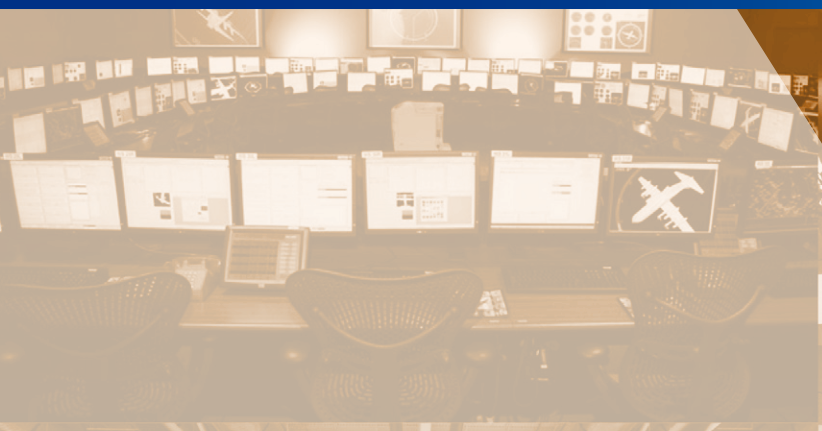
412TH TEST WING
TEST CAPABILITIES



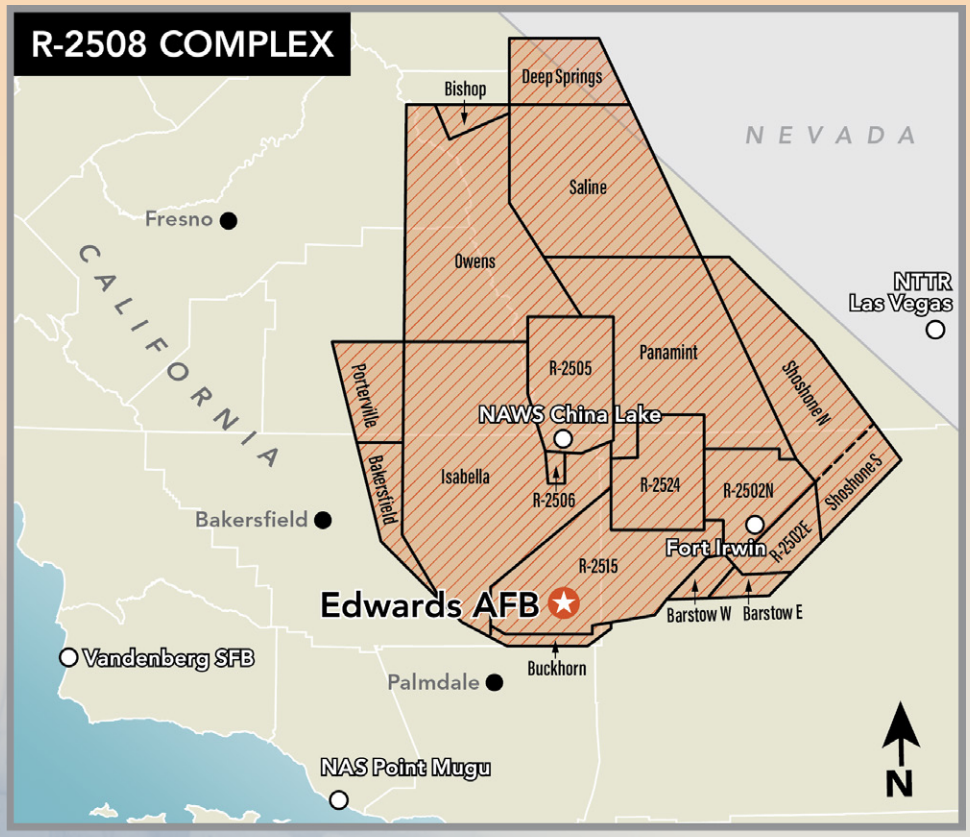
Edwards Air Force Base
California

412TH TEST WING
Edwards Air Force Base

MISSION: We Test & Evaluate advanced aerospace systems – with world-class installation and mission support – to accelerate war-winning capabilities to the warfighter

VISION: The Center of the Aerospace Testing Universe
Testing Tomorrow's War-Winning Capabilties Today!

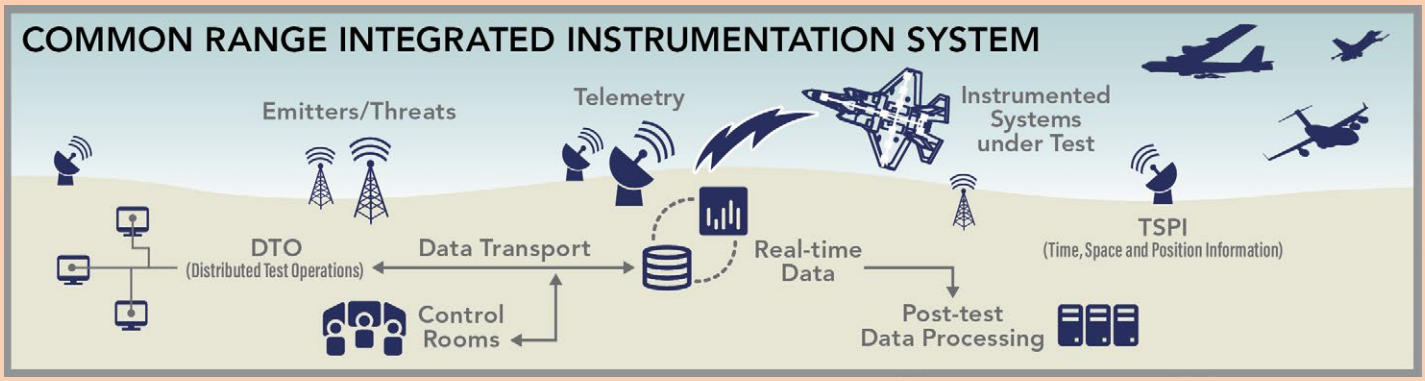
The 412th Test Wing (412 TW) at Edwards Air Force Base is designated a Major Range and Test Facility Base (MRTFB) Activity under Department of Defense Directive 3200.11. The MRTFB provides robust and flexible test and evaluation (T&E) capabilities to develop, acquire, field and sustain reliable and effective weapon systems to meet current and future warfighter needs. The MRTFB infrastructure consists of open-air ranges, test facilities, instrumentation data processing capabilities and other test resources that must be preserved as a national asset to provide T&E capabilities in support of the DOD acquisition system. The 412 TW Commander is the range operating authority for MRTFB assets at Edwards AFB.



The 412 TW partners with Naval Air Weapons Center, China Lake and the National Training Center at Fort Irwin to offer world-class restricted-use airspace – the R-2508 Complex. The complex is likely the most important multiple service special-use airspace in the National Airspace System. The R-2508 Complex contains bombing ranges, supersonic corridors, low altitude high-speed maneuver areas, radar intercept areas, and refueling areas.

Edwards offers comprehensive range capabilities critical to successful T&E execution, such as open-air signal emitters, threats, instrumentation systems, data transport systems, real-time mission control rooms, time-space-position information, distributed test operations, post-test data processing, and decades of subject matter expertise in T&E. Edwards AFB is centrally located among several other DOD MRTFB locations: Nevada Test and Training Range at Nellis AFB; Western Range at Vandenberg SFB; the Naval Air Warfare Center, Weapons Division at Point Mugu; and the Naval Air Warfare Center, Weapons Division at China Lake. Data acquisition and transmission systems link Edwards to these neighboring ranges, which enables real-time data analysis and multi-service interoperability. Edwards connection to the Defense Research and Engineering Network (DREN) enables widely distributed test operations.

Edwards AFB is known as **"The Center of the Aerospace Testing Universe,"** because the time-tested expertise of the Edwards workforce, independent analysis and expert evaluation of performance against requirements set Edwards apart in turning test data into



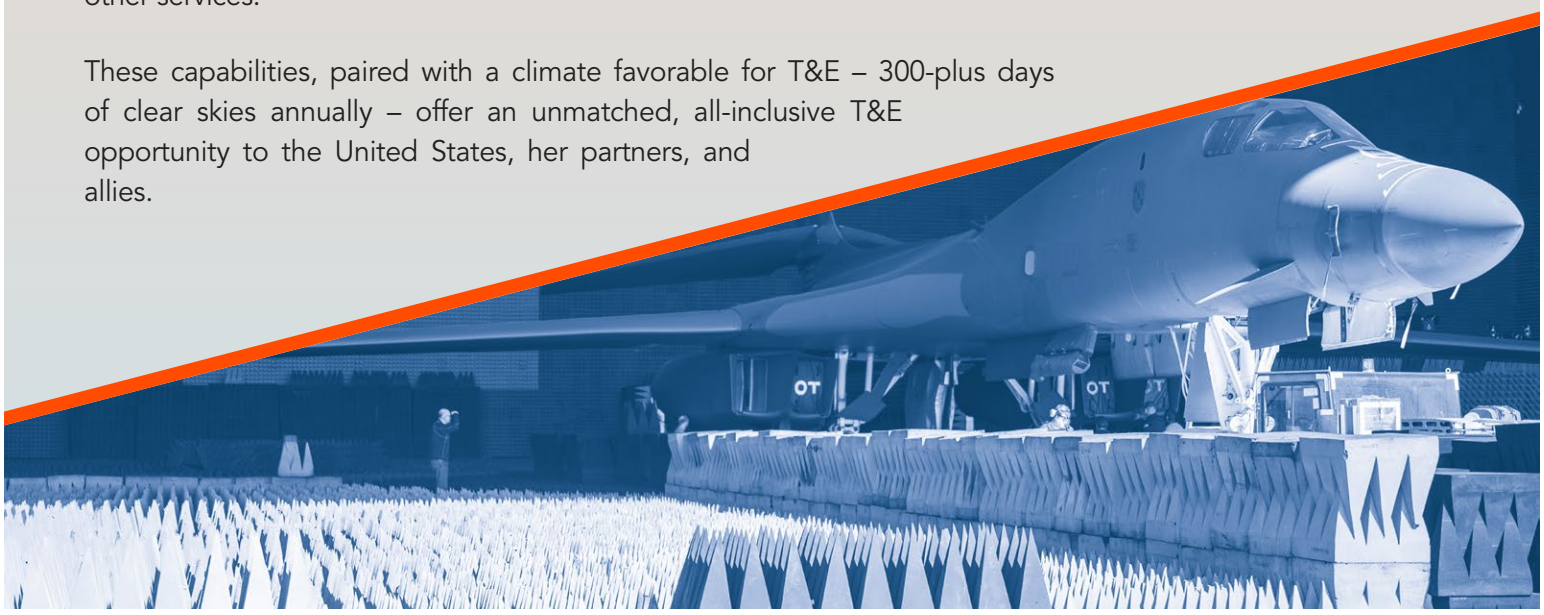
actionable information. Edwards personnel are highly skilled and deeply experienced testers and evaluators with proven expertise in mission systems, aircraft and range instrumentation, electro-optical and infrared sensors, radio frequency systems, aircraft performance, flying qualities, telemetry test operations, and many other T&E disciplines.

Edwards is home to the largest anechoic test chamber in the world, the Benefield Anechoic Facility. The BAF is capable of handling almost all DOD aircraft. The primary purpose of the BAF is to test and integrate avionics systems in a secure, repeatable, and electromagnetically-controlled environment using state-of-the-art simulation and stimulation technology that closely duplicates actual combat mission environments.

Edwards offers T&E modeling and simulation at its Integrated Facility for Avionics System Test (IFAST). The IFAST offers live-virtual-constructive environments for multi-ship operations based on unclassified and classified information up to top secret, sensitive compartmented information and special access program levels. The IFAST has multiple manned flight simulation laboratories comprised of operational flight program and effects-based simulations including an F-16 system integration lab, F-35 mission systems simulator, F-35 flight science simulator, and F-22/F-16 emulation lab.

Edwards is the future home of the Digital Test & Training Range, enabled by the Joint Simulation Environment (JSE). The JSE is a government owned and operated, immersive virtual simulation environment that supports 4th-, 5th- and 6th-generation mission systems research, development, test and evaluation. The JSE provides integrated use of Navy and Air Force facilities, models, methods, and tools, including man-in-the-loop (MITL) and hardware-in-the-loop (HITL), with the ability to link geographically distributed MITL and HITL assets. JSE also leverages intelligence community models and an expandable architecture to support future JSE growth and extension to other services.

These capabilities, paired with a climate favorable for T&E – 300-plus days of clear skies annually – offer an unmatched, all-inclusive T&E opportunity to the United States, her partners, and allies.



