Natural Disaster Recovery Division

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AFCEC/CFDP

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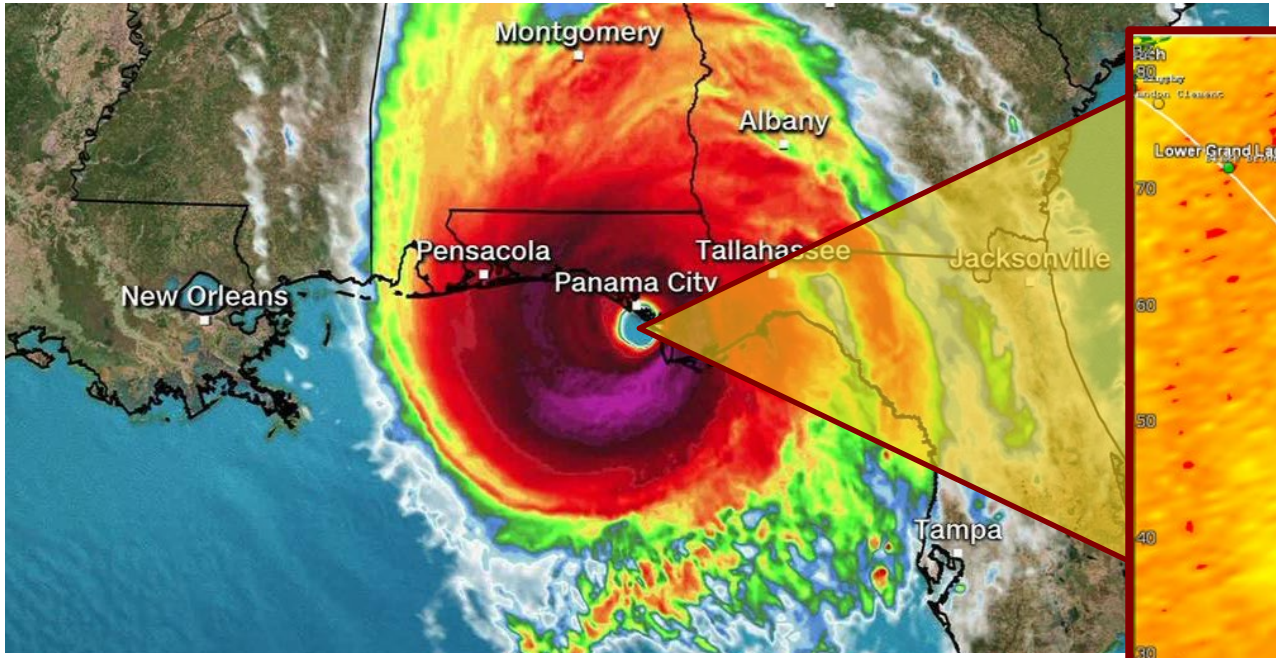
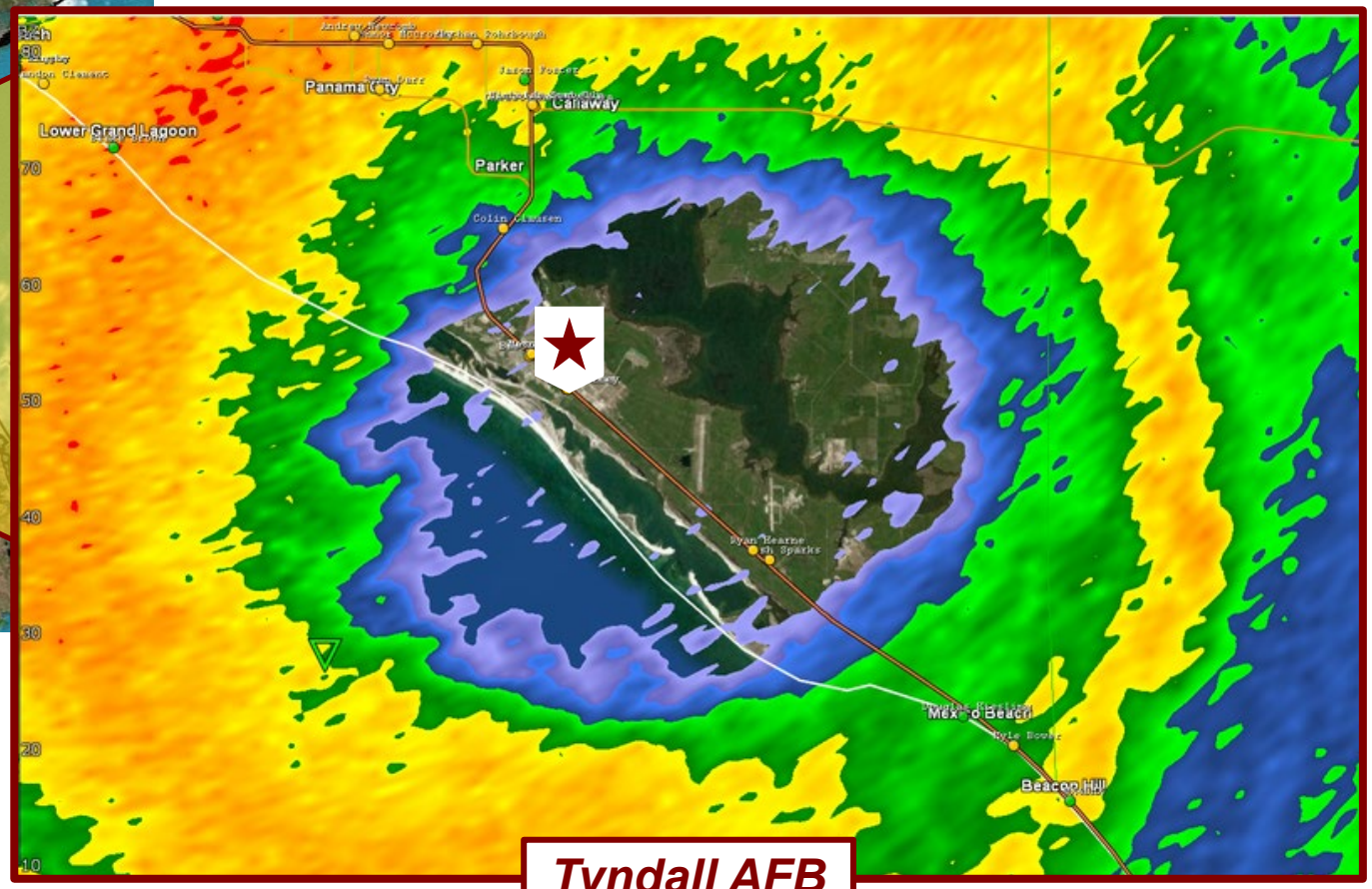
Views expressed are my own and do not necessarily represent the views of the DoD or the Air or Space Force.

