role in the development of several air navigation systems, including the Instrument Landing System now in use throughout the world.

A graduate of Harvard University with a BS and MS in electrical . communication, Mr. Kandoian has been granted 45 patents and has several others pending. He is the author of numerous technical papers and was chairman of the editorial board of "Reference Data for Radio Engineers," a widely-used source book of basic telecommunications material published by NTP.

Mr. Kandolan is a Fellow of the Institute of Electrical and Electrentes Engineers, and a licensed Professional Engineer in the State of New Jersey. He also serves on the Advisory Committee in Electrical Engiting for Newark College of Engineering and is a member of Commission 6 on Universed and Circuits of the International Scientific Radio Union. Armig G. Kandoian, vice president, general manager of ITT Laboratories, Nutley, N.J., and vice president of ITT Federal, Clifton, N.J., research and manufacturing division, respectively, of International Telephone and Telegraph Corporation, joined the System in 1935 following graduation from Harvard University with B.S. and M.S. degrees in electrical communication engineering.

His experience with the International Telephone and Telegraph Corporation includes extensive research and development in radio aids to navigation, anternas, measurements, radar, radio frequency components, and worldwide communication and data processing systems.

Holder of more than 44 patents in the telecommunications field, Mr. Mandolan is a Fellow of the Institute of Radio Engineers, and a momber of the American Ordnance Association, the Marvard Engineering Society, Tau Dota Di, and the Columbia Executive Association. A frequent contributor of technical papers to trade publications and learned journals, Mr. Mandolan served as evironan of the editorial board for the "Reference Data for Radio Engineers,"

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# Office of Telecommunications Policy Route Slip

6 OCT 1970

Clay T. Whitehead George F. Mansur William Plummer Wilfrid Dean Ray O'Connell Steve Doyle William Lyons

Eva Daughtrey Timmie White Judy Morton

REMARKS

# OCT 5 1970

A. Kandoian J. Richardson

I <u>must</u> have a set of very persuasive and logical arguments to counter the highly probable question: "Why shouldn't the F.C.C. make these systems studies? Aren't they authorized and funded to do so?"

Should we not also have a three way meeting of 0.T, 0.T.P. and F.C.C. so we won't find we are tugged three ways during budgetary process? Please set it up as soon as you can, through 0.T.P.

MYRON TRIBUS

Myron Tribus

cc: Mr. Whitehead

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CT B 1970

Form CD-121 UNITED STATES GOVERNMENT (Pres. by A.O. 206 10) Memorandum

TO

Dr. Myron Tribus

U.S. DEPARTMENT OF COMMERCE OFFICE OF THE SECRETARY

DATE: October 2, 1970

In reply refer to:

FROM :

Sol Mosher And

SUBJECT:

Telecommunications Policy

Al Keefer, our Senate Liaison Officer, received a call from Nick Zapple, Senator Pastore's man on the Senate Commerce Committee. Zapple expressed some concern about statements made at a recent press conference by Mr. Whitehead indicating that the scope of the activities being carried out by the White House office on Telecommunications was broader than the Senator had been led to believe.

He particularly mentioned the Fairness Doctrine and CATV as activities which went beyond the scope of Telecommunications activities in the White House office. Zapple specifically asked for the Commerce Department to furnish two items:

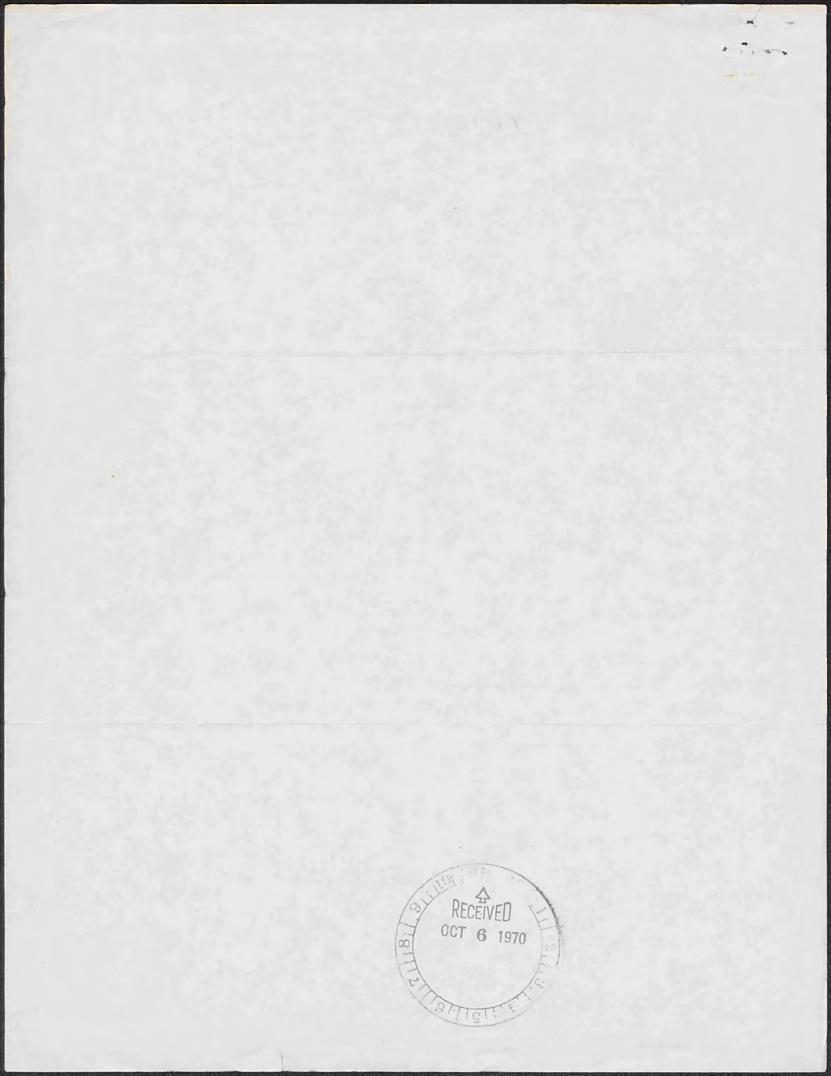
1. The number of personnel which the Commerce Department expected to have in its Telecommunications operations.

2. Anything written on the connection between the White House and Commerce Department Telecommunications offices.

I believe you and Tom Whitehead will want to discuss both the concerns and the request. Zapple's number should you wish to discuss this further by telephone (as I believe you should) is Code 180 x6268. There was no urgency in his request, but I would not wait more than a few days before contacting him. Copies to Tom Whitehead General Counsel Lynn



BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN





THE SECRETARY OF COMMERCE Washington, D.C. 20230

Commi

OCT 2 7 1970

Mr. Clay T. Whitehead Director Office of Telecommunications Policy Executive Office of the President Washington, D. C. 20504

Dear Tom:

I have signed the Memorandum of Agreement which you sent to me with letter of October 15, to accomplish the transfer of the Interdepartment Radio Advisory Committee Secretariat to this Department. Copy thereof is enclosed.

Our Office of Telecommunications arranged for payrolling of the transferred Secretariat personnel effective on October 18, 1970. It is now negotiating for space to effectuate the physical transfer of the Secretariat personnel, property and records.

Sincerely yours,

nce H. Alans

Secretary of Commerce

Enclosure

# MEMORANDUM OF AGREEMENT BETWEEN THE OFFICE OF TELECOMMUNICATIONS POLICY AND THE DEPARTMENT OF COMMERCE

Reorganization Plan No. 1 of 1970, Executive Order 11556, "Assigning Telecommunications Functions," and the Office of Management and Budget Determination Order, effective 1 October 1970, authorize the transfer of certain functions, personnel, funds, records, and resources from the Office of Emergency Preparedness to the Office of Telecommunications Policy.

In consonance with these directives, the Office of Telecommunications Policy and the Department of Commerce hereby enter into an agreement as follows:

1. The Interdepartment Radio Advisory Committee (IRAC) will continue as an advisory body to the Office of Telecommunications Policy. The IRAC Secretariat in the Office of Telecommunications Policy, however, shall be transferred to the Department of Commerce effective 18 October 1970. A total of 21 personnel (see attached schedule) performing various duties relating to the functions of IRAC and funds for salaries in the amount of \$208,000 will be transferred to support such personnel and activities.

2. The IRAC Secretariat shall continue to occupy space in the Office of Telecommunications Policy pending the preparation of adequate facilities within the Department of Commerce. Physical transfer of the IRAC Secretariat personnel, property, and records to the Department of Commerce, however, shall take place on or about 1 January 1971.

3. Computer support for the IRAC Secretariat will be furnished without charge for the remainder of FY 1971 by the Office of Emergency Preparedness pursuant to a prior agreement arrived at between the Office of Telecommunications Policy and the Office of Emergency Preparedness. 4. Coordination of specific details relative to the above transfer will be accomplished by the administrative staffs of the respective agencies.

This Agreement will be effective 18 October 1970.

Accepted:

Clay T. Whitehead Director, Office of Telecommunications Policy

Mannie H. Stans

1.

