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# Navy Explosives Storage Optimization

A summary of the NAVFAC LANT  
Ammunition and Explosives Facility  
Support (A&EFS) Project



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# THE SCHREIFER GROUP

- WOSB/VOSB
- Founded in 2016
- Core services:
  - Federal Planning
  - Explosives Safety
  - Facilitation
  - Training



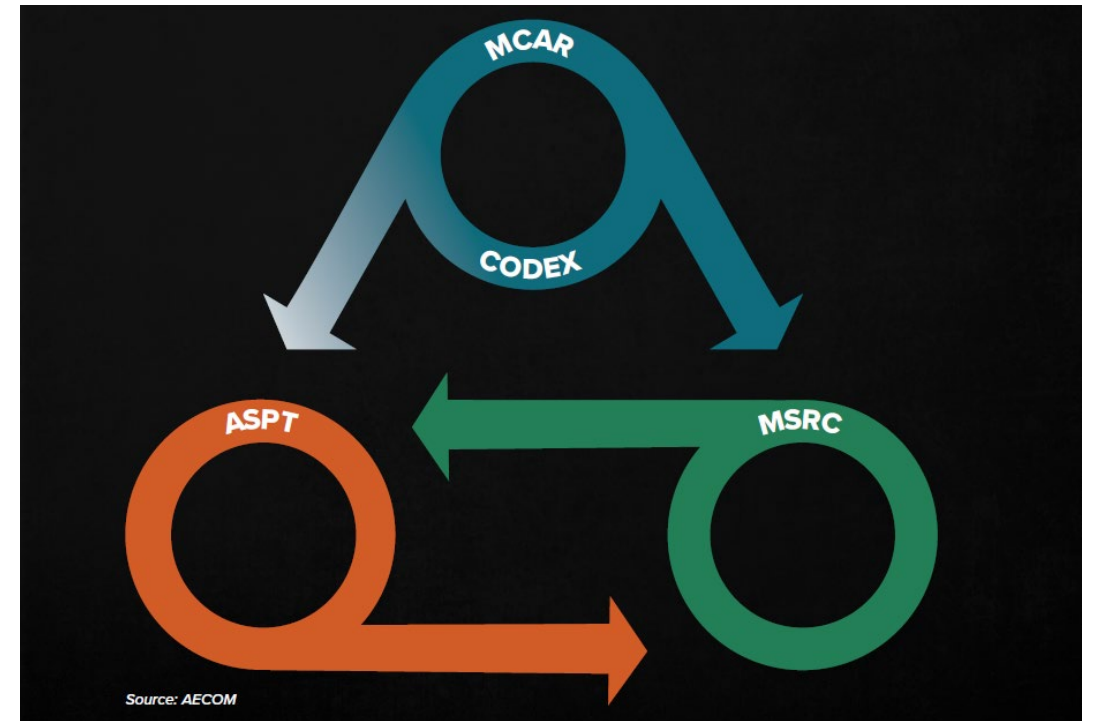
# Agenda

- 1 A&EFS BACKGROUND
- 2 PROJECT HISTORY
- 3 PROJECT OUTCOMES
- 4 NEXT STEPS
- 5 CLOSING

# Ammunition and Explosives Facility Support (A&EFS)

The A&EFS program was created to identify the A&E storage requirements worldwide for the U.S. Navy.

- The Program was managed by NAVFAC LANT
- Primary stakeholders included Navy Munitions Command (NMC), NAVFAC, NOSSA, OPNAV and CNIC
- AECOM served as the prime contractor with APT Research and The Schreifer Group serving as subcontractors
- Huge thanks to NOSSA and EXWC for support throughout the project
- The following slides are taken from the A&EFS Program Overview executive briefing
- All photos and graphics were developed by AECOM



ASPT – Automated Site Planning Tool (Site planning software aka ESS)  
CODEX – 10-digit code identifying critical characteristics of a magazine  
MCAR – Magazine Construction Assessment Report (Survey assessment)  
MSRC – Magazine Storage Requirement Calculator (Excel tool for BFRs)



