

NADC REUNION



50TH



**A CELEBRATION OF
THE JOURNEY**



Celebrate the Journey . . .

As employees and associates at NAWCADWAR approach the site's 50th anniversary in October 1994, we view the past through memories, celebrate the present with a dinner dance and picnic and look to the future with uncertainty and wonder.

The 50th Anniversary Committee volunteers, at the suggestion of Capt. William L. McCracken, commanding officer of NAWCADWAR, compiled a picture of the Warminster site at this point in time via photographs and short overviews written by each department. A snapshot at this time of change could never tell our thousand stories. The 50th Anniversary Committee hopes you will remember the good times and noteworthy accomplishments when you look at this booklet today and in the future.

You will see an image of people you recognize, people you may have worked with for a long or short time, people you may not see again after realignment, but people you will remember forever.

We are a people in transition, but we are not alone in this passage. Our families and neighbors and others across our nation are struggling with change of one sort or another. Survivors deal with life's changes successfully. Since we're all in this together, we can help one another cope and triumph with the coming changes. Turn to each other for support, share ideas and resources. Ultimately, we will capitalize on change and use it to our advantage.

This snapshot in time shows dedicated employees striving to continue the mission of the Aircraft Division and complete their watch at Warminster. Those remaining at Warminster through closure may work through some difficult times. Those moving on will face new challenges a little sooner than others. But every new day presents new challenges.

*Every individual pictured on the following pages, and many more current employees who could not be present for the photo sessions, played an important part in the Navy's mission through the years. Many who have retired or moved to other locations and other jobs, played vital roles at Warminster. **These are the people who won the Cold War.** Grateful nations around the world, though not able to look at these pages, would extend their congratulations for a job well done to the people at Warminster.*

The following pages highlight the important work being done currently for the Navy at NAWCADWAR. This work will continue until the watch closes at Warminster and the new day sees the work continuing at our new site, Patuxent River, Md.

Congratulations and best wishes. We hope everyone enjoys the 50th Anniversary picnic.

ACKNOWLEDGMENTS

Gratitude is extended to the Commanding Officer, Capt. William L. McCracken for his inspiration to celebrate the 50 year journey of NADC and his support throughout the project.

Special thanks to Mr. Rick Cox, Committee Chair, for taking the helm and steering the crew of volunteers toward a successful celebration. Thanks to Clint Herbert who started the voyage as Chairman but due to a job change relocated to D.C.

Several committees of volunteers earned appreciation for their tireless efforts over several months planning the 2-day anniversary/reunion. The Dinner Dance committee, chaired by Judy Scott and Gina Luce, orchestrated the formal dinner dance Friday evening, 7 October 1994. Barbara Ward and John Markow led the Picnic Committee to the festive events planned for Saturday, 8 October. The Publicity Committee, Maureen Talley, Joan Marie Brown and Lori Trainer coordinated publicity for the events and fund-raisers plus tracked invitations and replies. Historical displays and the commemorative Reflector book were coordinated by Committee Chair Lois Savage and the Technical Library and Graphics Department. Jack Eyth chaired the Finance Committee with the able help of Linda Lips. Lori Trainer, as event coordinator, served as liaison for all committees.

Countless unsung heroes joined the various committees along the voyage to bring the NADC Anniversary Reunion to life. Special event and fund-raising volunteers baked cakes and cookies, manned sales tables, washed cars and vans, sold flea market spaces, manned phones, typed databases, sealed envelopes, stamped thousands of invitation letters, canvassed sponsors, produced PR posters, and contributed to this mammoth effort to bring an enjoyable, memorable event to all employees and associates.

Thanks to the personnel who wrote the department reviews for this booklet, produced the photographs, typeset and printed, and otherwise contributed.

There are myriad activities, thoughts and deeds that went into the entire 50th Anniversary celebration, too numerous to mention here. Everyone who had a part, those on-site, at other locations or in the community, deserves the recognition and appreciation of the Navy community at NADC.

To all,

Thank you!!!

History

The Naval Air Warfare Center Aircraft Division Warminster (NAWCADWAR) was established during World War II to meet the growing needs of a nation at war.

In 1944, the Navy acquired the Brewster Aeronautical Corporation with its one million square feet of production and administration space and an adjoining airfield and aircraft hangars. The plant was designated the Naval Aircraft Modification Unit (NAMU) and became part of the Naval Air Material Center, Philadelphia. The mission involved conversion and modification of Navy aircraft prior to delivery to combat units in the Fleet.

With the war's end, increased emphasis was placed on research and development activity. On August 1, 1947, NAMU was redesignated the Naval Air Development Station (NADS), an independent and self-sufficient activity. By August 1, 1949, the NADS expansion reached a significant point after several activities from other parts of the country had been transferred here. The Station was reorganized along functional lines to make it a more efficient research and development activity, and was designated the Naval Air Development Center (NADC).

The Research and Development laboratories originally comprising NADC were the Pilotless Aircraft Development Laboratory, the Aeronautical Electronic and Electrical Laboratory, and the Aircraft Armament Laboratory. The supporting activities included the Administration, Industrial Relations, Security, Medical, Public Works Operations, and Supply and Fiscal Departments plus a Naval Air Station.

In July 1950, the Aeronautical Computer Laboratory was added, first as a small engineering team and later as a laboratory using what was at that time the world's largest analog computer, the TYPHOON.

The Aviation Medical Acceleration Laboratory became part of the Center on June 17, 1952 when the world's largest human centrifuge was dedicated. It was here that the Project MERCURY astronauts received an important part of their training.

The Aeronautical Instruments Laboratory (AIL) and Aeronautical Photographic Experimental Laboratory (APEL) were transferred to NADC in December 1953 from the Naval Air Material Center, Philadelphia. AIL grew from 92 people in 1953 to 134 in 1958, as three new branches were added: Simulation, Inertial Navigation and Systems and Computers.

An important function arrived at the Center with the establishment of the Antisubmarine Warfare Laboratory in 1958. Currently, the function is a command project.

In July, 1963 the Naval Air Station was redesignated the Naval Air Facility.

On July 1, 1965, a reorganization combined and consolidated the existing laboratories into four functional departments (Aero Electronics Technology Department, Aero Mechanics Department, Aerospace Medical Research Department and Air Warfare Research Department) and added a Systems Project Department. A major advance in management control was realized through implementation of a computerized Management Information System.

On July 11, 1967, three laboratories of the Naval Air Engineering Center, Philadelphia, became departments under the administrative control of NADC. Aero Materials Department, Aero Structures Department, Aerospace Crew Equipment Department.

The Systems Project Department and the Air Warfare Research Department were disestablished on February 1, 1968 and the resources merged into a single department designated the Systems

Analysis and Engineering Department.

On September 5, 1968, a Life Science and Bio-Equipment Group, comprised of portions of the Aerospace Medical Research Department and the Aerospace Crew Equipment Department, was established to develop and conduct research in human behavior and associate tangents.

More change came about on March 25, 1971. The Life Sciences and Bio-Equipment Group, the Aerospace Crew Equipment Department and the Aerospace Medical Research Department were consolidated into the Crew Systems Department.

On November 22, 1971, the Administration Department was reconstituted to include the Public Affairs Office, and an Engineering Support Division that included most of the shops of the Aero Mechanics, Aero Structures and the Aero Electronic Technology Departments. It also included a Technical Publications and Presentations Division, and a Technical Information Division.

The Aero Material, Aero Structures, and Aero Mechanics Departments were consolidated into the Air Vehicle Technology Department on January 1, 1972.

The relocation of personnel from the Naval Strategic Systems Navigation Facility in Brooklyn, New York to NADC began on November 25, 1973. This group combined with the navigation tasks formerly assigned to the Air Vehicle Technology Department and the Aero Electronic Technology Department to form the Naval Navigation Laboratory.

The Former Administration Department was abolished and the Technical Services Department was established on June 9, 1975. That department consisted of the Engineering Shops Division, the Environmental Facility Support and Standards Division, the Presentation and Information Division, and the Structural and Aircraft Fire Division.

The need for improved efficiency, due to an increased workload combined with personnel reductions, led the Center to reorganize in October, 1977. The reorganization's objective was to improve the Center's ability to satisfy its customers' needs, thereby enhancing its image and product at the same time. There were nine main organizational elements in the new organization: six technical directorates and three support groups. The six functional directorates included: Systems; Sensors and Avionics Technology; Communication Navigation Technology; Software and Computer; Aircraft and Crew Systems Technology and Command Projects. The three Support Groups were Administrative, Engineering, and Planning Assessment Resources which supported, the latter and was responsible for project and program review. In addition, the Naval Air Facility was merged with NADC.