Hurricane Michael





CAT 5	161	17.5'
Storm Rating	MPH Winds	Storm Surge

The Aftermath

Motor Pool

Hangar 5

Early Days After Hurricane Michael

SECAF Guidance

Honorable Heather Wilson
Former Secretary of the Air Force

Build the base we need, not the base we had – rebuild Tyndall AFB as the model 21st Century Installation

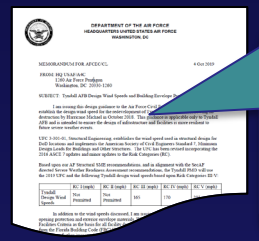
Plan for three (3) F-35 squadrons by 2023

Build "The Air Force Installation of the Future"

Meet current, anticipated, and future mission requirements

Tyndall Installation of the Future (IotF)

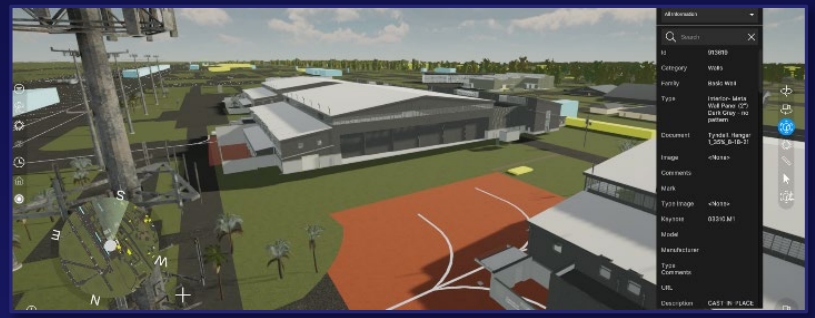
Resilient



"This guidance…is intended to ensure the design of infrastructure and facilities is more resilient to future severe weather events."

