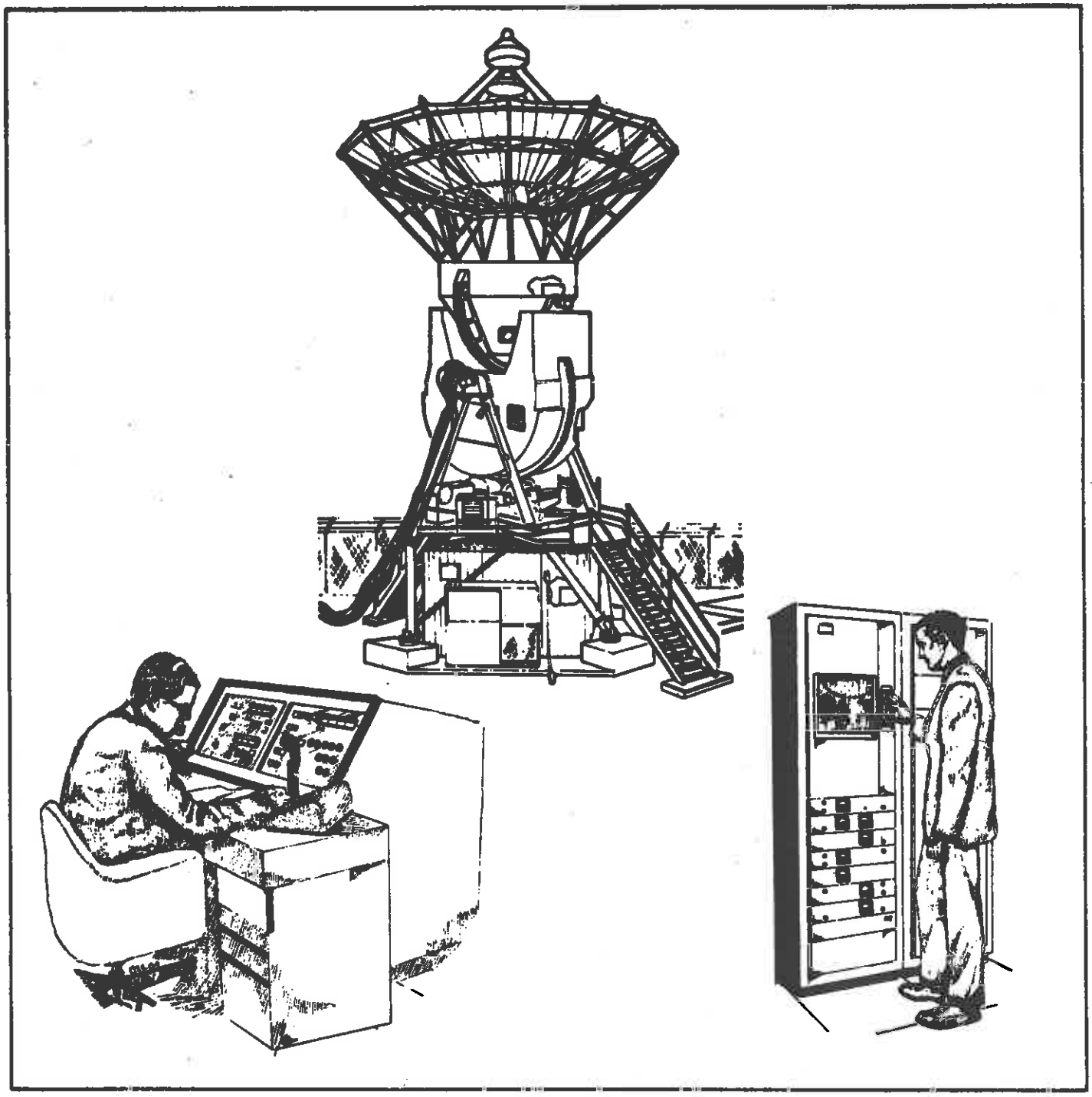
The NTTF Story



Bendix Field Engineering Corporation