The Computer Services Department, formerly a part of the Systems Analysis and Engineering Department, was established on May 11, 1983 to provide general computing services required to support the Center and its technical programs.

In January, 1992 NADC was redesignated Naval Air Warfare Center Aircraft Division Warminster. The facility is charged with performing vital engineering and tests for aircraft reconnaissance systems. This site also provides long-term support to aircraft development in specialties such as flight controls, crew equipment, materials and sensors technologies, simulations, laboratories, and stealth-type high performance airborne systems.

In 1996, NAWCADWAR is scheduled to relocate to Naval Air Station, Patuxent River, MD as part of the nation-wide Base Realignment and Closure (BRAC) legislation.

Commanding Officer

Executive Officer/Executive Director



The Commanding Officer is responsible for all phases of operation and mission accomplishment of the command following Navy Regulations. He is responsible for effectiveness of all technical programs including planning, conduct, staffing and maintaining liaison with the scientific community. Technical Departments include Antisubmarine Warfare Systems, Tactical Air Systems, Warfare Systems Analysis, Mission Avionics Technology, Air Vehicle and Crew Systems and Systems and Software Technology.

The CO oversees systems for financial management and budgets and is responsible for personnel policies and procedures. He is the command's Equal Employment Opportunity Officer. He guides Public Affairs, Command Safety, Small Business, Legal Office, Military Administration, Telecommunications, Security, and Military Welfare and Recreation. The command contains support departments such as the Computer Department, Public Works, Supply, Test and Evaluation and a detachment in Key West, Fl. which provides at-sea tests and evaluations.

The Commanding Officer maintains efficient and expedient use of all operations to keep the base running smoothly and within the guidelines of naval organization. He is supported in these efforts by the Executive Officer, Executive Director, department heads and support personnel, a total of 1700 military and civilian personnel.

The Executive Director is responsible for the effectiveness of all technical programs on center. This includes the research, development, test and evaluation functions with which the Center executes its responsibility as a full spectrum RDT&E organization.

The Executive Director manages the Independent Laboratory Investigative Research program for the Center. He also serves as the senior technical representative and leads the in-house technical personnel in maintaining liaison with the outside scientific community, exchanging technical information with other Warfare Centers and government activities, and interfacing with the operating forces.

Office of Science & Technology

Code 01B



The Office of Science & Technology (OST), Code 01B was founded in September 1987 under Dr. Arno Witt. Dr Kenneth Green became Director in August 1992. The mission of this office is to provide a focal point for coordination of Warminster and NAWCAD science and technology programs for the development and growth of the naval aviation technology base, and includes university exchanges and transfer of technology to the private sector, both domestic and foreign.

The programs currently active in the Office of Science and Technology are: In-house Laboratory Independent Research. (ILIR)-Provides the opportunity for our scientists and engineers to develop and carry out in-house scientific research in the 6.1 funding area, University Exchange-Promotes opportunities for university professors and Post-Doctoral Fellows to conduct basic research in areas of interest to naval aviation at the NAWCAD. Special emphasis has been applied to Historically Black Colleges and Universities and Minority Institutions. Technology Development Programs-Evaluates requirements promulgated by OPNAV and the Office of Naval Research (ONR) for the study, demonstration, and application of appropriate emerging technologies to Navy operations, and assists our scientists and engi-

neers in proposing and executing relevant programs. Small Business Innovative Research (SBIR)-Offers small business, including minority and disadvantage businesses, opportunities to develop technologies suggested by the Navy.

Office of Research and Technology Applications (ORTA)-Establishes programs to transfer NAWCAD technologies to the commercial sector as well as assisting state and local government. This effort also includes the licensing of Navy patents. Strategic Technology Development-Increases the NAWCAD technology business base by identifying opportunities for participation with non-Navy federal agencies in technology development. Technology Export Control-Provides technical review of applications by U.S. companies for sale of military technologies to foreign companies made through the Department of State and the Navy International Programs Office. Navy Science Assistance Program-Provides and supports NAWCAD Scientists and Engineers that are sent to major fleet assignments on a rotational basis to act as science and technical advisors.

At present there are nine employees in the Office of Science and Technology.

NAWCADWAR Transition Team

Code 01C



The Transition Team is responsible for the analysis, planning, coordinating, executing and tracking of the transition of pertinent civilian and military personnel, programs, contract resources, facilities and functions from Warminster to Patuxent River.

Projects and services include the BRAC MILCON Program, organizational transition, relocation of workforce and Warminster laboratories. The Transition Team will oversee the teardown, move, reconstruction and certification of equipment and facili-

ties as well as the relocation contract.

Achievements to date include monitoring the construction underway for the Material Lab, North and South complexes, Rehabs and transportation improvements at PAX. Final assessment reports have been completed on all labs, including footprints, draft Memorandum of Understanding generated and provided to facility managers.

Seven employees drawn from other codes throughout the site staff the Transition Team.

Public Affairs Office

Code 041



The Public Affairs Office provides center-wide support for a variety of activities dealing with public information, community relations and internal information. PAO plans and coordinates all VIP visitors arrangements, agendas for senior DoD officials and foreign visitors, works closely with military liaison officer responsible for protocol. PAO plans, coordinates and executes all unofficial and general interest tours, and participates in planning presentations for visitors and center employees.

The PAO Officer, Information Specialists and Assistants and Editor serve as coordinators for conferences and symposiums, assure that physical arrangements are planned. PAO represents the Center in providing answers and interpretations on

subjects ranging from Center policy to technical development, and develops material and background knowledge for successful programs and presentations on site, to the public and media. PAO develops information packets, pamphlets and instructional material on a variety of center, environmental, transition and technical subjects. The office provides exhibits, informational material and personnel to support the community relations and special events programs.

The Reflector, NAWCADWAR's news magazine is produced in PAO, as well as a variety of press releases and submissions to various other DoD publications.

Comptroller

Code 02



The Comptroller Department coordinates and maintains the integrity of financial operations providing financial advice and services to all competency organizational elements. Responsible for planning, development, execution, and control of budgets ensuring full compliance with Defense Business Operations Fund policies and procedures.

Projects/Products/Services

The Comptroller office provides technical guidance and

direction on financial matters. Responsible for program compilation and business assessment against goals and objectives. Appraises business workload and management of resources. Reviews and formulates budget. Provides accurate financial data essential for effective management control of operations. Business volume for the entire command approximates \$500 million.

The Comptroller's code consists of approximately 70 employees.

Human Resources Office

Code A05



The **Human Resources Office** (Code AD05) provides advice and assistance to managers and employees in the areas of classification, compensation, staffing, employee/labor management relations, employee development, and equal employment opportunity. With the announcement of the realignment with the Naval Air Warfare Center Aircraft Division contained in BRAC 91, the focus became one of providing information and developing the skills necessary to successfully transition within the organization, including relocation to Patuxent River, Maryland or to a new career elsewhere in the Federal service or private industry. An Employee Assistance Center has been developed which includes information on relocation, career development/search, and retraining. Unique programs such as Managing Change, dealing with stress management, the development of Teaming/Leadership Skills, and communications tool such as the SITREP have been developed and provided to all employees.

The **Personnel Services** (Code AD054) Division serves as the principal adviser to the Position Management Office and further provides personnel management advisory services to NAWC management. Code AD054 also serves as a liaison to higher authority, other federal agencies, other naval activities, educational institutions and the general public. With the current Competency Realignment initiatives, Code AD054 administers the various VSIP initiatives, assists in the Manager Selection process for the Competency Aligned Organization and provides early registration in the Priority Placement Program.

With the Competency Realignment, the importance of the services provided by **Employee Development** (Code AD0572) has grown as we prepare employees to face the challenges of a new organization and in many cases "new careers." Code AD0572 has provided 98% of the workforce with a minimum of 40 hours of training in addition to an increase in the number of On-Site educational opportunities in engineering and administration with the various local colleges and universities. Code AD0572 has also obtained a \$1.6M grant from the Department of Labor to retrain our changing workforce in new careers for the future.

The **Employee/Labor Management Relations** (Code AD0571) and **Equal Employment Opportunity** (Code AD0573) Divisions continue to focus their services on employee's morale and welfare. Code AD0571 provides management services in the areas of labor relations, employee performance, awards, and discipline as well as providing employee services in the areas of benefits, retirement, worker's compensation, etc. Code AD0573 continues to assure that the Site adheres to the principles of EEO and the ongoing commitment to eliminate discrimination and sexual harassment. Special emphasis programs dealing with women, minorities, and employees with disabilities are actively supported, and the Office provides ongoing counseling to all employees.

