

New Resiliency Partnerships:

Fort Huachuca,
Keesler Air Force Base, and
U.S. Air Force Academy



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**INSTALLATION
INNOVATION**
FORUM



U.S. Department of Defense
Office of Local Defense
Community Cooperation

Office of Local Defense Community Cooperation

Installation Resilience

Presented By:
Patricia Gray
Project Manager



U.S. Department of Defense
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Installation Resilience Roles

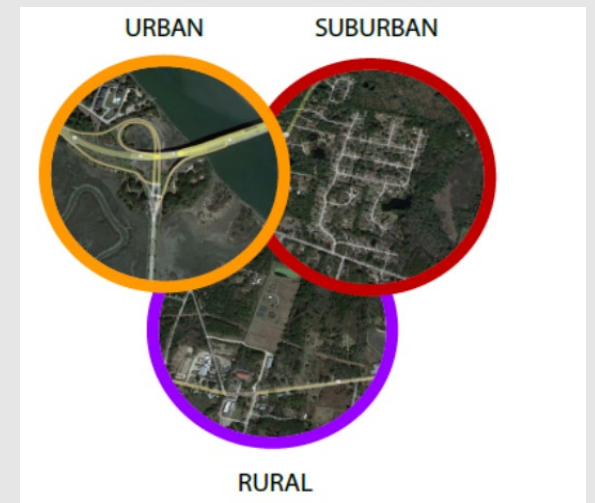
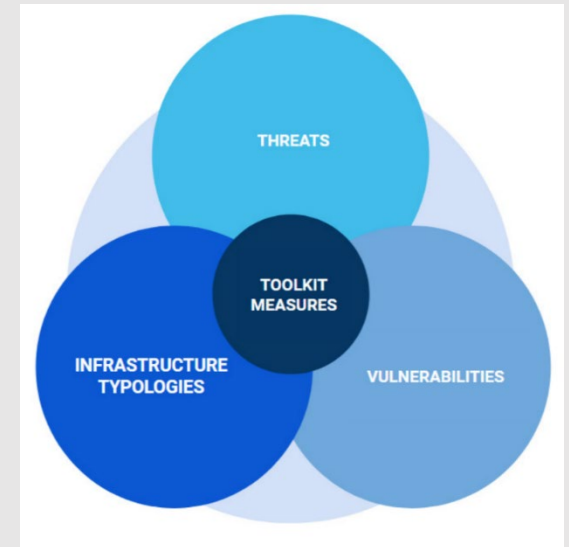
- **Installation**
 - Recommend and support the nomination
 - Represent installation interests (Installation Commander Ex-Officio member)
 - Provide releasable data
- **Community**
 - Sponsor the effort
 - Fund part of the effort (10% non-Federal match)
 - Administer the OLDCC grant
 - Implement recommendations
- **Office of Local Defense Community Cooperation**
 - Confirm need for assistance
 - Provide guidance to initiate, conduct and complete a community-driven effort
 - Provide technical assistance to the local jurisdiction and installation
 - Provide funding assistance to the local jurisdiction to conduct the project
 - Facilitate communications between the local jurisdiction and the installation



Installation Resilience Review

Lowcountry Council of Governments

- Project study area: Marine Corps Air Station (MCAS) Beaufort and Marine Corps Recruit Depot (MCRD) Parris Island Military installations and surrounding communities.
- Building off of existing regional plans, report sets overarching goals, identifies threats, creates a prioritization process to enable communities to assess those threats, and provides a toolkit of structural and non-structural interventions.
- Provides three representative pilot conditions to inform design decisions and policy actions. Exemplify rural (St. Helena Island wastewater treatment plant), suburban (Lady's Island neighborhood) and urban landscapes (Shell Point Interchange.)
- Report provides a usable foundation that Lowcountry communities can use to advance strategic, fundable and executable resilience efforts moving forward with a consistent framework that enables the region to build a comprehensive approach to future adaptation for the region.
- Full report is available at www.lowcountrycog.org