*A-P-T RESEARCH, INC.*

**AECOM**

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# HISTORY

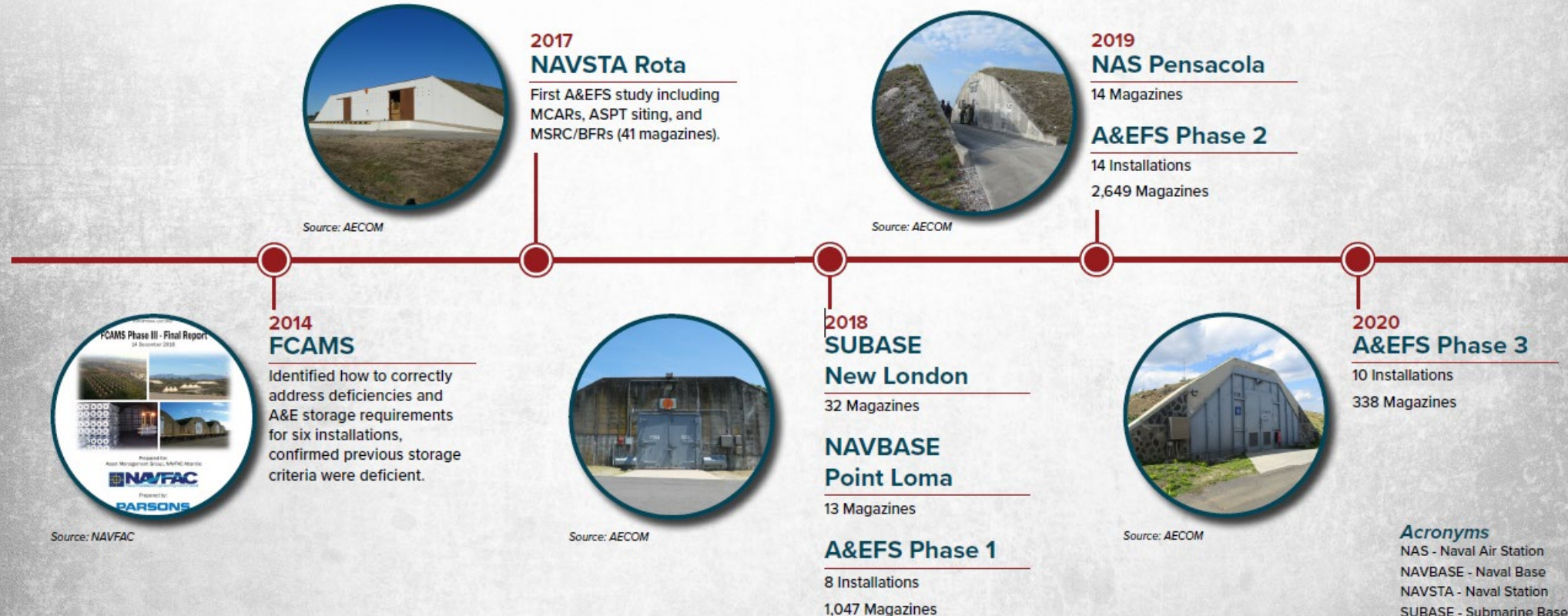
A series of three inspections and evaluations identified that the majority of existing magazines are not adequate to store modern containerized ordnance in the inventory. Additionally, pre-1967 "grandfathered" magazines are not sited in ASPT software or lack a completed Site Approval Request (SAR). These three inspections were:

- 2012 Department of Defense (DoD) Evaluation of Navy's Explosives Safety Management Program (ESMP)
- 2015 Vice Chief of Naval Operations (VCNO) Memo - A&E Storage Facilities Deficiencies
- 2016 Summary of Naval Audit Service Ammunition and Explosives Storage Facilities Audits, N2016-0041

This led to the Fleet Concentration Area Magazine Study (FCAMS) at six U.S. Navy installations, which confirmed that previous storage criteria were deficient and resulted in the creation of the A&EFS program. FCAMS, completed in 2016, also drove the updated *FC 2-000-05N, Facility Planning for Navy and Marine Corps Shore Installations, Series 420 Ammunition Storage* (DoD, 2019).