Overall, HRO encompasses a broad spectrum of personnel services to support NAWC-AD's talented and dedicated employees. Approximately 30 employees work in HRO.

Command Administration

Code 04



Under the Center Commander/Technical Director, provides support to the Center to Public Affairs, Administrative functions related to Military Personnel, Telecommunications, Security, Military Welfare and Recreation, and Administration.

PUBLIC AFFAIRS DIVISION- CODE 041

Functions as the Center Commander's principal advisor on matters of internal, external, community and governmental relations. Serves as official spokesperson and point of contact for the Center.

MILITARY ADMINISTRATIVE DIVISION- CODE 042

Provides administrative services for all military personnel assigned to the Center and provides berthing facilities for enlisted personnel. Provides legal services to active military personnel and their dependents, and reviews disciplinary cases. Coordinates cases involving military personnel with state and federal law enforcement agencies as necessary. Prepares analysis of command military manpower utilization and processes formal requests for changes to Officer and Enlisted Manpower Authorization. Exercises management control over military personnel and services. Prepares personnel roster and strength reports.

Assigns enlisted personnel to primary duties. Effects personnel transfers and changes in assignment and initiates requests for replacement. Maintains correspondence, publications, directives, and files on all matters pertaining to military personnel administration.

SECURITY PROGRAMS DIVISION- CODE 044

Serves as the Center Commander's advisor and direct representative in directing matters pertaining to all security areas, working closely with Center scientific and technical personnel. Develops, plans, and implements policies and procedures for Computer Security, Operations Security (OPSEC), Physical Security and Information Security. Ensures availability and proper application of security classification guidance for technical projects, providing assistance in developing new or revised guidance when needed. Provides for the protections of life, property and the rights of individual citizens. Provides for the prevention/deterrence of theft and other losses; and enforces security rules, regulations, policies and manages the Security Access System. Establishes policy and operating standards for security of the Center's computer systems. Provides day-to-day physical, document, and personnel security services for all special projects.



RECREATIONAL SERVICES DIVISION- CODE 045

Develops and administers morale, welfare, and recreation processes that provide entertainment, recreations, sports, and youth services for military personnel and their dependents, civilian personnel, and other patrons and guests. Provides administrative, operational, technical, and financial direction for the Recreation Program.

ADMINISTRATIVE SERVICES DIVISION- CODE 046

Provides administrative support to all Center components. Administers Center records management programs, central correspondence files, mail and postal services, and central control and liaison for printing and quick-copy programs through the Navy Publication and Printing Service Branch Office. Develops, administers, and improves Directives, Micro Graphics, Records, Forms, Reports, Mail and Publications. Edits, prepares, and publishes all Center directives and notices and controls Center distribution lists. Develops and maintains Central Automated Secret document tracking system. Bar codes and maintains control of Secret messages. Receives, routes, and controls classified and unclassified incoming correspondence, and coor-

dinates the Freedom of Information Act and Privacy Act programs.

VISUAL AND TECHNICAL INFORMATION DIVISION-CODE 047

Maintains the Scientific and Technical Library, including classified documents and scientific and military publications. Provides television and audiovisual services, including motion picture instrumentation and the video teleconferencing center. Produces still photographs, graphics and publications for the Center. Services telecommunications for the center - Operates the Defense Communications systems AUTODIN SRT-II telecommunications terminal. Routes and distributes all incoming/outgoing electronic messages. Provides Center-wide cryptographic services including training, changing codes, and physical security. Manages the Center Administrative Telephone System including the telephone operators, publishing the telephone directory, telephone instrument inventory, other equipment inventory, misuse recovery program and detailed telephone analysis for improved service and costs stabilization. Provides COMSEC custodial services, training, and issuance of COMSEC material to Center projects.

Computer Department Code 05



The Computer Department (Code 05), is a multi-faceted organization that is currently preparing for its migration to the NAWCAD Information Management Competency (7.2).

The mission of the Computer Department is to provide effective ADP, Information Systems, Computer related engineering and communications support for all center organizational elements. This includes realtime simulations and performance and problem analysis for the F-14, F-18 and LAMPS helicopter.

The NAWCAD Warminster Computer Department essentially began in 1946 when the "father of NADC computer systems", Harold G. Tremblay, was hired as an electronics engineer. Hal started at the beginning and built, improved, and expanded what is now today's power packed Central Computer System (CCS). In the beginning days the mission included support for the early missile systems, the X-15 research aircraft and the Mercury manned spaceflight program. Later support was provided for the fledgling F-4 and Phoenix missile system. The world-famous centrifuge was also an early support project of the Computer Department. Hal Tremblay's efforts culminated in his receiving the 1982 Ralph S. Barnaby award. Upon his retirement in 1986 the mission baton was passed to Robert A. Finkelman who had served as Hal's deputy for many years.

Bob Finkelman continued the "Tremblay Tradition" and further expanded the Computer Department's capabilities. This included a high degree of support for the Synthetic Aperature Radar (SAR) project which was recognized by his 1988 award for Engineering Achievement. He also received the 1991 Ralph S.

Barnaby Award for outstanding accomplishment.

As Bob moves on to become NAWCAD's Information Management Competency Manager the leadership role has been passed on to Al Kaniss who served as Bob's deputy for 8 years. Al will now oversee the transformation to smaller, more powerful computer systems such as the new Silicon Graphics mini-computers that will carry the workload for the center's electronic mail (these systems are 10 times faster than the VAX systems they replace and are 1/3 the size).

Today's transitioning Computer Department is team oriented. Teams now exist for CCS operations (Team Leader - Otis Johnson), CCS Support (Team Leader - Eli Ingram), Customer Support (Team Leader - John Ierardi), Life Cycle Management (Team Leader - Bob Greenblatt) and Information Systems Security (Team Leader - Mark Schwartz). Among many projects supported by the Computer Department are Open Systems Migration (the movement of systems to Patuxent River) (Team Leader - Bob Marzacco), and the Aircraft Division Information Systems Project Office (Project Manager - Roger Furlin). There are also divisions for Computer Engineering (Division Head Hank McCloskey) and Information Sciences (Division Head - Les Greenbaum).

Among other awards to Computer Department personnel was the 1990 Award for Engineering Excellence to Wes Mostello. The department itself has been awarded the Commanding Officer's Safety Award numerous times. The department is currently staffed by approximately 45 Civil Service personnel.

Command Safety / Small Business / Counsel Code 09



Command Safety Office - Code 092

The mission of Code 092 is to provide a safe and healthful workplace for all center personnel (civilian & military).

The safety program encompasses all phases of safety including occupational safety and health, and safety considerations in lasers, explosives, motor vehicles, hazardous materials, ionizing and nonionizing radiation, gas-free engineering recreation, athletics, and off-duty activities. The program consists of all functions that are necessary to reduce injuries, illnesses, and material losses.

Small Business- Code 094

SBA's mission is to widen the path of economic opportunity for small and small disadvantaged, and women-owned businesses; and is now considered one of the navy's leader in the initiatives for the historically black colleges and universities (HBCU)/and minority institutions (MI).

Our Services assist our employees in implementing the NAWCADWAR small business contracting programs.

In 1987 and 1989 the SBA was awarded the Secretary Of The Navy Omnibus Award for Small And Disadvantaged Business Utilization. Two employees work in Code 094.

Counsel & Patents- Code 095

The Office of Counsel provides legal advice and assistance to NAWC Warminster.

The Office of Counsel provides legal services to the Center in the field of commercial and business law related, but not limited, to: a. Acquisition and procurement of supplies and services, including the fiscal aspects thereof; b. Intellectual property, including patents, inventions, trademarks, copyrights, Cooperative R&D Agreements, licenses, and related matters; c. Civilian personnel law, including labor management relations and equal employment opportunity matters; d. Standards of Conduct and ethical behavior for Government employees; and e. Freedom of Information Act, Privacy Act, and other miscellaneous matters.

Three patent attorneys, 2 general attorneys, and 2 clerical assistants comprise the Office of Counsel.

ASW Systems Department

Code 10





The ASW Systems Department, ("Department") was chartered in 1989 and provides a single-point-of-contact and accountability for the technical performance, cost and schedule controls for all assigned Antisubmarine Warfare (ASW) programs/projects, tasks and related support systems. Within the Department are four Divisions devoted to a particular aspect of ASW, and one Program devoted to technical support of the Navy strategic communications aircraft.