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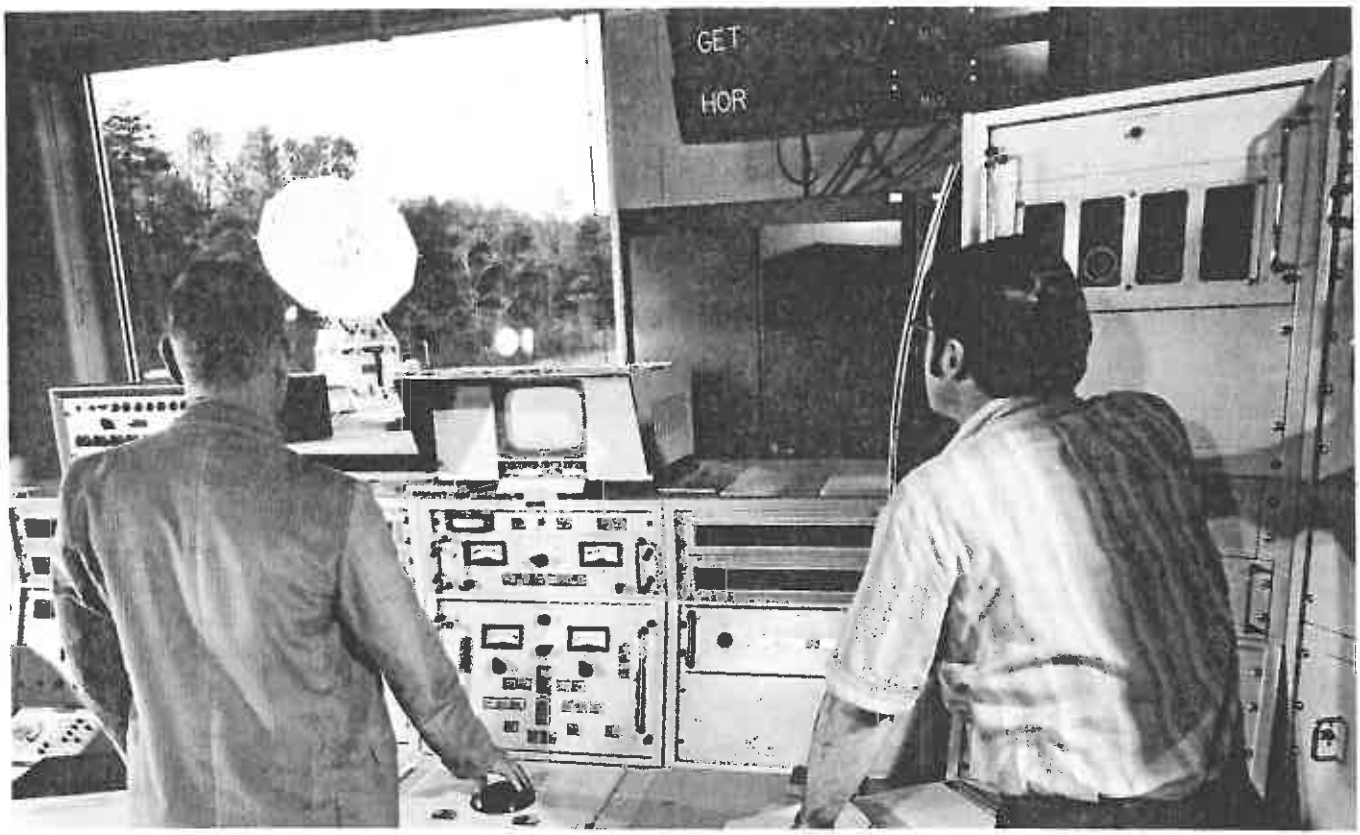
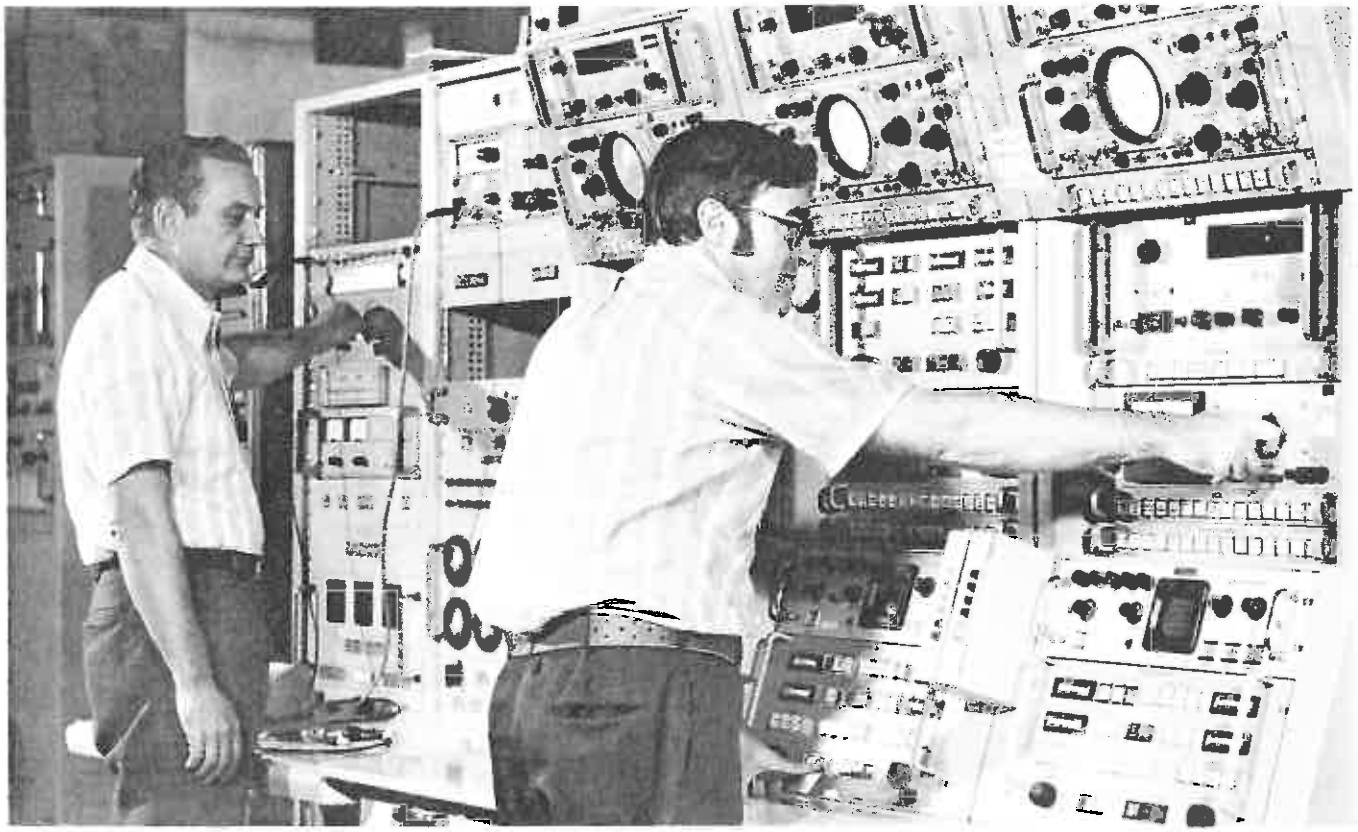