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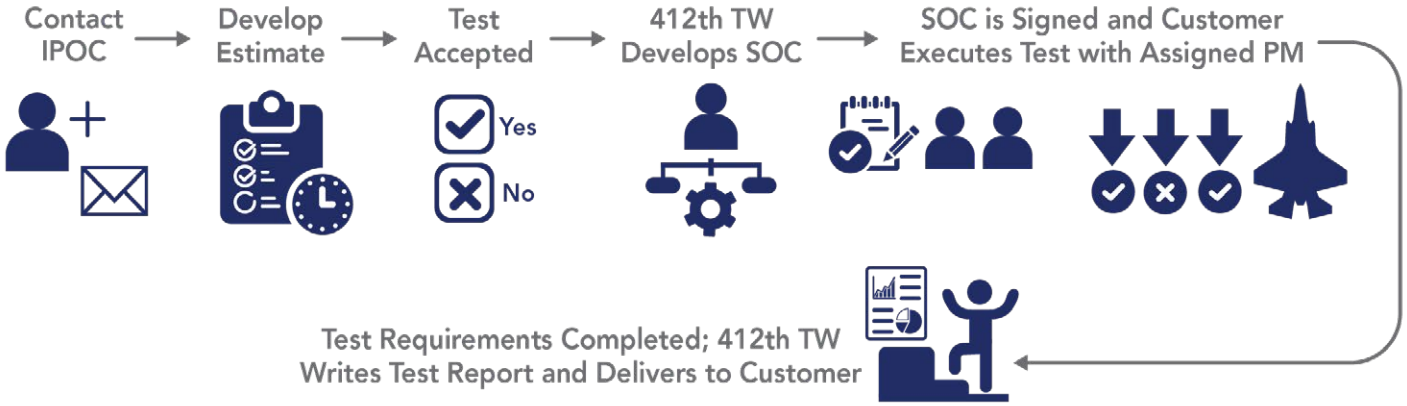
CONDUCTING BUSINESS WITH THE 412TH TEST WING

The 412 TW offers extensive test and evaluation capabilities. Our team focuses on providing the best possible data and a positive test experience for our customers, consisting of government organizations, private industry partners, and academic institutions.

The following steps summarize how the 412 TW plans and conducts test programs.

1. A potential customer contacts our Initial Point of Contact, or IPOC, (see contact information below) to inquire about test and evaluation services. Lead time for our testing services ranges from 2 to 24 months, depending primarily on test complexity.
2. The 412 TW provides a program introduction document template to assist in defining customer requirements.
3. The 412 TW may provide an initial rough order of magnitude cost estimate and schedule availability for customer inquiries.
4. The 412 TW sends the customer an advance funding request for initial planning funds.
5. Once initial funding is received, the 412 TW prepares a test concept document for the customer's signature that establishes an understanding of customer requirements.
6. Using this information, the test wing prepares a statement of capability (SOC) or a contract, which becomes the formal agreement between the wing and the customer for test requirements, scope, schedule, risks, and costs.
7. Once the SOC is signed, the test wing requires the balance of test funding to proceed.
8. A 412 TW project manager (PM) then works closely with the customer during the test planning phase to review and finalize the test plan, test matrix, and data reduction and analysis requirements. They also conduct safety planning, prepare the necessary documents to schedule test periods, and configure all systems to support testing.
9. The 412 TW PM then assists the customer with obtaining access to the installation, 412 TW computers, long-distance access when at a 412 TW location, and general test wing and local area information. Customers are free to contact the project manager at any time with questions.
10. The customer is billed for actual charges and costs for labor and facility operations during this entire process.
11. Once the test is complete, the 412 TW provides analyses and data products as detailed in the SOC or contract.



Those seeking assistance or additional information about the 412th TW, can visit: www.edwards.af.mil. Those who want to test at Edwards, email: 412TW.IPOC@us.af.mil.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AF 87 378

412TH TEST WING

Test Engineering Group

(412 TENG)

MISSION: We own T&E… Delivering decision-quality knowledge to maximize impact.

VISION: Accelerating and transforming T&E through intelligent risk-taking.

TEST RANGE

The 412 TW hosts one of the premier test ranges in the country. The 412th Range Squadron (412 RANS) provides a multitude of capabilities that stimulate the creation of critical data on systems under test for further analysis and evaluation, while simultaneously facilitating seamless mission execution. The 412 RANS is comprised of two major functional areas – mission control and mission data – both of which are imperative to successful test execution. These functional areas are supported by engineering and operations to ensure the infrastructure and people are able to execute the missions. For every mission, the 412 RANS combines each element of the test through a complex network of landlines and open-air communication, moving real-time data quickly and efficiently between the system under test and the mission control room, allowing flight test engineers to make real-time technical and safety calls. This backbone has been extended to other ranges across the United States – Point Mugu, China Lake, Utah Test and Training Range, White Sands Test Center, Eglin AFB, Boeing facilities in St. Louis, and others, using Distributed Test Operations. These capabilities allow geographically-dispersed engineers to collaboratively see and evaluate test data - a critical force-multiplier given the limited number of available engineers. At the same time, 412 RANS personnel support the range systems that stimulate mission data,

including stationary and moving targets for increasingly complex sensors, positional truth data collectors, video recordings of munitions, expendables, and anything else that affects the aircraft. 412 RANS capabilities allow the 412 TW to execute test missions that include but are not limited to sensors, weapons, flight sciences, navigation, and large-force exercises such as Orange Flag. The dedication and expertise of personnel in the 412 RANS enable the success of the 412 TW's mission.

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As warfighting capabilities become increasingly complex, the 412 RANS continues to evolve and adapt. The squadron is currently incorporating new range capabilities to support autonomy and next-generation sensor suites, while also investigating new telemetry technologies in the face of reduced spectrum availability.

INSTRUMENTATION

There is no knowledge without information, and there is no information without data. The 812th Aircraft Instrumentation Test Squadron (812 AITS) empowers the test-range workforce to deliver decision-quality evaluations through the critical step of data collection. The 812 AITS has developed, designed, delivered, and maintained complex instrumentation for a wide variety of aircraft, including B-1, B-52, F-16, F-22, F-35, C-17, KC-46, and others. These instrumentation systems not only passively collect aircraft bus data, but also independently collect "orange wire" data from sensors installed at key locations throughout the aircraft to meet test requirements. The critical parameters collected interface with telemetry systems for transmission to mission control rooms for analysis and real-time mission calls. As the instrumentation systems often require significant aircraft modifications, instrumentation engineers follow a rigorous process to ensure airworthiness is maintained.

As aircraft capabilities evolve, the 812 AITS continues to evolve with them. The squadron continues to improve efficiency and effectiveness by using cutting-edge technology to capture all critical parameters while meeting growing demands for data collection capacity. For example, the squadron is currently exploring technologies such as wireless and small-scale instrumentation, while also working with the 412 RANS to provide an instrumentation interface for bidirectional telemetry.

DATA MANAGEMENT

The 812th Test Support Squadron (812 TSS) serves a number of key functions in ensuring successful test and evaluation, the first being data management – taking the critical step of converting data into information. The 812th TSS manages post-mission processing of data at six locations for six platforms up and down the flight line, facilitating engineers' abilities to analyze and evaluate performance of the system under test. They also support the development of analytical tools to convert the data into information that supports the broader set of disciplines. Additionally, the test support squadron plays a vital role in workforce development, developing

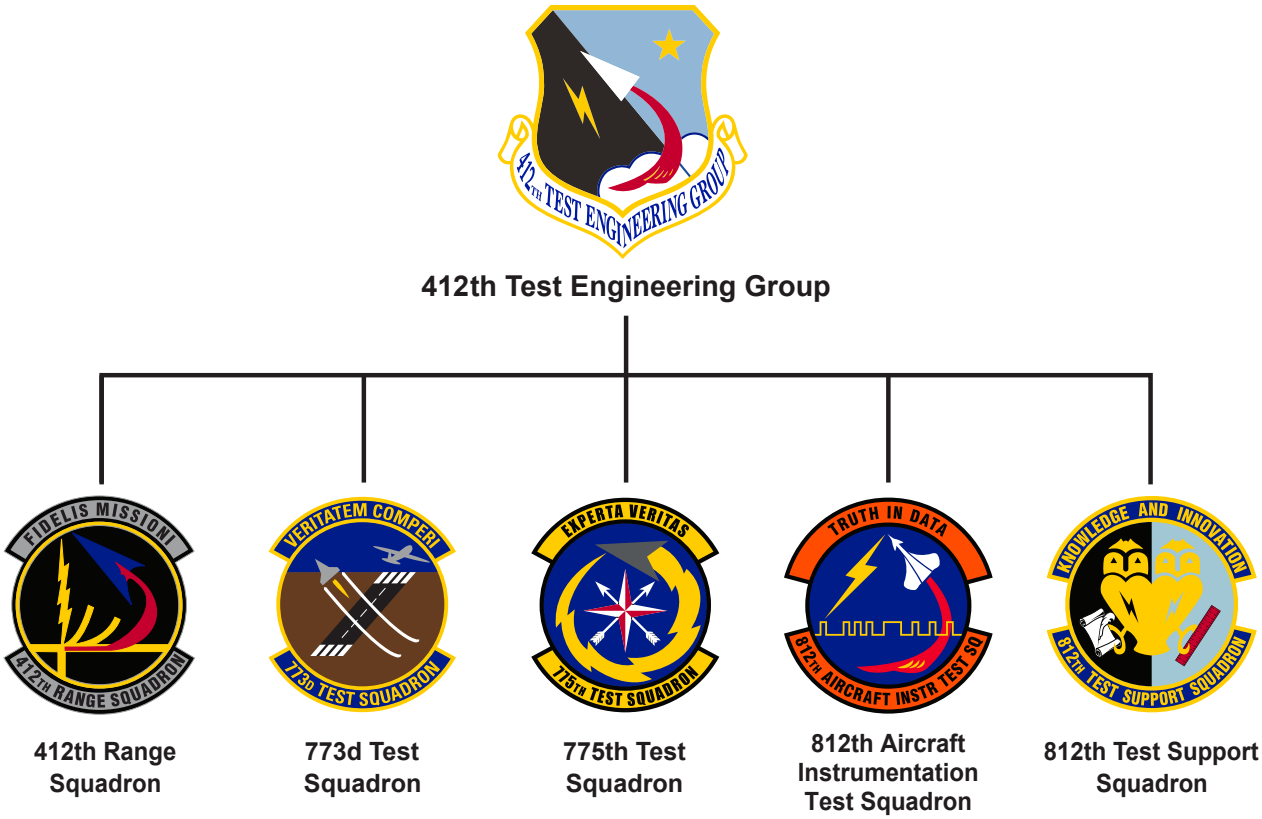
and conducting training ranging from critical technical competencies to leadership and communication skills, ensuring our engineers are effective in all aspects of the job. The squadron also provides statistics experts to consult with engineers to ensure statistical rigor and confidence in test plans, as well as a technical research library that provides a plethora of resources for engineers to further develop their knowledge base.

The test support squadron is a leading force in modernizing data analytics to empower engineers to get more out of collected data. The squadron's efforts to improve data analytics include incorporating Artificial Intelligence and machine learning into operational tools, creating a common data platform across the test enterprise, developing standardized software tools to be shared across the enterprise, and improving network infrastructure.

TEST ENGINEERING

The final step to evaluating a system is converting information into knowledge. The 773rd and 775th Test Squadrons offer deep expertise in flight sciences, avionics, and weapons integration disciplines, ranging from envelope expansion and hypersonic capabilities to autonomy. Our engineers develop and execute technically rigorous test plans, then analyze and evaluate system performance, providing this knowledge to key stakeholders to inform critical decisions.

While some members of our team focus on executing today's mission and fielding current capabilities, our other scientists and engineers are looking ahead to ensure that future warfighter needs are met. As platform capabilities evolve, our experts work to ensure that test capabilities evolve in parallel to adequately challenge aircraft capabilities. For example, our Electro-optical/ Infrared Team is currently developing enhanced targets using advanced technology that will adequately challenge tomorrow's sensors, while simultaneously investigating truth data collection and modeling capabilities that will improve analysis and reduce flight test time. Our Command, Control, Intelligence, Surveillance and Reconnaissance group continues to evolve capabilities to test tactical communications and data links as those systems advance on next generation aircraft. Finally, our Flight Test Engineering Lab complex, expected to be operational in 2025, will be dedicated to advancing avionics test and facilitating digital transformation efforts throughout the group. ■



412TH TEST WING

Electronic Warfare Group

(412 EWG)

MISSION: Provide our nation and its allies expertise and credible capabilities to perform Electronic Attack and Survivability Test & Evaluation, ensuring our continued word-wide air dominance.

The primary mission at the Air Force Test Center is to test aircraft systems to ensure that only safe, reliable, and effective products are deployed to the war fighter. Electronic Warfare test engineers at the AFTC are trained and kept up to date on all EW systems, both new and old. Test engineers develop these emerging technologies, while working side by side with some of the world's most experienced pilots, system operators, and engineers.

There are six categories of EW systems that are tested at Edwards: radar/missile warning receivers, jammers, towed decoys, expendable countermeasures, directed energy, and low observable technology.

BENEFIELD ANECHOIC FACILITY

The Benefield Anechoic Facility (BAF), located at Edwards Air Force Base, is the largest anechoic test facility in the world, "providing a virtual open-air range within four walls and ceiling." At the BAF, the 772d Test Squadron provides comprehensive systems and test engineering applied to the developmental T&E of military and commercial RF systems. The BAF can conduct installed-systems tests on almost any DOD aircraft, testing their radio frequency (RF) systems over a wide swath of the electromagnetic spectrum. The primary mission of the BAF is repeatable test and integration of avionics systems in a secure, electromagnetically-controlled, free-space environment, using state-of-the-art simulation and stimulation technology that closely duplicates actual combat missions. With the increased demand posed by integrated Electronic Warfare/Information Operations and net-centric RF systems that require greater interoperability and compatibility, the BAF is a valuable tool for today's highly integrated weapon systems.

