

2018 MARINE AVIATION PLAN



A MESSAGE FROM THE DEPUTY COMMANDANT FOR AVIATION

The Marine Corps is manned, trained, and equipped to be an expeditionary force in readiness - the nation's middleweight force - ready and forward deployed, capable of crisis response, entry and sustained operations across the range of military operations. Our Marine Corps exists to fight for the nation we serve, and Marine aviation exists to provide the MAGTF commander the flexibility and agility to conduct that fight at the time, place, and manner of his choosing. Marine aviation supports the ground forces of the MAGTF by contributing to battlespace dominance through air operations and power projection.

My four priorities for our aviation Marine Corps are simple. **First**, we will prepare to deploy to combat, and focus on readiness for combat. **Second**, we will modernize our force with new aircraft and systems, continuing our in-stride rebuild, refit and reset of our force to put reliable aircraft on the line and on the flight deck. **Concurrently** with these two efforts, we will support the maintainers, those experts who make our squadrons operate, by providing them with the leadership, career paths, and incentives that keep them on our team in order to retain and leverage their unique skills. **Finally**, we will focus on MAGTF integration, providing the day and night assault support and tactical aviation to a combined-arms fight anywhere in the world. These priorities are the framework on which we will build tomorrow's force.

Future Operating Environment

In 2015 Marine Corps Intelligence Activity (MCIA) published *Future Operating Environment (FOE) 2015-2025*. This document provides a baseline forecast of the future operating environment so the Marine Corps can anticipate future roles, missions and requirements. The FOE highlights five findings that will challenge the Marine Corps:

1. Adversaries will be capable of faster decision cycles and of creating and implementing information operation campaigns.
2. Adversaries will leverage the rapid development and proliferation of commercial technology to outpace the traditional military acquisitions process.

3. Future conflicts will be marked by ambiguity and uncertainty as to who the adversary is, what their objectives are, and even whether a state of war exists.

4. An increasing number of adversaries will acquire and develop anti-access / area denial (A2/AD) capabilities.

5. In future conflicts the information environment will be contested and leveraged for advantage.

Marine Corps Operating Concept

In 2016, in an effort to address the FOE and the evolving character of war, the Marine Corps published the *Marine Corps Operating Concept* (MOC) as its new capstone operating concept. To address the future operating environment the MOC identifies five critical tasks.

CRITICAL TASK: Integrate the Naval Force to Fight At and From the Sea

Marines are naval infantry. That force must get from ship to shore fast, at night or in terrible weather, as the operational commander gives battle at the time and place of his choosing. Marine aviation brings speed, agility and depth to the MAGTF's battlespace.

CRITICAL TASK: Operate with Resilience in a Contested-Network Environment

The naval tactical grid presents a unique operating environment. This is a mesh network, across which we pull information, and within which we must execute kinetic operations with a contemporaneous cyber fight. The Marine Corps is doubling down on our cyber and information warfare efforts; aviation is doubling down on onboard systems integration and hardening against a contested network environment. We are breaking ground with our Common Aviation Command and Control System, which as its name implies pulls together the MAGTF in to one common operational picture with greater precision and security.

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CRITICAL TASK: Evolve the MAGTF

Distributed operations allow the MAGTF to extend its operational reach and enable maneuver at longer ranges, potentially several hundred miles beyond the shore. Scalable, pre-planned force packages balance logistics, maintenance, and ordnance needs with lighter footprints and rapid response times. These can be tailored and used for any aircraft in the Marine Corps inventory, and will be enabled by dedicated support from the aviation ground support and command, control, and communication communities. This is the fifth-generation aviation combat element (ACE).

CRITICAL TASK: Enhance Our Ability to Maneuver

Aviation creates decision space for operational commanders. The (ACE) has the ability to conduct distributed aviation operations (DAO), forward from the sea, in support of land and/or naval campaigns. DAO is a task-organized MAGTF operation, employing ACE aircraft in a distributed force posture, independent of fixed infrastructure. Doctrinally, the ACE conducts these operations from four types of forward operating bases (FOB): main air base, air facility, air site, and air point. Benefits for conducting DAO include increased operational reach, increased capacity, reduced risk in anti-access/area denial (A2/AD) environments, economy of force for major maneuver elements, flexibility, and surprise. We command and control all of this across the MAGTF and integrate into the naval integrated fire control-counter air (NIFC-CA) mesh as well.