The Department's business base approximates \$100M yearly, with the emphasis on direct Fleet support in the areas of ASW software, sensor development and system integration across both land-based and carrier-based air assets. Within this broad array of programs and projects lie most of the Navy's key airborne ASW initiatives. Representative of efforts underway are the man-machine requirements definition for advanced sensors and sensor integration; replacement of out-dated computer architecture with modern, high-speed data processors; and acoustic processing refinements and improvements needed to keep pace with the challenges posed by quieter threats.

The Fixed Wing Program Division, Code 101, is responsible for the life-cycle-support for the S-3B weapons systems software, and performs analysis on the feasibility of proposed upgrades. A software development laboratory allows the Fixed Wing Division to perform both software generation and software validation and verification. This Program also is assigned cognizance on the carrier-based ASW mission replay and analy-

sis module for system life-cycle-support, and system enhancements.

The Vertical Flight Program Division, Code 102, is responsible for the life-cycle-support of the LAMPS SH-60B weapons system, as well as being the lead technical investigator on other related helicopter-based ASW weapons systems. This Program conducts software design and development in a laboratory.

The VP Maritime Patrol Program Division, Code 103, is responsible for the life-cycle-support of the airborne P-3 mission software. Supporting this, the Program has a large software design and development laboratory which enables the Program to carry out technical feasibility efforts on advanced P-3 software and systems.

The Advanced Systems and Sensor Integration Program Division is concerned with sonobuoy sensor design and development as pertaining to weapons systems integration. Technical investigations into applications for these sensors in the Navy's future ASW platforms form the basis for much of the engineering activity conducted by this Division.

The Strategic Communications Platform Program, Code 10C, is associated with the upgrades to the Navy's TACAMO airborne communications aircraft, E-6A, as well as technical analysis for the proposed integration of the Air Force Command Post functions aboard the E-6A.

Approximately 190 employees work in the ASW Department.

Tactical Air Systems Department

Code 20



TASD's mission is to focus all those Warminster resources dedicated to addressing tactical air mission areas and related issues into a coherent set of programs to solve Navy problems. Problem solutions in support of anti-air warfare, anti-surface warfare, strike/reconnaissance and related technical support systems are continually being applied to all major TACAIR platforms as well as major subsystems in support of these platforms. Examples are: F-14, F/A-18, V-22, EA-6B, UAVs, Targets, Reconnaissance, JAST, Tactical Air Combat Training System, training aids, and mission planning systems.

Since our department was organized in October of 1986, we have been the Navy's lead site applying systems engineering functions to the integration of new developments in, for example, aircraft materials, structures, crew systems, avionics, and logistics. These are but a few of the processes and technologies brought to bear on the design of new platforms and the major upgrade of existing platforms.

TASD, in conjunction with the technology departments, formulates concepts, designs systems and develops specifications for TACAIR systems. We are presently supporting NAVAIR in the concept definition of JAST; the engineering and manufacturing development of the F/A-18E/F, the V-22, and UAVs; and major upgrades to the F-14A/B/D; Targets scoring systems; and, mission planning systems. We also accomplish hands-on design, test and in-service applications of unique airborne concepts, such as stealth, to expand the full performance effectiveness of TACAIR platforms. This department has transferred technology developments to in-service capabilities. Examples include: the F-14D Infra-red Search and Track System; the F/A-18A/B multi-function displays; A-6E composite wing;

F-14 Tactical Air Reconnaissance Pod System; the F/A-18D(RC); reconnaissance system; and, high speed fiber optic buses.

Recently TASD personnel have received a team integration award for significant contributions to the development of the F/A-18C/D Cockpit Video Recording System (CVRS). The CVRS provided the rapid turnaround and cost-effective solution to a major fleet identified shortcoming in the F/A-18, i.e., the ability to perform real time, accurate battle damage assessment. The leadership and initiatives displayed by the team have resulted in significantly expanded tasking in FY-94 and projected for FY-95. Also, the F/A-18 team has expanded its support of the program by pioneering a major risk management task that has since been embraced by the prime contractor and has resulted in a merged, extensive data base that serves as a significant management tool.

TASD personnel received a team integration award for the A-6E Night Vision Compatible Cockpit Lighting System design, fabrication, testing, and kit production. This system is an innovative design that results in the A-6E capability exceeding that of any existing aircraft.

Mr. Carl Reitz won the CO/TD award in 1993 for Project Leadership. Due to his leadership the UAV Joint Project Office regards Warminster as the Center of Excellence for UAVs systems engineering. This resulted in the NAWCAD selecting Warminster to lead the NAWC-wide UAV work.

Additionally, over the past 18 months, eight other TASD employees have been nominated to receive CO/TD awards, the Barnaby Award, Woman of the Year recognition, etc. Number of Employees is currently 94 full time and five part time.

Public Works Department

Code 83



The Public Works Department is made up of six divisions ranging from Military Housing, to Facility Support, Contracts, Maintenance, Utilities, and Engineering and its mission is to provide expertise in operating, maintaining and repairing all real property, facilities and utilities at this Command and the Military Housing quarters.

Over the years the Public Works Department has identified and taken care of a vast variety of problems at this site. It has assured us of heat in the winter and air conditioning in the summer. It has maintained, repaired and, when necessary, constructed buildings, structures, and distribution systems. The Public Works Department ensures that all operations comply

with environmental laws and regulations. It performs the plant engineering functions including the use and monitoring of all utility systems. Public Works is responsible for providing support on all levels; from grounds maintenance and snow removal to electrical systems; from repairing water leaks to providing pest control. Public Works ensures this site keeps running day to day.

Achievements/Awards

Various energy and safety awards.

Number of employees: 123

Warfare Systems Analysis

Code 30



The Warfare Systems Analysis Department provides a full spectrum of warfare analysis operations and systems analysis, advanced concept formulation/assessment, cost/ affordability and cost-effectiveness analysis, warfare systems architectures, technical strategies/requirements and fleet liaison/interface in support of naval air systems acquisition.

The Warfare Systems Architecture and Engineering Program, Code 30B, translates OPNAV's appraisal process and top-level warfare requirements into functional requirements and defines the Navy's current architecture to meet those requirements. It provides direction, coordination, and integration of warfare architecture assessments to establish baseline performance, identify shortfalls in capabilities, and evaluate options to address shortfalls. It also supports formulation of a spectrum of system architecture options to meet future needs based on coordination with the Navy's technology program, the results of critical experiments, and Fleet user requirements.

The Scientific and Technical Intelligence Liaison Office, Code 30C, is responsible for channeling and expediting the flow of intelligence information from the intelligence community to

the various departments. It provides liaison and acts as the primary point of contact with the intelligence community, maintains an extensive, general service (GENSER) intelligence library, serves as a conduit in providing specific technical expertise and Foreign Military Intelligence Collection Activities (FORMICA) support to the Office of Naval Intelligence (ONI) and other intelligence agencies, reviews all received intelligence materials for applicability to activity's programs/projects and prepares/coordinates intelligence briefings on topics of interest to site personnel.

The Fleet Interface Office, Code 30D, provides a Center focus for all interface with fleet operational units and organizations, coordination of exercise participation, and support to the Navy Science Assistance Program (NSAP) and the Navy Science Technical Education Program (NSTEP).

The Reliability & Maintainability (R&M)/Integrated Logistics Support (ILS) Program, Code 30E, establishes Center-wide policy, provides technical guidance and oversees policy implementation for R&M/ILS engineering and analysis, and provides consultation on selection/use of computerized R&M/ILS tools.

For selected programs, as appropriate, performs independent technical reviews of the R&M/ILS aspects to identify technical deficiencies and provide improvement recommendations. It also performs specialized R&M engineering and ILS analysis in support of pre-conceptual and conceptual studies, new acquisition strategies and deployment evaluations. Such analyses provide for the development of qualitative and quantitative requirements for and assessments of the reliability, maintainability, availability, and supportability aspects of the concepts/designs being explored.

The Advanced Concepts Consultant, Code 30G, leads and provides systems engineering expertise to advanced system development programs. He defines air Advanced System Concepts (ASC) technical and system needs for near, mid and far term applications and ensures that these needs reflect OPNAV concurrence and are prioritized in accordance with OPNAV guidance. He also develops strategic plans for NAWCADWAR programs and determines the resources necessary to execute those plans. Provides recommendations on initiatives and programs with respect to meeting NAWCAD goals and objectives, and for satisfying Navy needs.

The Tactical Officer, Code 30H, provides liaison between the department analysis functions and the fleet. He also supports programs and lead projects, particularly those dealing with TAC D&E and NSAP programs in his areas of expertise.