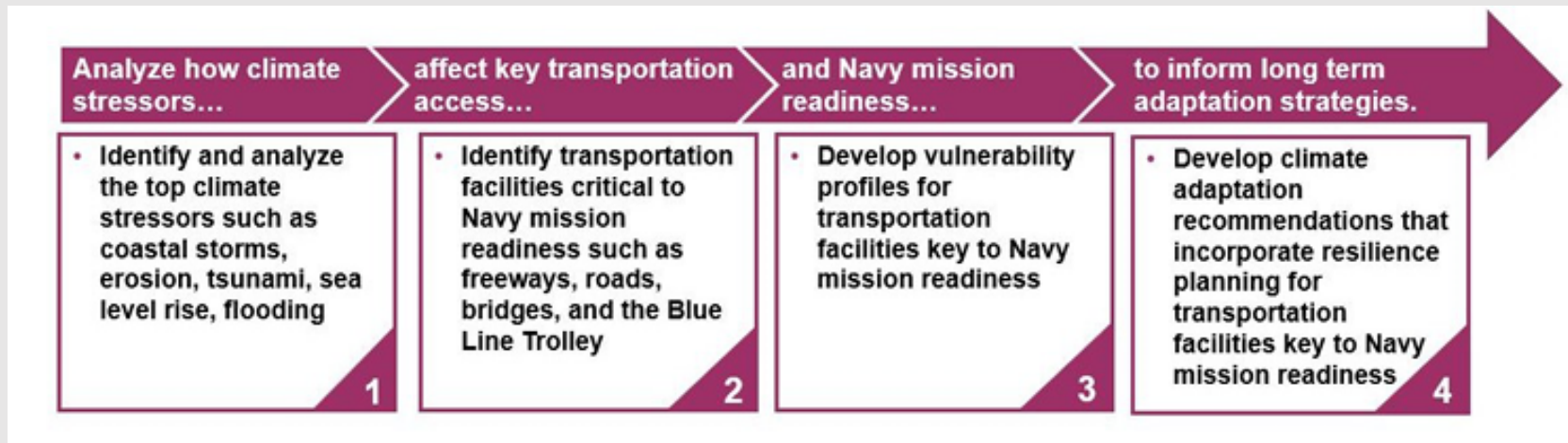




Installation Resilience Review

San Diego Association of Governments

- Project study area: Naval Base San Diego, Naval Base Coronado, and Naval Base Point Loma installations and surrounding communities.
- Building off of existing regional plans, report provides guidance to the Navy and local and regional agencies on how to better integrate climate considerations into their processes, and safeguard long-term transportation solutions, regional resilience, and continued collaboration with the Navy to ensure naval bases remain operational.
- Full report is available at www.sandag.org





U.S. Department of Defense
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Promising Practices

- Effort as a catalyst for sustained local, State, Federal agency and military engagement
- Leverage local, State, and Federal resources for implementation
 - DCIP, REPI, FEMA, etc.
- Integrate recommendations and strategies into ongoing local and regional planning efforts, such as Comprehensive Plans, Emergency Plans, General Plan updates or Capital Improvement Plans
- Maintain momentum by prioritizing strategies for implementation before Final Report completed



U.S. Department of Defense
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Looking Ahead

- **FY2022 NDAA Amended 10 USC 2391 authorizing Construction related to installation resilience and encroachment mitigation**
- **Expectations for FY 2023**
 - Military Service Call for Nominations (November 2023)
 - Striving to address natural and human-driven events
 - Growing proportion of core program and funding directed towards resilience



U.S. Department of Defense
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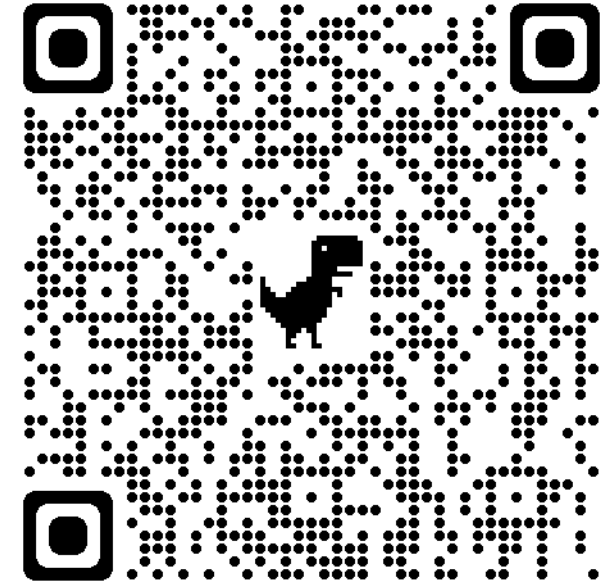
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Website

<https://oldcc.gov/>

Grantee Guide

<https://oldcc.gov/resource/compatible-use-and-installation-resilience-grantee-guide-508-compliant>



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**Fort Huachuca
Military Installation Resiliency
Risks Study**

Background

- **OLDCC funded**
- **Joint Resource Utilization Study (JRUS) 2020-2022**
 - *Key Areas Land, Airspace, and Spectrum Compatibility*
- **Military Installation Resiliency Risks Study**
 - *Parallel Effort and subcomponent to JRUS*



Purpose

- **Military Installation Resiliency**
 - *External Review of published guidance and directives*
 - *Identify, Integrate, and Collaborate (2014 DoD Climate Change Adaptation Roadmap)*
 - *Leverage DoD Climate Assessment Tool (DCAT)*
- **Compliments Fort Huachuca Real Property Vision Plan**
- **Linked to Readiness**
- **Collaborative Implementation Plan**
- **Captures Best Practices and Leverages past initiatives**

Military Resiliency Policy and Planning | 2

Increased risk of wildland fires and changing fire dynamics, resulting from higher temperatures and reduced precipitation, are highlighted in the assessment. Both the frequency and the severity of wildland fires are expected to increase as climate change continues to impact military installations in the region, including Fort Huachuca.


Army Climate Resilience Handbook

The *Army Climate Resilience Handbook* (ACRH) identifies eight hazards associated with future climate change exposure that are of primary concern to DoD and U.S. Army. Based on analysis in this report, Fort Huachuca has the potential for impacts from seven of the eight ACRH hazards of concern. Those seven hazards are shown in the graphic below. The eighth hazard, coastal flooding, does not apply to Fort Huachuca.



While increased energy demand for heating and cooling is actually a likely consequence of a climate change threat or hazard, for consistency with the Army guidance it is identified as a threat or hazard throughout this document. In addition, the Army identifies riverine flooding as a climate change threat or hazard. In the case of

Leverage Previous and Ongoing Work



REPI UNITED STATES DEPARTMENT OF DEFENSE
RESILIENCE AND ENVIRONMENTAL
PROTECTION INTEGRATION PROGRAM

PROJECT PROFILES
U.S. ARMY | ARIZONA

FORT HUACHUCA

Located in a perfect area for its testing mission of "Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance," Fort Huachuca is surrounded largely by the Sonoran Desert in southeastern Arizona.

This mission includes Unmanned Aerial Systems (UAS) training heavily used, low altitude airspace immediately north and west of the installation, an area that also happens to be mostly privately-owned open rangeland. Additionally, this area is used by aircraft from nearby Air Force bases.

