Installation Facilities Standards
Overview & Background

Tyndall Air Force Base
Installation of the Future

U.S. Air Force

Installation Facilities Standards
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INTRODUCTION
This Overview & Background provides an accurate account of Hurricane Michael damage at Tyndall Air Force Base (AFB).

While planning efforts are underway to design and rebuild Tyndall AFB, this package records a deep-dive analysis into the conditions at Tyndall AFB before and following Hurricane Michael.

Through the process of mapping the Installation’s features in its current state—post-hurricane and pre-restoration—planning and design of the future state will move forward with a solid foundation informed by thorough data collection and analysis.
On 10 October 2018, Tyndall AFB was hit by Category 5 Hurricane Michael, the strongest sustained wind-speed hurricane to hit the continental U.S. in more than 25 years.

Originally classified as a Category 4, the National Weather Service upgraded the hurricane after the damage had been surveyed.

Before the storm hit, 3,600 Installation personnel and their families (more than 11,000 people) were evacuated—just 93 personnel remained on Tyndall AFB during the storm.
Every Tyndall AFB facility suffered some degree of damage from Hurricane Michael's severe winds, storm surge, and heavy rainfall.

Infrastructure, including utilities, roads, and pavement, also were impacted. The extent of the damage on more than 200 buildings rendered them unsalvageable from an economic standpoint.

The Gulf Range is the most vital asset for the Air Force in the area. Before the hurricane, the airfield supported multiple missions for both U.S. armed forces and foreign military forces, in addition to supporting the 325th Fighter Wing (325th FW) mission.

Some of the facilities are classified as historic. Hangar 5, pictured on the right, was built during World War II.
Shortly after Hurricane Michael, multiple task forces were assembled to assist the 325th FW facilitate the Installation’s recovery. Task forces were directed to assess damage to Installation facilities and infrastructure, determine asset usability, and preserve future mission capability.

Because of extensive hurricane damage, Tyndall AFB has an opportunity to implement several long-range planning objectives from its Installation Development Plan and its 21st Century Installation Concepts.

The rebuilding of Tyndall AFB is underway, with initial planning to fund major investments moving forward. Several existing missions will continue, while others will move to different locations.

The reconstruction provides an opportunity to achieve the key objectives listed below, supporting Tyndall AFB’s vision as a 21st Century Installation:

• Size and locate facilities to improve organizational efficiencies and improve the base’s resiliency, sustainability, and adaptability
• Meet current and proposed mission requirements into the 21st Century
• Improve mission efficiencies by realigning mission sets to influence short-and long-term redevelopment
• Provide capacity for future growth
CREATING THE INSTALLATION OF THE FUTURE

Rebuilding Tyndall AFB offers an opportunity to design and construct the Installation of the Future. Initial planning is underway to determine how best to approach this massive undertaking. In November 2018, it was determined that several existing missions would endure, a new F-35 mission would be added, and other missions would move, framing the majority of the Installation’s future mission requirements.

The rebuilding effort must incorporate planning and design strategies that support operational readiness and efficiency; create a secure, resilient environment; address flood and storm surge risks; and consolidate development to use land efficiently.

A consolidated development will support the creation of a walkable community with a sense of place that is more cost-effective with regard to infrastructure and lifecycle costs.

Some of the development strategies that should be used in the re-imagining of Tyndall AFB are listed at the right.
A Recovery Plan and Analysis of Alternatives Report was submitted in Spring 2019. The document contains an illustrative Master Plan (as shown to the right) serving as a launching point and guidance for site planning and DD 1391 program efforts.
When it came to putting together the 42 DD 1391 packages to fund the rebuild strategy, Tyndall AFB and U.S. Air Force (USAF) personnel requested a more robust consideration for resilience, given the Installation’s coastal, hurricane-prone location. Emphasis was placed on resilience to extreme weather, storm surge, and flooding as a priority planning consideration. Sustainability also is a planning priority that pursues cost-saving resource efficiencies, improved environmental performance, and augmentation of resilience performance.

The overall process followed to identify and prioritize concepts to increase resilience and sustainability performance for buildings, utilities, and infrastructure in the DD 1391s included:

- **Policy and Information Review.** Review of relevant USAF policy and planning documents to identify design criteria and/or concepts to achieve the desired level of resilience and sustainability performance. The process included review of available storm data regarding hurricane intensity, storm surge, flooding, and sea level rise.
- **Identification and prioritization of utility/infrastructure concepts.** A network of technologists was engaged to identify resilience and sustainability concepts. Prioritization required engagement and alignment with a range of Tyndall AFB personnel and USAF departments. The current Master Plan was used as the Installation map for the effort.
- **Development of DD 1391 Inputs.** Incorporation of resilience and sustainability requirements and concepts into the requirements and cost estimates were included in the DD 1391 funding requests.

An important, overarching, guiding principle for the effort was that the DD 1391 package would focus on new construction required for Hurricane Michael recovery. It became an important constraint in the conceptualization of resilience, sustainability, and smart technology recommendations, meaning some ideas would increase resilience and sustainability performance at Tyndall AFB but could not be specifically classified as part of the recovery effort.
Collaboration among subject matter experts, utility design teams, USAF, and Tyndall AFB stakeholders produced utility and infrastructure concepts organized into performance categories of Baseline, Better, and Best. The process was guided by the “5 Rs” Energy Resilience framework used by the Deputy Assistant Secretary of the Air Force for Environment, Safety and Infrastructure. The framework is based on the definition of resilience as the “ability to prepare for and recover from disruptions that impact mission assurance.”

- **Robustness.** This aspect focuses on the extent to which a system can absorb an impact or prevent the impact from spreading to other parts of the system.

- **Redundancy.** This aspect focuses on the extent to which a system has excess capacity or a diversity of methods in which it can continue to provide the required level of service. Multiple sources of energy, microgrids, expanded fuel storage, and backup water supplies are good examples of concepts that provide redundancy.

- **Resourcefulness.** This aspect focuses on the extent to which a system can adapt when impacted during a risk event and the speed with which it adapts.

- **Response and Recovery.** These aspects focus on the ability to activate systems during a risk event that mitigate impacts and enable systems to return quickly to a defined requisite level of operation.