"...Equating pounds of net explosive weight (NEW) to required square feet of magazine space **cannot** be used to represent all munition or magazine types equally."

- FCAMS





# A&EFS EFFORTS BY REGION

## NAVY REGION

### NORTHWEST

- S A M** NAS Whidbey Island
- S A** NAVBASE Kitsap-Bangor
- S A M** NAVMAG Indian Island

### HAWAII

- S A** JPPHH Lualualei
- S A M** JPPHH West Loch Annex
- S A** PMRF Barking Sands

### SOUTHWEST

- S A M** DET Fallbrook
- S A M** NAF El Centro
- S A M** NAS Fallon
- S A M** NAS Lemoore
- S A M** NAVBASE Coronado
- S A M** NAVBASE Point Loma
- S A** NAVBASE Ventura
- S** NAWS China Lake
- S A M** NWS Seal Beach

### MID-ATLANTIC

- S A** JEB Little Creek-Fort Story
- S A M** NAS Oceana
- S A M** NAVSTA Norfolk
- S A** NSA Crane
- S A M** NWS Earle
- S A M** NWS Yorktown
- S A M** SUBASE New London

### NAVAL DISTRICT WASHINGTON (NDW)

- S A M** NAS Patuxent River

### SOUTHEAST

- S A M** NAS Jacksonville
- S A M** NAS JRB Fort Worth
- S A M** NAS Key West
- S A M** NAS Pensacola
- S A** NAVSTA Guantanamo Bay
- S A M** NAVSTA Mayport
- S** NSA Charleston
- S A M** SUBASE Kings Bay