CRITICAL TASK: Exploit the Competence of the Individual Marine

The Marine Corps is only as good as its Marines.

The MAGTF is a combined-arms force, built on the work of thousands of experts in their fields. We have highly-trained aviators flying our aircraft, with several million dollars invested per pilot. We have highly-trained maintenance experts working in the hangars, and in the same way we create Weapons and Tactics Instructors, we are now building out similar, rigorous formal certifications for our highly-trained maintenance Marines. These young men and women keep our aircraft flying. In turn, those aircraft keep the Marine Corps moving.

We are maximizing the competence of these Marines, capitalizing on their expertise and their experience, and we are determined to keep our best Marines in our Corps. It is incumbent upon us to show them a path to senior leadership, a clear progression through the ranks to both capture their knowledge and reward their good work.

The 2018 Marine Aviation Plan

The *Marine Aviation Plan* is an annual planning document, an iterative ten-year look at our plan to transition to new aircraft, keep legacy aircraft ready for combat, provide operational enablers and command and control, and build the **healthy and effective maintenance base** that makes this all happen. This document shows how we nest aviation missions and capabilities beneath the requirements in the MOC, and how we will continue to evolve the force – people, machinery, systems and processes – to better support the ground and joint force.

Headquarters Marine Corps Aviation lays out in the following pages how the aviation combat element will support the MAGTF over the next decade. This document shows how we will man, train and equip the force. We are ready to fight tonight, and we will be ready to fight tomorrow - in any clime and place.



LtGen Steven R. Rudder

Deputy Commandant for Aviation

CH-53E AND K (HMH) PLAN

VALUE TO THE MAGTF

The CH-53E Super Stallion entered service in 1981 and is the **only heavy lift helicopter** in the DoD rotorcraft inventory. The current force of eight active component HMHs and one reserve component HMH(-) has enabled heavy lift assault support operations across the globe. This ship-to-shore vertical connector routinely transports loads in excess of four and half tons out to 110 nautical miles providing the MAGTF and joint force with the ability to quickly mass combat power. Additionally, the Super Stallion's heavy lift capability combined with its global amphibious presence have made it an indispensable asset when responding to both regional hot spots and humanitarian assistance alike.

The CH-53K King Stallion is an optimized vertical heavy lift, sea-based, long range solution for the MAGTF. The King Stallion is currently executing developmental test and in April 2017 received authorization to proceed to Low Rate Initial Production. The physical foot print of the CH-53K is equivalent to that of the CH-53E while its logistical footprint has been reduced.

Most notable is the King Stallion's ability to maintain its increased performance margins in a degraded aeronautical environment (e.g. High-3000' / Hot-95°F / Heavy- 13.5 Tons out to 110 NM).

The CH-53K's new cabin is wider than that of the CH-53E and can now internal a HMMM as well as being compatible with the large TRANSCOM 463L pallets. The new triple hook external cargo system enables discharging three different loads at three different locations while executing one sortie.

Other improvements include: modern glass cockpit, fly-by-wire flight controls, efficient 4th generation main rotor blades, and an engine which produces 57% more horsepower with 63% fewer parts than its

predecessor. The increased capabilities that the CH-53K brings to the MAGTF coupled with its increased reliability and ease of maintenance will set a new standard for vertical heavy lift.

MISSION STATEMENT

Support the MAGTF commander by providing assault support transport of heavy equipment, combat troops, and supplies, day or night, under all weather conditions during expeditionary, joint, or combined operations.