Each aspect of the 5 Rs framework includes management systems, training, emergency response planning, external partnerships, and other procedures to achieve the intended resilience performance objectives.
To facilitate the progression of the built environment from its current state to its desired end state, the team assembled data from the building surveys and the Master Plan. Every building that needed to be replaced must go through the approval process sanctioned by Congress. Therefore, a complete inventory of demolition projects was compiled to determine what facilities would need to be replaced. The decision matrices used to inform this list compilation are explained in Chapter 3.

Three demolition categories were identified to bring the current site layout to the end state, including those buildings that have already been demolished, those that are scheduled for demolition due to damage, and buildings that will be demolished to facilitate the arrangement of the Master Plan.
Proposed buildings submitted for approval and funding during fiscal years 2019 and 2020 totaled more than 2.3 million square feet. Nearly 8 miles of roadways, complete pedestrian/bicycle network, major utility backbone, and three entry control facilities were included to support these buildings.

Each project was presented in DD 1391 format that detailed the typology, program, size, orientation, site plan, and cost estimate, including 10% architectural design cost. These projects were comprised of mission-dependent facilities and were sited with reference to the Master Plan. The orientation, infrastructure, and cost estimates incorporated the strategies for sustainability and resiliency as they had been identified and prioritized through the development process.
Four USAF bases are located in Florida: Eglin, Tyndall, MacDill, and Patrick. Additional field offices, stations, ranges, and reserve bases support the mission in this coastal state.

Tyndall AFB is located in Bay County, on Florida’s northwest coast.
Tyndall AFB is located on approximately 30,000 acres in Bay County on the coast of the Gulf of Mexico. The nearest municipality is Panama City to the northwest.

Eglin AFB is located 90 miles northwest on Choctawhatchee Bay.

Tyndall AFB has been identified as a strategic Installation with a unique location by the Armed Forces of the United States. The associated Air Space Rights over the Gulf of Mexico are an important component supporting the Installation’s mission.
The area surrounding Tyndall AFB comprises two mid-sized cities and five small communities. Panama City (population 37,000) and Panama City Beach (population 12,500) rely on and support Tyndall AFB. Other surrounding communities include Parker, Callaway, Springfield, Lynn Haven, and Mexico Beach. The cities are a mix of residential, commercial, and industrial land uses.

The federal government is the largest employer in the metro area, with Tyndall AFB providing the vast majority of jobs. Additionally, tourism plays a role in the economy. Most land outside the municipalities and adjacent to Tyndall AFB is zoned for agricultural purposes.
The Installation is situated on a peninsula with East Bay to the north and Gulf of Mexico to the south. Main access to the Installation is via U.S. Highway 98, which connects Tyndall AFB to Panama City via a causeway. U.S. Highway 98 continues east from Tyndall to Mexico Beach and other locations along the Florida panhandle.

Improvements to U.S. Highway 98 are planned by the Florida Department of Transportation, including two overpasses within the Tyndall footprint (Tyndall/Airey and Louisiana). The Tyndall/Airey overpass will include a single point interchange providing access to/from the Tyndall and Airey entry control facilities. The overpass at Louisiana will not include any access to/from U.S. Highway 98 but will allow Installation traffic to pass under the highway while staying within the secured perimeter of Tyndall AFB.

The Port of Panama City serves as the nearest seaport to Tyndall AFB while NW Florida Beaches International Airport serves as the nearest primary airport with more than 500,000 enplanements in 2018.
Bay County is considered an emergency evacuation zone by state authorities and has designated the streets shown in blue as evacuation routes. U.S. Highway 98, which bisects Tyndall AFB, is part of an emergency evacuation route.
Tyndall AFB served as a critical mission function training F-22 Raptor pilots and maintenance personnel to support combat Air Forces. The Installation also supports headquarters for 1 AFNORTH, Air Control Squadron, RPA Training, 53 Weapons Evaluation Group, AFCEC, and others. Future plans call for up to three F-35 squadrons, Reaper Wing, associated groups and squadrons, and MQ9 beddown.

The original Installation has a dispersed development pattern. The flightline was developed based on the linear layout created by the boundaries of the runways and U.S. Highway 98. The areas around the highway were built in a suburban pattern with space between facilities. The housing area, located several miles to the west, is separate from other parts of the Installation. Additional mission elements, including the drone runway and training area, are in isolated locations both east and west of the airfield. As a result, vehicles are required to move between housing and work and between the facilities.
The development suitability map was derived through an overlay analysis of environmental and cultural constraints. Any land located within a wetland is deemed not capable of being developed. For the remaining land within the Installation, the following areas receive negative values: 100 Year Floodplain, Storm Surge Zones 1 through 5, Cultural Resource Areas, Contaminated Zones, and elevation below 19 feet. Areas with the most negative values were deemed least suitable for development.
The storm surge from a Category 5 event such as Hurricane Michael produces walls of water greater than 9 feet in height when making landfall. It can be particularly devastating in Tyndall AFB’s case because water surges from both the coast and the bay.
The elevation on the Installation ranges from 0 to 30 feet, as depicted on this map, with the high point shown in white.
Based on the environmental factors shown previously, Design Flood Elevations (DFE) have been determined. This follows the Federal Emergency Management Agency’s (FEMA’s) definition of the elevation of the highest flood for which well-designed facilities can be protected. On the bay side, the DFE is 14 feet. On the gulf side, the DFE is 19 feet. Areas that meet or exceed this criteria are highlighted in yellow.
The Installation has been divided into seven land management districts. These districts serve to section Tyndall AFB by land use and function.
The Site Inventory and Analysis describes the existing conditions of the development districts that will be directly impacted during the rebuilding process. It is a compilation of past and current factors that could impact present and future development. This document demonstrates how the components listed have both direct (physical) and indirect (cost) effects to the restoration of the Installation.

The combination of these factors provides a visualization of optimal areas for development. These Developable Areas will inform the Master Plan and Site Plans of where the desired opportunities exist.

