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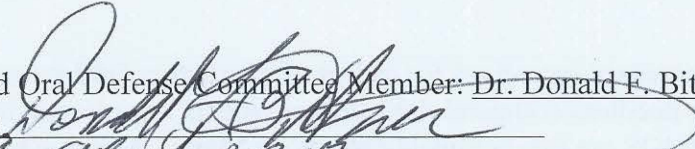
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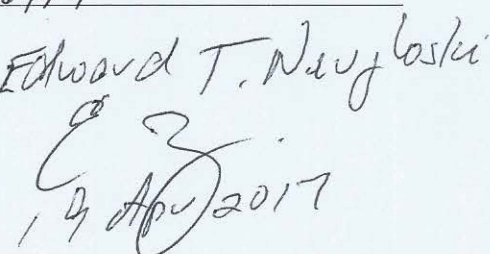
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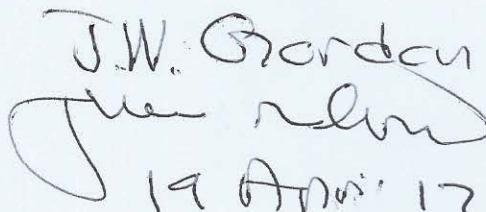
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Executive Summary

Title: Aircrew Retention in the Second Decade of the 21st Century: A Crisis of Manpower and Addressing Future Readiness

Author: Major Beau B. Bell, United States Marine Corps

Thesis: Marine Corps aviation faces many current and future challenges to include aircrew retention.

Discussion: Marine Aviation stands at a critical point in its storied history. The fiscally constrained Department of Defense budgets, in part, have left squadrons lacking parts and resources for conducting requisite flight operations; this in turn has led to a reduction in flight hours and training for aircrew. Current readiness rates are at an all-time low in certain Type, Model, and/or Series (T/M/S), and mishaps are increasing at a steady rate. And while the Deputy Commandant for Aviation works to acquire resources to improve squadrons' ability to meet mission readiness, aviators are leaving for job opportunities in the civilian sector.

Current manpower capacity issues are soon to exacerbate a looming retention issue among aviators and, despite ongoing fiscal constraints, the Marine Corps should consider monetarily incentivizing the retention of the highest quality aviators regardless of T/M/S. Moreover, the additional/collateral duties assigned outside of Primary Military Occupational Specialty (PMOS) should be reduced as they hinder aviators' ability to focus on their tradecraft and ultimately sap holistic readiness.

As Headquarters Marine Corps (HQMC) Marine Aviation works diligently with Manpower and Reserve Affairs, other deputy Commandants, and the training command on top-down solutions to address current manpower shortfalls, bottom-up input and approaches are more than likely integral to fixes. The *2015 Aviator Retention Survey* gave HQMC insight into factors in which those solutions could and should be focused. The Marine Corps is investing in advanced aviation systems of the future, and should invest, with equal determination, in immediate, action-oriented solutions to retain aircrew and ensure the balance of current and future cadre of aircrew and instructors. Anything less risks a deepening crisis of manpower and further decline in quality and addressing future readiness.

Conclusion: Providing monetary incentives for cadres of instructors (and future instructors), while cutting needless collateral duties/requirements impeding aviators' ability to focus on their PMOS are two actionable solutions Marine Aviation must undertake.

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DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNEMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

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Preface

Aircrew retention has been, and continues to be, a ‘hot’ topic in military aviation. Some Type, Model, and/or Series (T/M/S) aircraft communities are at a larger deficit of retaining quality and experienced aviators than others. I feel this is an extremely important topic because, simply stated, without qualified aircrew to fly and teach our next generation, the Marine Corps will not be adequately manned to carry out the future missions for which it is tasked.

The focused F/A-18 examples used throughout this paper highlight the challenges of producing future instructors, decreasing manpower effects, and competing additional duties/requirements. The intent, however, is to bring to light concerns for the entire aviation community—officers, staff noncommissioned officers, and junior Marines alike—who also suffer from these or similar challenges, regardless of T/M/S. Furthermore, the proposed solutions apply not only to Marine aviators but, equally important, the highly-qualified maintainers who are just as integral in terms of aircraft, and therefore, mission readiness. Just as this paper identifies the impending crisis of aircrew retention, enlisted retention needs to be studied just as vigorously, however, that is beyond the scope of this document. Due to the contemporary and ever-changing nature of aviation issues, the discussion, analysis, and recommendations of this paper are current as of early April 2017.