PHYSICAL CHARACTERISTICS AND SUPPORT

- 264 ft. L x 250 ft. W x 70 ft. H
- 175-ton, 80 ft. diameter turntable
- Two (2) 40-ton hoists

ANECHOIC CHAMBER RF CHARACTERISTICS

- RF shielding from external environment: ≥ 100 dB (0.01 – 18 GHz)
- Typical quiet zone isolation:
  - – 0.5 GHz* ≥ 72 dB
  - – 1.0 GHz ≥ 84 dB
  - – 2.0 GHz ≥ 96 dB
  - – 3.0 – 18 GHz ≥ 100 dB

CHAMBER APPLICATIONS AND FUNCTIONALITY

- Complete end-to-end installed systems test in a free-space environment
- Dense, high fidelity RF threat simulation and verification
- Electronic Warfare/Information Operations
- Radar target return and electronic countermeasures collection, measurement and analysis
- Antenna pattern measurement
- Intra- and Inter-Systems Electromagnetic Interference and Compatibility
- Electromagnetic environmental effects measurements
- GPS signal simulation and test

* Below 0.5 GHz desirable quiet zones are achieved with case-by-case configurations and special techniques used to isolate the system under test from potential undesirable chamber reflections.

- Proficient RF, EW systems and systems test engineering expertise and know-how
- State-of-the-art RF, digital, and video instrumentation infrastructure

TYPICAL MANNED AND UN-MANNED VEHICLE SYSTEMS TESTED

- SIGINT and ELINT systems
- Network centric systems of systems
- Communications and navigation
- Identification friend or foe
- GPS (including anti-jam and controlled reception pattern antennas)
- Radar systems
- Radar warning receivers
- Electronic Countermeasures (on-board and off-board)

EW RF THREAT SIMULATION AND GENERATION

- Frequency range: 100 MHz – 18 GHz
- High-fidelity, high-density** Combat Electronic Environment Simulator based
- Direct injection or free-space radiation at the SUT
- 24 individual channels (either dedicated or multiplexed)
- 360° azimuth coverage
- Variable elevations based on SUT-chamber geometry
- Dynamic user-defined scenarios
- SUT receive antenna characteristics

COMMUNICATION, NAVIGATION AND IDENTIFICATION

- Frequency range: 20 MHz – 2 GHz
- Direct injection or free-space radiation at the SUT
- High-fidelity, high-density Joint Communications Simulator based
- 72 simultaneous RF emitters, can be added as background (pulsed signals time-shared); 2,000 emitters in a scenario
- IFF: Interrogations and replies, AIMS certified – modes 1, 2, 3A, 4, 5, and S

DATA LINK CAPABILITIES

- Ku-Band SATCOM link provides remote monitoring and control of UAVs or RPVs from customer mission control centers
- Link-11/16 multi-link system test and training tool – includes error message generation
- Link-16
  - Advanced communications environment
  - Faithful time slot messaging
  - Environment Gateway Simulator
  - Management System (LMS-16) data capture of RF transmissions
- Commanders Tactical Terminal Integrated Broadcast Service – Interactive

ELECTROMAGNETIC INTERFERENCE/ ELECTROMAGNETIC COMPATIBILITY

- Source – Victim scenarios (antenna isolation or coupling)
- High-intensity radiated fields, radiation susceptibility
- Radiated Emissions, Conducted Emissions

ANTENNA PATTERN MEASUREMENT

- Stand-alone and installed antenna measurements
- Quantifies the system antennas field of view in an installed configuration.
- Large or fighter-sized aircraft
- Rapid automated phase and amplitude collection
- Polarizations: RHCP, LHCP, vertical, horizontal, slant and axial ratio

DATA PROCESSING & INSTRUMENTATION RESOURCES

- Real-time displays of data from SUT, chamber videos and data measuring/collecting systems in state-of-the-art test control room
- Monitor/record up to 2 PCM, RS422, RS232 and 8 Mil-Std-1553B
- Threat generation activity files
- Time correlated data files
- Data formats and media as requested by customer

SUPPORT UTILITIES SYSTEMS

- Aircraft electrical power:
  - 400Hz AC
  - 270VDC (Supports F-22 and Joint Strike Force)
  - 28 VDC
- Instrumentation power: 28 VDC
- Liquid cooling: PAO, EGW and Coolanol
- Air cooling
- Two hydraulic systems

SECURITY

The BAF is designed to meet any classification level. Additional security measures are implemented if your test program has special security requirements.

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** The number of simultaneous threats depends on the duty cycle of the chosen emitters and the desired fidelity of the simulation (e.g., 1.35 million pulses per second with 10 CW emitters and a dropout of 3 percent).

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DIGITAL INTEGRATED AIR DEFENSE SYSTEM

The 772d Test Squadron has developed and maintains the Digital Integrated Air Defense System (DIADS). DIADS accurately simulates command and control system impacts on the battle space and generates the enemy's perception of the air picture. The system incorporates real world trackers used by modern enemy air defense systems currently deployed throughout the world. DIADS sensor models generate perceived aircraft locations, which are fed into those trackers used by modern enemy air defense systems. The system can simulate a country's, or region's, assets that are currently deployed or projected to be operational in the near future. The simulation can be operated stand-alone, faster than real-time for constructive use, or in various Man-In-The-Loop/Hardware-In-The-Loop real-time modes.

The modeling allows testing against individual threats in a one-versus-one or one-versus-many scenario up to full, mission-level testing to stress operational plans and support both developmental and operational testing along with full-scale training exercises. DIADS provides insight into the total RF environment expected in combat by faithfully representing the signals that pilots and systems will encounter when facing the enemy.

DIADS has extensive interfacing capabilities and can be used in support of large-scale, distributed testing or training exercises using standard interfaces such as DIS, TENA, and ASTERIX to interface with the customer's systems as required. Testing with DIADS can be completed either at customer facilities or the DIADS Mission Systems Laboratory.

KEY FEATURES:

- Validated command and control models
- Flexible mission development
- Live, virtual, constructive
- Scalable to handle large simulations
- Continuous modernization efforts
- Multiple scenario databases
- Intel-representative models
- Aircraft blue/red
- Red radars and SAMs
- Multi-generational command and control
- Runs on RHEL 7/8
- WebUI allows Windows clients
- Standard interfaces:
  - DIS
  - TENA
  - ASTERIX

SIMULATES:

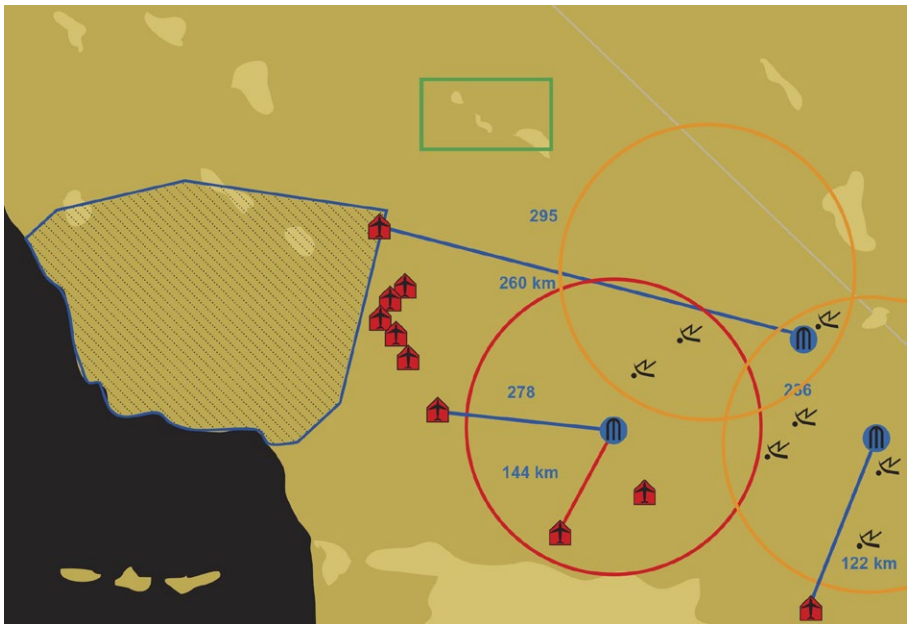
- Air surveillance radars
- Aircraft detections
- Track initiation and updating
- Identification Friend or Foe
- Filtering tracks of interest
- Present air picture
- Surface to air weapons control

DIADS FUNCTIONS IN:

- Constructive digital scenarios
- Real-time with MITL alongside synthetic operators
- HITL environments

SAMPLE CUSTOMERS:

- F-22A: Air Combat Simulation (ACS) Increment 3.1 OT
- F-35: Operational Test and Evaluation (OT&E) at the JSE
- Red Flag: Nellis Test and Training Range and Joint Pacific Alaska Range Complex
- MALD/J: Miniature Air Launched Decoy/Jammer OT&E
- 318th Range Squadron: cyber testing



INTEGRATED FACILITY FOR AVIONICS SYSTEM TEST

Simulators offer live virtual constructive environments for multi-ship operations at the unclassified and classified levels.

F-22 / F-16 EMULATION LAB

- Three interactive cockpits
- Control room environment
- Emergency procedures
- Development training
- Departure characteristics
- High-risk envelope expansion
- AA/AG tactics and maneuver dev
- Communication protocols
- Real-time data review
- Human factors / workload
- Flight / avionics familiarization
- High-risk flight dynamics
- Data analysis
- Multiple ship / multiple service
- Atmospheric sensitivity studies

F-16 SYSTEM INTEGRATION LAB

- Full hardware-in-the-loop
- APG 68 v5 radar
- Pod and weapon connectivity / integration
- Link-16 capable (DREN or RF)
- Tactical communications
- Cyber test augmentation
- Flight / avionics familiarization
- Avionic system training
- DREN for distributed operations
- LOS to flight line and bomb ranges
- Roof antenna farm

F-35 MISSION AVIONICS SIMULATOR

- 8 interconnected F-35 cockpits
- Configurable blue / red players
- Video monitoring and recording
- Validated AA and AG threats
- 3D data / scenario visualization
- AA/AG tactics and maneuver development
- Human factors / workload
- Control room environment
- Cockpit pilot-vehicle interface training
- Weapons training

F-35 FLIGHT SCIENCE SIMULATOR

- Two cockpits / labs
- Control room environment
- High-risk envelope expansion
- Emergency procedures
- Two-ship operations
- Real-time data review
- Control room environment
- Flight / avionics familiarization
- High-risk flight dynamics
- Data analysis
- Multiple ship / multiple service
- Atmospheric sensitivity studies

These simulators can be configured as test surrogates for developmental or improvement and modernization initiatives. Past and current events include:

- Cyber test demonstrations
- RF countermeasures techniques
- F-16 / F-18 LINK16 interoperation
- F-16 / Global Hawk BACN interop
- F-16 improved data modem evals
- Weapon emulator development
- F-16 / target pod compatibility
- Hardware / software integration
- Interoperability
- Distributed operations
- Multiple ship / multiple service
- Live virtual constructive

JOINT SIMULATION ENVIRONMENT

The Joint Simulation Environment (JSE) enables fifth generation-plus developmental test, operational test, high-end tactics training, and experimentation in the world's highest fidelity, highest density threat environment. The JSE is an Air Force and Navy effort that provides a high-fidelity digital representation of an open-air test environment that incorporates physics-based models in concert with OFP digital twins. The JSE is a transformative capability that leverages best-of-breed models to present high-fidelity, low-latency, large-force digital testing and training events. This unique capability offers a variety of services to a wide range of users from operational testers, developmental testers and engineers to program managers and decision makers at all levels.

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The JSE consists of six major building blocks: software battlespace environment, physical computing infrastructure, own-ship system under test, pilot interface systems, mission facilitation rooms, and overarching facilities for systems.

AFTC WILL HOST JSE FACILITIES AT EDWARDS AFB AND NELLIS AFB:

- Edwards JSE will host 4x F-22, 4x F-35, 4x configurable threat and friendly cockpits
- Nellis AFB will host 4x F-22, 8x F-35, 8x configurable threat and friendly cockpits, and 2 HITL labs, with future growth for more in out years

FULLY INTEGRATED WEAPON FLY-OUT MODELS TO INCLUDE SEVEN WEAPONS

HIGH-FIDELITY AND LOW LATENCY CAPABILITIES:

- Limited electronic attack and electronic protect models
- Multi-mission test platforms
- 3 High-fidelity Red Air models
- 6 virtual air threats hosted in medium-fidelity pilot-in-the-loop cockpits in domes for fair-fight
- 4 Red Air missiles
- 17 high-fidelity surface-to-air missile models
- Separate blue, red and white force briefing and control areas
- Customizable denial zones
- Customizable scenarios
- Weather effects, night/day operations
- Physics-based environment for infrared and RF propagation
- Dozens of constructive blue and red models (F-22, F-18, E-2, etc.)
- Full mission data capture, playback, and post-processing

BUILT-UPON MULTIPLE GOVERNMENT-OWNED MODELS:

- Government Reusable Interface Document (GRID) – Physics based interactions and propagation effects to all entities
- Weapons Server Common Environment – 9 real-time, high-fidelity kinetic weapon fly outs, blue countermeasures
- Visuals – Synchronized out-the-window, targeting forward looking infrared and distributed aperture system, and synthetic aperture radar map
- Analysis and Reporting Tool – Data recording, analysis, and playback
- Next Generation Threat System – Synthetic environment generator models hundreds of threat and friendly constructives; hosts high-fidelity Missile and Space Intelligence Center (MSIC) and National Air and Space Intelligence Center (NASIC) models
- 15 authoritative, high-fidelity MSIC SAM models
- DIADS – C3, data flows, and operator displays of a threat IADS. Early warning radars
- Simulation Control Executive – Orchestrates simulation initialization and execution
- Extensible Architecture for Analysis Generation of Linked Simulations Effects-Based Simulation – seven high-fidelity NASIC Red Air and Red Air-Air missile models
- Probability of Removal – Weapon/target pairing algorithm for kill removal
- Shot Log – Real-time and debrief tool that shows all shots taken during mission
- Government Simulation Interface, government-owned Interface Control Document for interfacing with the GRID ■

412TH TEST WING

Test Management Division

(412 TMG)

MISSION: Manage test projects to deliver timely, objective and accurate information for the Warfighter

TEST MANAGEMENT

The Test Management Division organizes, trains, and equips approximately 100 personnel directly involved in day-to-day management of the test mission across the 412 TW Combined Test Forces (CTFs). In addition, the 412 TMG provides information systems, software and operating instructions for the field and ensures that 412 TW business and project management processes are defined and supported.