Maurice H. Stans Secretary of Commerce

Date: 10/15/70

Date: 10 15/70

Attachment

| Kirkevold, Chester R.         | GS-15 |
|-------------------------------|-------|
| Stelzenmuller, George V., Jr. | GS-15 |
| Filipski, Benjamin W.         | GS-14 |
| Rexrode, Elmer C.             | GS-13 |
| Dinkle, Edwin K.              | GS-12 |
| Barlow, Helen D.              | GS-11 |
| Jahn, William H., III         | GS-11 |
| Sarkesain, Leon G.            | GS-11 |
| Dhue, Josephine               | GS-9  |
| Thrift, Evelyn L.             | GS-9  |
| Sears, Arthur L.              | GS-9  |
| Butler, Edward A.             | GS-7  |
| Sterner, Edythe N.            | GS-7  |
| Sweitzer, Robert F., Jr.      | GS-7  |
| Burns, Elizabeth              | GS-6  |
| Lloyd, Carolyn P.             | GS-6  |
| Dishong, Mathilda F.          | ĠS-5  |
| Frazee, Janice E.             | GS-5  |
| Gehrmann, Lesta E.            | GS-5  |
| Stoops, Adene B.              | ĠS-5  |
| 1 vacancy                     |       |

4

### November 5, 1970

### MEMORANDUM FOR BRUCE OWEN:

Regarding my request for your attached memo on share and growth rate of telecommunications in the GNP, I would like to explore it further. Could you, on a not too urgent but still somewhat timely basis, explore the possibility of getting some part of Commerce or someone else to put together a fairly comprehensive statement on the various parts of the telecommunications industry in the United States, i.e., the various sectors and the total broadly conceived. Then we can rather flexibly put together sub-totals depending on which components or groupings of components we want to talk about. I think this is important for us to know generally. I would like to have some basis for my off-the-cuff remarks that telecommunications represents about 5% of GNP and is the fastest growing major (whatever that means) industry or sector of the aconomy.

Oy MAND

Clay T. Whitehead

Encl.

CTWHITEHEAD:dc

Tope

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

Date: November 4, 1970

Subject:

Share and growth rate of TCM industries in GNP

To: Steve Doyle

There are of course several possible definitions of the telecommunications industry.

The percent of national income originating in the telephone and telegraph services was 1.2% of national income in 1950, and 1.7% in 1968. The total dollar contribution in 1968 was \$12 billion, and this number has been increasing at an annual rate of about 8% since 1950.

The per cent share of the printing and publishing industry in national income was 1.5% in 1950 and 1.7% in 1968. The dollar contribution in 1968 was \$12 billion, and this number has been increasing at an annual percentage rate of about 6% since 1950.

I have no data on national income originating in the broadcast services, communications equipment manufacturing, and the postal services, but these things togather might constitute another 1% of national income.

Telecommunications in the broadest sense thus contributes about 4% of national income today. This share has been growing very gradually over time, and the growth rate of the industry has been slightly faster than the growth rate of the economy as a whole.

If you require more refined data it can be obtained, perhaps most efficiently from the Department of Commerce Office of Business Economics (which complies the GNP accounts). It would be necessary of course to specify exactly which definition of the industry is relevant.

Bruce M. Owen

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

OFFICE OF THE DIRECTOR

Connerce

### November 16, 1970

### MEMORANDUM FOR

## CASPAR WEINBERGER

On October 7th this office forwarded its comments concerning a request by the Department of Commerce for supplemental funds in the amount of \$2.4 million for FY 71. These funds were being sought to cover new OTP support activities arising from Reorganization Plan No. 1 of 1970 and Executive Order 11556. At that time -- based on the existence of OTP requirements for information and analyses which far exceed its FY 71 staff and budget resources, and a rather limited knowledge of existing and planned Commerce programs -- the OTP indicated support for at least \$2.1 million of the proposed supplemental. We noted, however, that some reorientation and redirection of the proposed effort might be required.

We have now had the opportunity to examine the entire Commerce program in much greater depth, and to provide for effective guidance regarding its future program. As a result, we can now offer a number of specific recommendations concerning both the level of the planned use of a FY 71 supplemental, as well as future appropriations.

First, I must emphasize that the OTP support requirements for FY 71 and FY 72 have not diminished; if anything, they are becoming more urgent. However, I am now convinced that a significant reprogramming or reorientation of existing Commerce activities, coupled with and in part supported by a FY 71 supplemental of \$1 million (with no increase in staff), will be adequate to meet these needs. Furthermore, additional reprogramming and redirection in FY 72 (again supported by a modest increase in direct appropriation) should make it possible to hold the Commerce telecommunications staff, and over-all budget, at or very near its present level, subject to unforeseeable demands for other agency work.