I must first acknowledge all those aviators, both past and present, that have in some form or fashion positively influenced my career. The list is long and distinguished, and I am eternally grateful for I am a far better officer today as a result of their fellowship and/or mentorship. I would like to thank Major Steve “RB” Nyland, USMC for his thoughtful suggestion on aircrew retention that I herein pursue, and for his selfless help in deriving specific sources which aided in my research. Additionally, I would like to thank all of those senior, peer, or junior officers (too many to name) that provided invaluable input, but more importantly their time, towards this academic venture. Lastly, and most importantly, to my wife (Keri) and daughter (Khloe) who sacrifice and endure the daily hardships of being in a Marine family. I could not do what I do for the Marine Corps without their continued love and support.

The following individuals and/or entities were influential in providing data or source support, and I am humbled by their time and efforts in assisting me write this paper:

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Introduction

The state of the Marine Corps aviation community after more than a decade of fighting in Iraq and Afghanistan is at an historical low point. Numerous deployments occurring at an unsustainable tempo throughout the world have negatively affected the readiness of warfighting assets and the Marine warfighters. The *Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century, 2016*, states that “we need to change where it makes sense, adapt as quickly as possible, and constantly innovate to stay ahead of our adversaries.” Because “our people have always been the Marine Corps center of gravity and the key to our success as warfighters,” it is therefore important to address the challenges of the future, specifically, aircrew retention so that we will continue “to win in any clime and place.”¹

Marine Aviation consists of a diverse array of capable aircraft, each with different roles, sensors, and performance characteristics, but with the same objective of supporting the Marine on the ground. Fixed-Wing (FW) F-35 Lightning II, F/A-18 Hornet, AV-8B Harrier II, EA-6B Prowler, and KC-130J Super Hercules aircraft, rotary-wing AH-1 Super Cobra/Viper, UH-1 Huey/Venom, and CH-53E Super Stallion, and tilt-rotor MV-22 Osprey aircraft make up this aerial arsenal. Some of these Type, Model, and/or Series (T/M/S) aircraft maintain a relentless operational tempo at or under the advertised “deployment to dwell of 1 to 2.”² This is true of the F/A-18 community, upon which this paper will largely focus for context and examples. This tempo places, and continues to place, compounded internal and external strains on aircrew that highlight lasting negative effects. As a result, officer aircrew are currently turning towards the ‘exits’ and seeking employment elsewhere. Aviators that may have never considered joining the airlines or

looking toward the civilian sector are doing so earlier than expected in their careers as they realize the weight of staying in and continuing to ‘row’ for the Marine Corps.

Additionally, the most recent *2015 Aviator Retention Survey* identified a major morale problem among aircrew as austerity in budgets leave squadrons lacking parts and resources to fly aircraft.³ In turn, this has led to a reduction in flight hours, training, and skill quality over the past decade. Furthermore, ready rooms endure a relentless increase in ground training requirements that counter-intuitively result in aviators devoting more time towards their ground jobs in lieu of time spent perfecting their tradecraft. The Marine Corps must do more.

Paramount to any recovery is acknowledging that there is a problem. General Mark Welsh, Chief of Staff of the Air Force, recently admitted that “virtually every mission area faces critical manning shortages, and the Air Force risks burning airmen out.”⁴ Marine Corps leadership has similarly confessed to the critical state of its aviation community.⁵ Complementary to acknowledgement, though, is action addressing aircrew retention and the crisis of manpower. Aviators have offered solutions ranging from returning to eight-year contracts to implementing statutory four-year tours for all first tour aviators.⁶ Others suggested boarded selection process retention bonuses for select aviators possessing ten to fifteen years of experience, and even increasing instructor on station requirements from twenty-four to thirty-six months in training command assignments.⁷ Although all are viable short and/or long-term solutions, the arterial bleeding must stop to prevent the most qualified and experienced from leaving the ranks. Providing monetary incentives for cadres of instructors (and future instructors), while cutting needless collateral duties/requirements impeding aviators’ ability to focus on their

Primary Military Occupational Specialty (PMOS), are two actionable solutions Marine Aviation must undertake.