USB Antenna Servo Control Console



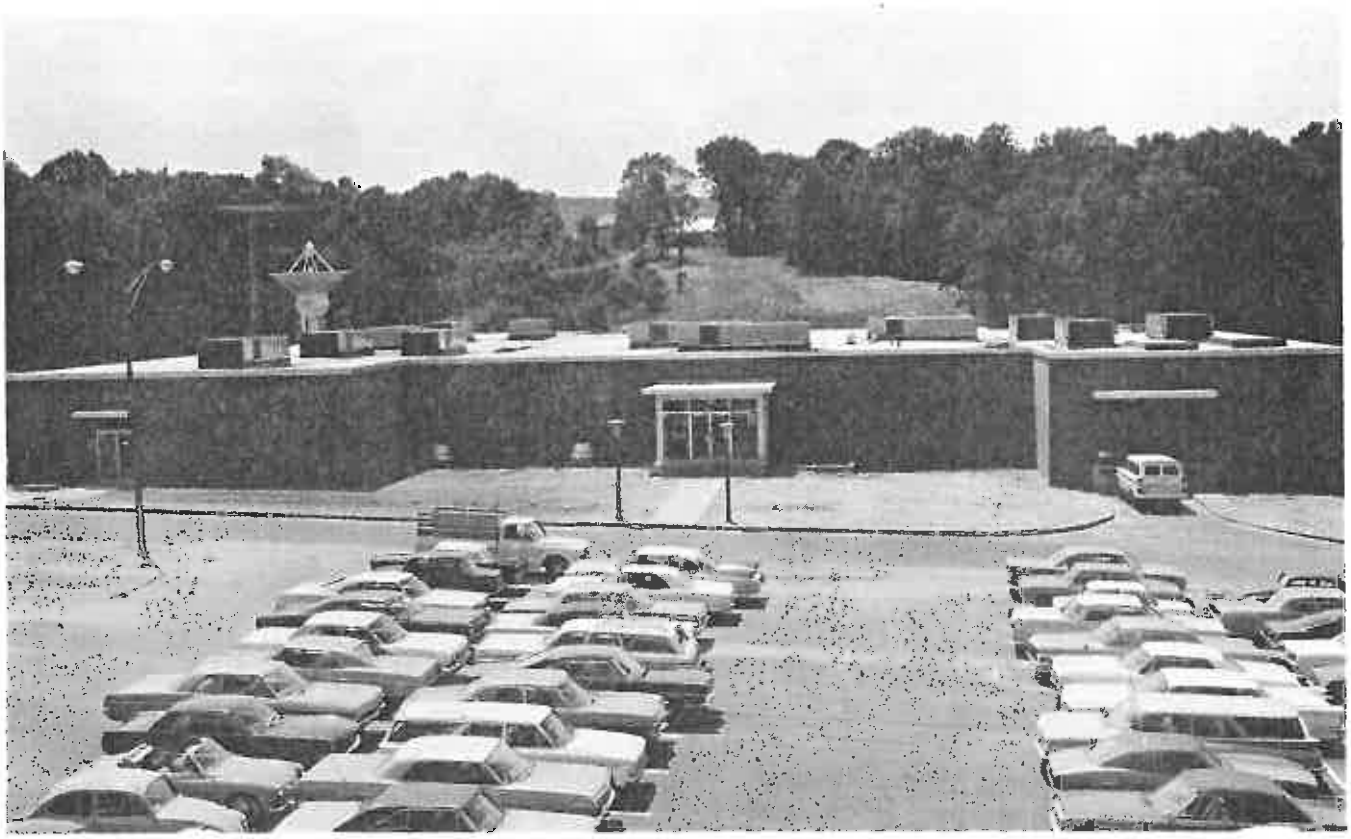
USB Receiver/Exciter Console

THE NETWORK TEST AND TRAINING FACILITY STORY

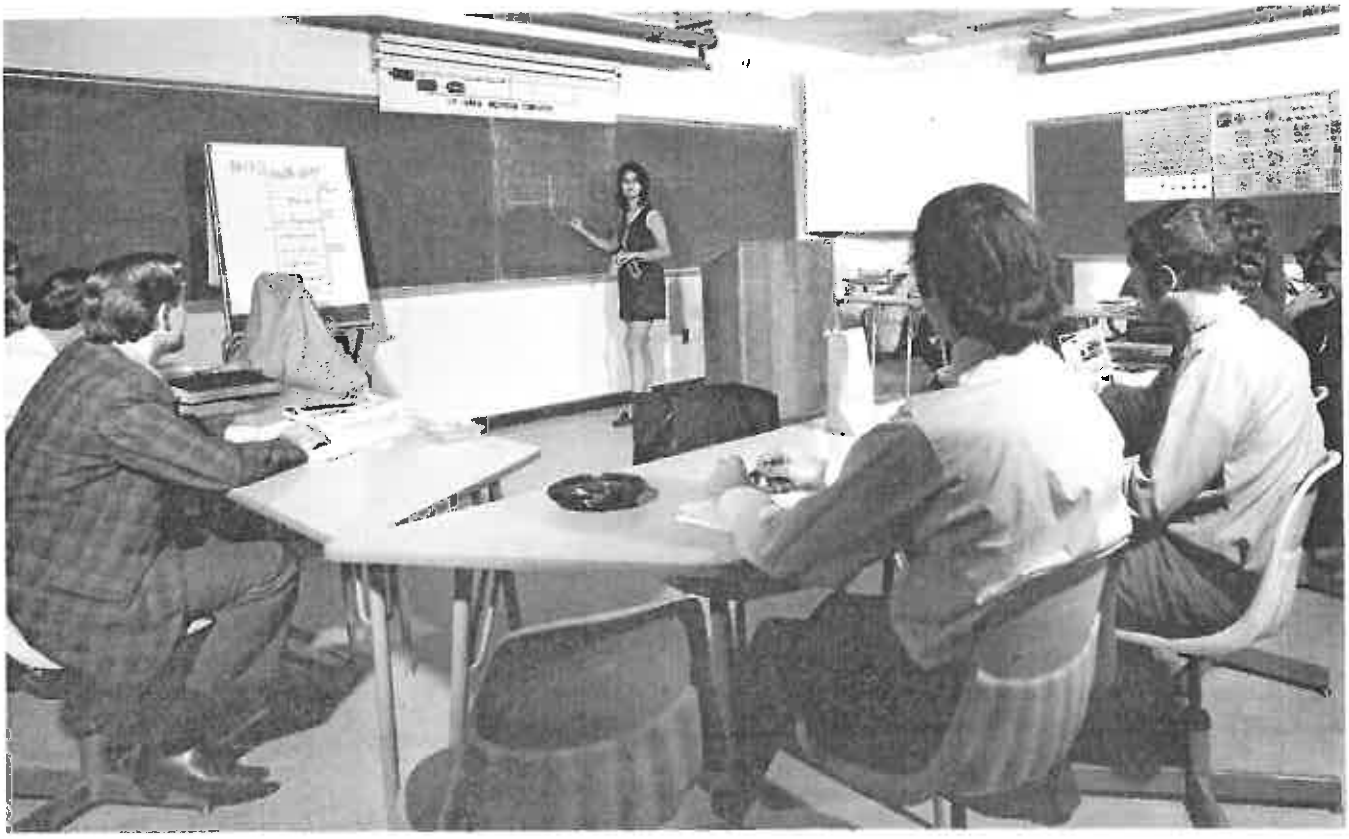
Some useful facts and figures for personnel proceeding to the Spaceflight Tracking and Data Networks Training Center at Goddard Space Flight Center.

prepared by:

BENDIX FIELD ENGINEERING CORPORATION
A Subsidiary of The Bendix Corporation
Columbia, Maryland 21045
Revised May 1973



NTTF Building



Typical NTTF Classroom

THE NTTF STORY

I. THE STATION

A. Primary Mission and Brief History of Station

The Network Test and Training Facility (NTTF) was established at Goddard Space Flight Center in 1966. It is an outgrowth of the Engineering Training Center, which was operated at Wallops Island, Virginia.

As the name implies, NTTF serves two prime functions. First, it is a testing and engineering support facility for the Spaceflight Tracking and Data Networks (STDN). Secondly, it is the training center for personnel assigned to tracking stations throughout the world.

B. Site Layout

The station organization is composed of three main sections: Operations, Training, and Support. These sections are manned by personnel of the Bendix Field Engineering Corporation under the direction of the Station Manager. Briefly the functions of these sections are:

Operations -- responsible for providing maintenance and operations support for all of STDN station equipments.