PROJECT MANAGEMENT (412 TMGG)

The 412 TMGG delivers and sustains project management solutions to enable management and execution of the 412 TW test project portfolio. Our project managers provide support from project initiation to closeout, working to meet cost and schedule commitments and ensuring that high-quality, affordable, supportable and effective defense systems are delivered to the warfighter as quickly as possible. Our CTF Deputy Directors provide senior civilian leadership and oversight of the test project portfolio and CTF Directors in all aspects of unit operations.

RESOURCE PLANNING AND ANALYSIS (412 TMGB)

The 412 TMGB provides personnel, tools, and processes to enable the management and execution of the 412 TW's reimbursable and non-reimbursable business portfolios. Our business leaders provide financial and requirements planning and oversight support to the 412 TW CTFs. Our program analysts facilitate the program-introduction and statement-of-capability process to secure reimbursable business for the 412 TW.

PROJECT PROVISIONING (412 TMGBB)

The 412 TMGBB provides provisioning support for the 412 TW to include munitions allocations, project management, and the Initial Point of Contact process for new and prospective customers (see page 3).

SPECIAL PROJECTS (412 TMGS)

The 412 TMGS supports all DOD and U.S. Government classified, sensitive, and unique test programs at the 412 TW in a secure, streamlined and effective manner. This includes special access program (SAP) project and business management, strategic planning and oversight of SAP facilities for the 412 TW and tenant organizations, and SAP support staff assistance for 412 TW and Air Force Test Center leadership. ■

412TH TEST WING

Operations Group

(412 OG)

MISSION: Inform Air Force and DOD decision makers by safely and effectively planning, executing and reporting on ground and flight tests

The 412th Operations Group (412 OG) is made up of an operations support squadron (OSS) and seven flight test squadrons (FLTS). The 412 OSS is responsible for airfield operations, runways, Space Positioning Optical Radar Tracking (SPORT), airdrop, and the Test Parachute Program (TPP). Each flight test squadron aligns under a CTF or Integrated Test Force (ITF) to conduct full-spectrum test and evaluation.

412TH OPERATIONS SUPPORT SQUADRON SERVICES

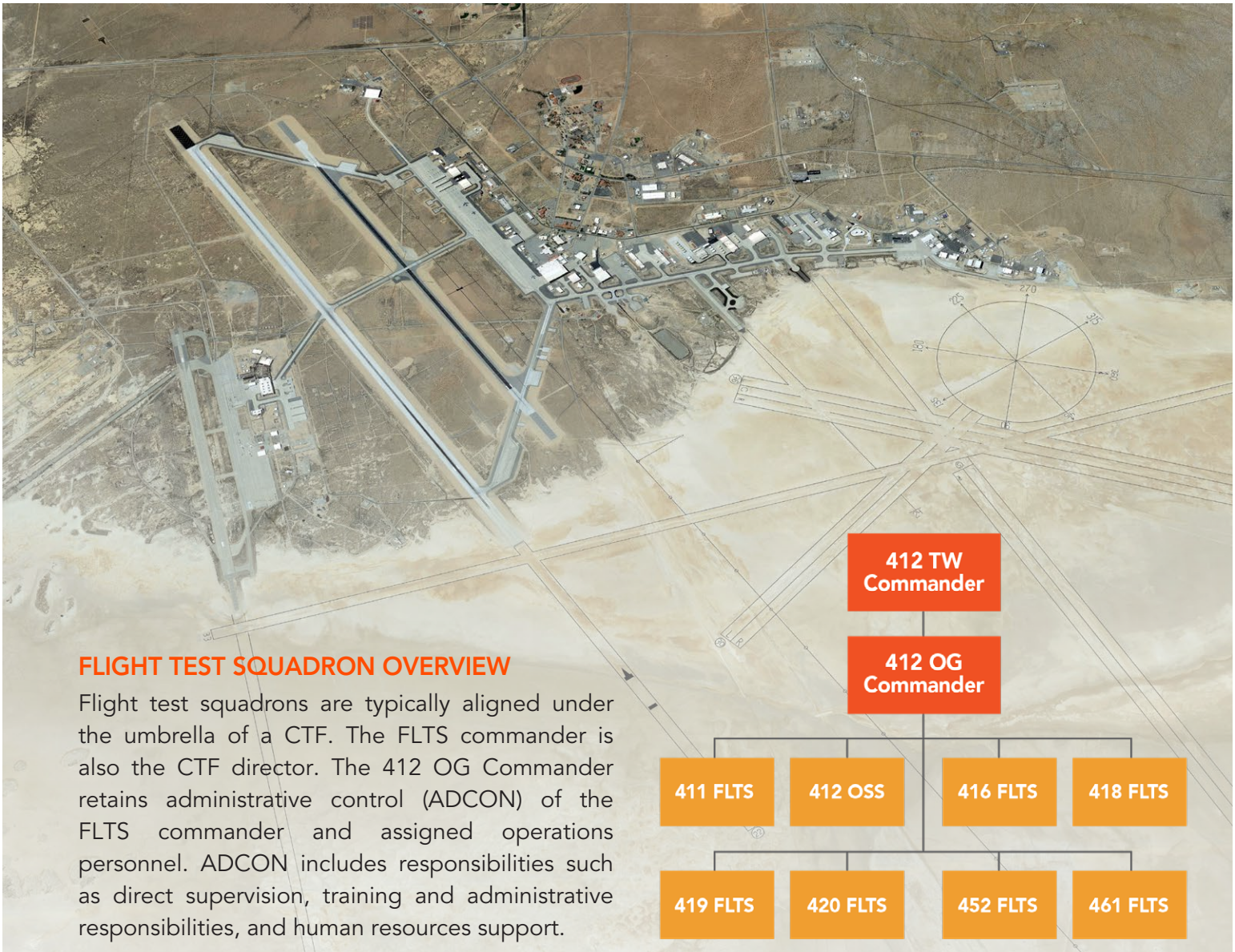
AIRFIELD OPERATIONS: 412 OSS services include weather, air traffic control, terminal airspace management, airfield and flight management, radar, air traffic control and landing system and communications systems maintenance, airfield equipment, and transient services. Generally, the airfield is open for operations on weekdays with a control tower for the Class D airspace around Edwards AFB. Uncontrolled airfield operations require prior coordination with the airfield manager. Local weather services are available seven days a week.

RUNWAYS: There are 14 runways on Edwards AFB. Four are paved and 10 are on dry lakebeds. The two main paved concrete runways are more than 2.5 miles long. The unpaved runways are on two dry lakebeds, Rogers Dry Lake, which provides a natural extension to the two main paved runways, and Rosamond Dry Lake. These lakebed runways occasionally become unavailable during the winter months, when rain can leave standing water on the lakebeds, making them unusable for aircraft.

SPORT generally operates during daylight hours on weekdays and helps control the restricted airspace around Edwards AFB (R-2515). Services include radar monitoring, radar traffic advisories, safety alerts, airspace boundary calls, radar vectoring, arrival sequencing, control of special use airspace like the spin areas, airborne flight safety assistance and more. When airspace R2515 is not scheduled for DOD use, it is usually released to the Federal Aviation Administration (FAA) and limited services are available through Joshua Approach.

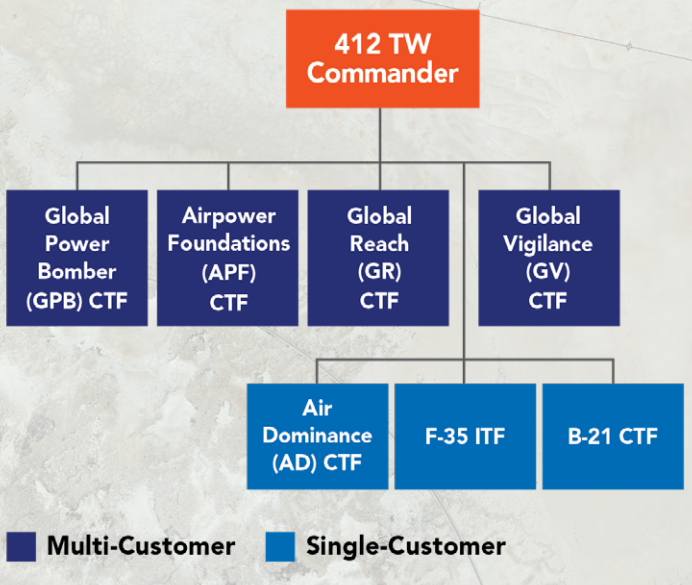
AIRDROP includes services related to experimental research, development, test and evaluation (RDT&E) aerial deployment systems for personnel, cargo, vehicle, and other systems. Other airdrop services may be available upon request and capabilities validation.

TEST PARACHUTE PROGRAM: The TPP provides RDT&E to help produce safe and effective personnel parachutes for the U.S. Air Force in support of the joint warfighter. Other TPP services may be available upon request and capabilities validation. The TPP personnel apply their expertise, experience, and adaptability to provide current and future parachute systems to the warfighter. TPP experts leverage cutting edge technologies across domains to deliver unique, value-driven solutions that make warfighters effective and lethal in any operating environment.



FLIGHT TEST SQUADRON OVERVIEW

Flight test squadrons are typically aligned under the umbrella of a CTF. The FLTS commander is also the CTF director. The 412 OG Commander retains administrative control (ADCON) of the FLTS commander and assigned operations personnel. ADCON includes responsibilities such as direct supervision, training and administrative responsibilities, and human resources support.



COMBINED TEST FORCE / INTEGRATED TEST FORCE OVERVIEW

CTF/ITFs oversee the full range of developmental test and evaluation at Edwards AFB for their assigned aircraft. Resposibilities include program management, flight operations, and test and evaluation. CTF/ITFs have day-to-day operational control over personnel that are matrixed to the CTF/ITF from other organizations (e.g., TMG, TENG, EWG, etc.). In most cases, an FLTS is aligned under each CTF/ITF and is staffed with Operations Group personnel. The CTF/ITF director is dual-hatted as the squadron commander.

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CTF DESCRIPTIONS

The **GLOBAL POWER BOMBER CTF/419 FLTS** tests and evaluates USAF bomber aircraft (including B-1, B-2 and B-52) to modernize the aircraft and integrate new weapons systems. The CTF also operates the C-12 Formal Training Unit.

The **AIRPOWER FOUNDATIONS CTF/416 FLTS** comprises three Integrated Test Forces: F-16 ITF, T-7 ITF, and Emerging Technologies ITF. The F-16 ITF tests and evaluates USAF and Foreign Military Sales F-16 aircraft to include modernization, weapons systems integration, and research and development projects. Additionally, the F-16 ITF is responsible for T-38 modernization testing, F-16 chase and target support for test programs across the 412 TW, and high-altitude departure recognition, avoidance, and recovery training for U.S. and international F-16 pilots. The T-7 ITF tests the T-7A Red Hawk, the USAF's newest jet trainer aircraft, to evaluate performance, flying qualities, loads, flutter, systems, and propulsion test planning, execution, and reporting. The Air Force plans to acquire 351 aircraft to replace the aging T-38. The Emerging Technologies ITF provides agile, innovative flight testing and explores armed forces warfighting capabilities of tomorrow. Current focuses include small unmanned aerial systems for testing/operational use, autonomous systems development and implementation, and industry partnerships that are exploring development of Electric Vertical Take-Off and Landing platforms and supersonic/hypersonic vehicles.

The **GLOBAL REACH CTF/418 FLTS** tests and evaluates USAF airlift and refueler aircraft (including C-5, C-17, KC-10, KC-46, KC-135 and partner-nation aircraft) to modernize the aircraft and integrate systems. The CTF also partners with the 370th Flight Test Squadron, a U.S. Air Force Reserve Squadron, to provide aerial refueling support for Edwards AFB.

The **AIR DOMINANCE CTF/411 FLTS** tests and evaluates F-22 aircraft during modernization efforts and integration of new weapons systems. This CTF is also responsible for development of the NGAD family of systems.

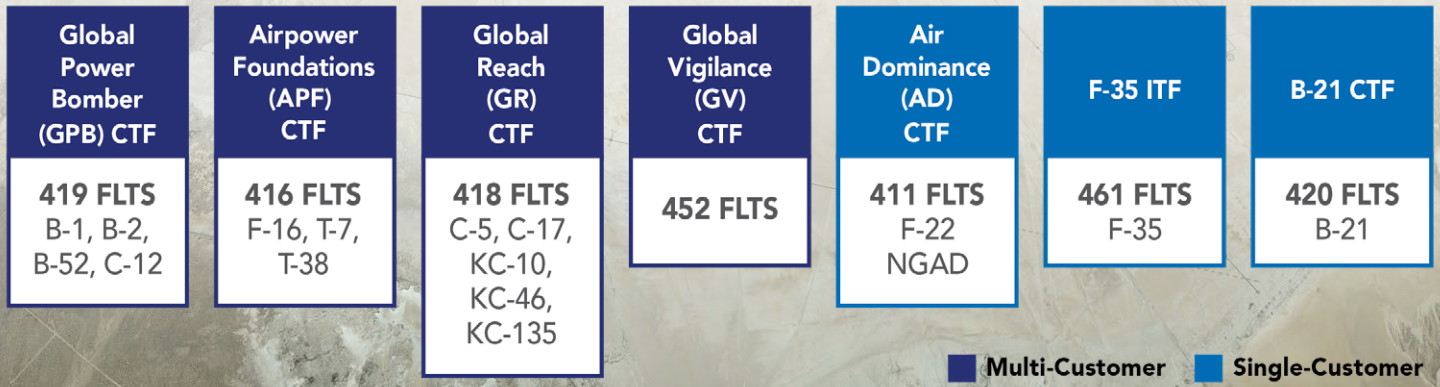
The **F-35 ITF/461 FLTS** is the DOD's lead developmental flight test unit for sensors, weapons, and software on all three variants of the F-35. The efforts of the F-35 ITF/461 FLTS will benefit the 826 fielded F-35 aircraft in the U.S. Air Force, Marine Corps, and Navy and the other nations participating in the F-35 program.

