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Edward Ellegood
Developing a Customer Service Center to Support
Commercial Launches at the Cape Canaveral spaceport

1.0 INTRODUCTION

The Spaceport Florida Authority is developing a design plan for a facility to serve the requirements of commercial launch customers at Cape Canaveral. Pending approval by the Air Force, the proposed Customer Service Center (CSC) will be located at the now-vacant site where the Florida Solar Energy Center was housed, adjacent to the South Gate entrance to Cape Canaveral Air Station.

Using surveys, discussions with potential users and other sources, a set of requirements has been developed and grouped into six categories: 1) Customer Accommodations; 2) Governmental Services; 3) Public Affairs; 4) Mission Support (launch vehicle& payload); 5) Research and Training Support; and 6) Facility Improvements.

The CSC requirements listed in this report are expected to fit physically within the CSC buildings. The list includes some items that may be eliminated due to technical, cost, or facility constraints. After such eliminations, remaining items will be further defined based on technical and facility requirements.

1.1 Customer Accommodations

A primary purpose for the CSC will be to temporarily accommodate payload and launch company customers operating at Cape Canaveral. A portion of the CSC'S main administrative building (Building A) will house these temporary customer offices.

1.1.1 Temporary office and conference suites for up to two customer teams

Two office suites with cubicle-style offices will be available within the north side of Building A and possibly a portion of Building B or D. The suites will share access to a customer conference room and copier, fax, and other common-use equipment.

1.1.2 Secured access to suites for protection of proprietary data

Access to each suite will be controlled by programmable ID-entry locks. The access control system will be integrated to a data system that will archive all badge access to controlled areas.

1.1.3 Reception and security services

Building A will feature a CSC reception area with permanent personnel to provide services for temporary customers. Reception and security personnel will provide facility access services (1 D/entry card distribution and control), telephone

reception/switchboard services, maintenance of Building A office equipment, CCAS badging, and facility paging/public-address services.

1.1.4 Close proximity and ease of access to key governmental support personnel

The customer office suites will be located in the same building as some (or all) offices for SFA, USAF, DOT, and NASA mission support personnel, and will be linked with these offices via telephone and computer E-mail capability.

1.1.5 Launch viewing and data monitoring

Customers will have passive access in their office suites to launch and payload data via networked computer workstations. (This capability is described in later sections.) Customer engineers, technicians, and VIPS will also be able to view launch operations from one of two launch data monitoring rooms located in Building C, or in behind-glass viewing galleries connected to the monitoring rooms.

1.1.6 Small payload servicing area, storage area, and machine shop

University launch customers who have small experimental payloads (NASA Getaway Special payloads, Space Shuttle mid-deck experiments, or research-oriented microsatellites) will have access to laboratory facilities for payload tests and preparations. For customer ground support equipment, Building E will feature bonded storage and a machine shop.

1.2 Governmental Accommodations

The CSC will include governmental support offices for agency representatives to serve new and existing (primarily commercial) users of CCAS. To the extent feasible, these offices will be located in the same building that accommodates launch customers.

1.2.1 Permanent office suites for governmental personnel (SFA, USAF, NASA, DOT)

The south half of Building A (and possibly portions of Buildings B or D) will house offices for government personnel dedicated to supporting commercial activities at CCAS and KSC. Personnel functions may include Safety, Plans, Customer Relations, Public Affairs, Licensing, Launch Site Management, and Academic Affairs. Suites may also be made available temporarily for representatives of the Air Force Space Museum, which is planning to build a visitor center near the CSC.

1.2.2 Secured access to suites

The government office suites will have magnetic badge/card locks to limit unauthorized access to industry trade-secret data. It is anticipated that no classified government information will be kept at the CSC, but access to government computers must be protected.

1.2.3 Alternative CCAS badging capability

Building A will have a capability for issuing temporary CCAS access badges for customer representatives. The facility will be linked electronically with the Air Force's computerized pass & ID system. The badging capability may be managed either by the CSC'S Air Force representatives, or by the facility reception or security personnel.

1.2.4 Main reception area (for all CSC buildings and tenants)

Building A will feature a facility reception area which will provide services for temporary customers and full-time residents of the CSC. The reception personnel will provide facility access services (magnetic key distribution and control), telephone reception/switchboard services, maintenance of Building A office equipment, scheduling for conference room use, and facility paging/public-address services.

1.3 Public Affairs Support

The CSC can augment the public affairs activities sponsored by industry, KSC and the Air Force, and can provide new services tailored to support commercial operations at CCAS. These accommodations should be included within Building B or D of the CSC.

1.3.1 News conference, briefing, and media workroom

Within Building B or D, the CSC will include a conference room/work area for news media representatives covering commercial launch activities at the spaceport. The media will have access to industry, state, and federal public affairs personnel to report on various launch-related issues. The workroom will include multiple telephone jacks for computer modems.

1.3.2 Media access to mission video and audio

The CSC will provide the media with direct access to NASA and/or Air Force-approved video and audio feeds from the KSC/CCAS video network. Parking areas will be available with cable connections for mobile broadcast equipment vans.

1.3.3 Support offices for industry and government public affairs personnel

Adjacent to the media briefing room will be multiple-occupancy offices for government and industry public affairs personnel.

1.3.4 Staging area for customer tours of CCAS

The CSC (perhaps in the Building A foyer) will serve as a gathering place for VIP tours of the spaceport.