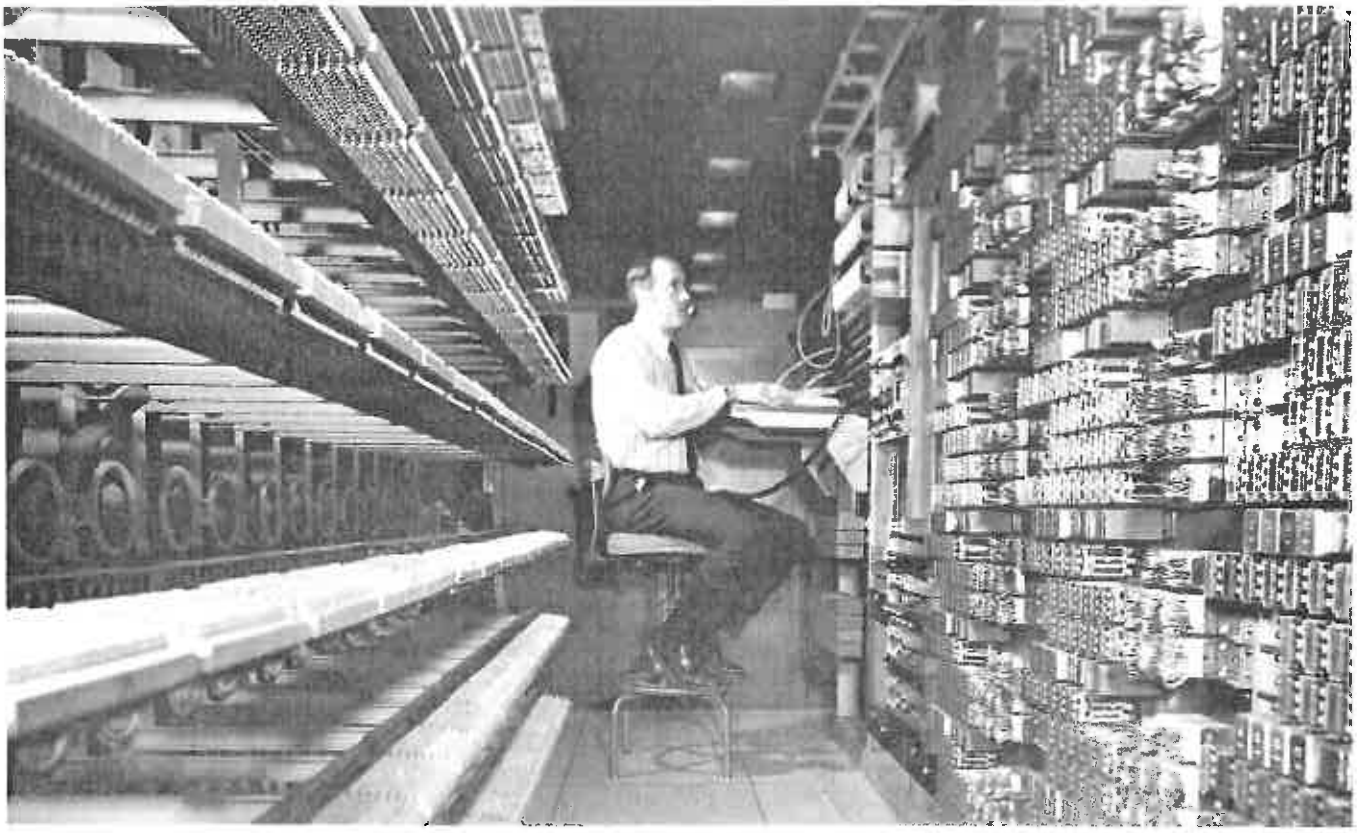
Training -- responsible for fulfilling all STDN training requirements and for preparation of related training materials.

Support -- responsible for station logistics, test equipment calibration, electromechanical/hydraulic equipment maintenance, routine plant maintenance, and NTTF safety/security program; in addition, provides administrative support as required by station activities.

C. Major Operational Systems

NTTF is a fully operational station, capable of supporting network mission activities, and, as such, maintains a complement of equipment systems. Therefore, NTTF can serve as a backup station during mission periods and can also train student personnel in an environment comparable to that of the stations to which they will be assigned.

Station Control and Display Consoles



Station Intercommunications Wire Room

NTTF is also one of the prime operational stations in the Earth Resources Technology Satellite (ERTS) program. The equipment used in support of this program is a complete and separate entity from that used in support of testing and training activities.

D. Station Management Policies

Because of the diversity of the station's missions, it is mandatory that each person assigned to the station have a strong technical background in the system of his speciality. In addition to technical competence in their respective equipment areas, instructor personnel are required to meet the minimum requirements of the "Professional Technical Instructor's Accreditation Program."

While student training is primarily the responsibility of the training section, operations personnel are required to provide technical support while the students are working on the equipment. Thus, in addition to technical competence, personnel must possess the ability to deal with others.