Source: AECOM

### EUROPE, AFRICA, CENTRAL (EURAFCENT)

- S A M** NAS Sigonella
- S A M** NAS Souda Bay
- S A M** NAVSTA Rota

### JAPAN

- S** CFA Okinawa
- S A M** CFA Sasebo
- S** CFA Yokosuka
- S** NAF Misawa

### JOINT REGION MARIANAS (JRM)

- S** NAVBASE Guam

### LEGEND:

**S** MCAR Surveys

**A** ASPT Analysis

**M** MSRC Analysis

### Acronyms

CFA - Commander Fleet Activities

DET - Detachment

JEB - Joint Expeditionary Base

JBPHH - Joint Base Pearl Harbor-Hickam

JRB - Joint Reserve Base

NAF - Naval Air Facility

NAVMAG - Naval Magazine

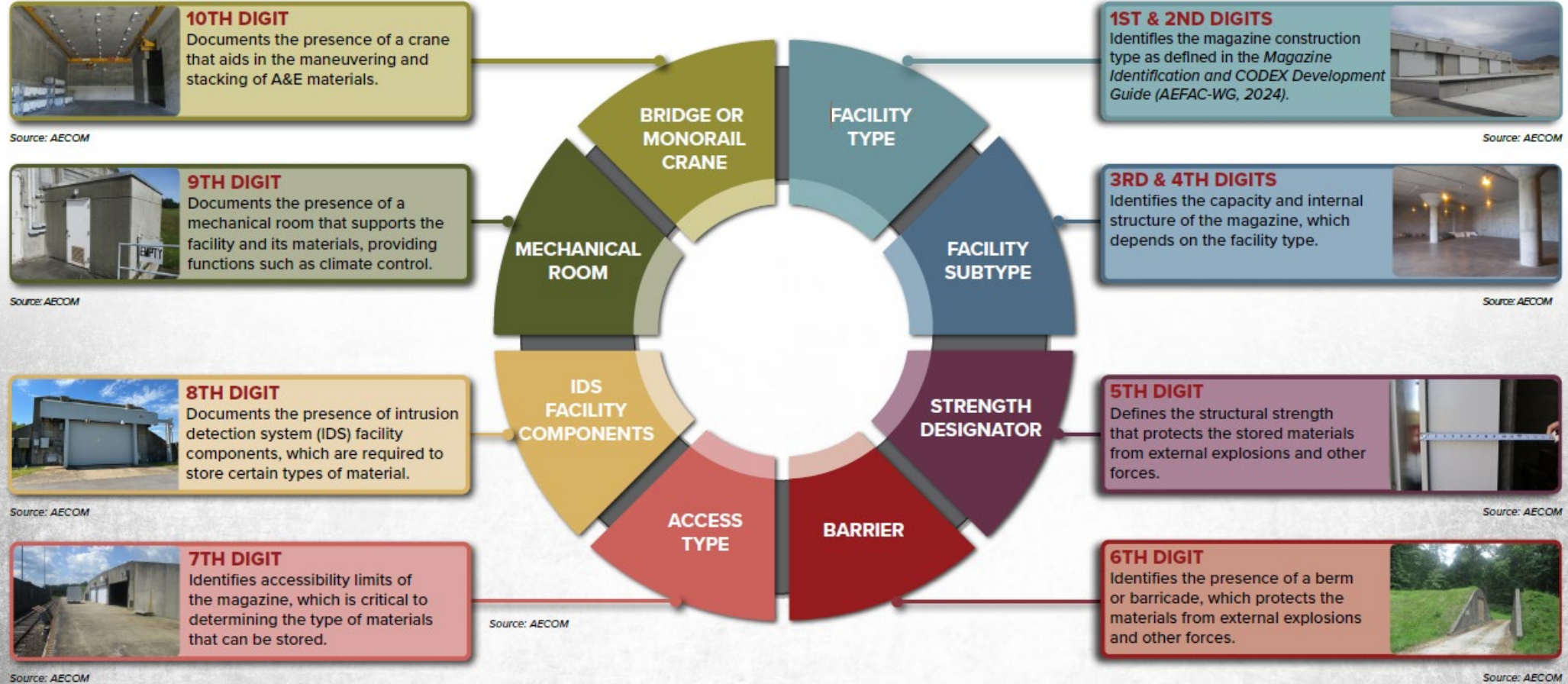
NAWS - Naval Air Weapons Station

NWS - Naval Weapons Station

PMRF - Pacific Missile Range Facility



# MCAR & CODEX



**4,134**  
MCARs  
Created

**39**  
U.S. Navy  
Installations

**50**  
Magazines  
Recently  
Constructed

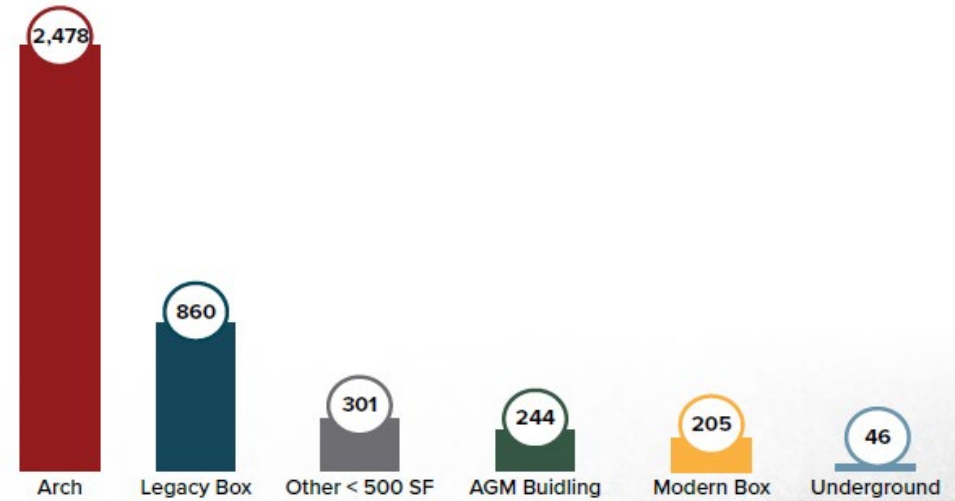
The MCAR documents the physical characteristics and capabilities of magazines. The information captured in the MCAR determines the CODEX, a 10-digit code that summarizes the critical characteristics of the magazine. Once approved by the installation Explosives Safety Officer (ESO), the MCAR forms were uploaded to the internet Navy Facility Assets Data Store (INFADS).