The State of Marine Corps Aviation

Today

The Marine Aviation Plan (AVPLAN) 2016 best conveys the problem at hand when addressing current readiness:

Our deploying squadrons achieve readiness “just in time”, but our next-to-deploy and non-deployed squadrons do not have the resources to train for the fight tonight or for the fight tomorrow. I am concerned with our current readiness rates, both in equipment and personnel. We have seen a decrease in flight hours per month per aircrew and an uptick in our mishap rates. Our T-ratings (our measure of mission readiness) are not where they need to be for our nation’s force in readiness and I will find the resources to turn that around.⁸

Given the magnitude of the situation as described by Lieutenant General Jon “Dog” Davis, USMC, he directed the *2015 Aviator Retention Survey* in order to inform leadership on identified areas for policy change and development as a result of survey questions and respondent answers.⁹ Those answers provided meaningful percentages to the Marine Corps Aviation Manpower and Support Branch (ASM), especially from ‘fleet’ aviators (Appendix B) serving with the operational forces.

Table 1			
Descriptive Statistics for Survey Questions and Dissatisfaction Levels*			
Survey Question	Very Dissatisfied	Dissatisfied	Total Dissatisfaction
Amount of flight hours/training:	29.7%	32.5%	62.2%
Level of Manning in Your Unit:	24.8%	38.3%	63.1%
Your Personal Workload:	15.7%	29.8%	45.5%
Personal/Family Time You Have:	28.4%	38.0%	66.4%
Availability of Equipment, Parts and Resources:	41.1%	32.0%	73.1%
*n = 619 Fixed Wing Aviators (Ranks O-3 & O-4)			

Over 600 combined Captains and Majors spread across FW F-35, F/A-18, AV-8B, EA-6B, and KC-130J platforms participated in the survey. According to Table 1, of those 600 FW aviators polled, 73.1% had an overall dissatisfaction regarding availability of equipment, parts, and resources, while 62.2% were overall dissatisfied with the amount of flight hours and training received.¹⁰ Other factors noted in the data were an overall dissatisfaction regarding manning levels in squadrons, and lack of personal/family time available, which were both over 60% dissatisfied (Table 1). Reduced manning levels cause aircrew to spend more time working and less time at home. Growing institutional, unit, individual, and commander training requirements mandated by Department of Defense (DoD), Department of the Navy (DoN), or the Marine Corps¹¹ compound these factors (to be discussed in greater detail on page 22).

Survey Question	Strong Influence to Leave	Influence to Leave	Total Influence to Leave
Your Current or Expected Job Satisfaction is a...	22.5%	36.7%	59.2%
Your deployment tempo (amount of time away from home) is a...	22.0%	34.7%	56.7%
Number of hours you work in your military job is a...	30.3%	42.2%	72.5%
Quality of Family Life is...	38.4%	41.0%	79.4%

*n = 619 Fixed Wing Aviators (Ranks O-3 & O-4)

Unsurprisingly then, the data in Table 2 reflects the same 600 plus FW aviators polled who had a 72.5% total influence to leave based on the number of hours worked and an overall job satisfaction (rate of 59.2%).¹² Coupled with a 56.7% total influence to leave regarding deployment tempo, these factors undoubtedly contributed to a 79.4% influence to leave factor based on quality of family life (Table 2). Considering the

articulated emphasis from General Officers, commanders, and policy makers on taking “care of and supporting our families,”¹³ 79.4 is a staggering percentage.

Additional Factors Influencing Aviators

While Marine aviators contend with the frictions of day-to-day squadron life, they are often consciously or subconsciously evaluating life outside the Marine Corps and Marine Aviation, especially as aircrew cope with “the full transition of every tactical platform”¹⁴ from older legacy aircraft into newer, more capable systems. Once again, the *2015 Aviator Retention Survey* reveals similar feelings from fleet aviators.