Data categories include:

• Cultural & Historical Significance
  • Cultural Survey
  • Tribal Input

• Operational Constraints
  • Radar & NAVAIDS
  • Airspace
  • Airfield Accident Zones
  • ESQD Arcs
  • Apron Setbacks
  • TOFA

• Building Infrastructure
  • Current Buildings & Structures

• Utility Infrastructure
  • Connections & Hookups

• Transportation Network
  • Pavement Conditions
  • Access Routes
  • Parking Locations

• Site Planning & Operations
  • Land Use
  • Building Functions (FOVS)
  • Land Management Zoning
  • Demolition Strategy

• Environmental Factors
  • Stormwater Management
  • Natural & Manmade Landforms
  • Geotechnical Findings (pending)
  • Contamination Remediation
  • Wetlands
  • Floodplain
  • Build-to Elevation (14 feet)
  • Coastal Buffer Zones
  • High Noise Levels
  • National Environmental Policy Act (NEPA) Boundaries for Development

• Developable Areas / Opportunities
  • Master Plan
  • Site Plans
  • Transition Execution
Many resources have been made available to the team during the analysis and planning phases. These slides describe a noncomprehensive list of the resources.

Data resources collected and consulted include:

- Cultural & Historical Significance
  - Cultural Area Buffers
- Operational Constraints
  - UFC Standard Clearances
  - FAA ACs
- Building Infrastructure
  - Facility Condition Study
  - Post-Reconstruction Projected Tyndall Population
  - BUILDER Facility Assessments
  - In-person Interviews with Facility Management Team
  - Onsite Building Assessments
  - GIS Data
- Utility Infrastructure
  - BUILDER Facility Assessments
  - Interviews with Private Infrastructure Companies
  - IFS – Installation Facilities Standards
  - Water, Stormwater, Communications, Electrical linework from GIS Survey (AFCENT)
  - As-Built documents of Electrical Infrastructure (AFCENT)
  - GIS Data
- Transportation Infrastructure
  - Pavement Visual Condition Survey (AFCENT)
  - Airfield Drainage Study
  - U.S. Highway 98 Design Drawings (FDOT)
  - GIS Data
- Site Planning & Operations
  - Land Use
  - Facility Occupancy Verification Survey (FOVS)
  - Land Management Zoning
  - Demolition Strategy
- Environmental Factors
  - Environment Assessment (EA)
  - Environmental Impact Statement (EIS)
  - Topography & Installation Information from GIS Data (AFCENT)
  - NEPA Site Boundaries (PMO)
  - National Wetland Inventory
  - Design Flood Elevation Memorandum (AFCENT)
- Developable Areas / Opportunities
  - Master Plan
  - Apron Layouts
  - WEG Planning Charrette
  - Sustainability & Smart Technology
The vision for the Site Analysis is to support rebuilding Tyndall AFB by presenting the site in its current state. This document is a building block on which future planning, design, strategy, and construction can be built.

OBJECTIVES

- Describe Current Existing Conditions
- Highlight Direct & Indirect Development Impacts
- Visually Communicate Constraints and Opportunities
- Inform Transition Plan
- Support Current Assumptions for Construction Scheduling
- Justify or Challenge the End-state Master Plan
SITE INVENTORY: FLIGHTLINE DISTRICT
Tyndall AFB has seven land management districts. The Flightline District includes the airfield, taxiways, and flightline support. It is important for the district to be well-organized, easily navigable for multiple routes and modes of transportation, and designed with operational efficiency as a priority.

The Flightline District is located between U.S. Highway 98 and the East Bay. The elevation at which its located, along with the operational constraints of the airways, poses unique challenges to the district.
Tyndall AFB’s natural environment, including wetlands, saltwater marshes, and pine forests, are home to a number of federally and state valued plant and animal species.

Many of the upland scrub and flatwoods communities at Tyndall AFB were historically dominated by Longleaf Pine but are now Sand Pine and Slash Pine plantations or undergoing restoration back to Longleaf Pine. Efforts to restore the Longleaf Pine ecosystem are now in progress.

Much of the Flightline District’s land is wetland, floodplain, or subject to storm surge. The design flood elevation determined by the U.S. Air Force Headquarters for Tyndall AFB is 14 feet on the Flightline Side.
The status of the building infrastructure on the flightline is a fluid and integrated movement described in detail by the Swing Space and Demolition Strategies and by the updated Master Plan. Individual building status, or disposition, is planned and tracked throughout the project.
The activity core for the district is centered around the flightline support adjacent to the runways. While non-built environmental conditions are assessed throughout the entire district, the analysis of the built environment will be focused here.
At Tyndall AFB, the flightline is the vital mission sustaining the mission of the F-22 squadron, and its welfare and resiliency have been prioritized within the rebuilding effort. This site analysis will illustrate the conditions of the flightline after the direct impact from Hurricane Michael in 2018.

The flightline is located directly south of Runway 14R / 32L, Taxiway P, and aircraft aprons. It is accessed primarily from U.S. Highway 98 through the north main gate on Tyndall Drive.

Adjacent to the flightline south of U.S. Highway 98 is the Support District. The activity core of the flightline comprises seven land use zones. As shown above, flightline operations are or will be dedicated to the missions served by the F-22 squadron, the future MQ-9 squadron, and shared facilities in the Central Zone operated by the Weapons Evaluation Group (WEG).
This map shows existing wetlands from National Wetland Inventory Database. Currently very few facilities and impervious surfaces are located in wetlands; however, the extensive daily operations of Tyndall AFB adversely impact the quality and quantity of wetlands.
U.S. Highway 98 is the topographic “ridge line” at Tyndall AFB. On the south side of U.S. Highway 98, the topography slopes down toward St. Andrew Bay. On the north side of U.S. Highway 98, it slopes down toward East Bay.

Floodplain is vital to the coastal natural environment. Any future planning efforts must avoid locating impervious surfaces within the floodplain. The Design Flood Elevation is 19 feet on the Support side and 14 feet on the Flightline side.
The majority of the Flightline District activity core currently experiences intermittent high-decibel sound levels (85 decibels to 75 decibels).
The original facilities at the Flightline District included more than 700,000 square feet consisting primarily of maintenance buildings. Other functions included Ops & Training, Supply, Administrative, Housing & Community, and Utility & Ground Improvements.
A team assessed every building on the flightline to gather data to influence its disposition during the rebuild. Assessment results and demolition strategy details are located in the Existing Building Occupancy and Disposition Tracker.
ASSESSMENT STRATEGY

The strategy used to complete the necessary levels of assessment for each facility is detailed to the right. Each level of assessment informs the next steps taken for assigning building disposition and identifying possible impacts to the project schedule.
The severity of damage sustained from Hurricane Michael is an important factor in the rebuilding strategy. Each facility was given a rating of 1 through 6 to describe and rank its standing for repairs, retention, or removal.
The building disposition analysis is a multi-step process to determine whether existing facilities will be retained or demolished in the immediate, short-term, or long-term timeframe. The process begins with determining the building’s severity of damage sustained by the hurricane.