The **GLOBAL VIGILANCE CTF/452 FLTS** tests and evaluates USAF remotely piloted aircraft to modernize the platforms and integrate weapons systems.

The **B-21 CTF/420 FLTS** is an integrated team of test professionals from Northrop Grumman, 420 FLTS, and Detachment 5 of the Air Force Operational Test and Evaluation Center that provides support to the B-21 flight test program.

CTF AND FLIGHT TEST SQUADRON LINKAGE

CTFs and FLTS are inherently linked. The FLTS is responsible for operating the aircraft and providing administrative support, while the larger CTF provides the test team of engineers, project managers, financial managers, maintenance technicians, and any other required personnel. ■



412TH TEST WING

Maintenance Group

(412 MXG)

MISSION: Generate safe, reliable airpower with properly trained and well-equipped personnel ready to execute test & evaluation missions!

VISION: Continue to be the Testing Center of the Aerospace Universe

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The 412th Maintenance Group (412 MXG) has a long, proud history of being on the leading edge, providing the most complex logistics, logistics test, ground test, and flying mission support in the Air Force. The 412 MXG has played a significant role in providing the initial support and supportability evaluations for the myriad aircraft and systems that have passed through Edwards AFB and become iconic building blocks of the history of the United States Air Force.

The 412 MXG is responsible for 106 facilities providing more than two million square feet of floor space, supporting all types of logistics-related requirements. The MXG provides on-equipment and off-equipment aircraft and munitions maintenance on 70 fighter, bomber, cargo, tanker and trainer aircraft and assigned ground support equipment. Many of these aircraft are utilized for test and test support and are therefore highly modified with special instrumentation for data collection. The MXG conducts logistics test and evaluation and supports flight T&E of aircraft, aircraft subsystems, support equipment and technical orders for organizations throughout the world. The group's personnel provide unequaled skill and technical expertise in working with advanced systems and technologies.

AIRCRAFT INSTRUMENTATION provides ground truth test data from tests of aerospace vehicles conducted at Edwards AFB. Our personnel are the experts in airborne vehicle instrumentation, including aircraft modifications. Our experts support test evaluators by using their deep understanding of the instrumentation used to provide the data that will result in an unbiased evaluation of the system or sub-system being tested.

Class II Modifications consists of 130+ highly trained

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personnel who plan, design, manufacture, modify, and install, non-standard, non-productions data acquisition instrumentation systems for eight Flight Test Squadrons, testing 17 different mission-design-series aircraft throughout the life of the system/sub system under test.

OPERATIONAL SUPPORT: 412th Aircraft Instrumentation Test Squadron (412 MXIS) personnel support test evaluators by using their deep understanding of the data collected from the non-standard, non-production data acquisition instrumentation systems installed on the system under test. The squadron provides day-to-day maintenance support for the aircraft data systems, operates the data collection system during flight test missions, and troubleshoots, repairs, and enhances the data system as necessary to meet mission needs.

FABRICATION: The 412th Maintenance Group (412 MXG) possesses unique manufacturing and modification capabilities, specific to the manufacture, repair, overhaul, corrosion control, and inspection of aeronautical and non-aeronautical parts and equipment.

Highly trained 412 MXG personnel use state-of-the-art equipment to perform a full range of structural repairs and modifications on aircraft and components. Our technicians have a wealth of experience in various metals, composite honeycomb structures, thermoplastic material, thermo sets, ceramics, and fiberglass. Our maintenance group has the resources to modify, instrument, and support any aircraft or system in the DOD's inventory. Modifications can range from installation of military and commercial avionics, such as global positioning systems, to major instrumentation system modifications consisting of thousands of parameters connected by miles of wire.

AVIONICS & ELECTRONIC WARFARE SYSTEMS provides flight line support and test mission support, as well as intermediate maintenance for conventional electrical, battery, electronic warfare, aerial towed targets, and the Conventional Integrated Avionics Advanced Integrated Systems Test Station.

LOGISTICS SUPPORT provides world-class supply and logistics support for maintenance, aircraft repair, and test and modernization of the F-22, F-35, F-16, B-1, B-52, B-2, C-17, KC-135, C-12, RQ-4, and T-38 fleet in support of the National Defense Strategy.

LOGISTICS TEST uses a benchmark process of verifying the effective and reliable maintenance of systems under test, while ensuring compliance with established design-spec procedures and military operational availability and utility requirements. The objective of logistics testing is to evaluate the maintainability design of a weapon system as early as possible in the acquisition process. The importance of conducting logistics test during the early phases of the acquisition process cannot be overemphasized, since it is during these phases that a vast majority of weapon-system life-cycle costs are determined. During these early phases, changes can be made before the system enters full production. Test results also provide the necessary data for decision makers to weigh their options, make trade-offs, and formalize decisions to support long-range planning.

TECHNICAL ORDER DEVELOPMENT (TOD) acts as the subject-matter expert for maintenance TOD and verification activities.

EDWARDS AFB WEIGHT & BALANCE TEAM provides complete support for developmental and operational T&E projects. We possess the only field-level pit scale used for many of the 412 TW, contractor, and NASA aircraft. This facility is capable of weighing aircraft as small as a MQ-9 and as large as the NASA Stratospheric Observatory for Infrared Astronomy (SOFIA). The facility has supported a wide range of testing from fuel consumption to measuring the combined weight of the space shuttle and its 747 carrier-aircraft.

Our **ACCESSORIES SECTION** provides off-equipment repair, bench checking, and logistics testing of jet engine components, bearings, and all engine maintenance trailers and adapters.

Our **CONVENTIONAL AVIONICS** personnel support flight and ground training, test, and evaluation. They also test, troubleshoot, repair, maintain and load/upgrade more than 100 variations of Conventional Avionic Line Replaceable Units for multiple airframes.*

Our **ELECTRONIC WARFARE** support flight/ground training, test, and evaluation of five ALQ-188A(V)-017, one ALQ-188(V)3, one ALQ-188B(V)3, and one ALQ-188(V)4 Electronic Attack Training Pods at the Point Mugu Naval Air Warfare Center ALQ-167 program the USAF, USN, and Danish Air Force AN/ALQ-131 and AN/ALQ 184 programs.

Our **AEROSPACE GROUND EQUIPMENT** sustains, tests, and evaluates a vast and diverse array of Aerospace Ground Equipment to support numerous USAF, NASA, DOD, and Foreign Military Sales (FMS) customers, including bombers, fighters, tankers, cargo aircraft, experimental platforms, and UAVs across a multitude of mission design series.** A site survey is highly recommended.

The **STORES WEIGHT & INERTIA SYSTEM** calculates weight, longitudinal center of gravity, and yaw moments of inertia of external stores.

Our **COMPOSITE SHOP** is one of the most unique plastic and composite shops in the USAF, staffed by highly trained personnel and equipped with some of the most advanced machinery available. A vacuum forming machine is used to form and make parts out of plexiglass, Lexan, and other acrylic plastics. The shop houses a clean room for delicate repairs such as removing imperfections in aircraft canopies. It also has all the equipment necessary to make forming blocks and fixtures for hard-to-manufacture metal parts.

The **BATTERY SHOP** supports over 25 distinct battery types used in flight and ground operations for F-16, F-22, T-38, B-21, KC-46A, C-17, RQ-4A (Global Hawk), B-1B, C-135, C-130, C-12, and B-2 manned and unmanned aircraft and helicopters, as well as various transient aircraft and engineering programs.*

The **AIRCRAFT CORROSION PAINT** facility encompasses more than 47,000 square feet and accommodates aircraft as large as a Boeing 707/C-18. This state-of-the-art facility can remove up to 99 percent of particulate emissions and over 95 percent of volatile organic compound emissions from the exhaust waste system. It also houses a regenerator system that allows for on-site thermal oxidizing of 80,000 pounds of carbon, returning 93 percent for reuse.

Our **AERIAL TOW TARGET** shop supports flight and ground training, test, and evaluation for five AGTS-36 targets and associated equipment. Edwards is currently the only Air Force Base able to provide live-fire aerial-gunnery towed targets for test and training. Any engineering, test, and training programs requiring

live-fire aerial gunnery targeting with real-time scoring capabilities can make use of this unique capability.

Our **MACHINE SHOP** maintains 17 computer numerical control (CNC) machines, three of which are five axis capable. With these and three computer-aided design/computer-aided manufacturing terminals, the shop is capable of manufacturing complex three dimensional parts to the ten thousandth of an inch. The shop has additional additive manufacturing capabilities with two 3D printers and metrology equipment with a coordinate measuring machine, Romer arm, and handheld 3D scanner for reverse engineering.

Our **WELD SHOP** has five welding machines dedicated for Tungsten Inert Gas welding, two machines for Mechanical Inert Gas welding, two portable Plasma cutters, and one CNC Plasma Cutter. The shop is also equipped for brush electroplating and a full range of heat-treating equipment. All Welding Technicians are level II certified in six groups of metals: carbon steel, stainless steel, cobalt, Inconel, aluminum, and titanium.

The **ADVANCED INTEGRATED SYSTEMS (AIS) TEST STATION** supports flight/ground training, test, and evaluation for F-16A/B and F-16C/D aircraft. Capabilities include test, troubleshooting, repair, software load/upgrade, and maintenance of more than 75 types of Line Replaceable Units (classified and unclassified) and their various versions including four AIS Test Stations (computer inertial, displays indicators, processor pneumatic, and radio frequency). Additionally, the Rackmount Improved AIS test station provides additional test, troubleshooting, repair, software load/upgrade, and maintenance capabilities for next-generation digital/color avionic system components.*

Our **TEST CELL/HUSH HOUSE SECTION** facility houses four depot-level configured Pacer Comet III Automated Test Cells rated up to 50,000 pounds of thrust.

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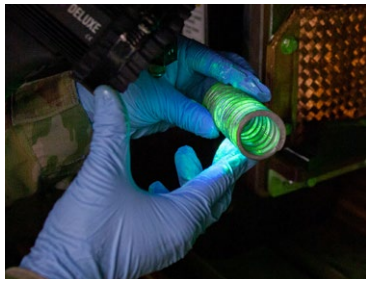
The Hush House is configured for all versions of F100 engine runs as well as F-15, F-16, and T-38 aircraft runs. Hush House personnel also perform flight line engine maintenance on AFTC aircraft.

The **COVERED CORROSION AIRCRAFT WASH FACILITY** accommodates aircraft as large as a C-5 in size and is lighted for 24-hour operation. Available equipment includes a soap foamer and two high-pressure, hot-water wash units.

ELECTRICAL SUPPORT OF FLIGHT/GROUND TRAINING, TEST, AND EVALUATION personnel provide test, trouble-shooting, repair, and maintenance of generators on F-16A/B, F-16C/D, and T-38 aircraft using the Automated K400 generator test stand.*

ENGINE MAINTENANCE: The MXG Propulsion activity provides full three-level maintenance capabilities on standard and prototype F100, F101, F110, J85, and TF33 engines. Two-level maintenance capabilities are available for F108, F117, F118, and F119 engines. The advanced technical expertise of our personnel, allows us to provide full Component Improvement Program capability, and depot repair capability.



TEST MEASUREMENT & DIAGNOSTIC EQUIPMENT: Our Type IIC laboratory provides intermediate support functions for RDT&E programs. The 68-degree room provides highly specialized calibration capabilities for boresight fixtures, precise linear, and weight measurements.

The **NON-DESTRUCTIVE INSPECTION LABORATORY** is able to perform typical NDI tasks including oil analysis, penetrant, magnetic particle, ultrasonic, eddy current, and radiographic non-destructive inspection techniques to support the T&E process. The laboratory also possesses a real-time radiographic system that produces immediate X-ray images without use of radiographic film. This capability allows for optimization of images during real-time inspection and provides a variety of image-recording media for the customer. The non-destructive testing Scan IV system is a highly sophisticated, state-of-the-art workstation that converts a film image from analog to digital form, which can then be enhanced using a variety of techniques.

Our **CORROSION CONTROL FACILITY** contains a metal-etching and plastic/media-blasting room with cabinet blasters and a large walk-in blaster for large equipment. It is equipped for metal-surface treatment and paint stripping, with a paint stripper tank for aircraft parts and other support equipment. Paint is applied using high-volume/low-pressure, electrostatic, and airless equipment.

Our **MUNITIONS STORAGE AREA** is able to receive, account for, control, inspect, build, deliver, store, test and evaluate a vast and diverse array of conventional and experimental ammunition, missiles, munitions, and associated handling equipment to support a wide variety of USAF, DOD and FMS customers including bombers, fighters, tankers, cargo aircraft, experimental platforms, and UAVs across a multitude of mission design series. A site survey of the munitions storage area is highly recommended.** ■

* As long as appropriate repair authorizations are in place, we may be able to support depot-level repair facilities, associated field units, and non-USAF customers for certain components and systems by using "bridge-contracts" or other acceptable means.

