THE WHITE HOUSE
WASHINGTON

April 2, 1970

Dear Karl:

Thank you for your thoughtful letter of March 31. It was sincerely appreciated. I want you to know that I share your pleasure that it was possible to designate Sioux Falls as the site for the Data Receiving Center as part of the ERTS-EROS program.

With warm regard,

Sincerely,

Honorable Karl E. Mundt
United States Senate
Washington, D.C.
April 9, 1970

Dr. James R. Schlesinger
Assistant Director
Bureau of the Budget
Executive Office Building
Washington, D.C. 20503

Dear Doctor Schlesinger:

This is to implement our conversation the other day when Governor Farrar and I visited with you to thank you very much for the part which you played in making it possible for the President to designate Sioux Falls, South Dakota, as the site for the Data Receiving Center as part of the ERTS-EROS program, as the President indicated in his letter to the Senator under date of April 2, 1970.

You will remember that in our conversation I asked you about the release of the "approximately $300,000" to the Department of the Interior and the Geological Survey so that they could proceed with the necessary steps for negotiating for the land and for design of the building to be constructed by the Sioux Falls group. You indicated that you wanted to get at this and that it would be done shortly and that steps would be taken so that funds would not have to be reappropriated. I hope this can be done. When I reported my conversation with you to the Senator, he, too, was sincerely hopeful that the reprogramming or the making available of the $300,000 could be done as soon as possible. He felt that the funds had been appropriated in last year's appropriations by his amendment, that certainly they were designated dollars for a specific cause, and that since a site has been selected those funds should be available for use by the Geological Survey.

Sincerely yours,

Robert L. McCaughey
Administrative Assistant
FOR IMMEDIATE RELEASE

Senator Karl Mundt's office today announced that Sioux Falls has been chosen as the location for an international data reception center for the Federal Government's earth resources program if experimental satellites prove successful.

Robert L. McCaughey, Mundt's administrative assistant, said the decision to locate the center in Sioux Falls was approved at the White House following a direct appeal to President Nixon by the South Dakota Senator earlier this month.

The selection of the site--which had been targeted for a location in the Midwest--had been delayed for several months because funds for the program, called EROS for "Earth Resources Observational Satellite," had not been released by the Bureau of the Budget.

The appropriation involved approximately $300,000 which had been obtained by Senator Mundt in an amendment to the EROS program. Mundt's amendment called for site selection and architectural and engineering planning for the proposed data center which is to receive signals from a satellite, McCaughey said.

McCaughey, speaking for Mundt who is hospitalized, said:  

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"Approval of South Dakota as the EROS data center through location at Sioux Falls marks a most significant victory for Senator Mundt in his service to South Dakota and he has asked me to express his great pleasure and satisfaction over this decision."

The EROS program, McCaughey said, will utilize satellites for "remote sensing" in which data is collected from the earth's surface through devices such as cameras.

He said information collected by the satellite remote sensing equipment must be transmitted to a ground station for processing and dissemination.

This ground station, or data reception center, McCaughey said, will be developed and operated at Sioux Falls by the Department of Interior's Geological Survey agency which directs the EROS program.

The first earth resources experimental satellite to serve EROS is expected to be launched by the National Aeronautics and Space Administration (NASA) sometime during the first six months of 1973, McCaughey said.

This satellite is called ERTS for "Earth Resources Technology Satellite," he said, and will precede another launching in 1973 of a similar satellite which will be called ERTS-B.

McCaughey said NASA officials confirmed late in February that the satellite launching schedules were considered "reasonably firm" and aided Senator Mundt's
argument for early designation of a data center site.

Designation of Sioux Falls as the site and Presidential release of the funds for the ERGS program, McCaughey said, will permit Geological Survey to begin planning of the center in an effort to have plans prepared for construction of the center once the initial experiment proves successful.

When constructed the first year of operation, Muniit's aide said, the center is expected to employ 150 persons with an annual payroll of $1.8 million. Most of the personnel will be individuals with scientific and technical backgrounds.

McCaughey said the first operational year of ERSG-A is expected to yield a transmission of approximately a quarter of a million photographs to the Sioux Falls center for subsequent processing and distribution and study.

ERGS programmers, he said, plan to have 50,000 of these photographs taken of the conterminous United States.