The ASW Analysis Division, Code 30I, provides naval warfare operations research and analysis to assess Navy Anti-Submarine Warfare needs and operational requirements. Develops mission, threat and scenario definitions and generates appropriate operational concepts (OPCONS) in defined mission areas (ASW, Maritime Surveillance, etc.). Develops and analyzes mission, system, and subsystem requirements and assesses technological priorities in terms of effectiveness and military worth. Provides analyses and system assessments to support preparation of Operation Requirements, Navy Decision Coordinating Papers

(NDCP), Development Proposals (DP), Cost and Operational Effectiveness Analysis (COEA's) and other similar program documentation.

The TACAIR Analysis Division, Code 302, provides naval warfare operations research and analysis to assess Navy Tactical Air Warfare needs and operational requirements. Develops mission, threat and scenario definitions and generates appropriate operational concepts (OPCONS) in defined mission areas (STW/ASUW, AAW, RECCE, etc.). Develops and analyzes mission, system, and subsystem requirements and assesses technological priorities in terms of effectiveness and military worth. Provides analyses and system assessments to support preparation of Operation Requirements, Navy Decision Coordinating Papers (NDCP), Development Proposals (DP), Cost and Operational Effectiveness Analysis (COEA's) and other similar program documentation. Coordinates all survivability program and analysis efforts.

The Multi-Warfare and Advanced Concepts Division, Code 303, provides warfare operations research and analysis to assess Navy multi-warfare force needs and operational requirements. Defines and analyzes systems and advanced concepts whose primary applications extend beyond a single warfare area. Provides planning and management of programs for the conceptualization, definition and evaluation of complete advanced air weapon systems. Conducts studies of naval airborne force weapon systems and their interoperability requirements necessary to insure optimum management of force air elements for prosecuting multi-warfare missions, and for joint service interoperability.

The Cost Analysis Division, Code 304, provides cost analysis for Navy air programs in the pre-concept, conceptual and production phases of development, plus modifications/upgrades to existing operational aircraft. These analyses provide for the development of preliminary affordability assessments, cost estimates for programs/projects, cost evaluations of contractor pro-

Mission Avionics Technology Department

Code 50



The Mission Avionics Technology Department (MATD) has a business base of approximately \$140M and performs the research, development and prototype testing of sensors and related technology to meet the needs of naval aircraft and Navy air mission requirements. The Department's expertise covers the full spectrum of sensor systems and technology virtually from DC to light, including acoustic, microwave, infrared, magnetic, laser, photographic sensors and associated signal and data processing, computer hardware, interfaces and recorders.

The Electro-Optics Development Division, Code 501, is

responsible for providing capabilities and facilities to perform analytical studies, research, exploratory and advanced development, and engineering evaluation in the electro-optical, infrared, photographic, laser and magnetic fields. Major programs include: Airborne ASW Laser Radar Systems, Magnetic Anomaly Detection Systems, Infrared Detection Systems and Air Reconnaissance Systems.

The Microwave Technology Division, Code 502, is responsible for conducting exploratory, advanced and engineering development programs relating to microwave techniques, air-

borne radar, electronic support measures, electronic countermeasures, signal processing target identification, antennas, and microwave components in support of Navy airborne platform system development. Some of the major programs include: Expendable Decoy Production; 2-D Target ID Technology; Advanced Avionics Tech Development, P-3 Synthetic Aperture Radar Test and Operations; AEW Radar and Aircraft Survivability.

The Acoustics Processing Division, Code 503, is responsible for providing the capabilities and facilities to perform research and development in airborne acoustic signal processing. Major programs include: Airborne Acoustic Processing Systems; Acoustic Detection, Localization, Classification and Data Fusion Algorithms, Airborne Data Collection Services on a World-Wide Basis, and Data Analysis Services.

The Acoustics Development Division, Code 504, conducts R&D in support of the Navy's Airborne Acoustic ASW Sensor Systems. They are responsible for research efforts to improve current sensors and development of advanced concepts that will permit aircraft to rapidly search and prosecute submarine threats in remote littoral environments that may also lie in contested airspace. Code 504 personnel are also deeply involved with the fleet in a PMA-264 sponsored fleet liaison activity wherein personnel directly support fleet activities and exercises and assist the sponsor in monitoring sonobuoy performance throughout production life cycles. Every sonobuoy, from the AN/SSQ-1 to the AN/SSQ-110, and dipping sonar from the AQS-4 to the -13F in the fleet was developed by Code 504 personnel.

The Signal Processor/Computer Systems Technology Division, Code 505, is responsible for research, development and demonstration of those technologies that take information from the sensors and either presents it to the operator or records it. Technologies include processors, fiber optic networks, architectures, information storage devices, data fusion, and digital maps. Some major programs include: JAST Architectural (Lead); Next Generation Computer Research (Lead); DOD Tape Test (Lead); Fiber Optic Network (Lead); Optical Disk Test (Lead); and Development of Unique Decision Aids.

Through the years Department personnel have been recipients of numerous awards which include such honors as: CO/TD Awards for Excellence (in various categories); Meritorious Civilian Awards; Hall of Fame Awards; Best IR/IED projects (1986, 87, 90 and 93) in the Navy Award; Group Award for Sonobuoy Systems Development and the 1993 EEO Group Award.

Some of the Departments recent achievements include: Two of the largest contracts ever awarded on site—GENEX and Airborne Shared Aperture Program (ASAP); acceptance of fiber optics network protocol by SDAE, first in-air demo of fiber optics data bus, and first cut of JAST architecture defined.

The number of department personnel is approximately 325.

Air Vehicle & Crew Systems Technology Department

Code 60



AIR VEHICLE

The Air Vehicle Technology and Program Office (Code 60C) provides for the coordination of major project efforts for aircraft systems requiring application of multiple disciplines. This office is the focal point within the Department for internal and external interactions for: research, development and application of emerging air vehicle technologies; research, development and application of advanced materials; aircraft related issues on major weapons systems development programs. The Air Vehicle Technology and Program Office is comprised of four technical areas: Air Vehicle Block Program Management; Airborne Materials Block Program Management; Aircraft Program Development; and Designated Projects Management.

The Vehicle Subsystems Division (Code 601) conducts research and development, exploratory development (6.2 and 6.3A), test and evaluation, and systems engineering to provide timely technological transition for advancing the state of the art in electrical, mechanical, fluid power, stores management, and fuel systems.

Our area of competency includes flight control and utility actuators and systems, backup flight control, fire-protection technology development and application to naval aircraft systems, fasteners and fastener system design, aircraft bearings, and internal and external cargo-handling systems, developmental hardware for electrical and stores management systems, including power supplies, power conditioners for weapons, electrical switching devices, stores management system processors, and their related specifications.

Fleet support services include problem resolution for aircraft electrical and stores management systems, such as the F-14 SMS Upgrade, S-3 Armament Control System, F-18C, D and E, F SMS Upgrade, aircraft fuel and aerial refueling systems,

hydraulic systems and environmental control systems engineering.

This division pioneered in the development and led the industry into the use of higher pressures for hydraulic systems, raising the pressure from 3000 psi to the 5000 - 8000 psi range, the use of 270 Vdc electrical power, and the successful development and flight test validation of fluidic technology for naval aircraft. We are pioneering efforts in the development of fine water mist as a replacement for Halon in fire protection of naval aircraft. We have the lead DOD laboratory for the evaluation of fasteners and fastener systems for structural use in naval aircraft, and the lead Navy laboratory in the development and evaluation of bearings for naval aircraft use.

We developed an electrical load-management system that provides autonomous load-switching for a new generation of electrical distribution systems, the MIL-STD-1760 Stores Management System (which will be implemented on all new generation military air platforms to achieve communality), and Fluidic Flight Control technology, which has been under development here since 1983.

A government-industry team comprising ten primary members was assembled, and an Advanced Technology Demonstration program was just recently completed. This ATD has proven that state-of-the-art fluidic technology has the performance necessary to control the flight of statically-unstable, high performance tactical aircraft. This capability, combined with the very high reliability and the very low maintenance requirements of fluidic controls (based on a broad base and long history of aerospace and industrial data) implies a wide range of potential applications of this technology to the fleet. Also the integration of fluidic flight control with digital electronic flight control is



fairly simple, and a fluidic control mode can be retrofitted into an existing, densely-packed airframe like the F/A-18.