Table 3			
Descriptive Statistics for Survey Questions on Intention to Separate from the Marine Corps*			
Survey Question	Strong Influence to Leave	Influence to Leave	Total Influence to Leave
Your civilian job opportunities are a...	47.7%	31.4%	79.2%
Current civilian aviation job opportunities are a...	50.8%	24.4%	75.2%
Your current pay and allowances compared to civilian are a...	23.9%	35.9%	59.8%
*n = 619 Fixed Wing Aviators (Ranks O-3 & O-4)			

According to Table 3, 79.2% of FW aviators showed an influence to leave based on individual civilian job opportunities, of which 75.2% showed influence as a result of civilian aviation job opportunities.¹⁵ Recently, numerous RAND¹⁶ articles further identify a tipping point where a siphoning of more and more military aviators towards the commercial airlines will occur.¹⁷ A comparative analysis identifying the attractive benefits civilian carriers are utilizing to lure skilled pilots away from the Marine Corps abound. The airlines offer lucrative packages to experienced military aviators because of the relatively high return on investment and low training costs. To counter this, the

Marine Corps must focus efforts to retain its sought after and highest quality aviators due largely to return on investment value (to be discussed in greater detail on page 17).

Table 4			
Descriptive Statistics for Rating Factors*			
Survey Question	Much Better as a Civilian	Somewhat Better as a Civilian	Total Better as a Civilian
Amount of personal/family time	62.6%	30.7%	93.3%
Hours worked per week	54.3%	35.4%	89.7%
General quality of life	37.9%	47.6%	85.5%
<small>*n = 619 Fixed Wing Aviators (Ranks O-3 & O-4)</small>			

Table 4 further emphasizes the stark reality of the problems Marine aviators are facing today and how they ranked against the civilian sector. Unsurprisingly, general quality of life, hours worked per week, and amount of personal/family time are perceived to be better as a civilian by a factor of 85.5%, 89.7%, and 93.3%, respectively.¹⁸

Although the previously discussed data is simply a snapshot of aviator viewpoints as of 2015, it highlights growing perceptions that must be quelled if the service is genuinely concerned with course correcting an imminent aviation retention problem.

Historical Data: A Declining Aviator Inventory

The United States Congress sequestration law of 2011 resulted in a Quadrennial Defense Review of Marine Corps end strength suggesting a reduction from 202,000 (2011) to 182,000 personnel by Fiscal Year (FY) 2017.¹⁹ As a result of this action, Manpower and Reserve Affairs (M&RA) ceased to offer Aviation Continuation Pay (ACP) to Marine Aviation Officers meeting the specified eligibility criteria beyond FY11. Instead, it implemented the Temporary Early Retirement Authority (TERA) and Voluntary Separation Pay (VSP) programs as a means to trim the force. TERA and VSP, in addition to other force reduction measures, were so successful in their intended

purposes that many critics argue the Marine Corps cut too deep and for too long. In fact, M&RA, as the original authors of these measures, recently released Marine Administrative (MARADMIN) message 004/17 stating “company grade aviator inventory levels are at such a level that continuation on active duty of those captain aviators who have twice failed selection to the rank of major is necessary.”²⁰

This sentiment is overtly admitting the mistake of the past while denoting the acceptance of retaining lesser quality aviators in the future. “The Military Occupational Specialties (MOS) of 7509 (AV-8B Pilot), 7518 (F-35 Pilot), and 7523 (F/A-18 Pilot) continue to experience unprecedented and growing capacity shortfalls in available population to fill both operational and training command flying billets as well as necessary non-flying billets.”²¹ This is a reality.