After the site visits were completed, 50 additional magazines were identified as newly constructed via military construction (MILCON) projects. Although these facilities were not surveyed, their projected MCAR characteristics and CODEX values were provided in the reports and used in the ASPT and MSRC analysis. Official MCARs for these facilities are still required.



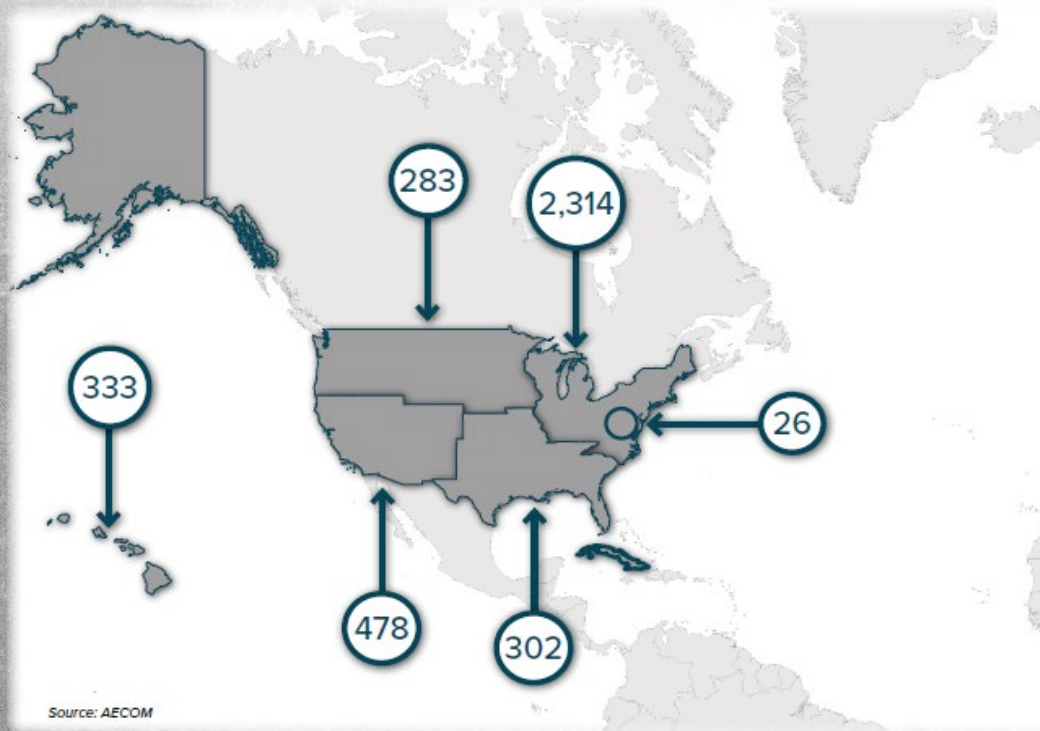
# MCAR SURVEYS BY REGION

The majority of existing magazines are **not capable** of handling and storing modern A&E materials safely or efficiently. This includes arch magazines, legacy box magazines, Aboveground Magazine (AGM) buildings, and magazines less than 500 square feet (SF).