Innovative

Digital



Gunshot Detection & Real-Time Occupancy

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Resilient: Installation Facility Standards

1. Designs include increased **energy resilience, smart facility controls,** and **regionally appropriate designs**.

2. **Durable** and **low maintenance** materials are used.

3. **Updated design flood elevations** require all facilities to be sited and designed at higher points above sea level.

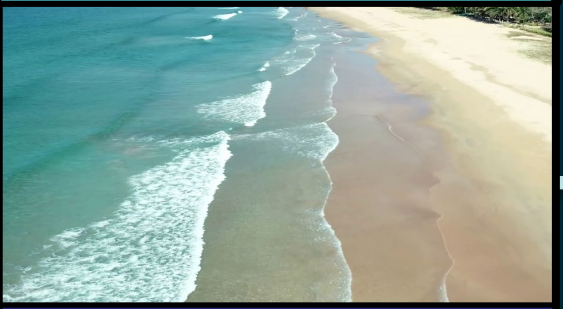
4. Building envelope materials meet **Florida High Velocity Hurricane Zone standards.**

5. Facility shape supports **updated wind load** and **structural standards**.

Resilient: Nature-Based Coastal Resilience (Pilot Projects)

Living Shoreline (REPI)

Coastal Dune Restoration (USFWS)



Submerged Shoreline (REPI)

NDR

Non-NDR

Oyster Reef (REPI)

Reefense (DARPA)

Seagrass Enhancement (RESTORE)

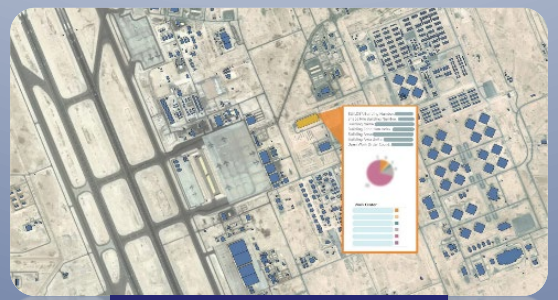
Innovative: Civil Engineering

NecoPave
Automatic asphalt fill and repair machine for use on existing roadways; increasing the efficiency of pavement repairs

Easy Aerial
Tethered drone system enhancing situational awareness for decision makers from airfield lighting to monitoring installation infrastructure

Sensytec
Sensor that monitors temperature and electrical resistivity for assessment of concrete structural damage and soil contamination

Renu
Autonomous Mowers



JARVIS
Facility Data Integrator

Spector
AR Training

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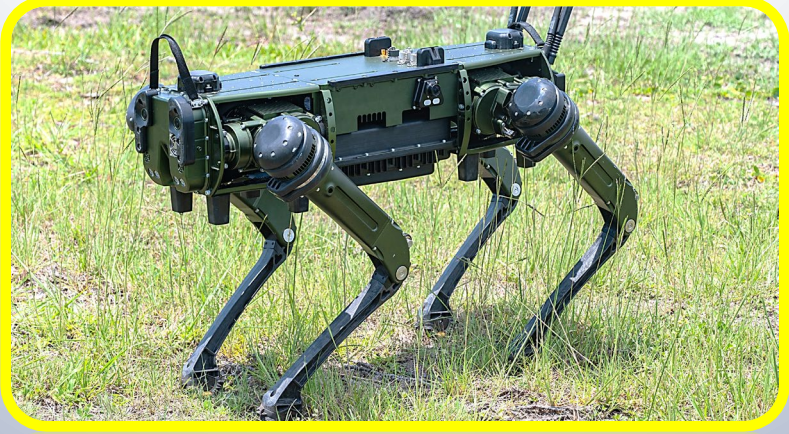
Innovative: Security Forces