Working in a first of its kind partnership with the Bureau of Land Management (BLM) to protect training and preserve land, Fort Huachuca's partners have purchased easements to create buffers near the desert that will promote drought resiliency. In addition to water conservation, these buffers are important for the installation's UAS training and reducing the electromagnetic interference with electronic testing of sensitive equipment.

Already a leader in drought resiliency, Fort Huachuca's partnership with BLM protects groundwater supplies within the watershed of the San Pedro Riparian National Conservation Area. By reducing groundwater pumping, the project protects the future of the San Pedro and Baboquiviri Rivers. The partnership also reduces development potential in one of the fastest growing states, keeping the land in the hands of local ranchers, who preserve key native grasslands that contain critical habitat for endangered species. Additionally, a portion of these protected areas will host natural resource management projects aimed at decreasing the threat of contagious wildfires in adjacent areas.

KEY PARTNERS

- Arizona Land and Water Trust
- Arizona Military Installation Fund
- Bakersville Environmental Board
- Bureau of Land Management
- Coconino County
- Cooperatives for the West, LLC
- National Park Service Land and Conservation Fund
- The Nature Conservancy
- The Nature Energy Foundation
- U.S. Department of Agriculture, Natural Resources Conservation Service
- U.S. Forest Service

FAST FACTS

- ACRES PRESERVED: 18,295
- TRANSACTIONS CONDUCTED: 21
- TOTAL FUNDS EXPENDED: \$45.7 million
- PROJECT STATUS: In Progress

BENEFIT SUMMARY

COMMUNITY	MILITARY
<ul style="list-style-type: none"> Preserves working lands and local character Supports regional planning objectives Provides habitat for endangered species Prevents water supply 	<ul style="list-style-type: none"> Preserves co-installation maneuver, helicopter, and night flying training capability that generates noise or requires minimal light pollution Reduces electromagnetic interference Improves operational safety Provides for mission growth

CONTACT

PUBLIC AFFAIRS OFFICE:
(520) 533-1850

For more information about the REPI program and supportive DoD efforts, please visit <http://www.repi.mil>

City of Sierra & Partners Water Conservation Efforts



Cooperative Extension
Cochise County











FORT HUACHUCA SENTINEL LANDSCAPE

Arizona | est. 2015

Located in southern Arizona's Sonoran Desert, Fort Huachuca is one of the largest unmanned aerial vehicle training facilities in the world, supporting operations for the U.S. Army, U.S. Air Force, U.S. Marine Corps, and U.S. Customs and Border Protection. The arid, remote landscape surrounding the post is predominantly made up of cattle ranches and native grasslands. This type of land use supports Fort Huachuca by ensuring low levels of electromagnetic interference on the installation's training activities. However, development pressure is increasing in the region due to urban sprawl and population growth. Land use conversion poses challenges to local communities by increasing competition for limited water resources, fragmenting important wildlife habitat, and encroaching upon Fort Huachuca's critical airspace. As a result, a group of partners came together to form the Fort Huachuca Sentinel Landscape in 2015. The primary goal of this landscape is to use collaborative, community-driven strategies to tackle issues such as water conservation, agricultural viability, wildlife habitat restoration, and military mission protection.

Partners Enhance Water Quantity for the San Pedro River

Stretching from Mexico through Arizona, the San Pedro River supports a vibrant ecosystem, local human populations, and critical training operations at the U.S. Army's Fort Huachuca. The Fort Huachuca Sentinel Landscape is home to two-thirds of the watershed, which is one of the last free-flowing rivers in the Southwest. For years, rapid development in the region has increased demand for water, leaving portions of the San Pedro River dry. In response, Fort Huachuca Sentinel Landscape partners formed the Cochise Conservation and Recharge Network, an initiative dedicated to conserving groundwater and improving the health of riparian habitat in the Upper San Pedro Watershed. The network accomplishes its mission in two ways. First, partners acquire conservation easements to







Figure 11: Fort Huachuca Sentinel Landscape Map



Table 5: Fort Huachuca Sentinel Landscape Footprint Details (acres)

	Total Protected Acres¹⁾	82,633
	Total Enrolled Acres²⁾	271,017
	Active Base Area:	80,912
	Total Sentinel Landscape Area:	1,580,896

¹⁾ Represents total acres protected by projects administered by sentinel landscape partners since FY 2014

²⁾ Represents total acres enrolled in technical assistance programs administered by sentinel landscape partners since FY 2014