CH-53E AND K (HMH) PLAN

CAPABILITIES: CH-53K

The CH-53K King Stallion is currently in Developmental Test and will **replace the CH-53E Super Stallion starting in December 2019**. The King Stallion is the sea-based, heavy lift, long range solution for the vertical MAGTF. Most notably is its ability to maintain increased performance margins in a degraded aeronautical environment. Improvements include: modern glass cockpit, fly-by-wire flight controls, efficient 4th generation main rotor blades, and an engine which produces 57% more horsepower with 63% fewer parts than its predecessor. The increased capabilities that the CH-53K brings to the MAGTF coupled with its increased reliability and ease of maintenance will set a new standard for vertical heavy lift.

Aircraft Specifications

- Empty Weight: 43,750 pounds
- Max Gross Weight: 88,000 pounds
- Useful Internal Payload: 16,900 pounds
- Useful External Payload: 27,000 pounds
- Speed (Cruise/Max): 150kts / 170kts

Configuration

- Payload: 30 Passengers, 24 litters, (12) 40"x48" Pallets, (2) Full 463L Pallets, (5) Half 463L Pallets
- Armament:(3) GAU-21 .50 cal Machine Guns
- Network Systems: Link 16, VMF, SATCOM
- ASE: DIRCM, ALE-47, APR-39(D)V2

Mission Profile

- Range/Payload/Conditions: 110nm, 27,000 pound external load, . 3000' destination elevation, 95°F OAT

CAPABILITIES: CH-53E

The Super Stallion's heavy lift capability combined with its global amphibious presence have made it an indispensable asset when responding to both regional hot spots and humanitarian assistance alike.

Aircraft Specifications

- Empty Weight: 37,500 pounds
- Max Gross Weight: 73,500 pounds
- Useful Internal Payload: 13,200 pounds
- Useful External Payload: 15,000 pounds
- Speed (Cruise/Max): 130kts / 150kts

Configuration

- Payload: 30 passengers, 24 litters, (7) 40"x48" Pallets
- Armament: (3) GAU-21 .50 cal Machine Guns
- Network Systems:FBCB2 Blue Force Tracker
- ASE: DIRCM, AAR-47(v)2, ALE-47 DD Pods, APR-39

Mission Profile

- Range/Payload/Conditions: 110nm, 9,654 pound external load, . 3000' destination elevation, 95°F OAT

CH-53E AND K (HMH) PLAN

ORGANIZATION

Marine Corps CH-53 squadrons are organized to support the specific requirements of the MAGTF. A CH-53 squadron is designed to be task organized and is manned, trained and equipped in the following manner:

- 16-aircraft squadron (1.0) Primary Mission Aircraft Authorization (PMAA)
- 12-aircraft temp squadron (.75) Primary Mission Aircraft Inventory (PMAI)
- 8-aircraft squadron minus (.5)
- 4-aircraft detachment (.25)

A 1.0 squadron is capable of sourcing a .5 and two .25 requirements simultaneously. The current inventory of 145 aircraft is approximately 51 aircraft deficient of the program's 196 aircraft requirement. This decrement has caused DCA to temporarily reduce tactical squadrons to a .75; this temporary base unit is only capable of supporting a .5 and a .25 requirement simultaneously. It is very important to note that a temp squadron cannot source three .25 requirements simultaneously. Additionally, in the current structure a 1.0 requirement would require the sourcing squadron to be complemented by a .25 detachment from an adjacent unit.

The **CH-53K** will return the heavy lift community back to 16-aircraft squadrons. This will be enabled by the fielding of new CH-53Ks and the re-capitalization of CH-53E inventory from transitioning squadrons. Of note, the 200 aircraft program of record is 20 aircraft short of the 220 requirement (placing a 20 aircraft risk in attrition) due to fiscal constraints.

The Marine Corps will procure a total of 200 CH-53Ks in the following squadron bed down:

- 8 active squadrons x 16 CH-53K
- 2 reserve squadron (minus) x 8 CH-53K
- 1 fleet replacement squadron x 21 CH-53K

The Marine Corps will start the CH-53K transition with the IOC declaration of the HMH-366 detachment at the end of calendar year 2019. It will take approximately four years for HMH-366 to complete its CH-53K transition (subsequent squadrons are planned for 18-month transitions.) 2nd MAW will complete the CH-53K transition in FY26 followed by 1st MAW in FY27 and 3d MAW in FY29.