ZeroEyes DeepZero
Firearm detection software that integrates with existing security cameras



Ghost Robotics Q-UGV
Mobile sensing platform for patrolling remote locations and perimeter surveillance of austere environments

Valitus
Modular LED streetlight with five 4K cameras originally purchased to detect unauthorized flight line access

ARES AVERT
Modeling/Simulation Tool

Anduril WISP
Detect/Track Objects in Air

DFT-AF Force Protection Kit
Perimeter Surveillance

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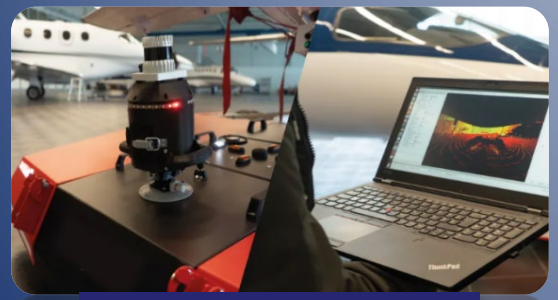
Innovative: Additional Mission Partners

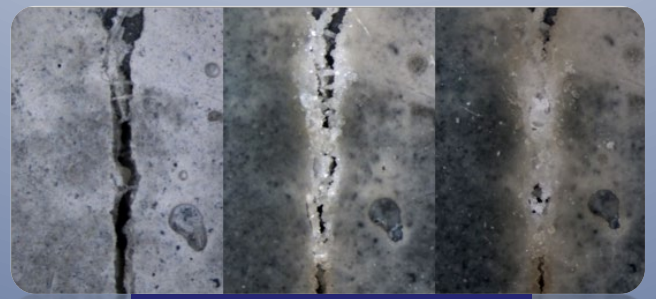
TRAXyL
Rapid, low-cost optical fiber deployment; allows the ability to place connection on the flight line without trenching

MVACIS
Mobile X-Ray Inspection Platform to enhance security checkpoint operations in remote locations

Oreyeon
Truck mounted FOD and pavement detection equipment that captures FOD and pavement deformation locations on the airfield



Evitado
Ground Collision Avoidance



Enzymatic
Self-Healing Concrete

Grey Gecko
Scanning tool

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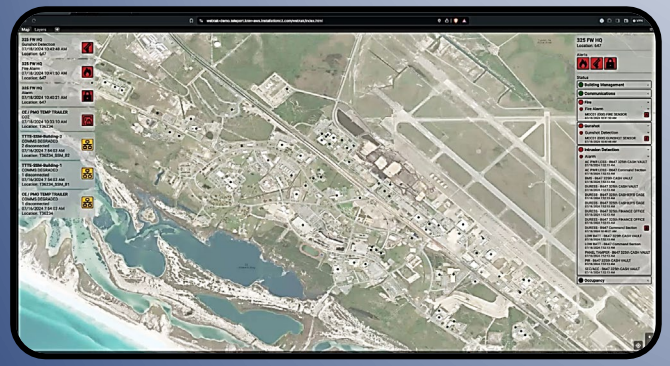
Digital



Installation Resilience Operations Command & Control (IROC)

Cloud-connected C2 data fusion framework that enables rapid deployment of new Operational Technology (OT) systems, sensors, and secures legacy equipment

Digital Twin (DT)

3D modeling platform visualizing installation engineering data and performing multiple scenario simulations, enabling data-driven decision making

Innovations Digital

"Near life-like virtual representation of the physical world"

- Accelerate **data-driven** decision-making with **intuitive visualization**
- Empower organizations through **modeling and simulation** capabilities

DIGITIZE

- Reality capture of assets through multiple sensor and scanning platforms.

CENTRALIZE

- Connect and explore diverse, interrelated datasets, from SMS to BIM to geospatial.

DEMOCRATIZE

- Intuitive platform makes data available to both technical and non-technical users across the Air Force enterprise.