The basis for these conclusions is to be found in the nature of the existing Commerce program. This program currently requires an

annual budget of about \$7.3 million, of which \$2.5 million is directly appropriated and approximately \$5 million represents transferred funds from other agencies, principally the DoD. However, the funds in hand for FY 71 amount to only \$4.8 million (\$2.5 million direct, \$2.3 million transferred) with relatively firm prospects for an additional \$1 million transfer funds. Thus, Commerce is presently underfunded by about \$1.5 million.

This situation is apparently typical at this point in the fiscal year, pending a sorting out of priorities within other agencies prior to transferring funds to Commerce. However, this year the situation is altered in two significant respects. First, the DoD does not have an urgent need for Commerce services, due to its own budgetary constraints. This might well require a reduction in force. Second, EO 11556 brought the Commerce activity into a new role and relationship to the OTP, with the clear understanding that its work should be more closely aligned with national needs, programs, and priorities.

Our review indicates that there is a reservoir of staff competence in Commerce which represents a major potential resource for the OTP, FCC, and other Government agencies; however, the existing program is not wholly responsive to current telecommunications priorities. To rectify this situation, I plan to request that at least \$500K of the FY 71 direct appropriations be redirected and reoriented into efforts that are responsive to OTP requirements. However, since these direct appropriations are typically used to attract other agencies' support in related areas, this redirection will be possible only to the extent that the pressure to seek other agencies' support can be relieved. To accomplish this, and simultaneously achieve the full support which the OTP needs, I recommend that a \$1 million supplemental for FY 71 be granted contingent on reprogramming of the \$500K previously noted. In this way, the OTP will obtain \$1.5 million in direct support for a \$1 million increase in direct appropriations, and will at the same time begin to transform the Commerce activity into a resource more responsive to OTP needs.

Since we do not expect to find all the expertise needed in Commerce, we may ask that about \$300K of this supplemental be used by Commerce to contract with appropriate academic and private institutions (e.g., RAND, SRI, National Academy of Science and Engineering, etc) who do possess such expertise and can effectively utilize these results in the near term.

To continue this reorientation in FY 72, we recommend a direct appropriation for Commerce of \$4.4 million, of which \$3.4 million would be earmarked for OTP support while the remaining \$1 million would be used for the existing research programs in radio propagation and related topics and for matching transfer funds from other agencies. However, the total Commerce effort would be held at or very near the present \$7 million level by reducing the amount of other agency work to about \$3 million from the program \$5 million (\$4 million if a supplemental is approved). We would also expect that the Commerce staff would remain essentially constant during this period.

I would be pleased to talk with you or members of your staff concerning any questions which may arise regarding the proposal itself or appropriate methods for its implementation. I am prepared to send a memorandum of understanding with Commerce to assure that the steps suggested will be carried out. I must emphasize that the OTP critically needs this support if we are to discharge our responsibilities under EO 11556 and Reorganization Plan No. 1.

George A. Mariaen

George F. Mansur Deputy Director

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OFFICE OF THE DIRECTOR

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

November 17, 1970

Tom,

I had a very positive and productive meeting with Bill Fischer, OMB, Legislative Reference, on Tuesday morning (11/17). We discussed the role of OTP in Administration policy coordination for all telecommunications matters affecting or affected by legislation. We sorted out the identity of OTP vs. the Commerce office and the respective roles of each.

In addition, Mr. Fischer told me of a proposed automated tracking program, to be introduced next Congress, which will permit key agencies to obtain a weekly report on the 1,000 most important pending legislative proposals (500 Administration sponsored -- 500 nonAdministration sponsored). This computer data system is being developed by OMB in cooperation with the Assistant to the President for Congressional Relations.

An Agency Advisory Group is being established as a mechanism for insuring adequate consideration of agency views and requirements in the development and implementation of this system. Fischer asked me to sit in on behalf of OTP on Wednesday, November 18, at a 1:30 meeting in FOB #7. This is to be the initial meeting of the Agency Advisory Group. The attached list indicates the other agencies to whom a formal letter of invitation has been sent, and such a letter will be sent to you. The attachment also describes in some detail the Executive Branch Legislative Tracking System. A milestone schedule for development of the system is the final page of the attachment.

Steve Aut

Attachment

Friday 11/13/70

MEETING (Steve) 11/17/70 10:00

### STEVE

5:30

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You have a meeting scheduled with Bill Fischer (OMB) at 10:00 on Tuesday (11/17). He is in Room 260 EOB.

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