Figure 1
O1-O4 Fixed Wing Inventory Shortfall

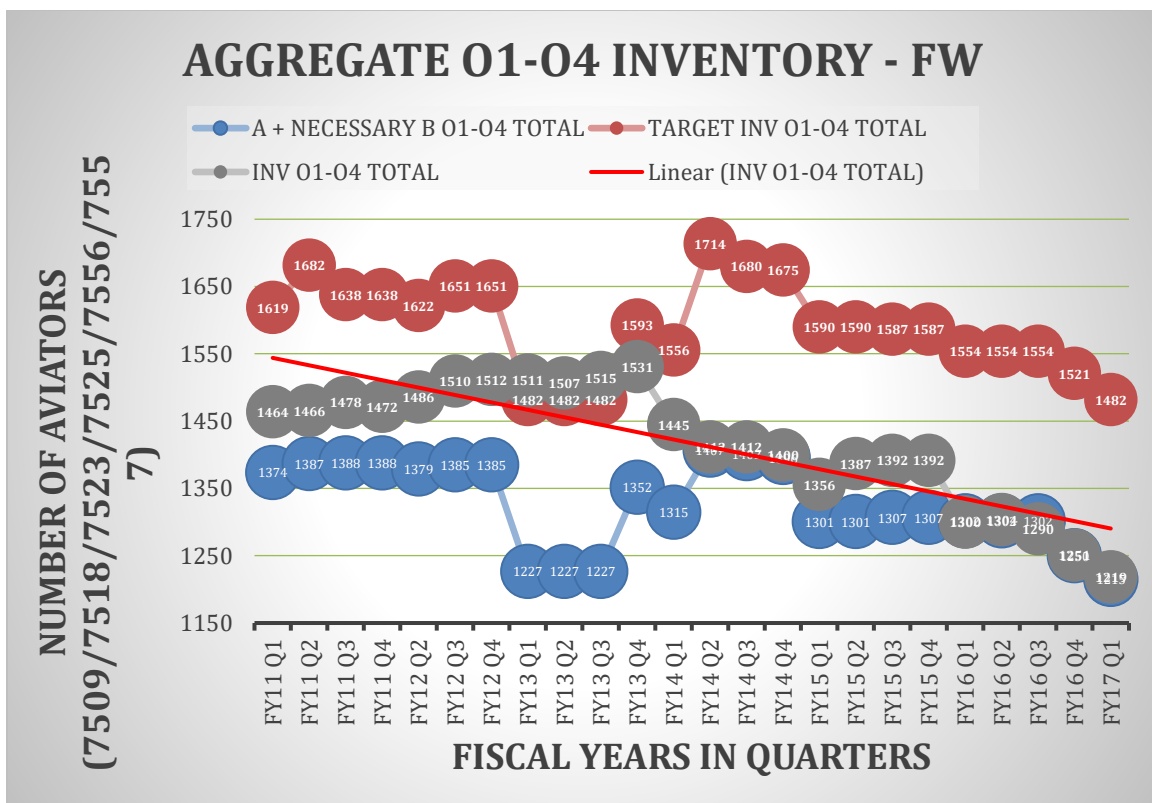


Figure 1²² illustrates this point among the aggregate Second Lieutenant through Major FW inventory.²³ Since FY13, aviation inventory has steadily declined causing more overall billet requirements to go unfilled. According to one Manpower Management Officer Assignments (MMA) official, “as of August 2016, the fixed wing jet community had an actual on hand inventory of 1201 pilots and a target inventory of 1439 fixed wing pilots, a gap of 238 officers, resulting in being at 83% of the target inventory.”²⁴ Listening to the data and remarks will be key to action that retains Marine Aviation’s highest quality individuals.

Why Retaining Aviators Matters Now More Than Ever

A Future Forecast

While President Trump’s administration verbally committed to an increase in DoD spending and increase in personnel levels across the services, it is now more imperative than ever that Marine Aviation retain all high-quality aviators. In fact, the *2016 Marine Corps Operating Concept* states that “leaders with the grade, experience, and technical/tactical qualifications associated with their billets... [and are] critical to unit proficiency training” will ultimately ensure our future “readiness and potential combat effectiveness.”²⁵ Anything short of this objective results in negative consequences ranging from inability to meet “across the board T-2.0 readiness by 2020”²⁶ to certain Title 10 and Geographic Combatant Commander’s requirements going unfulfilled. Worse yet, Tables 1 through 4 highlight an aviation community with “a greater intent to separate from active duty in comparison to historical separation rates.”²⁷ Despite having resignation/attrition data approximating a 3% percentage point reduction since mid-2000 levels, M&RA acknowledged a need to retain as many of the “penguins

on the iceberg,”²⁸ and that ACP may once again be forthcoming in the event of a future manpower increase.