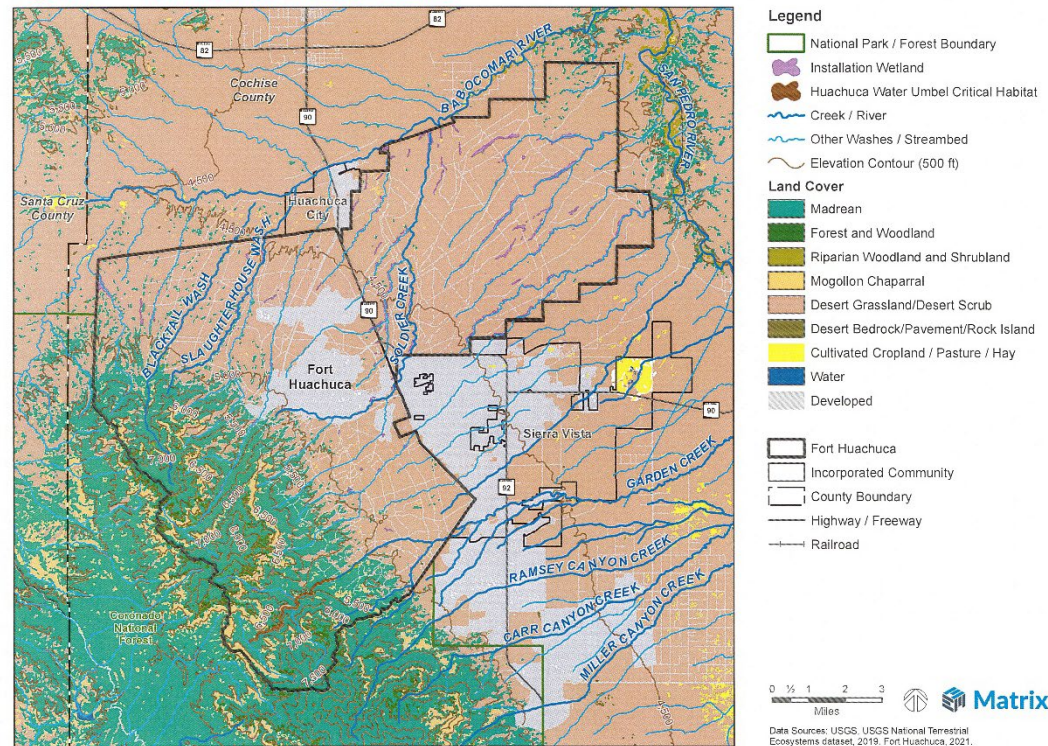
SENTINELLANDSCAPES.ORG

Action #19 – Continue to pursue REPI funding and Sentinel Landscape partnerships and implement land acquisition/conservation easements.

Action Items

- Over 40 Resiliency Action Plan Items – Majority are Fort Huachuca Led and Initiated
 - Many Linked directly to completing all the steps of Army Climate Resiliency Handbook

Figure 7. Fort Huachuca Natural Features



*Hazards don't STOP
at the fence line*

Best Practice

- **2005 Huachuca Area Fire Partners (HAPF)**
 - *Arizona Land Department*
 - *Arizona State Parks*
 - *Bureau of Land Management (BLM)*
 - *National Audubon Society*
 - *The Nature Conservancy*
 - *US Army Fort Huachuca*
 - *USDA Forest Service*
 - *Private Landowners*
- **2011 Monument Fire, 38,000 acres**
- **2016 Fort Huachuca Integrated Wildland Fire Management Plan (Adopts HAPF Fire Mgt Plan)**
- **2016 Ridge Fire (700 acres)**
- **2017 BLM & Fort Huachuca creation of Hotshot Crew (Only Type I in Southern AZ & Composed of Veterans)**
- **2020 BLM's Aravaipa Crew achieves Type 1 status as Interagency Hotshot Crew**
- **2021 Site Maverick Fire (~800 acres)**
- **2021/2022 City of Sierra Vista coordinating permanent base for Forest Service Helitack**
- **2022 The work Continues with the Resiliency Action Plan**