UTILIZE

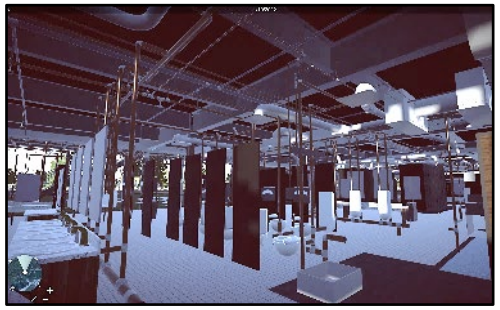
- Flexible, scalable model enables countless use cases across many installation and mission stakeholders.

STATUS

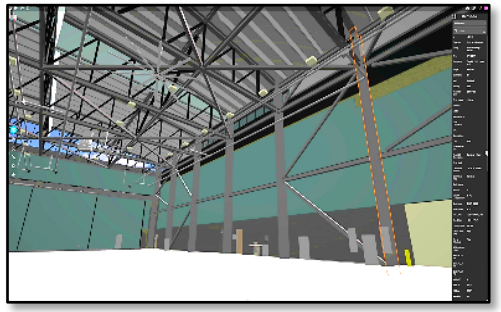
- 77 existing facilities; 116 new facilities
- FY25 priority: Authority to Operate (ATO) & Expand CE support use cases

Digital Twin Use Cases

Master Planning



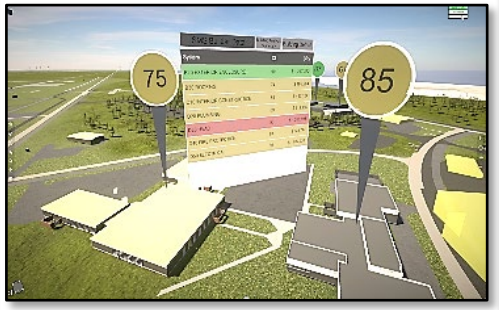
Library of 3D BIM and Integrated Data



Asset Data Visualization

Visualize and iterate designs faster to reduce re-work and garner buy-in prior to implementation.

Operations & Maintenance



AI-Driven Condition Analysis

Augmented Reality Vision

Leverage remote sensing and IoT to improve visibility, accuracy, & speed in monitoring.

Base Defense

Active Shooter Modeling and Analysis

Active Shooter Response Training in VR

Assess, train, and respond to security threats in virtual representations of physical world.

Resilience

Storm Surge Modeling

Facility Sensor Monitoring

Simulate scenarios and their impact on resilience, stakeholders and operational effectiveness.

Construction Logistics

Construction Progress Modeling

Tyndall Traffic Simulation Modeling

Monitor and Optimize Construction Logistics through full-motion video, artificial intelligence and simulation

FOUNDATION FOR DIGITAL TRANSFORMATION

Installation Resilience Operations Command & Control (IROC)

Definition:

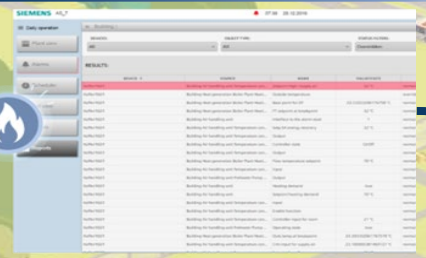
IROC is a control architecture connecting previously isolated Operational Technology (OT) data, providing decision makers with real-time, secure information to make timely and informed decisions, thereby improving overall resilience

Overview:

- IROC addresses evolving threats, optimizes mission operations by delivering real-time, secure data for better decision-making and increased efficiency
- Seamlessly secures cross-functional management of multiple systems (i.e., security, lighting, HVAC) into one platform