Next, assessment of the building’s capacity to function as needed helps determine its timeline for repairs, demolition, or a combination of the two. If the building is not in adequate condition, further assessment of necessary repairs determines if a building will be retained or demolished.

The final step for buildings that are projected to remain for at least 5 years is to analyze whether their physical location will impede or obstruct the completion of the Master Plan.

The final step for buildings that are to be demolished is to analyze whether the occupants or materials will need a temporary location during new facility construction.

BUILDING DISPOSITION + SWING SPACE DECISION TREE
Based on the severity of damage sustained, additional evaluations were performed to establish each facility’s ability to perform its mission. As an outcome of these analyses, some facilities (shown in red) were previously demolished by Summer 2019 with others identified as either existing to remain (light gray), or existing to be demolished (dark gray).
These buildings will remain through the rebuilding of Tyndall AFB. Factors included in the decision were the mission dependency rating, severity of damage sustained, and functions housed within each building.
FINDINGS: FLIGHTLINE DISTRICT
This development suitability map was derived through an overlay analysis of environmental and cultural constraints. Any land within a wetland was deemed not capable of being developed. For the remaining land within the Installation, the following areas received negative values: 100 Year Floodplain, Storm Surge Zones 1 through 5, Cultural Resource Areas, Contaminated Zones, and elevation below 19 feet. Areas with the most negative values were deemed least suitable for development.
Transportation routes in the core of the Flightline Zone are varied. Vehicle access for maintenance and operations staff is primarily through the Tyndall Gate, who then use Florida Avenue as an artery. U.S. Highway 98 bisects the Installation and is the main separation between the flightline and support zones. Secure fence lines and staffed and unstaffed gates prevent unauthorized access.
In 2019, a visual observation survey was conducted to evaluate the condition of pavements in the Flightline Zone. The findings were ranked from Good to Failed.
This map identifies current NEPA boundaries for the Rebuild EA, the Programmatic EIS, and actions where the NEPA is complete with input from Tyndall AFB Program Management Office in coordination with the 325th Civil Engineer Squadron and Air Force Civil Engineer Center NEPA Division.

The areas identified for the EA are actions necessary to rebuild the installation for its mission prior to Hurricane Michael. Construction cannot begin until the EA is complete.

The areas identified for the Programmatic EIS are actions connected to the proposed new missions (F-35/MQ-9). Construction cannot occur in these areas until the EIS is complete (est. February 2021). The areas identified as NEPA Complete are actions that had either a Categorical Exclusion (CATEX) or a previous NEPA document. These areas are “NEPA cleared,” and construction is not constrained to a NEPA timeline.

As new information becomes available through ongoing studies the boundaries can potentially shift.
FINDINGS AREAS OF OPPORTUNITY AND DESIGN CONSTRAINTS

OPPORTUNITIES
1. Potential reuse of road infrastructure as pedestrian/bicycle corridor solves vehicle/pedestrian conflicts
2. Potentially reserve for sustainable stormwater treatment & restoration of shade canopy
3. Potential location for temporary gate during construction activities
4. Redevelop gate configuration for improved vehicular flow
5. Potential reuse of road infrastructure as vehicular corridor/primary access route
6. Good condition; potential to keep and reuse
7. Locate vehicular parking adjacent to pedestrian corridor
8. Reserved for future functions
9. Streamline functions by construction zone

CONSTRAINTS
A. Inefficient traffic flow
B. Existing buildings to remain
C. Constrained right of way
D. Angled access road
E. Taxiway setback line
The areas identified above have been identified as available for flex use and swing space. Details on the transition strategy for the Flightline Zone are outlined in the Swing Space Demand Study.
SITE INVENTORY: SUPPORT DISTRICT
Tyndall AFB has seven land management districts. The Support District provides amenities for Airmen, their families, DoD civilians, and military retirees. It is important for the district to be well-organized, easy to navigate, safe and secure, and have the day-to-day facilities the Tyndall AFB community relies on.

The Support District is located between U.S. Highway 98 and the Gulf of Mexico. It consists of land on the Air Force Peninsula and Shell Island off the Peninsula. The abundant water and natural resources, including St. Andrew Bay, Gulf of Mexico, and Shell Island, present the Support Side with unique recreational and conservation opportunities.
Tyndall AFB’s natural environment, such as wetlands, saltwater marshes, and pine forests, are home to a number of federally and state valued plant and animal species.

Many of the upland scrub and flatwoods communities at Tyndall AFB were historically dominated by Longleaf Pine but are now Sand Pine and Slash Pine plantations or undergoing restoration back to Longleaf Pine. Efforts to restore the Longleaf Pine ecosystem are now in progress.

Much of the Flightline District’s land is wetland, floodplain, or subject to storm surge. The design flood elevation determined by the U.S. Air Force Headquarters for Tyndall AFB is 14 feet on the Flightline Side.
The status of the building infrastructure in the Support District is a fluid and integrated movement described in detail by the Swing Space and Demolition Strategies and by the updated Master Plan. Individual building status, or disposition, is planned and tracked throughout the project.
The activity core for the Support District centers around the commercial, housing, and community services supporting the Installation. While non-built environmental conditions are assessed throughout the entire district, the analysis of the built environment will be focused within this core area.
The Support District provides housing, commercial, and recreational amenities, as well as community service, industrial service, and administration service.
This map shows existing wetlands from the National Wetland Inventory Database. Currently very few facilities and impervious surfaces are located in wetlands; however, the extensive daily operations of Tyndall AFB impact the quality and quantity of wetlands adversely.