-Mutual Aid Agreements



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81st Training Wing

Keesler AFB

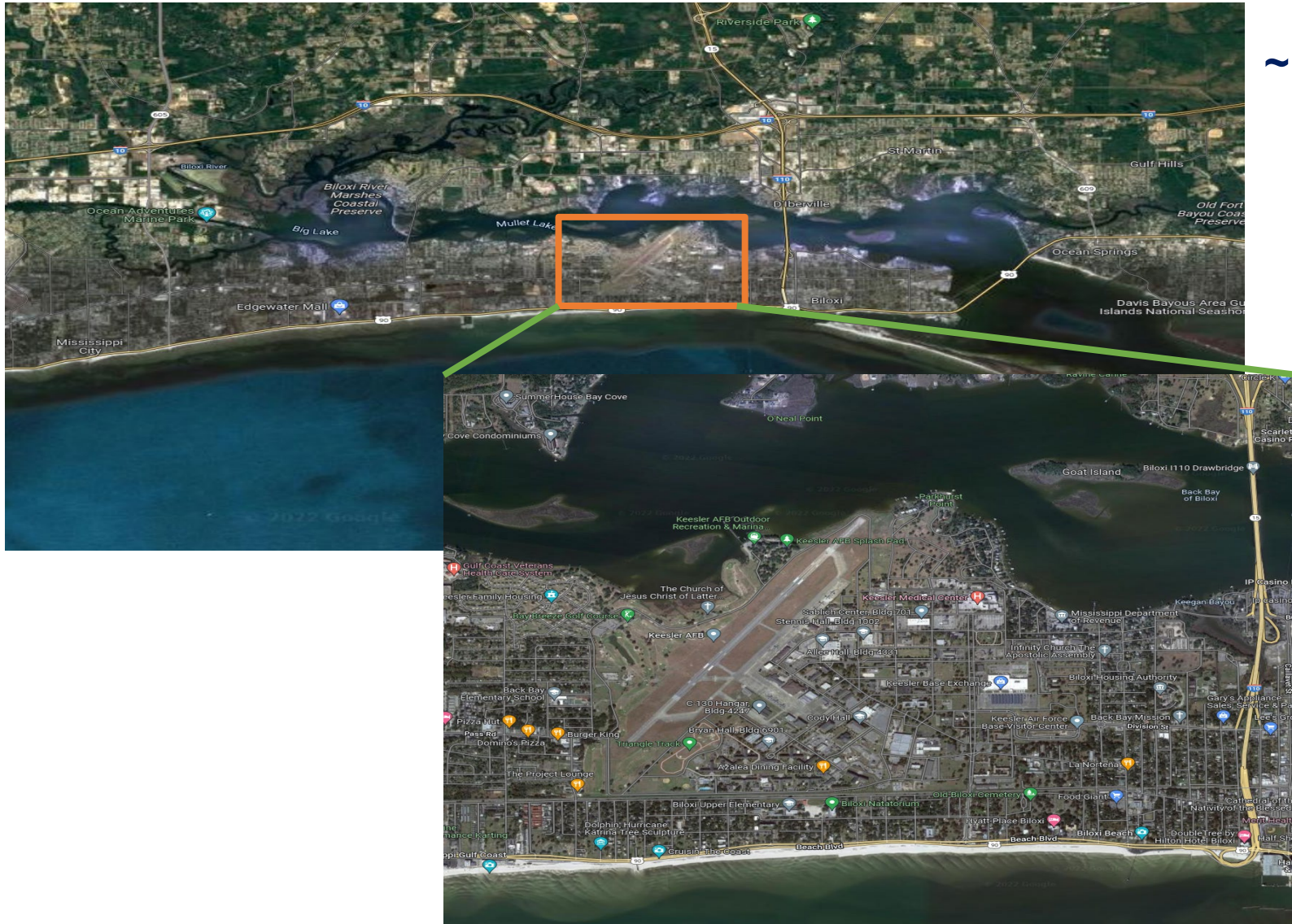
U.S. AIR FORCE

*Cyber Training, Command Post, Air Traffic Control, Financial Management,
Manpower, Public Affairs, Personnel, DoD Weather and more!*

“Train ‘em Right, Train to Fight!”

Mr. Brian Thompson, Director of Staff
81 Training Wing

Geographic and Demographic Snapshot



~12,000 Permanent Party Personnel

220 Total courses; 46 AFSC

12 Training Facilities

5 Support Facilities

9 Dormitories with video cameras

Annual Course Graduates: 30,000

Student Demographics

2,800 average student load

Non-Prior Service (NPS)

Prior Service (TDY & PCS)

Guard/Reserve

DoD Civilians

Sister Services & Coast Guard

International Students (29 Nations)

- **Community partners**
 - State of Mississippi
 - Harrison County
 - City of Biloxi
- **Lessons learned – Mission will carry on**
 - The word “Classroom” developed a whole new meaning
 - Dorms as a weapon system
 - Learn
 - Live
 - Eat
 - Power: Underground lines solar
 - Water: Own our wells
 - Flood: built higher stronger



BE

FOCUSED.

DRIVEN.

WARRIORS.

New Resiliency Partnerships

Keesler AFB Military Installation Resilience



MIR Project Background

- Previous weather events have exposed infrastructure vulnerabilities
- Implement 2017 Keesler AFB JLUS recommendation – *climate resilience assessment*
- Plan to:
 - Assess risks and vulnerabilities
 - Facilitate regional energy resiliency
 - Provide strategic and tactical Courses of Action
 - Increase efficiency and resiliency in the energy system
 - Ensure continuity of operations based on a coordinated approach so that funding and resources are applied most effectively