** Program and Project Managers should make contact via the wing's IPOC as early in their planning process as possible to articulate, identify, and define timelines, type services, manpower, and/or facilities necessary to support their mission. Institutionally available capacities in these areas are limited. (See page 3 of this guide for more information.)

412TH TEST WING

Civil Engineer Group

(412 CEG)

MISSION: The 412 CEG lead-turns the future, maintains the present, and protects the environment. Our experienced personnel provide installation, maintenance, construction and repair of Edwards AFB real property, while ensuring environmental stewardship and encroachment management of the installation. We plan and execute emergency management operations for local, regional, and national emergency response, including contingency and mobility operations. We provide fire service support to real property and aircraft. Finally, the 412 CEG provides Explosive Ordnance Disposal (EOD) operational support to ranges and area of operations in the stateside assigned area of operations and deployment sites.

VISION: Innovators Lead Turning the Future

The 412th Civil Engineer Group (412 CEG) is organized into two squadrons (the 412th Civil Engineer Squadron (412 CES) and the 812th Civil Engineer Squadron) and three Divisions (Engineering Division, Environmental Division, and Installation Management Division). Each squadron and division provides a distinct capability, but all are fully synchronized and interdependent in order to support the 412 TW mission.

ENGINEERING DIVISION

The 412th Engineering Division (CEN) is a lean cradle-to-grave project development and execution organization consisting of 36 engineering professionals from an array of disciplines including civil, structural, transportation, mechanical, and electrical engineering. This diverse engineering team provides planning, programming, a Comprehensive Asset Management Plan, integration, and execution of facility/infrastructure requirements that exceed the 412 CES's organic capabilities. The Project Management Branch of CEN executes design, maintenance, repair, and construction contracts utilizing 42 execution methods including architecture and engineering service contracts, indefinite delivery/indefinite quantity contracts, simplified acquisition of base engineer requirements contracts, multiple award construction contracts, and blanket purchase agreements. The Execution Support Section (ESS) of CEN maintains a comprehensive Geographic Information System to assist with dig permits and project siting. ESS also maintains all project design files such as as-built drawings. The Portfolio Optimization Branch of CEN is a single source for requirements integration and Base Comprehensive Asset Management Plan development. The Program Development Section of CEN performs base comprehensive planning, project programming, and technical design to restore and upgrade base facilities and infrastructure systems. The Planning Section of CEN performs base comprehensive planning, environmental planning, and space optimization. The Energy Management Section of CEN leads efforts to improve energy resiliency, optimize energy demand, and assure energy supplies.

ENVIRONMENTAL DIVISION

The mission of the 412th Civil Engineer Environmental Division (412 CEV) is to protect human health and the environment while supporting mission accomplishment by lead-turning mission requirements to ensure all Edwards AFB programs comply with environmental statutes and regulations and by being effective and efficient stewards of the environment. The 412 CEV is responsible for managing the natural and cultural resources of Edwards AFB through the implementation of the Integrated Natural Resource Management Plan and the Integrated Cultural Resource Management Plan. We ensure that the installation complies fully with the Endangered Species Act, the Migratory Bird Treaty Act, the National Historic Preservation Act, the

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Archaeological Resources Protection Act, while coordinating government-to-government consultation with Federally Recognized Tribes. The 412 CEV manages the preparation and approval of environmental planning documents required by the National Environmental Policy Act and the Environmental Impact Analysis Process; assures all activities on Edwards AFB are compliant with all federal, state and local environmental regulations; and manages all regulatory permits associated with clean air, clean water, hazardous waste, solid waste, toxic waste, and hazardous materials. Through the Pollution Prevention Program, we introduce new materials and processes that reduce the volume and toxicity of hazardous waste produced by the base, while making the processes safer and more efficient. The 412 CEV oversees the Environmental Management System that helps senior leadership focus resources on the most important environmental issues. CEV has established ongoing working relationships with federal, state, and local regulators to sustain cooperation and address environmental issues. While most tenant units are subject to Air Force Policy and Processes, NASA Armstrong maintains its own environmental management office that coordinates with the Air Force based on the type and location of activities involved. Support for Plant 42 is advisory only as the Air Force Life Cycle Management Center is responsible for their program. The Air Force Civil Engineer Center (AFCEC) Installation Support Section (ISS) is responsible for managing the Environmental Restoration Program and the Military Munitions Response Program and conducts remediation activities to address release of hazardous substances, pollutants, and contaminants to protect human health and the environment; assures that all past releases of hazardous materials and wastes have been properly identified, investigated, and remediated in accordance with the Federal Facility Agreement (FFA) and all other appropriate and relevant regulations. The AFCEC ISS manages all hazardous waste and material cleanup efforts not otherwise covered by the FFA, while keeping the public and regulatory agencies aware and involved in base cleanup decisions.

INSTALLATION AND MANAGEMENT DIVISION

The Installation and Management Division (IMD) integrates the 412 CEG's management of real property and provision of IT support. IMD's Budget Section manages all funds allocated to the 412 CEG, including funds for maintenance, repair, and construction projects (from centralized and decentralized facility sustainment, restoration, and modernization programs); service contracts; utilities; and material purchases. The Real Property Section documents all real property and real property installed equipment gained, modified, or disposed. In coordination with AFCEC, the Real Property Section is also responsible for all real property instruments, including ingrants and outgrants for DOD and non-DOD organizations with a presence within Edwards AFB or the 12 geographically separated locations.

412TH CIVIL ENGINEER SQUADRON

The 412th Civil Engineer Squadron's (412 CES) mission is to provide efficient and effective life-cycle operations, maintenance, and repair to facilities and infrastructure. The squadron is authorized 188 positions, operates on a single shift, but is on-call for after-hours emergencies. The 412 CES is organized into the four flights: Heavy Repair, Infrastructure Systems, Facility Systems, and Operations Engineering. Work is prioritized, executed, and tracked in accordance with standardized prioritizations: emergency work, preventative maintenance, scheduled sustainment work (high, medium, and low), and enhancement work. The squadron maintains and repairs all Air Force real property and real-property installed equipment. The Squadron's responsibilities are truly daunting, as Edwards AFB has the largest electrical distribution system in the Air Force, with approximately 800 miles of overhead and underground distribution, 5 switching stations, 16 substations augmented by 63 RPIE (real property installed equipment) generators and 402 fire alarm systems. The Facility Systems Flight is also responsible for two sets of BAK-12 aircraft arresting systems. The water, gas, and fuels system on Edwards AFB is the second largest in AFMC at 644 miles with 3.6 million gallons of Petroleum, Oil and Lubricants. Our Pavements Team maintains four concrete runways totaling eight miles, 14 lakebed runways totaling 60 miles, 284 miles of paved roads, and 287 miles of unpaved roads. The 412 CES team is augmented with contractors provided under approximately 28 service contracts, such as custodial, installation solid waste management, grounds maintenance, and wastewater treatment plant to name a few. The squadron executes its functions according to many plans, such as the Base Support Plan, Antiterrorism/Force Protection Plan, Installation Barrier Plan, Energy Curtailment/Management Plan, Hazardous Communications Plan, Snow and Ice Control Plan, Pest Management Plan, and Water Operations Plan to name a few, along with the annually-updated Squadron Action Plan which includes six focus areas with Measures of Effectiveness.

812TH CIVIL ENGINEER SQUADRON

The **EXPLOSIVE ORDNANCE DISPOSAL (EOD)** team's mission is to mitigate hazards to personnel and property posed by weapons and explosive materials across all physical domains. Core mission areas include Nuclear Weapon Response, Unexploded Explosive Ordnance, Aerospace Systems and Vehicles, Irregular Warfare, Counter-IED, Combating WMD's, Operational Range Clearance, Defense Support to Civil Authorities, and VIP Protection. The squadron provides 24-hour emergency response support across 481 square miles, including Edwards AFB and the surrounding communities of Rosamond, Tehachapi, California City, and Mojave. EOD also supports assigned aircraft and munitions testing, including priority test missions, with same day destruction of classified materials, and destroys hazardous materials produced by the Air Force Research Lab (AFRL).

READINESS AND EMERGENCY MANAGEMENT FLIGHT: The primary mission of the Emergency Management Program is to save lives; minimize the loss or degradation of resources; and continue, sustain, and restore operational capability in an all-hazards physical-threat environment at Edwards AFB. The flight is also tasked with managing the Emergency Operations Center (EOC), which is the command and control support element that coordinates information and resources to support the installation's actions before, during, and after an incident. The EOC uses Command and Control Incident Management Emergency Response Application as its common operating picture solution to interface with tactical first responders and emergency responders. The flight has several specialized pieces of equipment to respond to, and recover from, an all-hazards event. We employ the Incident Command Post, which is a mobile command and control trailer that provides office space for key personnel supporting the on-scene Commander or Recovery Operations Chief. We also provide a large array of Chemical, Biological, Radiological, Nuclear (CBRN) detection equipment. This equipment allows CBRN teams to respond and test presumptive hazards, to assist in determining local threat conditions, and to establish entry and mitigation plans. In addition to providing specialized equipment, all personnel assigned are subject matter experts in CBRN Defense Tactics, Techniques and Procedures. The Office of Emergency Management

assists all host and tenant organizations with establishing Unit Emergency Management Programs, developing Emergency Action Plans, providing preparedness training, and collaborate on exercise development to test all facets of response and recovery actions to support mission continuation during an event.

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The **FIRE AND EMERGENCY SERVICES FLIGHT (FES)** is staffed with 120 personnel – 43 military firefighters, 68 civilian firefighters, and nine civilian Emergency Medical Dispatchers. The flight responds to more than 1,200 emergencies annually. Equipment and personnel are postured to respond to a variety of incidents, including aircraft rescue and firefighting (ARFF), structural fire suppression, wildland urban interface, emergency medical services (EMS), technical rescue operations, and hazardous materials (HAZMAT) incidents involving chemical, biological, radiological, nuclear, or explosive materials. Through its Fire Prevention Section, the FES Flight also provides non-emergency services such as fire code inspection and enforcement, facility plans reviews, and public education programs utilizing virtual reality trainers. Due to the size of Edwards AFB, the FES Flight is distributed among five fire stations.

FES Flight maintains Memorandums of Understanding (MOU) or Mutual Aid Agreements (MAA) with a number of internal and external emergency service agencies. These agencies provide support beyond traditional fire suppression:

- California City Fire Department (MAA)
- LA County Fire Department (MAA)
- Kern County Fire Department (MAA)
- San Bernardino County Fire Department (MAA)
- 412th Medical Group (MOU for EMS)

Each agreement clearly defines its purpose and terms. These interagency relationships provide a cost-effective method of maintaining adequate emergency services for the communities we serve, while bolstering the camaraderie and working relationships. ■

- **Fire Station 1** is located on the flight line in Building 1223. This station provides ARFF, structural fire supression, technical rescue, HAZMAT, and EMS. It also hosts the Fire Alarm Communication Center. Demand Zones within Fire District 1 include assembly, business, industrial, residential, and storage facilities.
- **Fire Station 2** is located in Building 5560, within Edwards AFB's housing area. This station provides structural fire supression, technical rescue, HAZMAT, and EMS. Demand Zones within Fire District 2 include assembly, business, daycare, educational, health care, industrial, residential and storage facilities. Most facilities within this district have fire protection systems, fire suppression systems, or both.
- **Fire Station 3** is located on South Base in Building 250. This station provides ARFF, structural fire supression, technical rescue, HAZMAT and EMS. Demand Zones within Fire District 3 include business, industrial, and storage facilities. This district includes special mission hangars and munition storage/maintenance areas.
- **Fire Station 4** is located at the AFRL in Building 8370. This station provides structural fire supression, technical rescue, HAZMAT, and EMS. Demand Zones within Fire District 4 include assembly, business, industrial and storage occupancies.
- **Fire Station 5** is located on North Base in Building 4456. Resources from the station provide ARFF, structural, technical rescue, HAZMAT, and EMS. Demand Zones within Fire District 5 include business, industrial, and storage facilities.

UNITED STATES AIR FORCE

Test Pilot School

(USAF TPS)

MISSION: Create highly-adaptive critical-thinking test leaders to accelerate multidomain capabilities to the warfighter

VISION: Impassioned leaders advancing war-winning capabilities

TEST MANAGEMENT PROJECT

The U.S. Air Force Test Pilot School (USAF TPS) is the world's premier institution for flight test education, training, and research. This is where the Air Force's top pilots, combat systems officers, and engineers learn how to lead and execute full-spectrum test and evaluation of aerospace weapons systems.

The USAF TPS Test Management Projects (TMP) are the student-led thesis projects for the master's level curriculum. These projects are a "cradle-to-grave" projects, during which the students plan, coordinate, execute, and report on a real-world test program. Although these projects are limited to no more than two weeks of actual flight test, they provide our customers a unique opportunity to fly on USAF TPS aircraft.

The most common TMPs fly on USAF C-12s, T-38s, or F-16s and occasionally the X-62A VISTA. Since these aircraft are USAF owned, the customer does not pay for flight hours or the student labor cost: although, the customer does support integration and pre-test engineering work. TMPs are not limited to these aircraft, but customers may have to pay flight hour costs for other aircraft. This provides a unique opportunity for smaller projects to use military aircraft and the unique test resources available in the Edwards AFB airspace.