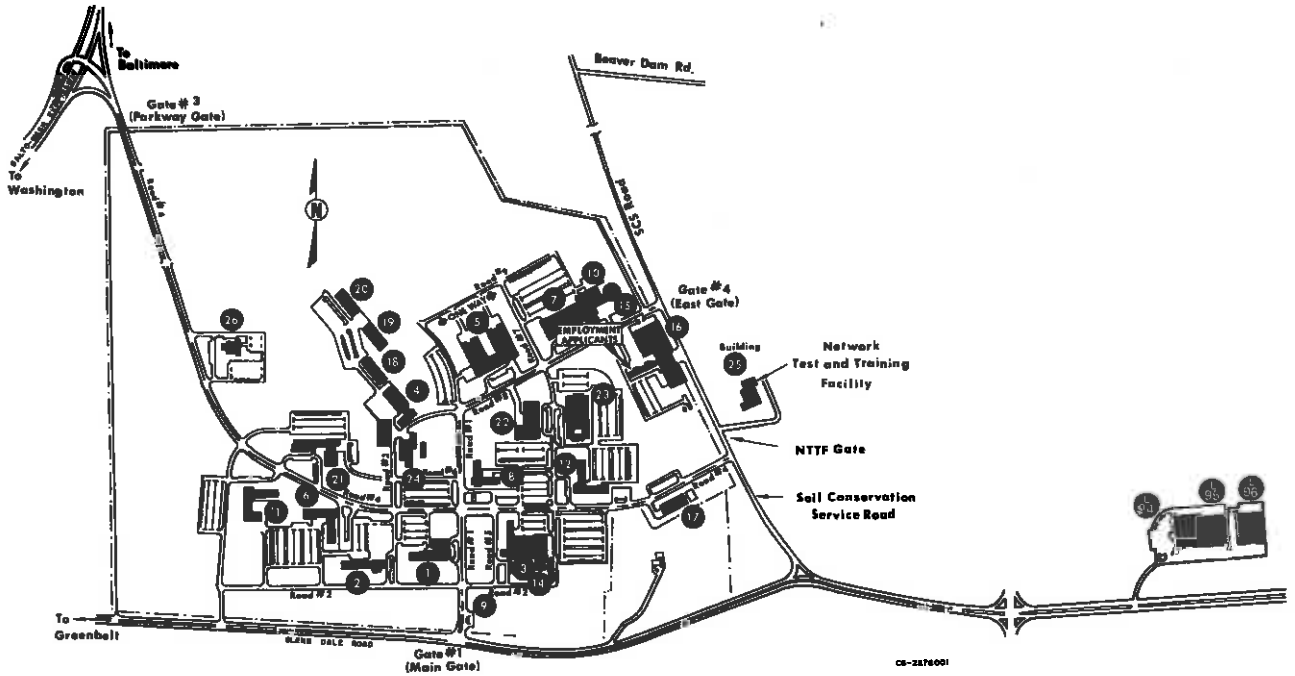
Working hours at NTTF are dependent upon the area of assignment. Administrative and support personnel normally work from 8 a.m. to 4:30 p.m., 5 days a week. The maintenance and operations section, with the exception of ERTS, works a normal 3-shift, 5-day week unless mission or training activities dictate otherwise.

Training is conducted during the day shift whenever possible; however, support priorities and heavy classroom demands may require that classes be conducted on other shifts.

The ERTS program may require support 16 hours a day, 7 days a week; therefore, personnel will be assigned accordingly.

Personnel are expected to behave in a manner which befits their professional status and to dress accordingly.

GSFC Building Locations



1. SPACE PROJECTS BUILDING
2. RESEARCH PROJECTS LABORATORY
3. CENTRAL FLIGHT CONTROL AND RANGE OPERATIONS LABORATORY
4. GENERAL PURPOSE FACILITY BUILDING
5. INSTRUMENT CONSTRUCTION AND INSTALLATION LABORATORY
6. SPACE SCIENCES LABORATORY
7. PAYLOAD TESTING FACILITY
8. SATELLITE SYSTEMS BUILDING
9. GATEHOUSE
10. ENVIRONMENTAL TESTING LABORATORY
11. APPLIED SCIENCES LABORATORY
12. TRACKING AND TELEMETRY LABORATORY
14. SPACECRAFT OPERATIONS FACILITY
15. LAUNCH PHASE SIMULATOR
16. DEVELOPMENT OPERATIONS BUILDING
17. MULTIPURPOSE BUILDING
18. BUSINESS OPERATIONS BUILDING
19. MULTIPURPOSE BUILDING
20. GEOCHEMISTRY LABORATORY
21. METEOROLOGICAL SYSTEMS DEVELOPMENT LABORATORY
22. TECHNOLOGY LABORATORY
23. DATA INTERPRETATION LABORATORY
24. CENTRAL HEATING AND REFRIGERATION PLANT
25. NETWORK TEST AND TRAINING FACILITY
26. NASA SPACE SCIENCE DATA CENTER
L94. GLENN DALE BUILDING #1
L95. GLENN DALE BUILDING #2
L96. GLENN DALE BUILDING #3

II. BACKGROUND INFORMATION ON STATION LOCALE

NTTF is located in Building 25 at Goddard Space Flight Center in Greenbelt, Maryland, just 14 miles north of our Nation's Capital. It is situated in one of the areas of fastest growth in the United States. The station is located off Soil Conservation Road, just east of the main Goddard complex and adjacent to a large Research Center of the Department of Agriculture.

The climate in this area is relatively mild. Temperature extremes can range from 5° to 100° Fahrenheit, with an annual average temperature of 58°. January is usually the coldest month of the year and July the hottest. Annual rainfall averages 40 inches and annual snowfall, 22 inches.