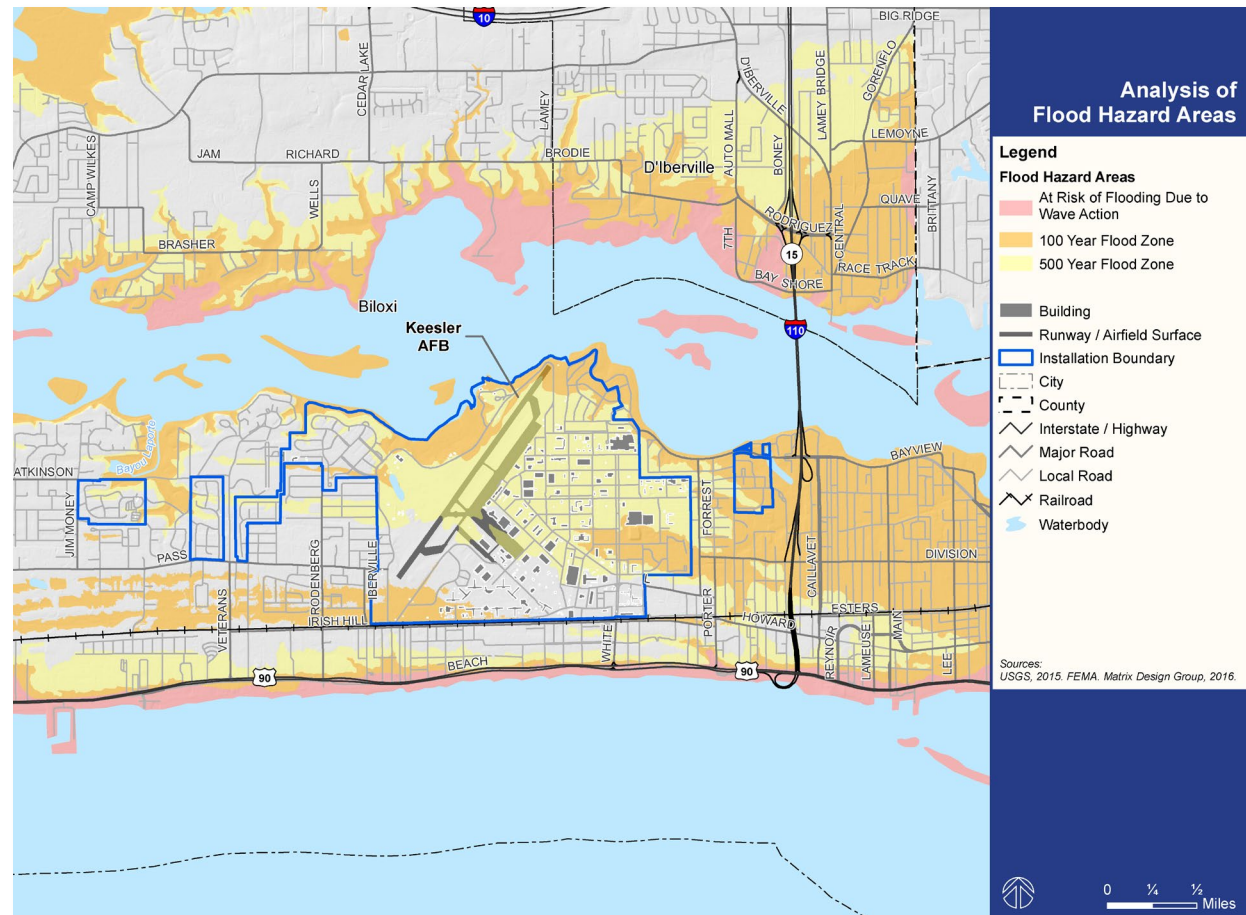
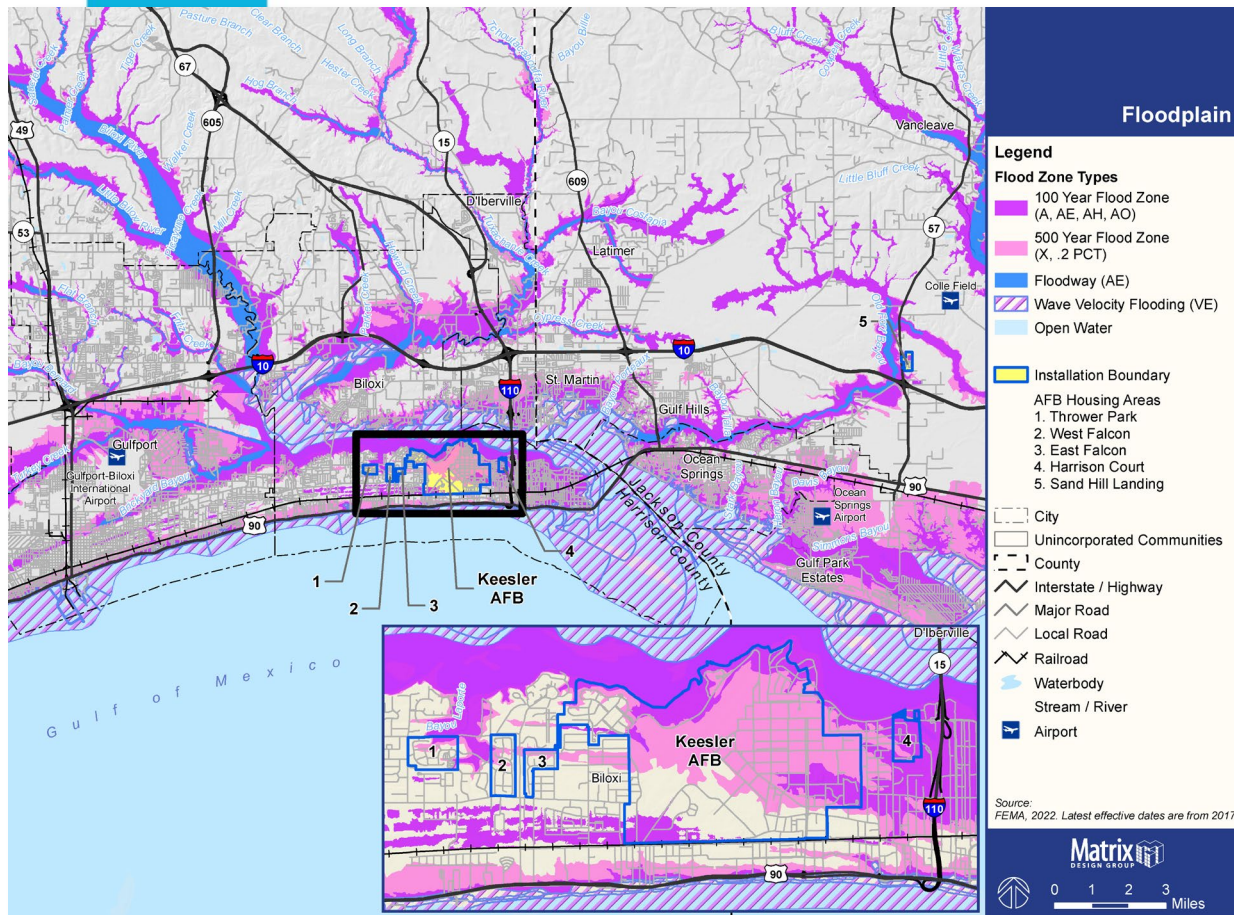


MIR Project Background

- Develop and implement recommendations that make the energy sources more resilient before, during, and immediately after a disaster
- Expand supply, reduce demand, and adapt future technologies
- Mitigate and prepare for negative ecological impacts resulting from hurricanes, floods, and climate change
- Provide energy solutions for both large-scale disasters and small-scale interruptions
- **Expand coordination and partnerships**