In order to be a TMP customer, the project must have a U.S. government sponsor. A selection board is held twice a year to rank prospective projects based on their ability to meet TPS educational objectives, to benefit the warfighter and/or test community, and to meet the strict timeline associated with the TMP. TPS focuses on giving our students an opportunity to think critically about a complicated problem, come up with novel test techniques to gather test data, and to use peer-reviewed analysis techniques to develop data-supported conclusions. Finally, systems under test must be sufficiently mature to be able to meet a 2-week execution period that is fixed on the academic schedule. For further information, please contact the United States Air Force Test Pilot School at (661) 277-3000. ■

412TH TEST WING

Air Force Plant 42

"Vision to Victory!"

MISSION: Deliver timely, effective, efficient support, empowering development, production, flight test, and sustainment for the world's most advanced aerospace systems

VISION: Set conditions for innovative aerospace development, delivering next generation warfighter lethality!

Air Force Plant 42 is a government-owned, contractor-operated industrial plant located in the Antelope Valley approximately 60 miles northeast of Los Angeles with proximity to both the concentration of aerospace industry in Los Angeles and the restricted airspace and resources of Edwards AFB. The USAF has been using this site for aircraft testing and manufacturing purposes since 1935. Air Force Plant 42 supports an estimated 14,000 contractors and government employees, occupying more than 3.5 million square feet of plant space covering more than 5,700 acres with a replacement cost of $4.5 billion. The facility is uniquely situated to fully support the nation's newest and most advanced commercial and military aerospace systems. Air Force Plant 42 is one of four Air Force plants situated throughout the United States and managed by the Acquisition Environmental and Industrial Facilities Division at Wright-Patterson AFB. Plant 42 is unique in that it has a government-operated airfield complex and hosts three major defense contractors: Boeing, Lockheed-Martin, and Northrop Grumman. The mission of Production Flight Test Installation, Air Force Plant 42, is to provide industrial facilities for the production, modification, depot maintenance and flight test of U.S. aerospace systems. Some of the world's most advanced and successful aircraft were engineered, fabricated, assembled, and tested at Air Force Plant 42. Examples include the Space Shuttle, B-1, B-2, SR-71, F-117, X-32, X-35, X-47, X-51, B-21, RQ-4 series, and other unmanned aircraft. Air Force Plant 42 is composed of the following military units, as well as the three previously mentioned DOD contractors.

AIR FORCE PLANT 42, LIFE CYCLE MANAGEMENT CENTER, DETACHMENT 4

Located at Air Force Plant 42, Detachment 4, a unit of the Air Force Life Cycle Management Center at Wright-Patterson AFB, Ohio, through the Command & Control, Intelligence, Surveillance and Reconnaisance (C4ISR) Division at Robins AFB, Georgia, is the responsible test organization for planning, conducting, and reporting on all U-2 flight test programs. The unit conducts U-2 developmental and operational mission support and post-depot-maintenance acceptance flights. The unit also provides quality assurance oversight of depot and flight test maintenance activity and validates technical changes to the aircraft, equipment, and technical publications.

412 TW OPERATING LOCATION, AIR FORCE PLANT 42 CAPABILITIES

Operating Location Air Force Plant 42 is part of the 412 TW at Edwards AFB and provides command and control of the Air Force Plant 42 airfield complex and personnel that support the industrial facilities. The organization provides airfield management, business integration, civil engineering, contract management, environmental services, fire protection, crash and rescue, recovery, information technology, logistics, security, and ground, weapons, and flight safety for all of Air Force Plant 42.

The operating location includes an airfield with two 12,000-foot runways and an Assault Landing Zone available for operations 17.5 hours per day 7 days per week. Runway 4/22 is 150 feet wide, and Runway 7/25 is 200 feet wide, providing enhanced safety during aircraft testing. Airfield operating hours are 0530L-2200L, but an AFMC/A3 waiver allows uncontrolled airfield operations outside of the published airfield operating hours to support testing essential for in the national interest. Airfield management supports flight planning, scheduling, and airspace

management provided by FAA-contracted air traffic control tower services with a Class D airspace (4.3 NM radius – up to 2,500' AGL). Weather observation is provided by the 25th Operational Weather Squadron from Davis-Monthan AFB. The typical annual aircraft traffic count is just over 30,000 operations.

As a Production Flight Test Installation, we support ground taxi test and first flight of manned and unmanned production aircraft from Boeing, Lockheed Martin and Northrop Grumman. Testing includes development aircraft such as the B-21, X-47, X-51, X-59 QueSST and RQ-4 and various other unmanned aircraft. We also support functional check, acceptance flight, and delivery after periodic depot-level maintenance on B-2 and U-2 aircraft. Unmanned Aircraft Systems production testing includes 5 hours exclusive use of a runway and its adjoining primary taxiway to perform taxi and takeoff abort testing without interference with others requiring the use of the primary runway and ILS. First flight requires sanitizing the airspace and takeoff with chase aircraft, followed by a return of up to 23 hours later, resanitizing the airspace, and use of a chase aircraft again. Other aircraft support includes markings on the primary runway for USAF Test Pilot School targeted landings, NASA DC-8, ER-2 and G-III science test support missions. We also support California Air National Guard and Marine C-130 Random Shallow, Spiral Down, Assault Landing, and Night Vision Goggle operations.

Note: This facility has limited transient aircraft services. Please contact airfield management at (661) 275-9342 for further information.

With direct support from 412 TW Test Safety, we have the capability to support one-of-a-kind testing such as the C-17 arresting cable skip test, conducted to validate and rewrite Dash-One C-17 operational limits over arresting cable systems. Other typical test support includes C-17 rapid runway repair, F-16 hot brake limitations, and C-130 brake upgrade. Leased sites, owned by the Air Force but operated by aerospace contractors, provides additional capabilities for civil aircraft testing, such as Boeing 737 Max 10 wet runway brake testing and FAA certification flight testing of Boeing 787 and 747-8 aircraft. ■

412TH TEST WING

Mission Support Group

(412 MSG)

MISSION: Warfighters delivering agile mission support enabling war-winning capabilities

VISION: Breaking barriers to enhance mission execution

The Mission Support Group delivers combat- and test-enabling mission support to over 14,000 personnel assigned to Edwards AFB, the 412th Test Wing, the Air Force Research Laboratory, NASA's Armstrong Flight Research Center and 50 associate units on an installation spanning 308,000 acres.

THE 412TH SECURITY FORCES SQUADRON (412 SFS) provides integrated base defense and force protection for all Edwards' personnel and missions, while simultaneously preparing and deploying defenders in support of worldwide contingencies and combat operations. Additionally, the Combat Arms Section of the 412th SFS equips not only 412th Test Wing Airmen but Los Angeles AFB, Plant 42, March Air Reserve Base, Marine Corps Air Station Miramar, six local Army Units, Defense Criminal Investigative Services and NASA with cutting-edge, innovative marksmanship skills to enhance our nation's warfighting capabilities year-round.

THE 412TH COMMUNICATIONS SQUADRON (412 CS) operates and defends Edwards' cyberspace domain and is responsible for full-spectrum information technology capabilities to enable weapons system testing, evaluation, and development in order to deliver war-winning capabilities to our nation's combat air forces.

THE 412TH LOGISTICS READINESS SQUADRON (412 LRS) integrates transportation, fuel, supply and logistics planning to provide world-class support for the mission of Edwards AFB.

THE 412TH FORCE SUPPORT SQUADRON (412 FSS) enables the human warfighter, providing exceptional personnel and manpower administration, as well as morale, welfare, and recreation support programs and services for the entire community on Edwards AFB.

The 412th Mission Support Group also serves as the base liaison to the local school district, Army and Air Force Exchange Service, and Defense Commissary Agency.

412TH MSG

Security Forces Squadron (412 SFS)

MISSION: The 412th SFS defends the base through resilient, mission ready, and air-minded defenders who enable test

VISION: Positive communication, climate, culture, and conduct in order to contribute every day to The Center of the Aerospace Testing Universe

1. INVESTIGATIONS

- Provides investigation services for the majority of crimes on the installation to include larceny, assault, domestic violence, and drugs

2. FLIGHT OPERATIONS

- Provides day-to-day installation security through access control points and mobile patrols throughout the installation, law and order, and military working dog support

3. VISITOR CONTROL CENTER (VCC)

- Processes installation access pass requests
- Issues short-term installation access passes
- Processes and distributes Visitor Access Lists and Entry Authorization Lists

4. PASS AND REGISTRATION

- Answers customer service inquires on pass and registration procedures and operations in-person and over the phone
- Provides long-term visitor passes
- Restricted Area Badge issuing authority

5. REPORTS AND ANALYSES

- Unit administrative liaison between commanders and first sergeants for all base units and contractor agencies
- Conducts local records checks for law enforcement and official government agencies

6. ANTITERRORISM

- Provides local training and guidance on antiterrorism program management
- Coordinates with special events points of contact
- Conducts installation risk management

412TH MSG

Communications Squadron (412 CS)

MISSION: Defend, develop, and deliver agile cyber capabilities to empower test and evaluation excellence

VISION: Elite professionals breaking cyber barriers to advance the future of warfighting

1. COMMUNICATIONS SERVICES

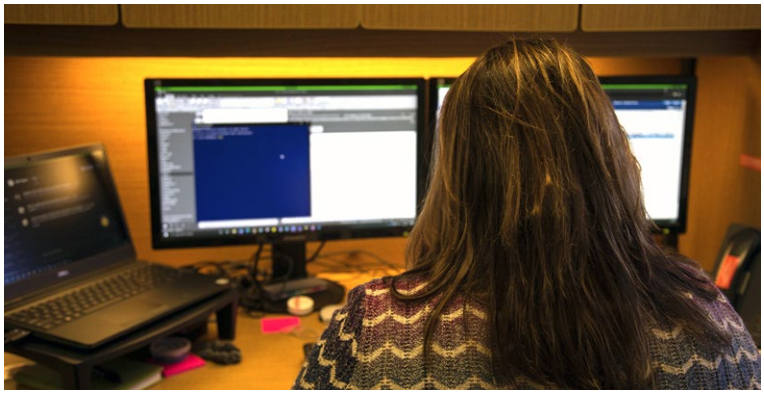
- COMSEC (Communications Security)
- Frequency/Spectrum Management
- Land Mobile Radio service
- Local, long distance, and DSN telephone services
- Outside plant (copper, fiber and antenna)
- Cyber Defensive Ops

2. CUSTOMER RELATIONS

- Agreements (Inter-Service Agreements, Memorandums of Agreement, Memorandums of Understanding, Service Level Agreements)
- Capability and Resource Estimates
- Change and Configuration Management
- Wing Cyber Office/Secure Internet Protocol Router (SIPR) Café

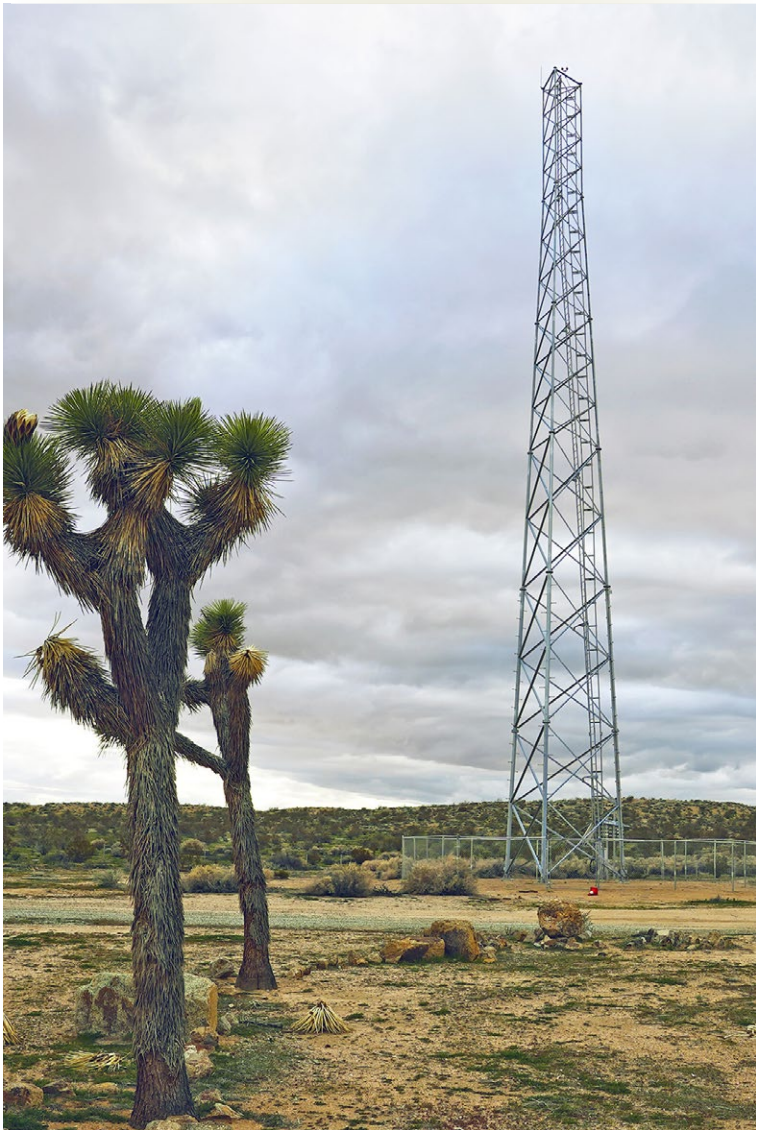
3. INFORMATION TECHNOLOGY SOLUTIONS

- Infrastructure planning and installation
- IT project management
- Software development and testing
- Enterprise Data Center



INNOVATION PROJECT

The 412 CS Innovation Project leveraged tower space for future cell phone equipment with AT&T, Verizon, and T-Mobile. The project positions the squadron to deliver significant emergency response and quality of life upgrades for current and future customers and base residents.