In late FY23, HMH-366 will chop the first CH-53K MEU detachment and will set the initial conditions for east coast sustained CH-53K MEUs. The CH-53K program achieved Milestone C, and Developmental Test has moved from Juniper, Florida to Patuxent River. The first operational deployment for the CH-53K has shifted from FY23 to FY24 due to a decrease in initial aircraft procurement.

The Okinawa Unit Deployment Program UDP and its associated MEU will transition to CH-53K by FY26 and west coast MEUs by late FY28. CH-53Es from transitioning squadrons will be redistributed within the fleet with priority going to 3d MAW, permitting a return to a 16 aircraft PMAA. This repopulation will enable 1.0 squadrons and the ability to support .5 squadron minus and two separate .25 detachments simultaneously.

During the CH-53K transition, CH-53E/K personnel will be segregated to the max extent possible. **Once a Marine transitions to the CH-53K, he/she will permanently cease operations on the CH-53E.** The only exception to this policy will be VMX-1. For a very limited duration, VMX-1 pilots and maintainers will be dual-series qualified until VMX-1 divests of CH-53E operational test responsibilities (approximately FY22).

CH-53E AND K (HMH) PLAN

FRS

The CH-53K Transition Task Force (TTF) identified lessons learned and best practices from the V-22 transition. During the V-22 transition, the last HMM scheduled for transition re-designated as an HMMT and assumed the CH-46 FRS. These responsibilities were in effect until the demand signal for initial pilot training ceased. The squadron redesignated back to an HMM and executed the final tactical deployment of the CH-46 prior to its V-22 transition.

Similarly, the **CH-53 FRS will reach a tipping point where the majority of its focus will shift from CH-53E to CH-53K (approximately FY22)**. To enable this action the last HMH scheduled to transition will assume the CH-53E FRS. Prior to redesignation, 3d MAW's remaining three tactical squadrons will return PMAA to offset this action. These actions will enable a flexible CH-53K FRS with the ability to quickly increase output with changes in demand signal. The CH-53E FRS will continue to sustain legacy production while not decrementing tactical capability in 3MAW.

The CH-53K Transition Policy Letter dictates that three units (HMH-366 Detachment Bravo, VMX-1 CH-53 Detachment and HMHT-302 KILO) will execute early stages of the transition in HMHT-302 spaces.

HMH-466 will re-designate as HMHT-466 in FY21 in order to start to assume CH-53E FRS duties.

HMHT-302 will divest of CH-53Es in FY22.

MANPOWER

The status of TMS-specific MOSs in the Marine heavy helicopter community continues to be healthy. However, as with the rest of Marine aviation, there are grade disparities that exist within the aircrew and maintainer inventories as a result of the force-shaping tools used

during the 202K downsizing.

HQMC Aviation ensures the force structure requirement is accurate in order to provide the correct demand signal to planners and assignments monitors at Manpower and Reserve Affairs.

The Marine Corps' Total Force Structure Management System (TFSMS) and unit tables of organization reflect the majority of the CH-53K transition depicted in the AvPlan. However, HQMC must still find structure for the planned activation of HMH-769(-) in FY23. The CH-53 cell continues to focus on setting proper conditions for the successful transition to the CH-53K, while not increasing overall aviation force structure. HQMC Aviation has several ongoing initiatives to ensure the correct force structure and subsequent inventory is in place to facilitate a smooth transition.

The FY18 MOS Manual establishes the skill designator of 7511 for CH-53K qualified pilots and 6053 for enlisted maintenance personnel and aircrew. In October 2017, Marines who meet the requirements for the MOS will be able to run 7511 or 6053 as an additional MOS in the Marine Corps Total Force System. The ability to identify personnel with CH-53K training will inform manpower processes and enable a successful transition by keeping trained personnel in critical billets.

HQMC Aviation is updating the initial force structure laydown for CH-53K stakeholders to ensure the continued accomplishment of developmental and operational testing and officer and enlisted student training. To that end, VMX-1 and HX-21 will have the necessary force structure to achieve the assigned tasks while building the inventory to staff HMHT-302 and HMH-366.