Source: AECOM

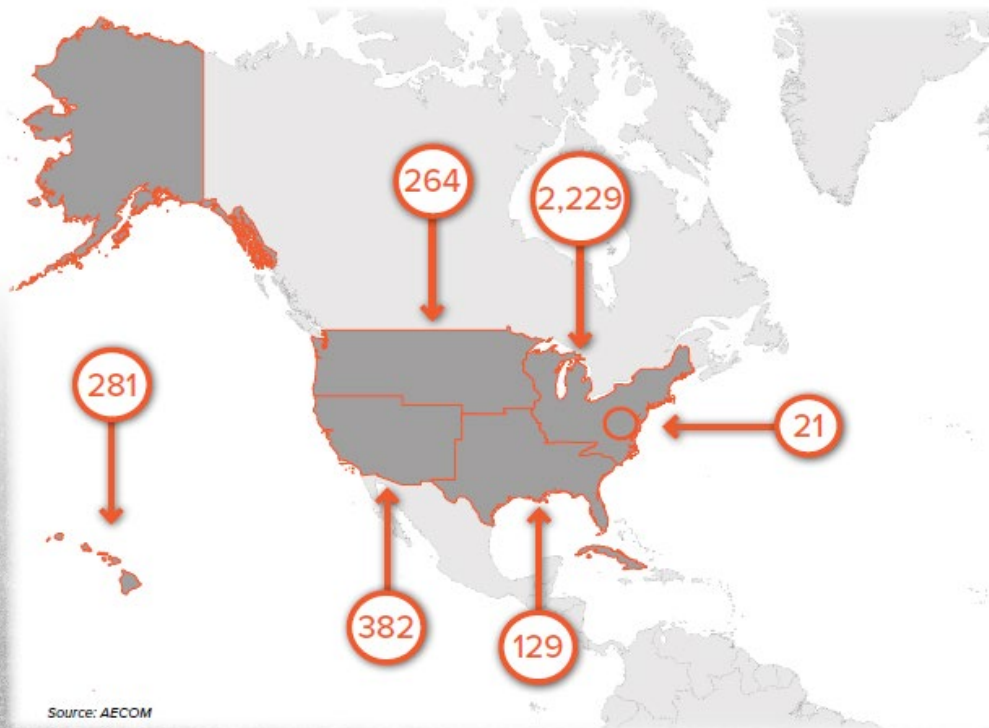
MAGAZINE CONSTRUCTION TYPES



Source: AECOM



# ASPT ANALYSIS BY REGION



**3,572**  
Magazines Sited  
in ASPT

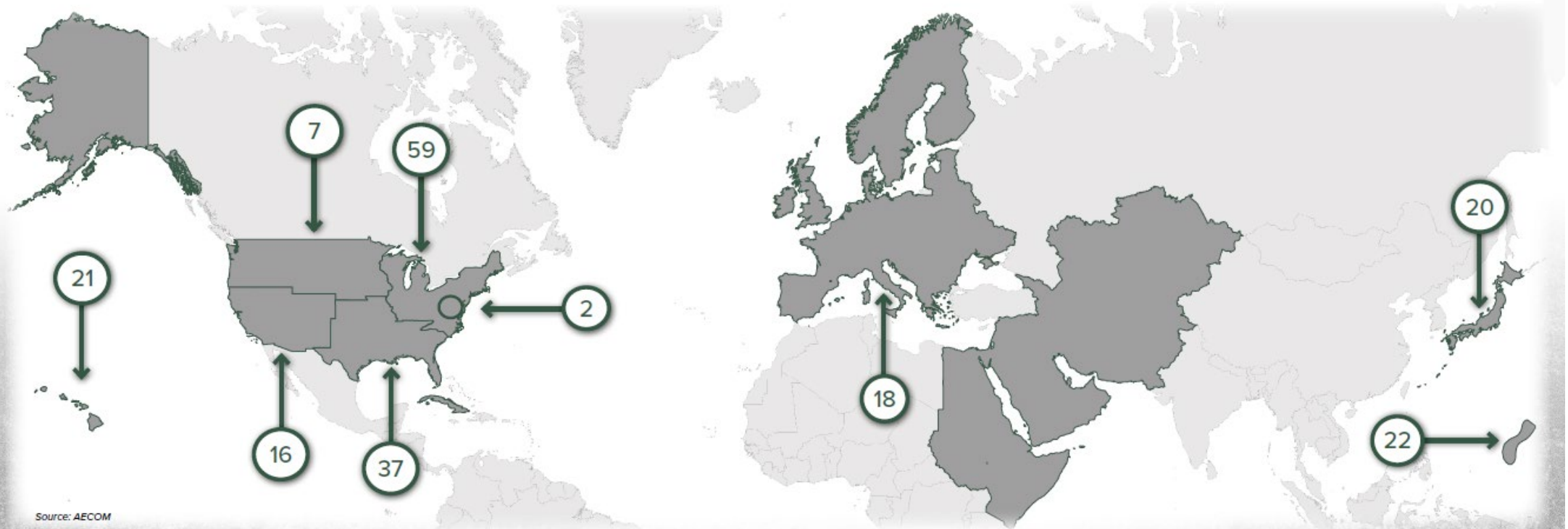
**33**  
U.S. Navy  
Installations

The ASPT software is a Geographic Information System (GIS) tool sponsored by the DDESB that is used to site explosives facilities. Using the software, explosives safety site maps were updated by using the exterior dimensions and CODEX values from the MCARs to maximize NEW values and minimize violations and the need for operational waivers.

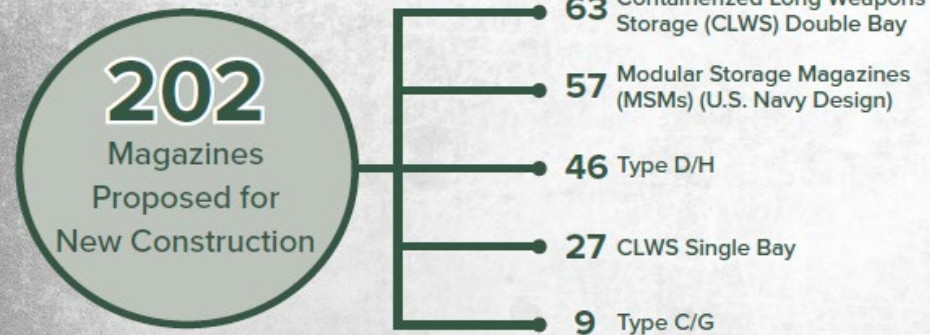
The A&EFS program provided the proposed allowable NEW limits for each magazine based on a Quantity-Distance (QD) analysis. The updated NEW values, upon receipt from NOSSA, are exported to a magazine list that is used in the MSRC analysis to conduct storage planning scenarios.



# MSRC EFFORT BY REGION



Source: AECOM



The MSRC, a Microsoft Excel spreadsheet, analyzes and optimizes the spatial and NEW utilization of the magazines by identifying the number and type of ordnance that can be stored in order to develop BFRs. Using the magazine list from the ASPT and the load plan assigned to the installation, the MSRC analysis calculated A&E storage requirements for 30 installations based on operational preferences of the ordnance handling activity and the installation.

BFRs were generated and documented any deficits and proposed new magazine construction in order to support load plans. As a result of the MSRC analysis and BFRs, magazines were proposed for new construction at 25 U.S. Navy installations.

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# Conclusions

A significant amount of data has been amassed through the A&EFS effort, including:

- Magazine characterization
- Proposed explosive siting information
- New facilities needed to meet future mission requirements

## What's Next?

- Policy updates & facility records
- Explosives siting updates at each installation
- Site planning for future magazines





# THANK YOU!

Questions, comments, and closing discussion



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