McCaughey said that a recent evaluation by RCA, which made the study for Geological Survey of a ground data-handling system and potential sites, indicated that after about two years of operation about 1.5 million prints, both color and black-and-white, will be needed each year to supply public demand for resources information.

Munitt's assistant said the data center would be expected to attract to Sioux Falls representatives from a broad spectrum of industries to obtain a rapid "First To-

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at the returned data.

McCaughey said other nations will also be obtaining data returned from the satellite and it could be anticipated that Sioux Falls will be a focal point for not only visitations by representatives of foreign countries but possibly for location of those who wish a closer proximity to the station and its valuable information.

He said: "When Senator Mundt first took steps to obtain this installation at Sioux Falls following designation of the city as a potential candidate for the center's location, he felt at that time Sioux Falls could become a resources and environmental information center of the world."

"Since that time, this view has been considerably strengthened on the basis of information presented March 2 at the American Institute of Aeronautics and Astronautics Earth Resources Observations and Information System meeting in Annapolis, Maryland," McCaughey said.

The selection of Sioux Falls, he said, was made on a number of criteria. Most important was geographic location and Sioux Falls is in a small portion of Eastern South Dakota considered eligible for the center for coverage.

He said the ERTS satellite will be visible from Sioux Falls whenever it is over any part of the conterminous United States, thus permitting transmission of pictures to the center as the actual photography is being made.
Other factors influencing the selection of Sioux Falls include:

* Freedom from radio interference;
* Adequate water supply;
* Freedom from seismic activity;
* High bearing strength soils;
* Communications facilities;
* Presence of supporting engineering and scientific services such as those available at Sioux Falls and Augustana colleges and at South Dakota State University, Brookings, where the Institute of Remote Sensing is located; and
* Availability of labor and other community resources such as industrial support and living support which deals with recreation, culture, education and housing advantages.

McCaughhey said: "Senator Mundt's efforts in behalf of Sioux Falls received great assistance from Governor Frank Farrar, other South Dakota State officials and from Mr. Merlyn Veren, the representative of the South Dakota Board of Regents and the State's Industrial Development Agency here in Washington, who has been most helpful since the first action taken by the Senator three years ago to involve South Dakota in this exciting new scientific endeavor."

"The capability of remote sensing as an environment tool has an unlimited potential," McCaughey said. "For its uses involve virtually everything ranging from
identification of diseases in crops to the amount of water in snow and ice cover and its potential for flooding."

On the seacoasts, for example, he said it will be helpful in early detection of oil slicks and spills or other causes of pollution which might not otherwise be discovered until severe damage has been caused.

Walt Conahan
Office of Senator Mundt
The EROS (Earth Resources Observation Satellite) Program of the Department of the Interior—for which Sioux Falls has been selected as the site for a Data Reception center—should experimental satellites prove successful—is a program devoted to the acquisition, processing, dissemination, and utilization of remote sensor data obtained from aircraft and spacecraft for resources purposes, Senator Karl Mundt's office reports in a resume explaining the activity.

Remote sensing is a new term used to identify the art and science of telling something about an object without touching it. Commonly, "remote sensor" data are collected from swiftly moving aircraft and spacecraft. Hence, they are timely and can be very economical.

Recent research, by the Department of the Interior and cooperating organizations including South Dakota State University, has shown that remote sensor data can be very helpful in assessing and managing resources, assessing and monitoring environmental factors and in adding to the efficiency of the search for minerals.

A major milestone in Interior's EROS Program will be the launch of NASA's ERTS (Earth Resources Technology Satellite) satellite "A" in 1972. When in orbit around the earth, this satellite will send back pictures of South Dakota and other parts of the country at approximately 9:30 am, every 17 days.
These pictures will be map-like in quality and will show the distribution of water, vegetation, and cultural features, and permit viewing of the bottoms of lakes and reservoirs to depths of over 100 feet. The map-like character of the images makes sequential views easy to compare so that an accurate record can be developed of the changes taking place in this State and in our total environment.

These views of the earth from space will be especially helpful in the planning and later management of irrigation projects and other large engineering and Reclamation projects.

An early use of the data will be to provide timely supplements to existing 1:250,000 scale maps. Presently, the majority of the maps of South Dakota, for example, are more than five years out of date and some have not been revised since 1953.