Since The 1960's the Aero Structures Division (Code 604) has aggressively pursued R&D for the extensive use of advanced composite structures in naval air vehicles to reduce aircraft weight, improve fatigue resistance and reduce maintenance costs associated with corrosion. The technology which has been developed by this organization and the application to production aircraft have been widely recognized throughout the aircraft industry. The Aero Structures Division was, and continues to be, an industry leader in the evaluation of impact effects and the development of damage tolerant and repair concepts for composite structures. Service life assessment programs of developmental composite components when coupled with the division's leadership role in conducting the Structural Appraisal of Fatigue Effects (SAFE) program where the fatigue life of individual Navy and Marine aircraft are tracked has led to maximum utilization of fleet assets while ensuring structural airframe integrity.

The Aero Analysis Division (Code 605) conducts the conceptual design and technical evaluation of all types of air vehicles. Develops analytical methods and conducts research and development in the areas of applied aerodynamics, computational fluid dynamics, performance analysis, flight mechanics, flight control, aerodynamic stability and control, flying qualities, aircraft/stores compatibility, store separation trajectories, propulsion system performance, and environmental control systems installation and associated cost.

The Aerospace Materials Division (Code 606) conducts research, development, engineering analysis, applications studies and characterization of materials and processes for air vehicle and propulsion systems. Materials run the gamut - all metallics and nonmetallics and their composites - and include, in addition, paints, coatings, sealants, adhesives, low observables, cooling fluids and nonpropulsion lubricants. The Division also provides a wide variety of tools and techniques utilized in pursuit of material failure investigations and in support of current and future air platform inventories.

The Aircraft Modification Division (Code 607) provides mechanical and electrical engineering design, documentation, analysis, fabrication and installation expertise to integrate and install subsystem equipment in all types of air vehicles. The Aircraft Modification Division also provides fabrication capability for engineering, design, development, prototyping and small quantity production.

CREW SYSTEMS

The Crew Systems Program Office (Code 60B) provides the coordination for the many sponsors of all life cycle crew system programs relevant to the Life Support, Life Sciences and Crew Station areas. Aircrew use these functionally integrated systems to enhance their mission effectiveness, their protection and their ability to escape and survive in aviation environments. The office is responsible for the overall strategic planning, administration and management of the total crew systems program. It is the focal point in the Navy for defining requirements, the transitioning of new initiatives of aircrew technology through the acquisition cycle to Fleet use and the in-service engineering support for the life of the system in the Fleet.

The Human Factors and Protective Systems Division (Code 602) is chartered to conduct research and development and provide applied technical expertise in the areas of human systems integration and buoy mounted aircrew protective systems. Human systems integration consists of crew station design and the integration of all components of human-machine systems to ensure operational integrity and enhance operator and maintainer performance throughout the full life cycle. The scope of those responsibilities includes situational awareness, aircrew performance, information management, decision aids, design for the maintainer, crew sizing, and internal/external vision. Crew station design is the effective integration of human considerations during the R&D process by ensuring the compatibility of all functional and physical interfaces. This includes developing and applying technology in the areas of anthropometry, day/night vision, furnishings and equipment, hardware integration, accommodation, displays and controls and crew services. Additionally, the Division conducts research, development, test and evaluation of devices worn on the head and body which neutralize threats inherent in military flight operations and provide protection and support during emergency egress. Areas of expertise include head systems, relevant aspects of night vision system and head mounted display integration, chemical and biological protection for the head, eye and respiratory system, protective devices for impact and maneuvering acceleration, altitude, fire, and hyperthermia. This Division possesses the facilities for design, rapid prototyping and evaluation of these systems.

The Life Support Engineering Division (Code 603) develops, introduces and supports systems for the crews of naval aircraft. The major focus of this Division is aircraft and man-mounted life support systems. These include such diverse products as In-Flight Oxygen Generating Systems, Environmental Protection Systems, Ejection Seats, Escape Capsules, Helicopter Emergency Flotation Devices, Emergency Egress Lighting Systems, Occupant Restraints, Energy/Attenuating Crashworthy Seats, Emergency Breathing Systems and Personnel Flotation Systems. The results of these development efforts have successfully transitioned new systems to the fleet such as the first Navy Common Ejection Seat which is currently in production and being installed in tactical aircraft; IBAHRS, an inflatable restraint which uses air bags packed within the restraint system to remove restraint slack, distribute crash forces over a larger area, and provide head and neck support; Navy Combat Edge System which enhances aircrew performance under the threat of G-induced Loss of Consciousness (GLOC); and the first Helicopter Emergency Egress Device (HEED) and On-Board Oxygen Generation System (OBOGS) in the world. A complete array of dynamic test facilities is available to Division personnel to simulate the crash, ejection, and flight environments. The Vertical Decelerator, Horizontal Accelerator, the Human Centrifuge and Dynamic Flight Simulator which provide DOD, NASA and private industry with facilities that can reproduce any acceleration pulse expected during real world conditions. The Ejection Seat Tower facility can be used with either test manikins or human volunteers to evaluate changes to seat configuration and propulsion during the catapult stroke or ejection. These facilities are also used in aviation physiology research to enhance human performance under high speed acceleration from tactical aircraft.

Supply Department

Code 84



The Supply Department provides material and general base operations support. Responsibilities include receipt, storage, issue, disposal, redistribution and shipment of materials and equipment. Retail Stores operations provide customer support for low-cost high-usage materials. This Center's Hazardous Chemical/Waste Program is coordinated through the Supply Department. The Fuel and Liquid Gases Branch receives, stores, and issues liquid fuels, including liquid/gaseous oxygen and nitrogen.

The Contracts Division performs as a major field purchasing activity with unlimited authority to contract for materials and services. Responsibilities include all duties concerned with negotiation, award and administration of formal contracts. Small Purchase support, acquisition policy generation and implementation and long-range acquisition planning support are also provided.

Systems & Software Technology Department

Code 70



BACKGROUND, MISSION AND CHARTER

The Systems and Software Technology Department (SSTD), chartered in 197X as the Software and Computer Department, supports the development and acquisition of airborne weapons systems and their ship/land based support systems by applying the disciplines of system and software engineering and process management in order to transition high technology software and computer products and components into weapons systems. It is responsible for research, development, plans, specifications, configurations, software system designs, integration, test, and evaluation for Mission Critical Computer Resources (MCCR). The SSTD is the focal point for generic software engineering activities as applied to naval aircraft, advanced architecture formulation, and advancing the state of the art and application of system and software technologies. Applications include simulation, signal processing, languages, mission planning, and artificial intelligence.

PRODUCTS, SERVICES AND INITIATIVES

SSTD, with a current business base of over \$70M, provides of a full complement of engineering products, services and

initiatives for advanced computer architectures, processors, and computer systems. It provides specialized application software development, independent test and evaluation during development, and lifetime software support of delivered systems. It defines tools and processes required to improve software productivity and quality. This includes metric definition, collection, interpretation, and analysis; rapid prototyping; and standardization initiatives. It also defines system and software engineering environments, methods and practices, and software engineering facilities.

CURRENT MAJOR PROGRAMS

- Presidential Helicopter-Modernization Program (VH-3D and VH-60N)

The SSTD is the Principal Development Agency (PDA) for the avionics design, integration, and engineering flight tests of the Electro-magnetic Pulse (EMP) hardened navigation-communication system currently operational on all Presidential Transport Helicopters (VH-3D and VH-60N). This allows the President to maintain continuity of government during a national emergency. The system development, integration, and delivery

included two VH-3D Systems in 1985 and nine VH-60N Systems in 1988. We currently provide the Marine Corps HMX-1 Executive Squadron: maintenance support, software life cycle support and major system enhancements; the most recent being the VH-60N Global positioning System (GPS). GPS has been integrated into the software development and test mockup facilities. This deliverable is now completing flight tests on the NHV-3D testbed aircraft. A major Communications, Navigation and Survivability Upgrade (CNSU) system required by the White House Military Office is officially under development.

- Tactical Aircraft Mission Planning System (TAMPS)

TAMPS has been designated the Navy's common mission planning system by OP-50 in November 1987. TAMPS provides both the Navy and Marine Corps an automated means to plan and analyze mission routes against targets. TAMPS is used ashore, in forward-deployed bases and afloat, in aviation and non-aviation capable ships where strike and contingency planning occurs. TAMPS is used to develop, analyze, store, and download mission data to strike aircraft, support aircraft, and standoff weapons. We have been designated a TAMPS System Software Design Agent and Software Support Activity. This role includes V&V of contractor developed software, configuration management, fleet interface T&E support, technical advice and acquisition support. We have also been designated as the principal independent verification and validation agent for the latest software development effort.