IROC: Improving Situational Awareness

CE Ops - Desigo Desktop

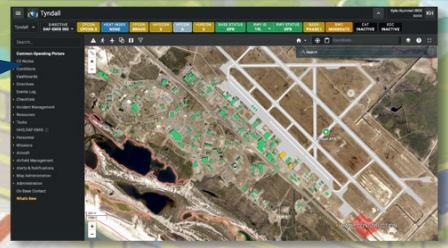


CE Ops - NexGen

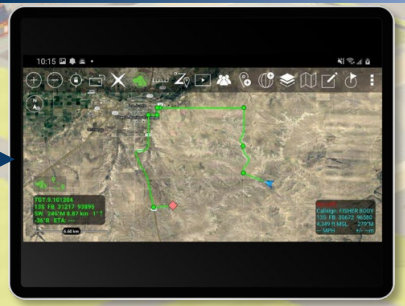
CE Ops – BUILDER SMS

IROC Data Lake

Incident Command COP



TAK Mobile



Installation COP

SFS BDOC Operator

Fire Chief

EOC Director

AFCEC/CC

AFCEC/CO

BLADE

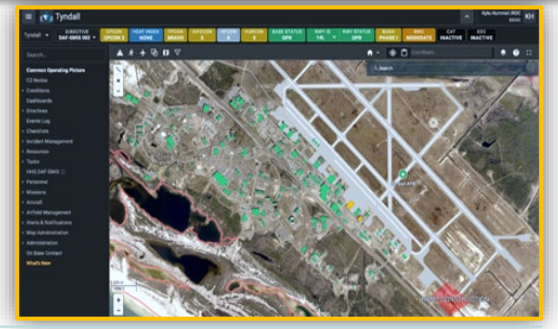
Anyone, anywhere with CAC and Authorization

Tyndall IROC Deployment

- **Current Deployment:**
  - Deployed in 125 buildings (Tyndall AFB)
  - Systems: EMCS, FA/MNS, IDS, Gunshot Detection
- **Pending Deployments:**
  - Additional Systems: AMRS, ALCS, VBDS, Intermesh
  - Local analytics and visualizations for self-service monitoring
  - Data integration into BLADE/ADVANA for broader awareness
- **Future Deployments:**
  - Video Management System
  - Fuel level monitoring

Forecasted IROC Benefits

- **Right Data: Operational Effectiveness**
  - Enhances data-driven decisions, enables effective installation operations & management
  - Integrates multiple systems to single Common Operating Picture, streamlining capabilities
  - Leverage AI/ML for key data insights optimizing resource allocation, leading to cost savings



- **Right Time: Enhanced Resilience**
  - Quickly adapts to disruptions, whether from natural disasters or system failures
  - Provides a robust framework to ensure critical operations are never compromised
  - Enables the base to maintain operational readiness even under adverse conditions

- **Right People: Cost Savings**
  - Minimizes costly repairs and downtime by identifying early through predictive maintenance
  - Reduces energy consumption and maintenance costs through efficient operations
  - Provides long-term savings —extend life of infrastructure and equipment

Natural Disaster Recovery Division

Tyndall Air Force Base

44
PROJECTS

120
FACILITIES

$3.2B
COST

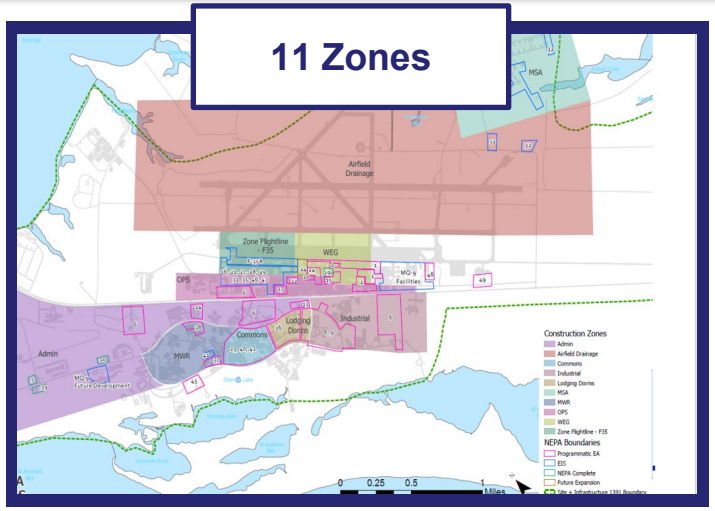
ESTIMATED MILCON PROGRAM COMPLETION **2027**