Interior plans to extract information on water, snow, and vegetation distributions, and to distribute this information, along with the pictures, by television and newspapers. Thus, farmers, ranchers, planners, and state and local governments will have a timely assessment of conditions in their areas of interest and a measure of changes that have taken place since prior observations, months or years before.

The continuance of the satellite in orbit throughout the seasons is expected to add to the accuracy of crop forecasts and knowledge of forage and timber availability.
This same characteristic will enable scientists to extend their surveys into the winter months—a significant departure from convention.

Observations of the distribution of snow and ice will be valuable to water managers but are also expected to add to our water supply by providing new knowledge about ground water.

This winter, scientists at South Dakota State University, have been taking pictures of several streams in this region; it is expected that, at some times, places where the relatively warm ground water enters the stream will be ice free while other parts of the stream are frozen. Thus, scientists will be able to tell where aquifers intersect streams and something about the quantities of water in them.

The Remote Sensing Institute, located at Brookings through the assistance of Senator Mundt and headed by Dr. Victor Myers, is supported by the EROS Program and regional and state organizations. It is becoming a major center of research into the resources and land-use survey applications of remote sensor data.

Currently, scientists, at the Center, are endeavoring to develop aircraft and spacecraft methods for measuring soil moisture and improving our understanding of ground water distributions in South Dakota.

Concurrently, the Institute of Atmospheric Sciences, at the School of Mines, is testing the uses of remote sensing in weather modification programs. Dr. Richard Schlesener, Atmospheric Sciences Institute Director, is also proposing additional work in geology and radiometry.
Success in these efforts will bring direct benefits to the citizens of South Dakota.

The need for knowledge of soil moisture, ground water distributions, and other resources information, however, goes beyond state and national boundaries. Thus, success in this effort could make South Dakota a major exporter of technology and attract students and scientists from throughout the world, to this state.

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Walt Conahan
Office of Senator Mundt
Following is a partial text of Senator Mundt's March 2nd letter to President Nixon concerning the Data Center location in Sioux Falls:

"For several weeks now members of my staff have been in touch with members of the White House staff, Dr. James Schlesinger at the Bureau of the Budget, Mr. William Pecora, Director of the Geological Survey division of the Department of the Interior, and with Secretary Hickel himself relative to the reprogramming of the dollars which were incorporated in the fiscal 1970 Department of the Interior Appropriations Bill for the implementation of the so-called EROS program.

I have been deeply interested in this program for several years now. In my opinion, the ERTS-EROS program carries a great deal of possibility for assembling of information for improving the environment and the economy of rural and urban America. You are, of course, aware of the potential of the program as it is my understanding you have requested a complete study of the ERTS-EROS program relative to the release of funds to implement the recommended activities under this program.

"You will remember that last year in the Appropriations Bill for the Department of the Interior I had an amendment adopted in the amount of $300,000 for site selection and architectural and engineering planning for the Data Receiving Center to assemble the information gathered by the satellites which would encircle the earth."
Therefore, you can understand my great disappointment when I was first advised that the $3,000,000 for the advancement of this program was frozen by the Bureau of the Budget, and then later when I started asking questions I was advised that it had not been frozen but had been reprogrammed.

"Further research by my staff and in consultation with your staff and with the representatives from NASA and the Department of the Interior are to the effect that the study which was done by RCA for location of the Data Receiving Center indicates that this center should be located in the Upper Plains States. In fact, they specify that Sioux Falls, South Dakota, would be an excellent location.

"Additional information obtained from NASA also firms up my previous thoughts that there is no NASA installation in being which could be modified and provide full coverage of the United States. While some installation might be modified which would not in its coverage include the northeast corner of the United States or the western states of the nation, this, of course, would be less than effective for the entire program. In fact, NASA people, in discussions with members of my staff, feel that this Data Receiving Center should be under the auspices of the Department of the Interior because of the main type of information which would be made available in natural resource environment.

"The NASA staff members have also advised my staff members that it is definitely planned that Satellite A and B will be launched in the spring of 1972 and in 1973. Thus, this presents the immediate need for programming for construction of..."
the Data Receiving Center so that the United States will not have a satellite circling the earth which would be useless because of no installation to process the information it could assemble and return to earth.