- Enhanced Modular Signal Processor (EMSP) - UYS-2

The Center became involved in the EMSP Program in 1981. SSTD has been involved with virtually every engineering aspect. Its roles included the Technical Direction Agent for software and the designated Software Support Agent. It has been the Technical Direction Agent for the UYS-2 program since November 1990. EMSP is a state of the art, very large-scale, high priority, high risk, high Navy and DoD visibility, ACATI system targeted for the Navy's real time signal processing applications for the 1990's and beyond. EMSP was on the critical path of all of its many customers. EMSP embodied the principles of exploratory and advanced development relative to data flow parallel processing, signal processing methodology, VHSIC, microprogrammable (intelligent) functional elements (including memory), and Ada insertion. EMSP was the first DoD program and industry initiative to exploit the parallelism inherent in real time acoustic signal processing using a direct data flow and parallel processing hardware architecture. The initial development for a SEM-B (Standard Electronic Module - B version) has received Milestone IIIA approval. SEM-B production units are currently in use by the BSY-2 and SURTASS programs. A smaller size/weight and higher performance SEM-E version is under test and achieved

Milestone IIIB approval in the first quarter FY92. The first SEM E production unit was delivered to the SH-60B Acoustic Low Frequency Sonobuoy (ALFS) customer in September 1993. The SEM-E version is targeted currently for the ALFS, SQQ-89 and SURTASS platforms.

- F-14 Trainer Support and Model Development

The F-14 Trainer Program efforts include the Verification, Validation, and Accreditation of the trainer threat environment. It currently includes trainer updates to provide an Infra-Red Sensor Model and Video Scan Converter Multi-Function Display presentation capability for the F-14D Weapon System Trainer (WST) and F-14D Mission Flight Trainer (MFT). New operational support capabilities are provided to the F-14D WST and MFT including a Workstation to analyze Air Combat Maneuvering tactics, and a Computer to generate new mission scenarios while training crewpersons. Development of new trainers such as the F-14B aircraft, with its Block 1 Upgrade, includes networking of the East Coast trainers with the West Coast trainers. SSTD is also developing a Mission Rehearsal System using the Tacair Mission Planning System (TAMPS) Software files to create a photo-visual scene of the planned route. We are developing a Threat Simulation and Data Library for reuse in the trainer updates, expansions, and new developments. By FY95, a Universal Threat Systems for Simulations (UTSS) "Proof-of-Concept" will include extraction of threat simulations from four current operational trainers, incorporate the threats into a Library Data Base Management System and provide the threats to selective new trainers.

- Software Engineering Process Office (SEPO)

A SEPO was established within SSTD for NAWCADWAR in June 1993 to address software process improvement. It is a permanent task force that continually assesses the state of the software development process, proposes changes to improve the process, oversees the implementation of the proposed changes, and measures the effects of the changes. It addresses the need to use a statistically controllable process to produce software in a reliable and repeatable manner. A goal is that cost and schedule commitments be met with reasonable consistency and the resulting products meet the customers' and users' functional and quality expectations. The SEPO published a set of policies and procedural frameworks designed to raise the maturity of the NAWCAD software development process and is currently documenting and developing detailed procedures. A Process Asset Library has been established to assist projects and engineers in understanding and applying software engineering practices. Software Process Improvement Workshops were held for NAWCADWAR senior management.

Test & Evaluation Group

Code 90



TEST RESOURCES AND PLANNING

Test and Evaluation's (T&E) division of Test Resource Management has required strong leadership style as the Center has moved toward a more streamlined method of making aircraft installations/modifications cost effective and on schedule for our customers. During the five years of this division's existence, there have been over one hundred programs that have fallen within our scope of responsibility and were executed on cost and schedule. Under T&E's direction, a multi-disciplinary team achieves programmatic milestones outlined in an Aircraft Installation Plan (AIP) including: mechanical and electrical engineering, structural analysis, aerodynamic and stability and control analysis, environmental analysis, fabrication and installation, quality assurance, system safety and flight certification. Through the chairing of Technical Interchange Meetings (TIMs), Preliminary Design Reviews (PDRs) and Critical Design Reviews (CDRs), it has been possible to track changes in the scope of projects from the AIP baseline, as well as their potential impacts on cost and schedule. Monitoring of the Center's Manloader System provides for tracking of actual project costs versus proposed costs in many technical tasking areas for any given aircraft modification. T&E's innovativeness in facilitating the

customer has been demonstrated in development of the AIP Technical Requirements Checklist and the T&E's Research and Development Aircraft Handbook, both vital and official to NAVAIRWARCEN. These achievements have convinced both the research and development (R&D) and T&E communities, NAVAIR, SPAWAR and the fleet that significant cost gains can be realized when utilizing these methods of program management and should facilitate the transition of R&D programs to the T&E community during the alignment of the new NAVAIRWARCENACDIV organization.

KEY WEST DETACHMENT

The Key West Detachment was established in 1963 as an RDT&E Field Station of the Naval Air Development Center and was located at the Naval Ordnance Unit, Key West. The principle mission of the Field Station was to provide an at-sea location for NAVAIRDEVCEN and Test and Evaluation Squadron One (VX-1). The Field Station stood up as a Detachment in 1974 with test facilities in Key West, FL and St. Croix, USVI as the principle open ocean ASW Test Facility supporting NAVAIRDEVCEN's development mission. The Detachment has been a principle activity for T&E support of

NAVAIRDEVCCEN as well as the principle test site for ship shock and other underwater explosive testing. The Detachment now provides test services to all the Naval Air Warfare Centers as well as Chief of Naval Research and other DOD activities.

AIR OPERATIONS

Air Operations (Code 901) is responsible for the operations and training of all aircrew at NAVAIRWARCEN. The two departments in Code 901 are Schedules and NATOPS. Schedules is responsible for the daily scheduling of aircraft and aircrew to support the R&D at NAVAIRWARCEN both locally and on detachments around the world. NATOPS is responsible for ensuring that all the aircrew on Center receive training and maintain the Navy's unparalleled standards of operations while supporting R&D.

NAWCADWAR FIRE DEPARTMENT

The Fire Department's 33 full-time employees provide 24 hour emergency response to the Center, military housing and the outside community. The Fire Department has served the Navy continuously at this location for almost 50 years. At first, we provided crash fire rescue and structural protection. As the facility and Center's mission changed, the Fire Department's mission also changed to meet Federal and State safety requirements. Today, we are still providing crash fire rescue and structural service but have expanded to include basic life support (ambulance), hazardous material response team and confined space rescue team capabilities. The fire prevention division provides fire safety education and code enforcement service. Over the past few years, the Fire Department has won numerous awards which include the best medium-sized crash rescue department in the Navy. The Fire Chief and Program Manager have also been awarded a patent for their invention for training firefighters without using jet fuel saving millions of dollars in construction cost and saving the environment.

AIRCRAFT MAINTENANCE

The Aircraft Maintenance Department (Code 902) consists of an elite group of United States Navy personnel who are extensively trained and have completed at least one tour of duty. Their purpose is to provide the Center with the talent and abilities required to maintain all the unique R&D aircraft stationed here. A virtual plethora of aircraft have been modified or have had a R&D project installed on it at the Center, just to name a few: P-2, P-3, F-14, F-18, A-6, UH-1, SH-3, C-130, S-3 and H-53s. These highly industrious personnel work around the clock, seven days a week performing scheduled and unscheduled maintenance, calendar and phase inspections, assisting with or solely installing project equipment, installing aircraft update packages, maintaining aircrew survival gear including modifications as requested by the Human Factors Department, and providing quality assurance for all aircraft evolutions. Additionally, the Maintenance Department supports the flight scheduling averaging 2,000 flight hours annually which includes Detachments worldwide.

Naval Command, Control and Ocean Surveillance Center Navigation and Air C³ Department



The Navigation and Air C3 department was chartered in 1992 when the Communication Navigation Technology Department of the Naval Air Warfare Center Warminster was transferred to the Naval Command, Control and Ocean Surveillance Center by BRAC 91 Action. It is responsible for conduct of the leadership in Navigation across all Navy platforms and for Development of Air C3 Systems. As the principal naval navigation laboratory it conducts research, development and evaluation of navigation sensors, components and integrated systems for naval vehicles as well as Command and control research engineering including communications signal processing, network design, radio miniaturization techniques and analysis of air C3 systems.