1.3.5 Expansion capability for cafeteria, reception area, and launch oriented concession

A portion of Building B or D will be configured or set aside for future use as a cafeteria/restaurant. The dining facility will also be designed to accommodate receptions.

1.4 Mission Support -- Launch Vehicle and Payload

Another primary purpose of the CSC will be as a location for customer access to launch vehicle and payload health data. These capabilities will include passive access to data throughout the CSC facility, and mission monitoring rooms located in Building C.

1.4.1 Customer access to real-time mission and satellite ephemeris data

CSC customer office suites and their conference room will feature computer workstations and large-screen display systems to provide mission data, Range audio and video, weather displays, and tele/video conferencing capability. The mission data capability will be served by a telemetry front-end processor to decommute data and distribute it on a CSC mission data network, which will serve other mission data distribution throughout the CSC. The network will be capable of receiving mission data via umbilical and telemetry during pre-launch, and via telemetry during launch ascent, on-orbit, and descent.

Building C will include two launch data monitoring rooms with engineering workstation consoles and other test equipment configured similarly to KSC'S Hangar AE control room. Each monitoring room will be capable of accommodating mission-specific equipment supplied by customers using the CSC. The workstations will be able to display and print data in desired formats, and be capable of hosting mission data and software for UNIX, Windows, VMS, OS2 Warp, NT, and Macintosh environments.

1.4.2 Data access for two simultaneous missions

The two monitoring rooms will be identically configured and capable of receiving payload and launch vehicle data from anywhere on KSC or CCAS for two simultaneous missions.

1.4.3 Redundant access to CCAS data (fiber optic and line-of sight)

The CSC will be connected to the fiber optic network serving CCAS and KSC. To augment this data access, the CSC will also have a line-of-sight (microwave) connection to a CCAS or KSC data distribution center.

1.4.4 Plug-in access for mobile launch support systems

A parking area adjacent to Building C will provide a location for mobile launch support systems that will be used by some launch service companies. Building C will accommodate cable hookups to the mobile systems, allowing them with access to the same data available to the CSC.

1.4.5 Mission briefing room

Building C will include a separate room for mission briefings, with a capability for the display of real-time and recorded data. This room will also accommodate pre- and post-launch news conferences.

1.4.6 Anomaly analysis and support capability

Building C will include a separate room for the display, review, and analysis of anomalous mission data. This conference-style room will include computer workstation access to all mission data. This capability will also include services for “orbital emergency” situations, enabling the U.S. government’s network of satellite tracking resources to aid in the location and control of mis-launched payloads. This capability is available whenever necessary through a recently signed agreement between the Spaceport Authority and the Air Force’s 50th Space Wing.

1.4.7 Capability for administering launch operation simulations

Building C’s monitoring rooms will be available for configuration as mission simulation centers where launch support personnel can be trained and launch operations can be tested under a variety of simulated conditions.

1.4.8 Ground station for on-orbit payload support

The CSC will include a payload operations and control capability. The system will include a dish located on the CSC grounds (perhaps atop Building C) capable of receiving data from various remote sensing and telecommunications spacecraft on-orbit, including exploratory spacecraft like Lunar Prospector and Mars Surveyor. The system will also have a transmission capability for operating spacecraft. The system may utilize existing CSC launch support workstations, or a separate suite of workstations dedicated to payload on-orbit support.

1.4.9 Mission management and planning

The CSC's payload support and mission management capability may be augmented by software package capable of supporting satellite operations, constellation management, ground station operations, detailed orbital analysis, and training. The package has been offered at no cost for use in the CSC.

Depending on the Air Force's progress in developing a GIS-based facility identification/management system, the CSC may include a node with access to this system. With such access, CSC customers and their government support team would be able to match mission requirements with facility capabilities at the Cape. The GIS-based system would also include a capability for the analysis of safety issues, including quantity/distance limitations and plume dispersion factors.

1.4.10 Receiving/storage area for mission-specific equipment

Building E will be configured for the bonded storage of ground support equipment brought to the spaceport by customers who will use the CSC.

1.5 Research and Training Support

The CSC will include a university support capability for research and experimental missions, and for launch and payload system training.

1.5.1 University support staff accommodations

Building B or D will be partially dedicated to supporting college and university space-related training and research activities. Offices will be available for Florida academic representatives who will support these activities.

1.5.2 Classroom and lab accommodations

The CSC academic support building will include up to four labs and classrooms to support launch workforce training and research/payload support activities. The labs will be "clean", with an additional capability for accommodating a portable cleanroom within one of the labs.

1.5.3 Distance learning system access (FEEDS)

In cooperation with the University of Central Florida, the CSC will have a production capability for the Florida Engineering Education Delivery System (FEEDS). FEEDS will be used to link CSC training and research activities with other Florida academic institutions.

2.0 GENERAL FACILITY IMPROVEMENTS

The CSC must include structural and technical improvements to comply with new regulations, and to create a more attractive and efficient facility. Improvements will be defined in a later report, but will include:

- ADA-compliant access (parking, entryways, bathrooms, etc.)
- Energy-efficiency improvements (lighting, air conditioning, insulation, etc.)
- Basic structural repairs (concrete patching, window sealing, roof repairs, etc.)
- Esthetic improvements (covered walkways, landscaping, exterior paint, etc.)
- Parking lot and driveway refurbishments
- Integrated, multi-building telephone/communications/e-mail system
- Public address system

2.1 Proposed Facility Allocation