LEGEND

- Wetlands
- Buildings and Structures (Pre-hurricane)
- Pavements
This map indicates storm surge zones. A few buildings on the Support Side are located within the storm surge zone. Future planning efforts should avoid locating frequently used facilities in these zones.
U.S. Highway 98 is the topographic “ridge line” at Tyndall AFB. On the south side of U.S. Highway 98, the topography slopes down toward St. Andrew Bay. On the north side of the highway, it slopes down toward East Bay.

Floodplain is vital to the coastal natural environment. Any future planning efforts must avoid locating impervious surfaces within the floodplain.

Design Flood Elevation is 19 feet on the Support side and 14 feet on the Flightline side.
The majority of the Support District activity core currently experiences intermittent high-decibel sound levels (85 decibels to 75 decibels). The activity core shown here is not ideal for residential use.
SITE ANALYSIS: SUPPORT DISTRICT
The original facilities at the Support District included more than 1,286,000 square feet of consisting primarily of housing and community buildings. Other functions included Administrative, Hospital and Medical, Maintenance, Ops & Training, Research & Development, and Supply.
A team assessed every building in the Support District to gather data to influence its disposition during the rebuild. Assessment results and demolition strategy details are located in the Existing Building Occupancy and Disposition Tracker.

LEGEND
- Existing Buildings to Remain
- Existing Buildings to be Demolished
- Demolished / Demolition in Progress

1  Class A - No significant Issues
2  Class B - Minor Issues
3  Forced Use - Significant Issues
6  Disposal Approved by Facilities Board
ASSESSMENT STRATEGY

The strategy used to complete the necessary levels of assessment for each facility is detailed to the left. Each level of assessment informs the next steps taken for assigning building disposition and identifying possible impacts to the project schedule.
Approximately 62% of the facilities experienced insignificant damage and potentially can remain with repair, as needed; 2% of the facilities need significant repair. Close to a quarter of the facilities have been dispositioned to be demolished by the Air Force because of severe damage.
The building disposition analysis is a multi-step process to determine whether existing facilities will be retained or demolished in the immediate, short-term, or long-term timeframe. The process begins with determining the building’s severity of damage sustained by the hurricane.

Next, assessment of the building’s capacity to function as needed helps determine its timeline for repairs, demolition, or a combination of the two. If the building is not in adequate condition, further assessment of necessary repairs determines if it will be retained or demolished.

The final step for buildings that are projected to remain for at least 5 years is to analyze whether their physical location will impede or obstruct the completion of the Master Plan.

The final step for buildings that are to be demolished is to analyze whether the occupants or materials will need a temporary location during new facility construction.
This map shows building disposition decisions as of 16 August 2019. Building dispositions are based on a facility’s condition assessment and mission dependency assessment.
EXISTING BUILDINGS TO REMAIN THROUGH RE-BUILD

This map shows the buildings that will stay after facility assessment. These buildings will receive repair and modification at varying degrees.

LEGEND
- Existing Buildings to Remain and Rebuild
FINDINGS: SUPPORT DISTRICT
This development suitability map was derived through an overlay analysis of environmental and cultural constraints. Any land within a wetland was deemed not capable of being developed. For the remaining land within the Installation, the following areas received negative values:

100 Year Floodplain, Storm Surge Zones 1 through 5, Cultural Resource Areas, Contaminated Zones, and elevation below 19 feet. Areas with the most negative values were deemed least suitable for development.
Transportation routes in the core of the Support side vary. Vehicle access to the community service core is primarily through the Airey Gate, with Airey Avenue serving as an artery.

U.S. Highway 98 bisects the Installation and is the main separation between the Flightline and Support Zones. Secure fence lines and staffed and unstaffed gates prevent unauthorized access.
In 2019, a visual observation survey was conducted to evaluate the condition of pavements in the Support Zone. The findings were ranked from Good to Failed.
This map identifies current NEPA boundaries for the Rebuild Environmental Assessment (EA), the Programmatic EIS, and actions where the NEPA is complete was developed with input from Tyndall AFB Program Management Office in coordination with the 325th Civil Engineer Squadron and the Air Force Civil Engineer Center NEPA Division.

The areas identified for the EA are actions necessary to rebuild the Installation prior to Hurricane Michael. Construction cannot begin in these areas until the EA is complete (est. March 2020).

The areas identified for the Programmatic EIS are actions connected to the proposed new missions (F-35/MQ-9). Construction cannot occur in these areas until the EIS is complete (est. February 2021). The areas identified as NEPA Complete are actions that had either a CATEX or a previous NEPA document. These areas are “NEPA cleared,” and construction is not constrained to a NEPA timeline.

As new information becomes available through ongoing studies the boundaries can potentially shift.
### FINDINGS AREAS OF OPPORTUNITY AND CONSTRAINTS

**Constraints:**
- Upcoming FDOT U.S. Highway 98 construction will potentially conflict with Airey and Tyndall Gates overpass and gate construction.
- Land suitable for development is limited, restrained by Design Flood Elevation, areas of cultural significance, wetlands, floodplain, and storm surge zones.
- Existing to remain buildings limit the optimization of overall walkability and land use efficiency.

**Opportunities:**
- Coastal natural area presents recreational, conservation, and research opportunities.
- The majority of existing developments are within the most developable zone, making it easy for rebuild and infill developments.
- Rebuild Tyndall presents opportunity to promote a pedestrian friendly environment, improve land use, sustainability, and enhance coastal resiliency.

**LEGEND**
- More Suitable For Development
- Restrictive For Development
- Major Public Vehicular Corridor (US Hwy 98)
- Gates and Access to the Installation
- Stormwater Runoff Direction
- Predominant Wind Direction
- Existing Buildings to Remain
- Recreation and Nature Conservation Opportunity
- US Hwy 98 Construction Conflict Zone
- Primary Roadways
The areas identified above have been identified as available for flex use and swing space. Details on the transition strategy for the Flightline Zone are located in the Swing Space Demand Study.
SITE INVENTORY: AMMO DISTRICT
Tyndall AFB has seven land management districts.

The Ammo District includes the Munitions Storage Area (MSA) and surrounding open space. It is located between the East Bay and the Flightline and Drone Districts. The elevation at which it is located, along with the operational constraints of the MSA, pose unique challenges to the district.
U.S. Highway 98 is the topographic “ridge line” at Tyndall AFB. On the south side of the highway, the topography slopes down toward St. Andrew Bay. On the north side of the highway, it slopes down toward East Bay.