CH-53E AND K (HMH) PLAN



RESERVE INTEGRATION

In FY24, the reserve component will re-activate HMH-769 at MCAS Miramar. This will provide the reserve component with two HMH(-)s, one on each coast. HMH-769 will also assume CH-53E CAT IV (refresher training) once HMHT-466 re-designates back to HMH-466. Numerous times during the CH-53K transition these two reserve squadrons will provide operational relief to the active component executing transition.

Marine reserve integration of the CH-53K begins in FY19, when HMH-772 (-) will return to its full complement of CH-53E aircraft, and will eventually transition to the CH-53K in FY29.

The CH-53K transition will be complete with the final 4th MAW squadron (HMH-769) transitioning in FY32.



CH-53E AND K (HMH) PLAN

INITIATIVES AND WAY AHEAD

On the five year horizon for the CH-53 community is:

- 1) Continued execution of the CH-53E readiness recovery and sustainment plans.
- 2) Installation of Smart Multifunction Color Display (SMFCD) kits with the Brown Out Symbolology Set (BOSS).
- 3) IOC of the first CH-53K detachment and subsequent initial transition of the first tactical squadron and FRS.
- 4) Complete Reset of the entire CH-53E fleet of aircraft.
- 5) Software Reprogrammable Payload (SRP) with LINK 16.
- 6) Initial return of 16 aircraft squadrons (PMAA).



UPGRADES

Mode V IFF FY20

Embedded SATCOM FY19

Smart Multifunction Color Display (SMFCD) with Brown Out Symbolology Set (BOSS) FY19

APX-123 for ADSB-out FAA mandate FY20

DVE Phases II and III

ASE/SURVIVABILITY :

Hostile Fire Indication (HFI)

Advanced Threat Warner/Missile Warner/Laser Warner

Integrated Aircraft Survivability Equipment (ASE)

INTEROPERABILITY :

Software Reprogrammable Payload (SRP) radio replacement

LINK 16

RELIABILITY:

419 Engine Upgrade FY20

Prognostic/Diagnostic Based Maintenance FY18

Engine Nacelles FY21

Kapton Wiring II & III Replacement FY18

CH-53E AND K (HMMH) PLAN

CURRENT FORCE:

8 AC SQDN x 12 CH-53E (1)

1 RC SQDN x 6 CH-53E (2)

1 FRS SQDN x 10 CH-53E / 2MH-53E (3,4)

FORCE GOAL:

8 AC SQDN x 16 CH-53K

2 RC SQDN(-) x 8 CH-53K

1 FRS SQDN x 21 CH-53K

		FY18				FY19				FY20				FY21				FY22				FY23				FY24				FY25				FY26				FY27				FY28			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
MAG-16 Miramar																																													
HMH-361	12 CH-53E																	16 CH-53E															K			V									
HMH-462	12 CH-53E																	16 CH-53E															K				V								
HMH-465	12 CH-53E																	16 CH-53E																	K										
HMH / HMHT-466	12 CH-53E													FRS				16 CH-53E																			HMH-466								
3MAW MATSS	1 CH-53E WST																																												
	1 CH-53E APT																																												
	3 CH-53K CFTD																											1			2		3												
MAG-24 Kaneohe Bay																																													
HMH-463	12 CH-53E																	16 CH-53E															K			V									
1MAW MATSS	1 CH-53E CFTD																																				Sundown								
	1 CH-53K CFTD																																												
MAG-29 New River																																													
HMHT-302	12 CH-53E																																												
	2 MH-53E																																												
HMH-366	12 CH-53E																																												
HMH-461	12 CH-53E																	16 CH-53E																											
HMH-464	12 CH-53E																	16 CH-53E																											
VMX-1 (H-53 DET) (6)	3 CH-53E																																												
2MAW MATSS	1 CH-53E WST																																												
	1 CH-53E APT																																												
	3 CH-53K CFTD																																												
	2 CH-53K FTD																																												
MAG-41 Miramar																																													
HMH-769 (-) (5)	8 CH-53E																																												
MAG-49 Joint Base McGuire-Dix-Lakehurst																																													
HMH-772 (-)	6 CH-53E																																												
4MAW MATSS	1 CH-53E FTD																																												
	CFTD																																												