III. LIVING ACCOMMODATIONS AND COMMODITIES

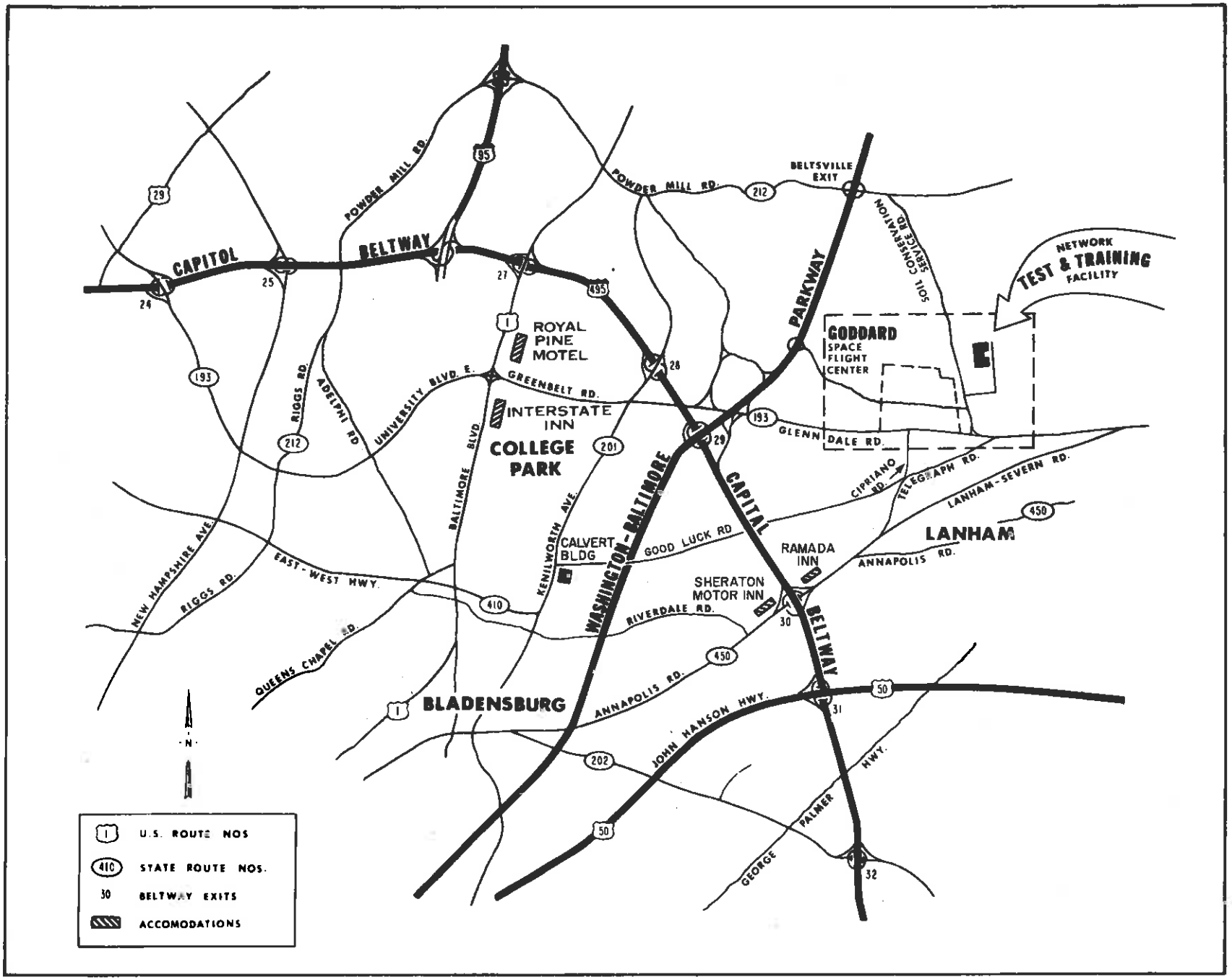
A. Housing

1. Temporary

There are numerous motels in the immediate area. However, it is wise to wire ahead for reservations, especially during the tourist season, which lasts from April through November. Usual rates are approximately $11 a day for single accommodations and $16 a day for double accommodations.

2. Permanent

a. Apartment Dwellings. There are many apartment complexes within the immediate area of the station. However, rents are expensive and there is usually a waiting list of 2 to 3 weeks for a 1- or 2-bedroom apartment. Three-bedroom apartments are also available, but the waiting period for these is generally 1 or 2 months. You will be required to sign a 1-year lease and to make a security deposit of approximately $100, which will be returned to you when you move. Rents vary, depending on the location and the accommodations within the complex. There are generally no restrictions on children. Only a few complexes accept pets. Where pets are permitted, an



Area Road Map

additional security deposit is required, and rents average $10 to $15 a month more. Average rents within a 15-mile radius of the station are as follows:

One bedroom	$185 monthly
Two bedrooms	$200 monthly
Three bedrooms	$250 monthly

Apartments are air-conditioned and the cost of utilities (with the exception of telephone services) are included in these prices.

Town houses are also available for rent, but the cost is higher than for apartments, and utilities are generally not included.

b. Private Homes. Private homes are available for rent; however, they are expensive, with rentals starting at approximately $250 per month plus utilities, which average $50 per month. There is an abundance of private housing for sale, with prices ranging from $25,000 up. The average house costs approximately $27,000 to $35,000.

As in most large metropolitan areas, living conditions vary greatly from location to location. Caution is recommended when selecting a place to rent or buy.

c. Trailers. Trailer courts are extremely limited, and it is advisable to make arrangements for space prior to moving a trailer into the area.

B. Utilities

Telephone service consisting of a private line with unlimited local calls is approximately $10 per month. There is a connection charge of $11, and in instances in which the user has not previously had telephone service, a $40 deposit is required. No deposits are required for electric and gas services. Of course, costs vary, depending on the amount of use. For homes using electricity exclusively, billing can be averaged on a yearly basis. Overall, utilities generally average $50 per month.

C. Food

Department of Labor statistics show that the cost of food for a family of four is approximately $205 per month. As in most areas, this cost fluctuates from season to season.

IV. COMMUNITY FACILITIES

A. Religious Services

All denominations are represented in the area, and most groups offer full services to the community.

B. Educational Services

1. Universities and Colleges

The University of Maryland is located at College Park and is readily accessible from the station. A full degree program is offered by the evening division known as the University College. For day students, a full program is available, and degrees are offered in many varied fields of study. Undergraduate fees are $25 per semester hour.