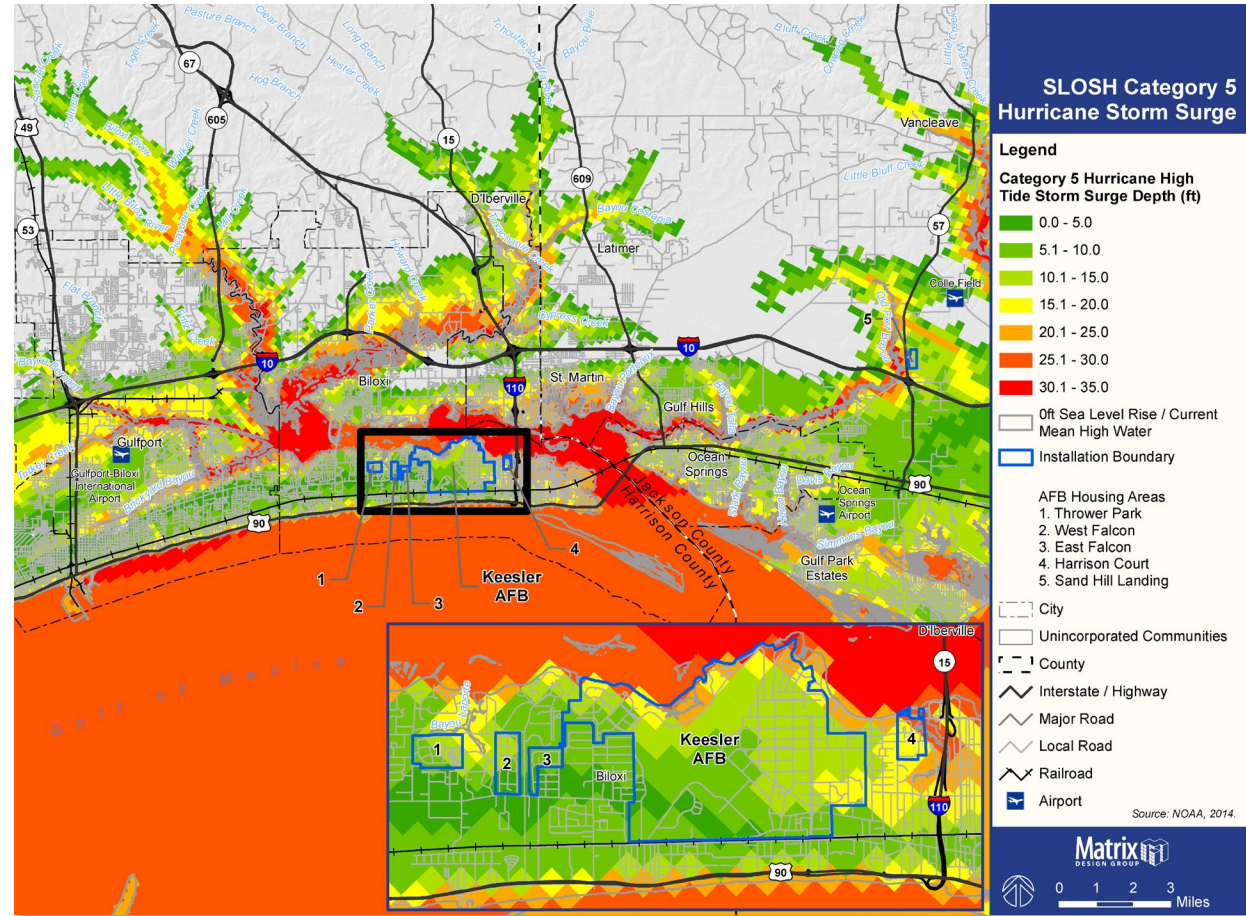
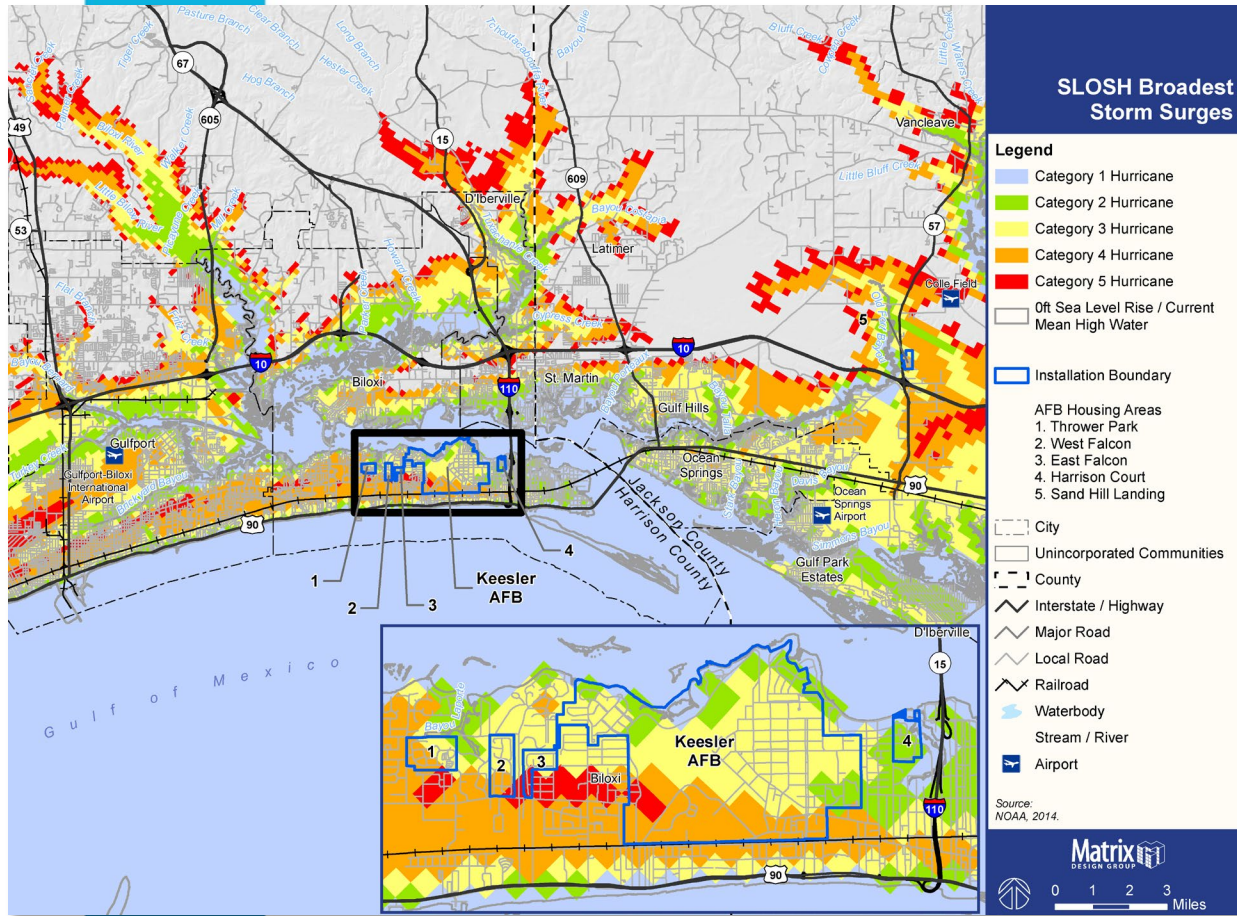
Resiliency Risks