"Sioux Falls, South Dakota, through its representatives in negotiations with my staff, has stated unequivocally that it will make the land available on which to locate the building for housing the instruments of the Data Receiving Center. Another group has even promised that they would build the facility for housing the instruments to be repaid on a 20-25 year program by the U.S. Government. Thus, as you can see, there would not be a big Federal outlay of funds immediately for location and construction of the Data Receiving Center.

"Therefore, in view of my longtime interest of the efforts which I have put into this and which my staff has put into assembling information and the need for this type of program, this letter is to request that you make available the needed funds for site location and the A and E planning so that the Data Receiving Center program can go forward. I certainly would like to see the announcement forthcoming that this plant would be located in South Dakota, and I appeal to you to give this your most serious consideration on a personal basis. I hope you can advise my staff within the next few days that these funds have been released and that Sioux Falls will be the location of the Data Receiving Center.

"With every best wish and kindest personal regards, I am

Cordially yours,
Karl E. Mundt U.S.S."
Selection of Sioux Falls as the EROS data reception center would bring South Dakota and its largest city into a satellite system which one expert says "will have the most direct benefit to the greatest number of people" in helping "to survey and manage the Earth's limited natural resources--food, ocean life, minerals, our water supply and the like."

The statement is by Carl D. Graves, manager of the Earth Resources Programs for TRW Systems Group, a California firm which is performing studies involving the ERTS-A satellite to be launched in 1972. The statement was made by available/Senator Karl Mundt's office.

The ERTS-A satellite, and a "B" satellite to be launched in 1973, will feed information back to the Data Reception Center to be constructed at Sioux Falls should the experimental satellite prove successful.

NASA will launch the ERTS satellites, while the Department of the Interior has responsibility for the EROS program through its Office of Geological Survey.

Excerpts of the statement by Mr. Graves follow:

"ERTS spacecraft will orbit the Earth in an approximate 500 mile polar orbit, carrying sensors which send back resource information ranging from crop surveys to geological data. Sending down this early information will serve a number of purposes: its quality will give sensor experts a way to assess realistically the efficiency of their sensing devices and to forecast their needs for further--more--
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The technology in their designation means simply that they are designed to advance the technology—the state of the art—in necessary areas to the point where we can proceed further toward a mature, operational system—a system which will, in the future, provide direct benefits to nearly everyone.

In short, ERTS-A and -B are test flights, designed to gain the knowledge necessary to go further. The technology development of an earth resources satellite system is divided into three principal areas: the spacecraft, the sensors, and the data handling. Spacecraft technology is probably the most advanced; a large stable vehicle with long life expectancy can be launched today. Sensors and data handling are not as far along; this is where the real work will be. In an earth resources satellite, the two are very closely linked, since the quality and usefulness of the data depends both on the sensor and on the ability to handle the information it sends to the ground.

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"There are a number of inherent advantages in the use of spacecraft for obtaining resource information. Spacecraft provide extremely stable platforms for sensing equipment. They survey large areas--50 and 100 times the area an aircraft can cover in a comparable time. ERTS will cover every mile of the U.S. in 18 days. they "fly" continuously and in any weather though clouds can be a problem to optical sensors. Sensor experts are working now toward excellent clarity in these broad-scale images--already the pictures taken from Gemini and Apollo have shown that spacecraft altitudes do not prevent clear images.

"Aircraft have their advantages, too. They can zero in on a small area for more detail, more clarity. If a user is interested in an area only 5 miles square, he could probably get his information more cheaply using aircraft. At the moment, and probably for some time to come, aircraft can provide greater clarity of image, finer detail about a specific point of interest.

"There are advantages to both systems, and even greater advantages if the systems become complementary--spacecraft obtain initial data, aircraft zero in for more detail. In some quarters, this issue has been turned into a debate on spacecraft vs. aircraft. We think that this is shortsighted. We think the two systems, complementing each other, will grow together, and that this is the only cost-effective approach to an operational system for surveying and managing the Earth's resources.

"ERTS is an exciting program; it is the first step in developing a system which
should have a dramatically beneficial impact on almost every American. Perhaps in time other countries will benefit from the system as well. It represents, we think, the first increment of a sizeable payoff on this nation's investment in space over the past decade."

Walt Conahan
Office of Senator Mundt