A = ACTIVATE K = ENTERS CH-53K TRANSITION V = FOC TOTAL CH-53E INVENTORY = 145 CH-53K POR = 200 (220 REQ)

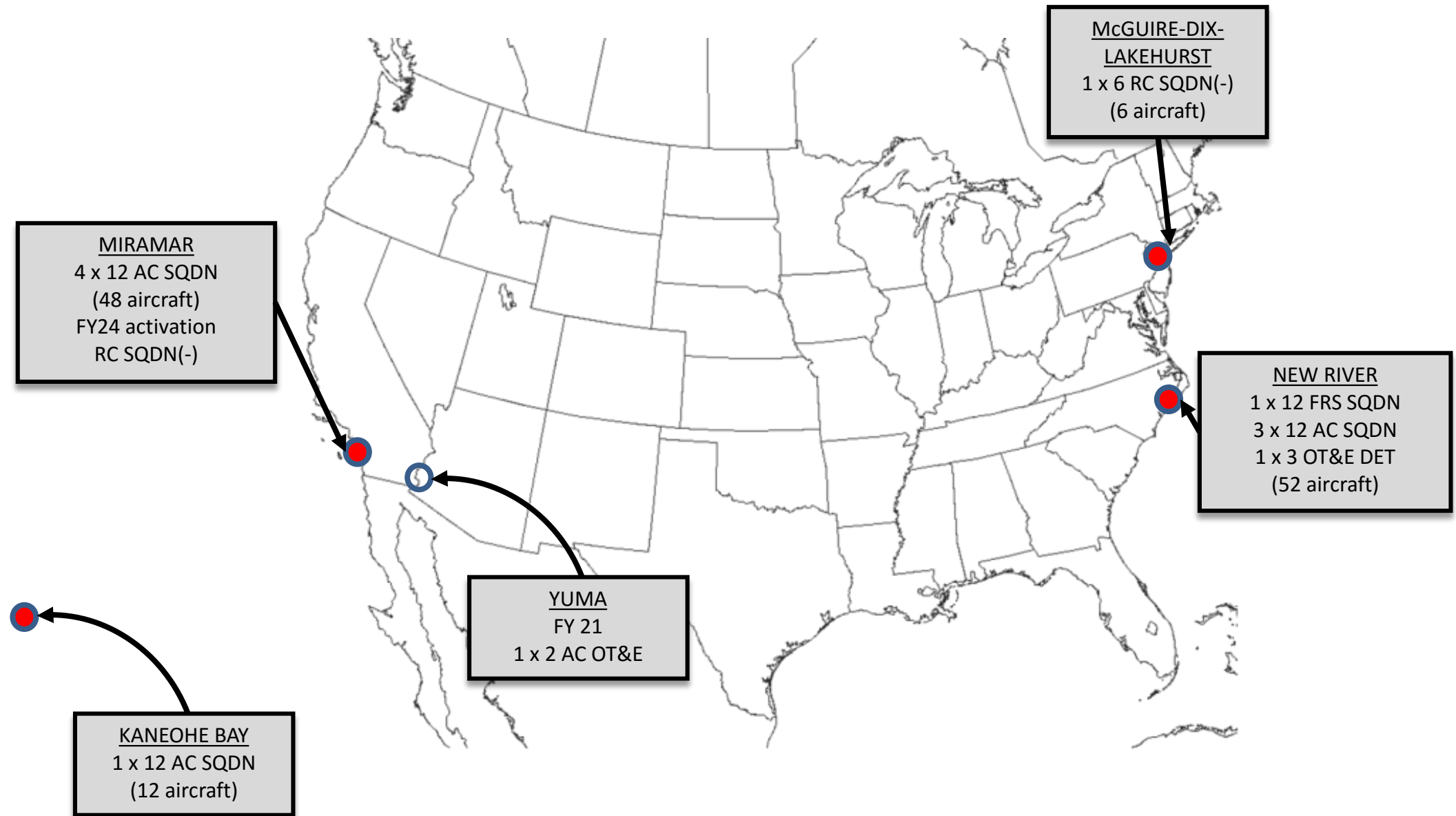
NOTES:

- 1) PRIMARY MISSION AIRCRAFT INVENTORY (PMAI) OF 12 A/C PER SQUADRON IS DUE TO INVENTORY SHORTFALLS, WHICH DO NOT SUPPORT PRIMARY MISSION AIRCRAFT AUTHORIZATION (PMAA) OF 16 A/C SQUADRONS. ONCE CH-53K TRANSITION BEGINS, CH-53E AIRCRAFT WILL BE CAPITALIZED FROM TRANSITIONING SQUADRONS TO ENABLE THE RETURN TO 16 A/C SQUADRONS.
- 2) PMAI OF 6 A/C PER SQUADRON UNTIL TOTAL INVENTORY SUPPORTS 8 A/C SQUADRON FACILITATED BY CH-53K TRANSITIONING SQUADRONS.
- 3) HMHT-302 WILL BECOME A DUAL T/M/S (CH-53E/CH-53K) UNTIL FY22 WHEN IT BECOMES STRICTLY A CH-53K FRS. HOWEVER PILOT AIRCREW AND

MAINTAINER POPULATIONS WILL BE SEGREGATED BETWEEN 53E AND 53K. HMH-466 WILL RE-DESIGNATE HMHT-466 IN FY21 SHARING FRS DUTIES AND ASSUME MODEL MANAGER IN FY22 UNTIL FY28.

- 4) TWO AMARG MH-53Es ADDED TO INVENTORY IN FY15 FOR HMHT-302 FAMILIARIZATION AIRCRAFT CONVERSION, EST DELIVERY DATE OF FY17
- 5) SQUADRON (-) ACTIVATES, LOCATION MCAS MIRAMAR FY23
- 6) VMX-1 53 DET WILL BE DUAL T/M/S UNTIL FY21 WHEN THE DETACHMENT EXECUTES PCS TO YUMA AND DIVEST OF CH-53E OPERATIONAL TEST RESPONSIBILITIES.

CH-53E AND K (HMH) PLAN



CH-53E AND K (HMH) PLAN

DEVELOPMENTAL TEST Ongoing efforts include:

CH-53E: #2 Engine Bay Overheat Detection, HUD upgrades, SMFCD, PDBM.

CH-53K:

- 1) GTV- conduct Long-Term Reliability Test, Aircraft Tear Down and Reconfiguration, Over Speed Test, C-17 Load and Live Fire Test and Evaluation.
- 2) EDMs- Shakedown and Envelope Expansion, Survey and Qualification Demonstration, Sea Trials, Technical Evaluation, REV2D (deferred capabilities testing) and P3I (what are the capabilities and what is required to be added).
- 3) SDTAs- Survey and Qualification Demonstration, C-5 Load, Logistics Demonstration, and E-Cubed.



OPERATIONAL TEST AND EVALUATION : Ongoing efforts include:

CH-53E: #2 Engine Bay Overheat Detection, HUD upgrades, SMFCD, PDBM, ALE-47/AAR-47 DIRCM, Digital Interoperability.

CH-53K (STDAs Only):

1) Initial Operational Test & Evaluation

- MCAS New River- Confined Area Landings, Extended Range Deployment, and Simulator Evaluation.
- MCAS Yuma (Dirt Det)- External Cargo Resupply, Combat Troop Insertion, Confined Area Landings, Defensive Maneuvering, TRAP, Raid and Extended Range Deployment.
- USS Ship- Expeditionary External Cargo Movement, Expeditionary Internal Payload Movement, Combat Cargo Insertion and Sortie Generation Rate Demonstration.

2) Follow-On Test & Evaluation

- REV2D
- P3I
- Digital Interoperability
- DVE Phase III