Most of the surrounding counties have community college systems awarding Associate Degrees to students who complete the requirements. These programs are available on a day or nighttime basis. The average cost is $13 per semester hour.

The following private colleges are just a few of the many schools located in the Washington-Baltimore area:

American University
Howard University
Georgetown University
Washington Bible College
Johns Hopkins University
George Washington University
Catholic University of America
Federal City College of D.C.
D.C. Teachers College

2. Technical Schools

The area has many technical schools that offer training in various fields.

3. Primary and Secondary Schools

Primary school includes kindergarten through grade 6. Students entering kindergarten must be 5 years old by December 31 of the year they start school. An official birth certificate is required for initial registration.

Junior high schools include all students in grades 7 through 9.

Senior high schools include all students in grades 10 through 12.

In most cases, busing is provided for students who live more than 1 mile from the school. As in most growing areas, school district boundaries are changed from time to time. It is advisable that you check with the local board of education regarding which school your child will attend. General information on school registration requirements can be obtained by calling the county board of education.

4. Parochial Schools

The parochial school system is rather extensive. Availability of space does vary from area to area, however, and it is best to contact your local pastor or minister concerning registration procedures.

5. Special Education

The Maryland School System offers a full program for students with learning problems and physical handicaps. There are also many local volunteer groups which work with handicap problems. Further information on these programs can be obtained by contacting one of the following:

Prince Georges County Board of Education
Special Education
Telephone: 627-7222

United Cerebral Palsy Association of Prince Georges County
Telephone: 474-8633

Easter Seal Treatment Center
Telephone: 577-7222

Prince Georges County Association for Retarded Children
Telephone: 864-1600

C. Health and Sanitation

Medical services within the area are good to excellent. As in most expanding areas, doctors' offices are busy. However, excellent medical facilities are available within the many hospitals serving the community. You will find that it is best to establish yourself with a local family physician. The County Medical Society can refer you to a doctor near your home who will provide you with treatment.

Most hospitals in the area provide emergency treatment on a 24-hour basis. Their telephone numbers are listed in the front of the telephone directory.

D. Recreation and Entertainment

The station's location near the Nation's Capital affords you the opportunity to visit many national historic sites. Most of the Government facilities are free, and in cases where there is a fee, it is reasonable. For complete information on Washington historical sites, you can obtain a guidebook at local bookstores.

The National Park Services have many parks within driving distance of the station. However, if you plan to camp overnight, it is recommended that you make reservations early, as facilities are usually booked well in advance.

Sports enthusiasts will find a full range of facilities available to them. The shore area offers many excellent beaches for summer enjoyment, with cottage rentals starting at approximately $125 per week. Boat owners will find limited berthing facilities available in Annapolis and along the shores of the Chesapeake Bay; approximate cost is $400 per year.

Skiing facilities are within easy driving distance, and most communities offer excellent sports programs for children as well as adults.

County library facilities are excellent. Bookmobile service is available in many areas.

There are many restaurants in the area that offer cuisine to satisfy the most meticulous tastes. Many restaurants specialize in seafoods, for which the Maryland region is famous. In addition, there are many restaurants that offer a full range of international cuisine.

V. TRANSPORTATION

You will require your own transportation to the station. Public transportation, for the most part, is extremely limited in the suburban areas, and a private car is a must if you plan to travel. Shopping areas are generally accessible only by car.

VI. CURRENCY AND BANKING

A. Banking

Banking facilities are excellent. Most local banks provide full service, with branches located throughout the area.

B. Taxes

All employees residing in Maryland are required to pay state income taxes, which are on a graduated scale. In addition, there is a surcharge of approximately 50 percent of the state tax for use by the county. Maryland also has a sales tax of 4 percent on all purchases except for food and medicines. Property taxes vary within the various localities.

State law requires you to register your motor vehicle within 30 days after establishing residence within Maryland. The law also requires that your automobile pass a safety inspection. At the time of initial registration you will be required to pay a 4 percent tax on all automobiles purchased out of state. The annual registration fee is approximately $30 per year. Further information regarding insurance requirements can be obtained by contacting the State Police or the Department of Motor Vehicles.

VII. CLOTHING/GROOMING

Maryland has generally mild weather; however, there are definite seasonal changes, and you should have appropriate clothing for hot summers as well as cold winters.

Generally speaking, the dress for work is governed by good taste. There are no set clothing requirements dictated by station policy other than the protective clothing required and furnished by the station.

VIII. WHAT TO DO UPON ARRIVAL

NTTF is located in Building 25, Goddard Space Flight Center, Greenbelt, Maryland. Applicable telephone numbers are:

Station	(301) 982-2200
Administration	(301) 982-6625

The mailing address is:

Network Test and Training Facility
Code 850.2, Building 25
Goddard Space Flight Center
Greenbelt, Maryland 20771

If requested in advance, NTTF can make reservations for one night's lodgings. There are numerous motels in the Goddard area.

When reporting to the station, the administrative office is in room 19A of Building 25. Personnel in that office can supply answers to questions you may have regarding the center and the area. Classroom hours commence at 7:30 a. m. The office is open from 8 a. m. to 4:30 p. m., Monday through Friday. However, there are personnel on station 24 hours a day.

Additional information is supplied to students before arrival on station.