Floodplain is vital to the coastal natural environment. Any future planning efforts must avoid locating impervious surfaces within the floodplain.

Design Flood Elevation is 19 feet on the Support side and 14 feet on the Flightline side.

Much of the Ammo District’s land is wetland, floodplain, or land above 14 feet.
The status of the building infrastructure of the Munitions Storage Area (MSA) Zone is a fluid and integrated movement described in detail by the Swing Space and Demolition Strategies and by the updated Master Plan. Individual building status, or disposition, is planned and tracked throughout the project.

LEGEND

- Ammo District Boundary
- Buildings and Structures
The activity core for the Ammo District is centered around the MSA Zone. While non-built environmental conditions are assessed throughout the entire district, the analysis of the built environment will be focused on here.
The MSA Zone in the Ammo District is primarily located within an industrial land use zone.
This map shows existing wetlands from National Wetland Inventory Database. Currently very few facilities and impervious surfaces are located in wetlands; however, the extensive daily operations of Tyndall AFB adversely impact the quality and quantity of wetlands.
This map indicates storm surge zones. Future planning efforts must avoid locating frequently used facilities in these zones.
Floodplain is vital to the coastal natural environment. Any future planning efforts must avoid locating impervious surfaces within the floodplain.

The entire MSA Zone in the Ammo District does not meet the design flood elevation.
The original facilities at the Flightline District included more than 82,000 square feet consisting primarily of maintenance buildings. Other functions included Ops & Training, Supply, Administrative, and Utility & Ground Improvements.
A team assessed every building in the MSA Zone to gather data to influence its disposition during the rebuild. Assessment results and demolition strategy details are located in the Existing Building Occupancy and Disposition Tracker.

LEGEND
- Existing Buildings to Remain
- Existing Buildings to be Demolished
- Demolished / Demolition in Progress

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A - No Significant Issues</td>
<td>38%</td>
</tr>
<tr>
<td>Forced Use - Significant Issues</td>
<td>3%</td>
</tr>
<tr>
<td>Disposal Approved by Facilities Board</td>
<td>59%</td>
</tr>
</tbody>
</table>
The strategy used to complete the necessary levels of assessment for each facility is detailed to the left. Each level of assessment informs the next steps taken for assigning building disposition and identifying possible impacts to the project schedule.
Approximately 92% of the facilities experienced insignificant damage and potentially can remain with repair as needed; 4% of the facilities need significant repair. The remaining 4% have been dispositioned to be demolished by the Air Force because of severe damage.
The building disposition analysis is a multi-step process to determine whether existing facilities will be retained or demolished in the immediate, short-term, or long-term timeframe. The process begins with determining the building’s severity of damage sustained by the hurricane.

Next, assessment of the building’s capacity to function as needed helps determine its timeline for repairs, demolition, or a combination of the two. If the building is not in adequate condition, further assessment of necessary repairs determines if it will be retained or demolished.

The final step for buildings that are projected to remain for at least 5 years is to analyze whether their physical location will impede or obstruct the completion of the Master Plan.

The final step for buildings that are to be demolished is to analyze whether the occupants or materials will need a temporary location during new facility construction.
Based on the severity of damage sustained, additional evaluations were performed to establish each facility’s ability to perform its mission. As an outcome of these analyses, some facilities (shown in red) already had been demolished by summer 2019 with others (shown in blue) identified as existing to remain.

**LEGEND**
- Existing Buildings to Remain
- Existing Buildings to be Demolished
- Demolished / Demolition in Progress
The buildings identified will remain through the re-build period of the MSA Zone in the Ammo District.
FINDINGS: AMMO DISTRICT
This development suitability map was derived through an overlay analysis of environmental and cultural constraints. Any land within a wetland was deemed not capable of being developed. For the remaining land within the Installation, the following areas received negative values:

100 Year Floodplain, Storm Surge Zones 1 through 5, Cultural Resource Areas, Contaminated Zones, and elevation below 19 feet. Areas with the most negative values were deemed least suitable for development.

**LEGEND**

- Less Suitable for Development
- More Suitable for Development
- Wetland (Undevelopable)
FINDINGS  TRANSPORTATION NETWORK

Ammo Road is the main route to access the MSA Zone in the Ammo District. Secure fence lines and staffed and unstaffed gates prevent unauthorized access.

LEGEND
- US HWY 98
- Secondary Route
- Tertiary Route
- Aircraft Route
- Vehicle Gate
This map identifies current NEPA boundaries for the Rebuild EA, the Programmatic EIS, and actions where the NEPA is complete and was developed with input from Tyndall AFB Program Management Office in coordination with the 325th Civil Engineer Squadron and Air Force Civil Engineer Center NEPA Division.

The areas identified for the EA are actions necessary to rebuild the Installation for its mission prior to Hurricane Michael. Construction cannot begin in these areas until the EA is complete (est. March 2020). The areas identified for the Programmatic EIS are actions connected to the proposed new missions (F-35/MQ-9). Construction cannot occur in these areas until the EIS is complete (est. February 2021). The areas identified as NEPA Complete are actions that had either a CATEX or a previous NEPA document. These areas are “NEPA cleared,” and construction is not constrained to a NEPA timeline.

As new information becomes available through ongoing studies the boundaries can potentially shift.
Opportunities:
- Improve vehicle and pedestrian circulation
- Improve entry points, security gates, and fencing
- Improve and expand parking
- Add sustainable stormwater treatment
- Add resiliency best management practices
- Secondary access

Constraints:
- Existing buildings limit land use efficiency
- Land suitable for development is limited and is restrained by Design Flood Elevation, Areas of Cultural Significance, Wetlands, Floodplain, and Storm Surge Zones
- Inefficient traffic flow
SITE INVENTORY: CROOKED ISLAND DISTRICT
Tyndall AFB has seven land management districts.

The Crooked Island District includes the Subscale Drone TTA WEG (Weapons Evaluation Group) and surrounding open space. It is located between St. Andrew Bay and the Drone and Silver Flag Districts. The elevation at which it is located, along with the operational constraints of the TTA WEG, pose unique challenges to the district.
U.S. Highway 98 is the topographic “ridge line” at Tyndall AFB. On the south side of the highway, the topography slopes down toward St. Andrew Bay. On the north side of highway, it slopes down toward East Bay.