Community Commons
←

MWR Marina
→

Tyndall Program Scope

$5.3B Program



11 Zones

~260 FSRM Projects

44 Projects = 120 Facilities

Demolish 594/735 Facilities

Over 3,000 Skilled Craft Labor

FSRM: Facility Sustainment, Restoration, & Modernization

2854 Projects

Fire Station #2

WEG Large Boat Facility

Zone 1 – F-35 Flightline Facilities

Zone 1 Aerial

Hangar 1

Zone 2 – Flightline Operations

Fire Truck / Material Handling Equipment Maintenance Facility

Operations Support Squadron Facility

Zone 3 – Weapons Evaluation Group (WEG)

HQ WEG Complex

WEG Subscale Drone Facility

Zone 4 – Infrastructure

Tyndall Gate

Commercial Gate

Zone 5 – Industrial Areas

Explosive Ordnance Disposal Facility

Civil Engineering Headquarters

Zone 7 – Munitions Storage Area

Air Support Equipment Shop

Line Delivery Facility

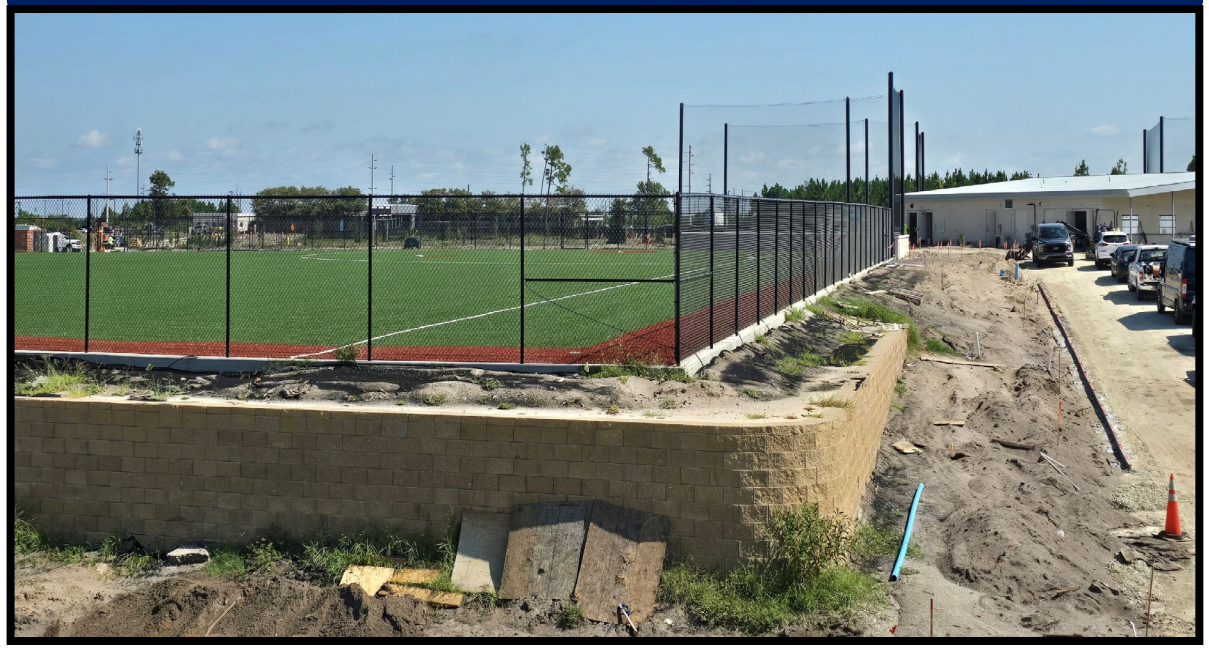
Zone 8 – Administration

325TH FIGHTER WING HEADQUARTERS

SMALL ARMS RANGE FACILITY

Zone 9 – Morale, Welfare, & Recreation

Ballfield and Recreational Facility



Marina

Zone 10 – Lodging/Dorms

Dormitory Complex #1

Lodging Facility

Zone 11 – Community Commons

Library and Arts & Crafts

Child Development Center

Zone 12 – Silver Flag

Silver Flag Technical Training Facility

Silver Flag Vehicle Maintenance Facility

IROC WebTAK Demo

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Fly-Fight-Win

NATURAL DISASTER RECOVERY DIVISION
AIR FORCE CIVIL ENGINEER CENTER
ENVISION • REBUILD • PREVAIL

Questions?