■ GIS-based modeling



Resiliency Risks

■ GIS-based modeling



Vulnerability Assessment

- Evaluation of Keesler AFB and community assets:
 - Extent of disruptions/outages of critical utilities
 - Utility systems dependencies and interdependencies
 - Human Threats and Hazards
 - Physical attacks
 - Ransomware attacks
 - Cyber-attacks
- Vulnerability Assessment Matrix
 - Level of Risk
 - Severity of Risk



Opportunities to Address Mutual Needs

- **Structural Strategies**
 - Facility construction and improvements, built infrastructure construction and improvements
- **Non-structural Strategies**
 - Data and information collection, planning and plans, regulations, education and risk communication, land acquisition, coordination, and mapping
 - Coordination between Keesler AFB and City of Biloxi, utility providers, and state agencies
- **Natural and Nature-Based Strategies**
 - Use of green or natural infrastructure and natural resources

Pikes Peak Area Council of
Governments Compatible Use Study
(JLUS 3)



Background

▶ PPACG is a regional planning agency

- ▶ Includes 3 counties and 13 municipalities - a total population of ~750,000
- ▶ El Paso County, the largest county, is home to:
 - ▶ Fort Carson
 - ▶ Space Base Delta 1 (Peterson Space Force Base, Schriever Space Force Base, and Cheyenne Mountain Space Force Station)
 - ▶ United States Air Force Academy

▶ The primary resiliency tasks (of our third JLUS contract)

- 1) address wildfire risks along the military/civilian interface,
- 2) facilitate communication between USAFA and the surrounding community in addressing stormwater runoff damage along Monument Creek as it flows through USAFA,
- 3) conduct an energy and utilities resiliency study for the Schriever/Peterson/Cheyenne Mountain garrison informed by the new Air Force Climate Action Plan, and
- 4) fund a 30% design study for improved access to Peterson Space Force Base.



Wildfire

- ▶ **Wildfire task involves the community to the significant degree**
 - ▶ Located in a WUI (Wildland Urban Interface)
 - ▶ Area is rated as having a high wildfire potential
 - ▶ Significant areas are heavily forested with steep terrain



Waldo Canyon Fire



Wildfire

▶ Efforts focused on:

- ▶ Building collaboration between numerous wildfire agencies
- ▶ Providing information on available and upcoming grant opportunities
- ▶ Writing grant applications for 3 separate areas bordering the USAFA and Ft Carson
- ▶ Connections between the installation's fire departments and the community

▶ Future efforts may include:

- ▶ Building a collaboration of jurisdictions to seek wildfire mitigation



Stormwater

- ▶ **Monument Creek:**
 - ▶ Runs through USAFA
- ▶ **Issue:** Community development has resulted in significant increases in stormwater runoff that in turn has significantly degraded Monument Creek as well as stressed the endangered Prebles Meadow Jumping Mouse habitat.



Black Squirrel Creek



Stormwater

- ▶ **USAFA, working with the City of Colorado Springs**
 - ▶ To restore, mitigate and avoid future degradation

Our JLUS task is to replicate that work through the facilitation of meetings between USAFA, El Paso County, and the Town of Monument.

- ▶ **A newly formed regional stormwater Working Group**
 - ▶ **A Partnership between:**
 - ▶ City of Colorado Springs, El Paso County, the Town of Monument, and the Fountain Creek Greenway and Watershed District
 - ▶ **Their mission:**
 - ▶ To extend the work done by the City of Colorado Springs to areas outside the City limits



Energy and Climate Resilience Study

Space Base Delta 1

- ▶ Consultant develop an energy and climate resiliency study for the Peterson/Schriever/ Cheyenne Mountain installations. Originally envisioned as energy resiliency study for Schriever only.
- ▶ On hold waiting on release of Air Force Climate Action Plan. Study scope evolved over the past year:
 - ▶ New guidance and studies became available
 - ▶ Peterson Garrison evolved into Space Force Delta 1
- ▶ Still working on the scope, size, timing and cost
- ▶ Essence of the study is to:
 - ▶ Examine how the installations, local utilities, and community affect each other from a resiliency perspective
 - ▶ Examine how resiliency can be enhanced from both a climate and man-made threat perspective



Lessons Learned

- ▶ Translating broad JLUS contract elements into specific actions required significant communication across wide spectrum of community and military partners.
- ▶ Clarity of the actual scope of work only comes after the work on the tasks begins.
- ▶ Flexibility and creativity are essential! Each entity will have different needs, expectations and approaches. Conflicting agendas can be expected.
- ▶ Needs of the installations will change as commands and personnel change. What was important may not be the highest priority today as new initiatives and problems emerge.
- ▶ When writing a scope for your JLUS program, be mindful that your scope may need revising over the life of your contract.



New Partnerships Through Resiliency



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