Floodplain is vital to the coastal natural environment. Any future planning efforts must avoid locating impervious surfaces within the floodplain. Design Flood Elevation is 19 feet on the Support side and 14 feet on the Flightline side.

Much of the Crooked Island District’s land is wetland, floodplain, or land above 14 feet.
The status of the building infrastructure is a fluid and integrated movement described in detail by the Swing Space and Demolition Strategies and by the updated Master Plan. Individual building status, or disposition, is planned and tracked throughout the project.
The activity core for the Crooked Island District is centered around the Subscale Drone facilities and is a TTA WEG Zone. While non-built environmental conditions are assessed throughout the entire district, the analysis of the built environment will be focused on here.
The Subscale Drone facilities in the TTA WEG Zone in the Crooked Island District are primarily an industrial land use zone. The facilities are surrounded by an open space/buffer land use zone.
This map identifies existing wetlands from National Wetland Inventory Database. Currently, very few facilities and impervious surfaces are located in wetlands; however, the extensive daily operations of Tyndall AFB adversely impact the quality and quantity of wetlands.
This map indicates storm surge zones. Future planning efforts must avoid locating frequently used facilities in these zones.
U.S. Highway 98 is the topographic “ridge line” at Tyndall AFB. On the south side of the highway, the topography slopes down toward St. Andrew Bay. On the north side of the highway, it slopes down toward East Bay.

Floodplain is vital to the coastal natural environment. Any future planning efforts must avoid locating impervious surfaces within the floodplain.

The entire Subscale Drone facility location in the TTA WEG Zone for the Crooked Island District meets or exceeds the design flood elevation.
SITE ANALYSIS: CROOKED ISLAND DISTRICT
The original facilities at the Subscale Drone TTA WEG included more than 14,000 square feet consisting primarily of maintenance buildings. Other functions included Supply and Utility & Ground Improvements.
A team assessed every building in the Subscale Drone facility in the TTA WEG Zone – Crooked Island to gather data to influence its disposition during the rebuild. Assessment results and demolition strategy details are located in the Existing Building Occupancy and Disposition Tracker.

### LEGEND

- **Dark Blue**: Existing Buildings to Remain
- **Gray**: Existing Buildings to be Demolished
- **Orange**: Demolished / Demolition in Progress

**Condition**

- **1**: 38%
- **2**: 59%
- **3**: 3%

- **6**: 5%
The strategy used to complete the necessary levels of assessment for each facility is detailed to the left. Each level of assessment informs the next steps taken for assigning building disposition and identifying possible impacts to the project schedule.
About 79% of the facilities experienced insignificant damage and potentially can remain with repair as needed; 9% of the facilities need significant repair. The remaining 12% have been dispositioned to be demolished by the Air Force because of severe damage.
The building disposition analysis is a multi-step process to determine whether existing facilities will be retained or demolished in the immediate, short-term, or long-term timeframe. The process begins with determining the building’s severity of damage sustained by the hurricane.

Next, assessment of the building’s capacity to function as needed helps determine its timeline for repairs, demolition, or a combination of the two. If the building is not in adequate condition, further assessment of necessary repairs determines if it will be retained or demolished.

The final step for buildings that are projected to remain for at least 5 years is to analyze whether their physical location will impede or obstruct the completion of the Master Plan.

The final step for buildings that are to be demolished is to analyze whether the occupants or materials will need a temporary location during new facility construction.
Based on the severity of damage sustained, additional evaluations were performed to establish each facility's ability to perform its mission. As an outcome of these analyses, some facilities (shown in red) already had been removed by summer 2019 with others (shown in blue) identified as existing to remain.

**LEGEND**
- Existing Buildings to Remain
- Existing Buildings to be Demolished
- Demolished / Demolition in Progress
The buildings identified will remain through the re-build period of the Subscale Drone facilities in the TTA WEG Zone in the Crooked Island District.
FINDINGS: CROOKED ISLAND DISTRICT
This development suitability map was derived through an overlay analysis of environmental and cultural constraints. Any land within a wetland was deemed not capable of being developed. For the remaining land within the Installation, the following areas received negative values:

100 Year Floodplain, Storm Surge Zones 1 through 5, Cultural Resource Areas, Contaminated Zones, and elevation below 19 feet. Areas with the most negative values were deemed least suitable for development.
U.S. Highway 98 bisects the Installation and is the main route to access the Subscale Drone facility in the TTA WEG Zone in the Crooked Island District. Secure fence lines and staffed and unstaffed gates prevent unauthorized access.

LEGEND

- Primary Access Route
- Secondary Route
- Tertiary Route
- Entry Control Facility
This map identifies current NEPA boundaries for the Rebuild EA, the Programmatic EIS, and actions where the NEPA is complete and was developed with input from Tyndall AFB Program Management Office in coordination with the 325th Civil Engineer Squadron and Air Force Civil Engineer Center NEPA Division.

The areas identified for the EA are actions necessary to rebuild the Installation for its mission prior to Hurricane Michael. Construction cannot begin in these areas until the EA is complete (est. March 2020). The areas identified for the Programmatic EIS are actions connected to the proposed new missions (F-35/MQ-9). Construction cannot occur in these areas until the EIS is complete (est. February 2021). The areas identified as NEPA Complete are actions that had either a CATEX or a previous NEPA document. These areas are “NEPA cleared,” and construction is not constrained to a NEPA timeline.

As new information becomes available through ongoing studies the boundaries can potentially shift.
FINDINGS AREAS OF OPPORTUNITY AND CONSTRAINTS

Opportunities:

- Improve vehicle and pedestrian circulation
- Improve entry points, security gates, and fencing
- Improve and expand parking
- Add sustainable stormwater treatment
- Add resiliency best management practices

Constraints:

- Existing buildings limit land use efficiency
- Land suitable for development is limited and is restrained by Design Flood Elevation, Areas of Cultural Significance, Wetlands, Floodplain, and Storm Surge Zones
- Inefficient traffic flow
Tyndall AFB has seven land management districts.

