

Florida is home to over 20 military installations and three combatant commands. Two of these strategic commands are responsible for global military and defense operations that are crucial to U.S. national security. Locally, these bases collectively support[1] over 70,000 military and civilian personnel and contribute around \$95 billion to the state economy annually.

Tampa Bay's Role in U.S. National Security

MacDill Air Force Base hosts two combatant commands and the 6th Air Refueling Wing.

- **U.S. Central Command** is one of six geographically defined unified commands in the Department of Defense (DoD). It is responsible for U.S. security interests in 20 nations in the Middle East and North Africa as well as Southwest and Central Asia.
- **U.S. Special Operations Command** This command's primary mission is to disrupt, defeat and destroy terrorist networks that threaten U.S. citizens and interests worldwide.
- **6th Air Refueling Wing** provides global air support for international and domestic missions conducted by many other commands.

Air Station Clearwater - Coast Guard is one of the largest and busiest air stations in the Coast Guard. The operations area includes the Gulf of Mexico, the Caribbean basin, and the Bahamas. Top priorities include combating drug trafficking and migrant smuggling operations in the Bahamas, and search and rescue responses throughout Florida. Air Station Clearwater is one of the U.S. Coast Guard's largest and busiest air stations. Their operations area spans the Gulf of Mexico, the Caribbean basin, and the Bahamas. Coast Guard operations from this air station frequently execute combating drug trafficking and migrant smuggling operations, as well as search and rescue responses in and around Florida's coast.

CLIMATE-RELATED THREATS TO MILITARY BASES

In a 2019 Senate Armed Service Committee hearing, MacDill AFB was listed as one of the 10 U.S. Air Force Bases most at risk[2] to weather related impacts of climate change. The primary threats to defense operations in the region are intercoastal flooding, extended heat periods, and stronger hurricanes.

Intercoastal Flooding

A Tampa Bay Climate Science Advisory Panel report[3] found that sea levels may rise by 2.56 inches in the eastern gulf of Mexico by 2050. With rising sea levels, Tampa will contend with[4] less underground water storage, saltwater intrusion, and damaged utilities and roadways. Air Station Clearwater and MacDill AFB are near the coast, thus will feel these impacts earlier than areas inland. Further, flooding and outdated wastewater infrastructure has increased[5] the frequency and intensity of harmful algal blooms in Florida water sources, posing a risk to Coast Guard and MacDill AFB marine patrol operations and training due to the blooms' toxicity[6].

Extreme Heat

Extreme heat threatens health and limits mission readiness by making it more dangerous to work outside and for aircraft to takeoff and operate safely. From 2008 to 2018, heat-related illness and associated lost training time cost[7] the military nearly \$1 billion. Between 1970 and 2020 average temperatures in the region increased[8] by 3.2 degrees Fahrenheit. Even with rapid action on climate change, the Tampa Bay will still likely experience an additional 76-147 days with temperatures over 100 degrees. More extreme heat days will only raise health and financial costs the military incurs.

Extreme Storms

The National Weather Service[9] states that storm surges pose the greatest risk in the Tampa Bay region, threatening lives and property. Storms represent a massive risk for bases, disrupting training and operations. In anticipation[10] of Tropical Storm Elsa in July 2021, MacDill AFB shut down its base to all non-mission-essential personnel and relocated its KC-135 aircrafts to Kansas to protect them from potential damage. Shutting down bases and moving aircrafts significantly disrupts mission preparedness, especially considering that the region is on average hit annually by 10 tropical storms.

RESILIENCE EFFORTS AND CLIMATE SOLUTIONS

MacDill AFB has worked on several large-scale projects to mitigate the impacts of the climate crisis and make the military installation more resilient and more effective in carrying out its national security duties. One project, completed in December 2015, oversaw the construction of a 10-acre mitigation pond[11] to improve on base excess water drainage.

The Department of Defense awarded the Tampa Bay Regional Planning Council a \$570,000 Resilience of Military Installation grant to examine the resilience and sustainability of MacDill AFB. \$22 million has also been allocated to harden energy infrastructure to withstand extreme weather events and sea level rise.

Since 1990, 176 acres of the base adjacent shoreline have been restored. In 2014 MacDill AFB was granted a \$41,000 award to create a living shoreline made of saltmarsh and oyster reefs along the southeast shoreline of the base.

MacDill AFB has implemented small-scale changes to decrease its carbon footprint, like LED lighting, magnetic chillers, electric vehicles, and energy-efficient overhead door motors. Since the 2000,[12] total savings from these changes have amounted to \$17.5 million.

FEDERAL PROGRAMS—CLIMATE MITIGATION & RESILIENCE

This list provides examples of programs available to help improve the Tampa Bay region’s resilience to climate change. Some of these programs are available to military installations while others are only open to communities. The funding provided by each program is helpful but insufficient.

The investment needed to catch up to years of deferred maintenance and to be ready for storms as strong as 2018’s Hurricane Michael will be costly, but nowhere near the expense the DoD is likely to incur if the U.S. takes a slow or reactive approach to climate change. The programs need to be expanded.

National Coastal Resilience Fund[13] – \$34 mil/FY for flood protection for coastal communities through green infrastructure and restoration of coastal ecosystems, providing valuable habitats for fish and wildlife. These same wetlands, dunes, and coral reefs also offer flood protection for coastal communities by lessening wave energy and absorbing excess waters.

Flood Mitigation Assistance[14] – \$200 mil/FY for flood-prone areas. Provides funding to states, local communities federally recognized tribes, and territories with flood-prone areas. It can also be used for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program.

Sentinel Landscape Program[15] – \$60 mil/FY to advance sustainable land practices around bases and to strengthen military readiness, conserve natural resources, bolster agricultural and forestry economies, and increase climate change resilience.

Building Resilient Infrastructure and Communities[16] – \$500 mil/FY for hazard-prone areas. Supports communities through capability- and capacity-building to encourage and enable innovation, promote partnerships, and enable large projects.

Military Installation Sustainability[17] – \$12 mil/FY for community vulnerability studies that are used to enhance or fortify vulnerable infrastructure outside a military base.

FEDERAL PROGRAMS—CONTINUED

Defense Community Infrastructure Program[18] – \$50 mil/FY is available to empower communities that surround military installations to strengthen operational readiness by building or strengthening vital community infrastructure such as roads and schools.

Defense Access Road Program[19] – \$20 mil/FY for public highway improvements. DAR empowers communities to mitigate risks to infrastructure posed by recurrent flooding and sea-level fluctuation when continued access to a military installation has been impacted.



ENDNOTES

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