The Department business approximates \$70M yearly, with the majority of the funding concentrated in Global Positioning System (GPS) receiver development and evaluation, Marine Navigation sensor development and test, Ocean survey System development and maintenance, and communications data link network system design. The Department maintains and operates a unique inertial sensor /system test laboratory with long term stability for evaluation of accelerometer and gyroscope development and in addition has the largest most accurate ship motion simulator used to test entire inertial systems over their operating period.

The Global Positioning Systems division is responsible for the development and evaluation of all GPS satellite receivers and operates the DOD's most capable GPS simulation laboratory with full constellation simulation for tracking and integrity testing. It houses the Global Positioning program office in support of the joint service program and the Navy Liaison group to the DOD Joint GPS Program Office in Las Angeles, CA and implements the central engineering activity for GPS user equipment aboard naval vehicles.

The Navigation System Development and Integration Division conducts research, development and improvement of marine inertial navigation subsystems, marine and air navigation instruments and sensors, and marine integrated navigation systems using at sea and in house experimentation and evaluation. It technically supports the navigational research of the Strategic Systems Project Office using its test platform, the USNS Vanguard. It has been successful at integrating Navigation improvements into major navy combatants with the Navigational Similar Source Integration (NAVSSI) program. The Ocean Survey System development and Integration Division develops high precision bottom survey systems using sonar, gravimetric computer and navigational support subsystems for NAVOCEANO support of the TRIDENT program. It supports life cycle improvements of the systems and fleet operations by extensive training and software modification. It now supports the NOAA fleet improvement program and the United Kingdom Survey System design and integration. Its products are complete bottom contour charts for direct use by the fleet.

The Aircraft Communications Technology Division conducts technology development, advanced technology demonstration of miniaturized improved communications products using state-of-the-art thin and thick film circuitry. Maintains and operates a unique microelectronic laboratory for design of advanced radio circuitry enabling packaging of communications systems for improved LPI and channel capacity performance. It supports the study of large scale data link development and network design for naval communications.

The Communications System Project Office manages the Joint Tactical Information Distribution System (JTIDS) project in terminal development, system engineering, and testing, network design, relative navigation, simulation and operational evaluation of network effectiveness. This office manages the NATO country MIDS Information system terminal and software development and evaluation and is responsible for new network data link connectivity requirements and military worth studies. The department is composed of approximately 265 personnel most of whom are dedicated to the navigation function.

NAWCADWAR Tenants



Employees from various codes



We regret some employees were unable to be present when their department photo was taken. Each photo represents all the people who perform valuable work for the Navy in each area.

50th Anniversary Picnic Program

Hangar 1 Stage

12:00 - 12:30	DJ - Opening Remarks
12:30 - 1:15	Magic of Helene
1:15 - 1:25	DJ
1:25 - 2:10	Irish Dance Group
2:10 - 2:20	DJ - Ethnic Dancing - Polkas
2:20 - 3:05	Magic of Helene
3:05 - 3:15	DJ - Big Band Sound
3:15 - 4:00	Silent Warning
4:00 - 4:10	DJ - 50 Hits
4:10 - 4:55	Leap of Faith
4:55 - 5:05	DJ - 60 Hits
5:05 - 5:50	Magic of Helene
5:50 - 6:00	DJ - 70 Hits
6:00 - 6:45	Silent Warning
6:45 - 7:00	DJ/Cake Cutting
7:00 - 7:45	Broadway Review
7:45 - 8:00	DJ - Dance Along
8:00 - 9:00	Leap of Faith
9:00 - 9:15	DJ
9:15 - 9:30	Closing Remarks
9:30	Fireworks

Hangar 2 Stage

1:30 - 2:15	Kids Music Show
2:45 - 3:30	Puppet Show
3:45 - 4:30	Kids Music Show
5:00 - 5:45	Puppet Show
6:00 - 7:00	Kids Music Show

Out & About

5:00 - 6:00	Mummers
-------------	---------

All Day Jugglers

Children Events

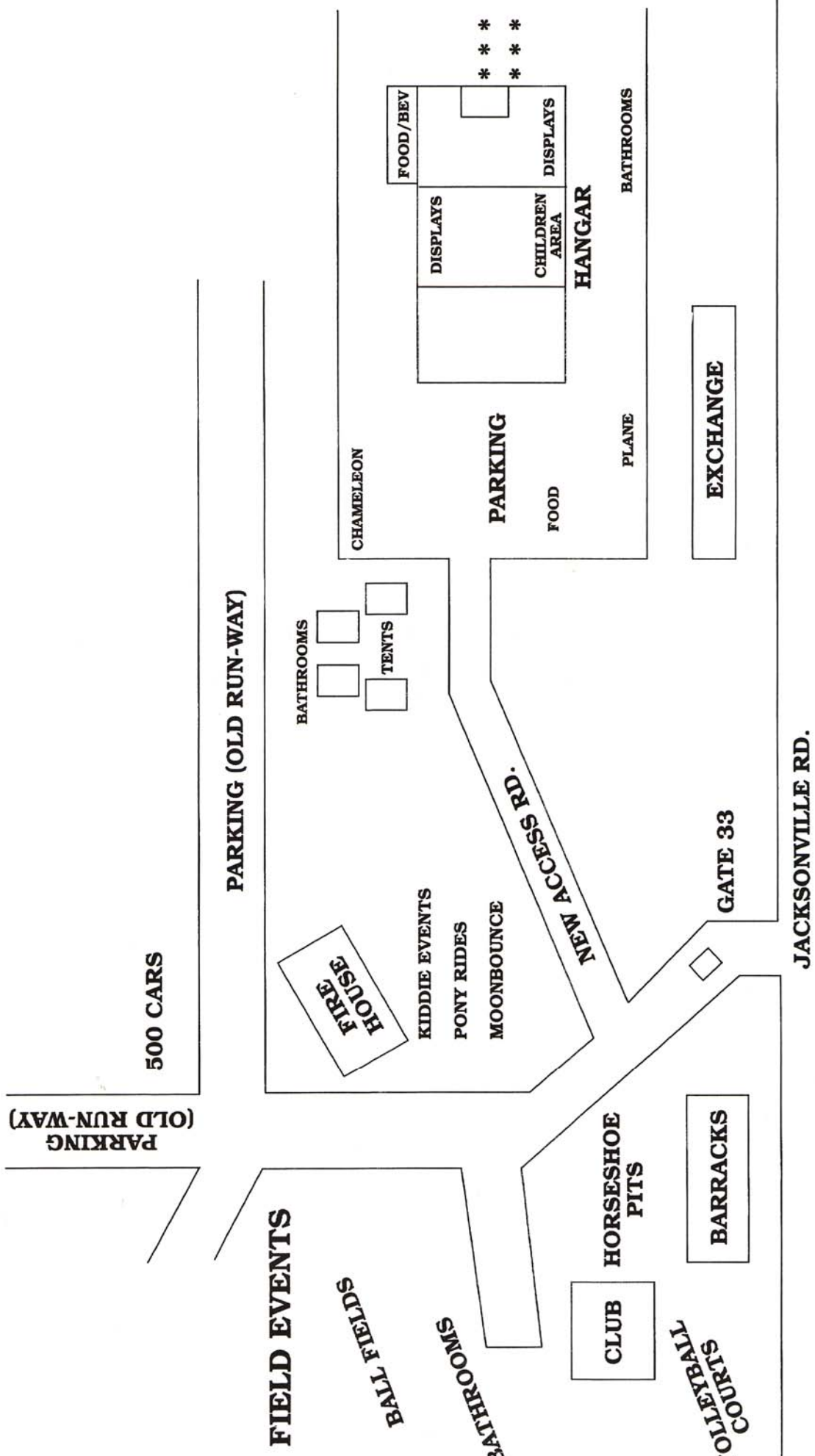
12:00 - 6:00	Moon Bounce
1:00 - 5:00	Clowns/Face Painting
1:00 - 5:00	Ponys

Gazebo Area

1:00 - 6:00	2 Piece Regae
-------------	---------------

Field Events (1:00 - 5:00)

1:00	Egg Race (carry eggs on spoons - relay)
1:30	Egg Toss
1:30	Softball
1:30 - 3:30	Horse Shoes (John Bowes)
2:00	Spinng Relay
2:00 - 4:00	Paper Airplane Throw
2:00 - 4:00	Frisbee Throw
2:30	Volleyball
2:30	Three Leg Relays
3:00	Wheelbarrow Races
3:30	Sack Relay
4:00	Water Balloon Toss
4:30	Tug-O-War Challenge



EVENT HEADQUARTERS AND EMERGENCY SERVICES

*"You can dream, but
you can never go back the way you came. . ."*

Jackson Browne