The Silver Flag District includes the northern TTA WEG and surrounding open space. It is located between St. Andrew Bay and the Crooked Island District. The elevation at which it is located, along with the operational constraints of the TTA WEG, pose unique challenges to the district.
U.S. Highway 98 is the topographic "ridge line" at Tyndall AFB. On the south side of the highway, the topography slopes down toward St. Andrew Bay. On the north side of the highway, it slopes down toward East Bay.

Floodplain is vital to the coastal natural environment. Any future planning efforts must avoid locating impervious surfaces within the floodplain. Design Flood Elevation is 19 feet on the Support side and 14 feet on the Flightline side.

Much of the Silver Flag District’s land is wetland, floodplain, or land above 14 feet.
The status of the building infrastructure is a fluid and integrated movement described in detail by the Swing Space and Demolition Strategies and by the updated Master Plan. Individual building status, or disposition, is planned and tracked throughout the project.
The activity core for the district centers on the TTA WEG. While non-built environmental conditions are assessed throughout the entire district, the analysis of the built environment will be focused on here.
The TTA WEG Zone in the Silver Flag District is primarily located within an open space-buffer land use zone.
This map shows existing wetlands from National Wetland Inventory Database. Currently very few facilities and impervious surfaces are located in wetlands; however, the extensive daily operations of Tyndall AFB impact the quality and quantity of wetlands adversely.
This map indicates storm surge zones. Future planning efforts should avoid locating frequently used facilities in these zones.

LEGEND

- Cat 1
- Cat 2
- Cat 3
- Cat 4
- Cat 5
- Buildings and Structures (Pre-hurricane)
- Pavements
U.S. Highway 98 is the topographic “ridge line” at Tyndall AFB. On the south side of the highway, the topography slopes down toward St. Andrew Bay. On the north side of the highway, it slopes down toward East Bay.

Floodplain is vital to the coastal natural environment. Any future planning efforts must avoid locating impervious surfaces within the floodplain.

The entire TTA WEG Zone in the Silver Flag District does not meet the design flood elevation.
SITE ANALYSIS: SILVER FLAG DISTRICT
The original facilities at the TTA WEG included more than 202,000 square feet consisting primarily of Ops & Training buildings. Other functions included Supply, Housing & Community, Maintenance, Hospital and Medical, and Research & Development.
A team assessed every building in the TTA WEG Zone – Silver Flag to gather data to influence its disposition during the rebuild. Assessment results and demolition strategy details are located in the Existing Building Occupancy and Disposition Tracker.

**LEGEND**

- Existing Buildings to Remain
- Existing Buildings to be Demolished
- Demolished / Demolition in Progress

**Conditions**

- 1 Class A - No Significant Issues
- 3 Forced Use - Significant Issues
- 6 Disposal Approved by Facilities Board
The strategy used to complete the necessary levels of assessment for each facility is detailed to the left. Each level of assessment informs the next steps taken for assigning building disposition and identifying possible impacts to the project schedule.
Approximately 82% of the facilities experienced insignificant damage and potentially can remain with repair as needed; 9% of the facilities need significant repair. The remaining 9% have been dispositioned to be demolished by the Air Force because of severe damages.
The building disposition analysis is a multi-step process to determine whether existing facilities will be retained or demolished in the immediate, short-term, or long-term timeframe. The process begins with determining the building’s severity of damage sustained by the hurricane.

Next, assessment of the building’s capacity to function as needed helps determine its timeline for repairs, demolition, or a combination of the two. If the building is not in adequate condition, further assessment of necessary repairs determines if it will be retained or demolished.

The final step for buildings that are projected to remain for at least 5 years is to analyze whether their physical location will impede or obstruct the completion of the Master Plan.

The final step for buildings that are to be demolished is to analyze whether the occupants or materials will need a temporary location during new facility construction.
Based on the severity of damage sustained, additional evaluations were performed to establish each facility’s ability to perform its mission. As an outcome of these analyses, some facilities (shown in red) already had been removed by summer 2019 with others identified as either existing to remain (navy blue) or existing to be demolished (light blue).
The buildings shown will remain through the re-build period of the TTA WEG Zone in the Silver Flag District.
FINDINGS: SILVER FLAG DISTRICT
This development suitability map was derived through an overlay analysis of environmental and cultural constraints. Any land within a wetland was deemed not capable of being developed. For the remaining land within the Installation, the following areas received negative values:

100 Year Floodplain, Storm Surge Zones 1 through 5, Cultural Resource Areas, Contaminated Zones, and elevation below 19 feet. Areas with the most negative values were deemed least suitable for development.
U.S. Highway 98 bisects the Installation and is the main route to access the TTA WEG in the Silver Flag District. Secure fence lines and staffed and unstaffed gates prevent unauthorized access.
This map identifies current NEPA boundaries for the Rebuild EA, the Programmatic EIS, and actions where the NEPA is complete and was developed with input from Tyndall AFB Program Management Office in coordination with the 325th Civil Engineer Squadron and Air Force Civil Engineer Center NEPA Division.

The areas identified for the EA are actions necessary to rebuild the Installation for its mission prior to Hurricane Michael. Construction cannot begin in these areas until the EA is complete (est. March 2020).

The areas identified for the Programmatic EIS are actions connected to the proposed new missions (F-35/MQ-9). Construction cannot occur in these areas until the EIS is complete (est. February 2021). The areas identified as NEPA Complete are actions that had either a CATEX or a previous NEPA document. These areas are “NEPA cleared” and construction is not constrained to a NEPA timeline.

As new information becomes available through ongoing studies the boundaries can potentially shift.

LEGEND
- Programmatic EIS
- EA
- Future Expansion
- NEPA Complete
FINDINGS AREAS OF OPPORTUNITY AND CONSTRAINTS

Opportunities:

• Improve vehicle and pedestrian circulation
• Improve entry points, security gates, and fencing
• Improve and expand parking
• Add sustainable stormwater treatment
• Add resiliency best management practices

Constraints:

• Existing buildings limit land use efficiency
• Land suitable for development is limited and is restrained by Design Flood Elevation, Areas of Cultural Significance, Wetlands, Floodplain, and Storm Surge Zones
• Inefficient traffic flow
THANK YOU