412TH MSG

Logistics Readiness Squadron (412 LRS)

MISSION: Warfighters delivering global logistics support for The Center of the Aerospace Testing Universe

VISION: A professional, cohesive team ready to provide diverse on-target logistics support

1. BASE SUPPORT VEHICLES AND EQUIPMENT (BSV&E) MANAGEMENT, OPERATIONS, AND PROCUREMENT

- Provides efficient and economical transportation capabilities to support mission requirements.

2. PETROLEUM AND CRYOGENICS

- Provides specification aviation, ground, and alternative fuels to the installation and tenant organizations, including cryogenic products, to facilitate base operating support functions and aircraft sortie generations.

3. SUPPLY, STORAGE, AND DISTRIBUTION (NON-MUNITIONS)

- Implements actions associated with storage and shipment of materiel and products in all classes of supply except Class V and Class VIII, as defined in Joint Publication 4-09.

4. INSTALLATIONS MOVEMENT

- Plans, manages, and executes movement activities including movement of passengers, cargo, and personal property.

412TH MSG

Force Support Squadron (412 FSS)

MISSION: The 412th Force Support Squadron enables test

VISION: Every day, we contribute to The Center of the Aerospace Testing Universe

1. SUSTAINMENT SERVICES

- Provides dining and lodging support
- Directs the Fitness and Sports Complex
- Provides meeting, training, and private event spaces

2. CIVILIAN PERSONNEL/MILITARY PERSONNEL MANPOWER AND ORGANIZATION SUPPORT

- Provides military and civilian human resourcing guidance and expertise
- Assists leaders with organization structure composition and determining requirements

3. COMMUNITY SERVICES/RESOURCE MANAGEMENT

- Delivers a multitude of community services across the installation
- Manages the Morale, Welfare, and Recreation programs

412TH TEST WING

Medical Group
(412 MDG)

MISSION: Power Readiness and Innovation through Healthcare Excellence

VISION: Unified Medics fueling a ready, fit force to Fly, Fight and Win… Anytime, anywhere through modernized healthcare

PARAMEDIC AMBULANCE SERVICES

Ambulances on the installation are staged at three strategic locations. Each has the capability for Advanced Life Support (ALS).

1 MAIN CLINIC (BUILDING 5525)

- Distance from furthest housing = 1.6 miles/ 5 minutes
- Distance from furthest range = 26 miles/ 40 minutes
- Average response time = 8 minutes
- Average transport time to nearest Emergency Room (ER) = 40 minutes

2 FLIGHT MEDICINE (BUILDING 3925)

- Immediate access/response to the Flight Line
- The ALS EMS crews conduct In Flight Emergency (IFE) responses after-hours in conjunction with Fire and Emergency Services. All ambulances are equipped with Continuous Positive Airway Pressure Device, regulators, and green oxygen bottles. Flight Medicine has primary Basic Life Support response for IFEs. 412 MDG EMS ALS along with F&ES would respond and 412 MDG EMS would transport during and after duty hours.

3 AIR FORCE RESEARCH LAB (BUILDING 8255)

- Distance from work areas = 3 miles/10 minutes
- Distance from range = 2 miles/5 minutes
- Average response time = 8 minutes
- Average transport time to nearest ER = 60+ minutes

The Medical Treatment Facility (MTF) provides interfacility medical transportation as needed. Edwards AFB does not have an Emergency Room or any Emergency Room providers, but the MTF will dispatch an ALS ambulance for interfacility transportation as required by Kern County regulations and protocols.

AIR TRANSPORT MEDICAL SERVICES

Life Flight services are coordinated through the Emergency Communication Center and Emergency Medical Dispatch, an off-base support network.

- Average flight time from Edwards AFB to the nearest trauma center = 10-20 minutes

OFF-INSTALLATION MEDICAL SERVICES

Memorandums of Agreement are in place with Palmdale Regional Hospital, Antelope Valley Medical Center, and Antelope Ambulance that establish procedures for Joint Emergency Planning and emergency

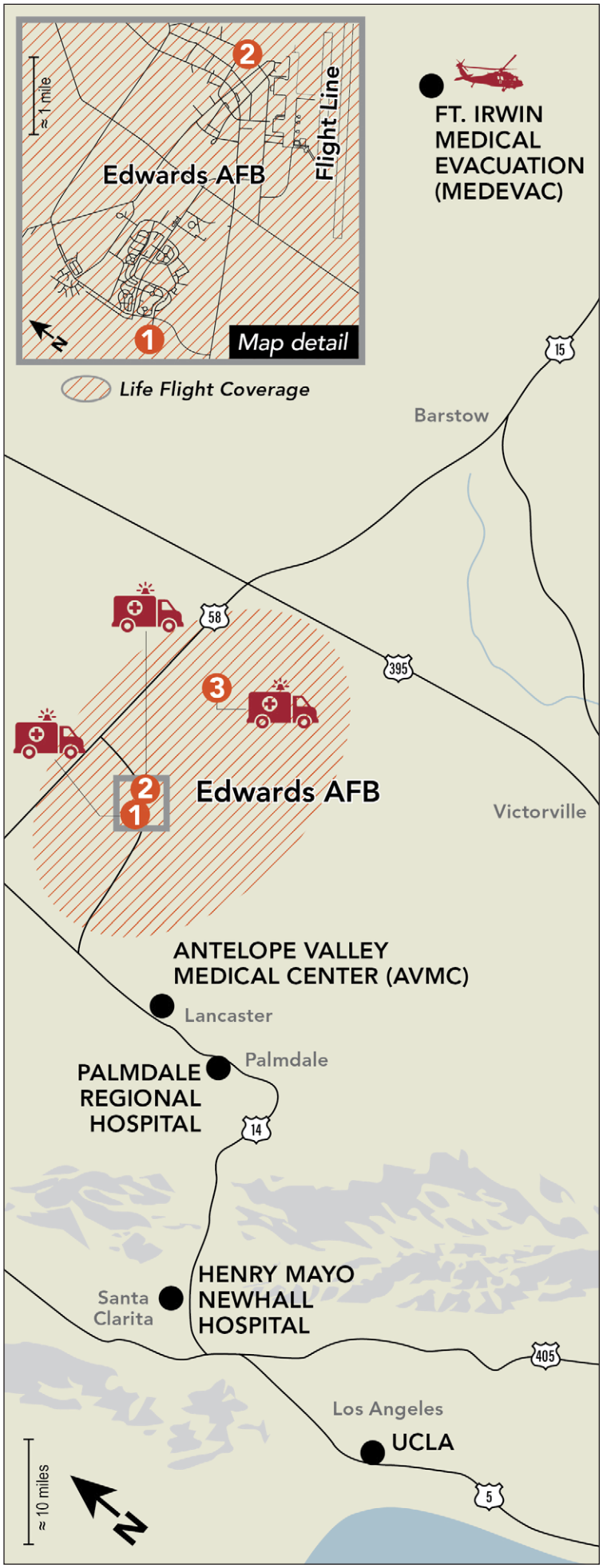
operations as needed. Ft. Irwin Medical Evacuation (MEDEVAC) may also be used if local resources are unavailable.

NEAREST LEVEL I TRAUMA CENTER:

- Multiple Level I Trauma Centers are available in the Los Angeles area.
- UCLA includes Decompression Facility = 98 miles/100+ minutes

NEAREST LEVEL II TRAUMA CENTER:

- AVMC = 28 Miles/35 minutes; includes nearest stroke, cardiac, burn, and pediatric trauma centers
- Henry Mayo Newhall Hospital = 72 miles/ 75 minutes ■



412TH TEST WING

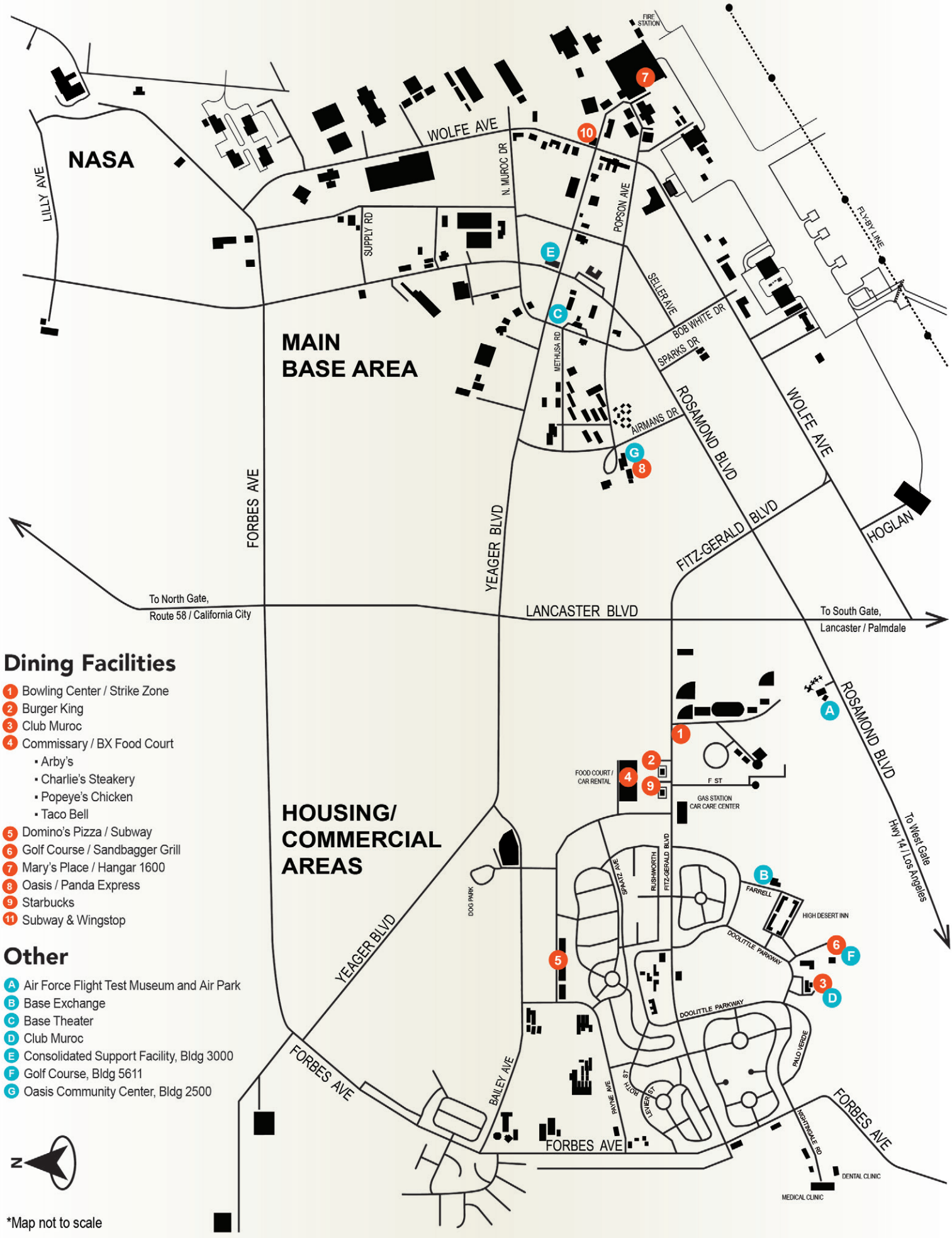
Public Affairs

(412 TW/PA)

ROLE: We support the commander by engaging various audiences with credible, timely and accurate information to strengthen support for our mission, workforce and families; we leverage that information – while enhancing operational security – to achieve global operational effects; and we produce multimedia products that advance wing objectives.

Public Affairs employs a robust and experienced team to meet the diverse requirements of the flight test enterprise for DOD and its strategic mission partners. We provide leaders advice and counsel on policy, and our capabilities include story development and speech writing, social media engagement and website maintenance, world-class graphic design and print production, and photography and videography, all ensuring operationally secure, professional coverage and support of test activities, people and programs. Public Affairs is the point of contact for photo authorization letters for flightline and lakebed area photography, and sole authority for any public release of information relating to Edwards AFB or Air Force Plant 42.

Public Affairs also includes the Air Force's only civilian aerial photography team devoted to flight test documentation – PCI Productions. The team provides high-resolution still and video imagery used for safety and data analysis by engineers and other test teams. Imagery includes high-speed video that captures events at thousands of frames-per-second – events too fast to be seen by the human eye – such as in-flight weapon separations, parachute or airdrop sequences, and other flight test activity. PCI imagery has a direct impact on each subsequent mission and helps tell a complete and accurate programmatic story while providing vital test documentation for DOD. ■



Dining Facilities

1. Bowling Center / Strike Zone
2. Burger King
3. Club Muroc
4. Commissary / BX Food Court
   - Arby's
   - Charlie's Steakery
   - Popeye's Chicken
   - Taco Bell
5. Domino's Pizza / Subway
6. Golf Course / Sandbagger Grill
7. Mary's Place / Hangar 1600
8. Oasis / Panda Express
9. Starbucks
11. Subway & Wingstop

Other

- A Air Force Flight Test Museum and Air Park
- B Base Exchange
- C Base Theater
- D Club Muroc
- E Consolidated Support Facility, Bldg 3000
- F Golf Course, Bldg 5611
- G Oasis Community Center, Bldg 2500

*Map not to scale

U.S. AIR FORCE™

For assistance or additional information about testing at Edwards,
scan the QR code, or email: 412TW.IPOC@us.af.mil

www.edwards.af.mil