Financial Incentives

Title 37 of the U.S. Code, Chapter 5, Subchapter I, §301a: Aviation Career Incentive Pay (ACIP)²⁹ provides financial incentive for officers to serve in an aviation capacity for the duration of a service member’s military career.³⁰ ACIP ranges from \$125 to \$840 per month as a factor of years served in aviation service. Similarly, §301b: ACP³¹ provides financial incentive in order to “retain qualified, experienced officer aviators who have completed their Active Duty Service Obligations to remain on active duty for a specified period of additional service.”³² ACP ranges up to \$25,000 per year of service agreement. Whereas ACIP is entitlement pay, ACP is discretionary and is an annually assessed special pay utilized by M&RA with the intent of providing “a proactive, long-term aviation career incentive for Marine Aviation officers.”³³

As discussed earlier, M&RA ceased to offer ACP to Marine Aviation Officers as a result of sequestration and the need to drawdown to 182K by FY17. The implementation of TERA and VSP, in addition to alternative force reduction measures, were so successful that they are “no longer in play.”³⁴ But at what cost?

Many high-quality aviators left the force during this time from critical MOSs with an apparent disregard for return on investment or talent management. For instance, 105 total 7523s (F/A-18 Pilot) left active duty from FY13-16 and had a separations code that made them eligible to transfer into the reserves (not including those who retired or were adversely or medically separated).³⁵ Of those 105 pilots, only 26 (24%) transferred to the

Selected Marine Corps Reserve by way of the Direct Affiliation Program.³⁶ In fact, M&RA admitted the fact that the “drawdown was not looked at holistically.”³⁷

Regardless, M&RA maintains that there are “no” attrition issues in the aviation community today (Note: however, see Epilogue on pages 30 through 32). While historical resignation data may support this argument, looking at the numbers in aggregate has perhaps led to this stance.³⁸ Nevertheless, there remains a disconnect between how M&RA is interpreting retention data compared with that of the DoD. A July 2016 report to Congress from the military services revealed an aviation workforce suffering “shortfalls in retention” and further cited “low bonuses rated for pilots as one of the reasons.”³⁹ Indeed, one might argue that while other service branches offer some degree of monetary compensation in the form of aircrew bonuses, the Marine Corps stands to lose a higher percentage of aircrew respectively by not offering ACP bonuses.

Still, multiple red flags and data shared by MMOA personnel up to and including the Commandant of the Marine Corps suggest a crisis of manpower now and in the near future. In September 2016 testimony on Capitol Hill speaking before the Senate Armed Services Committee, General Robert Neller commented on the growing risk of aircrew being lost to commercial aviation companies as staffs struggle to maintain productivity with cannibalized parts and fewer resources.⁴⁰ And while the Marine Corps makes every effort to address limited pilot flight hours through unusual measures such as reinforcing fleet aircraft with those from the “boneyard,”⁴¹ it should also make efforts toward retaining talent in light of current fiscally constrained policies.

“A Way”: The Course Ahead

The Marine Corps must earnestly consider reinstating manpower programs to critically manned MOSs and provide long-term aviation career incentives in order to prevent “creating a capacity death spiral.”⁴² Referencing the *2015 Aviator Retention Survey* results, only 23.2% of all 2173 First Lieutenants through Lieutenant Colonels surveyed answered “yes” when asked about receiving ACP. Of those 23.2%, only 20.7% expressed an overall dissatisfaction with their bonus.⁴³ More significantly, of the same 2173 officers, when asked how a retention bonus would affect their retention decision, 78.4% maintained an overall influence to stay (46.0% influence to stay and 32.4% strong influence to stay), while only 20.1% responded with no influence.⁴⁴

While ‘more pay’ or ‘bonuses’ are always a contentious issue for discussion as a United States Marine, it is a necessary one given the critical inflection point in which the Marine Aviation community now finds itself. The general consensus among the aviators surveyed was that “pay is not commensurate with work load or responsibilities,” and referenced “‘Bonus’, ‘ACP’, and ‘money’ over 1,000 times” during the final three questions.⁴⁵

Realizing a fiscally constrained environment that has directly impacted monetary incentives like ACP from being offered since 2011, there is certainly no guarantee that the Marine Corps will lift these fiscal policies any time soon. With that said, the Marine Corps should be targeting the highest quality aviators at a minimum. Although high quality is indeed a subjective term, those that have proven their aeronautical and ground assignment(s) competence, rendering them in the eyes of their commanders and Corps for assignments of greater degrees of responsibility. Talent managers should recognize that

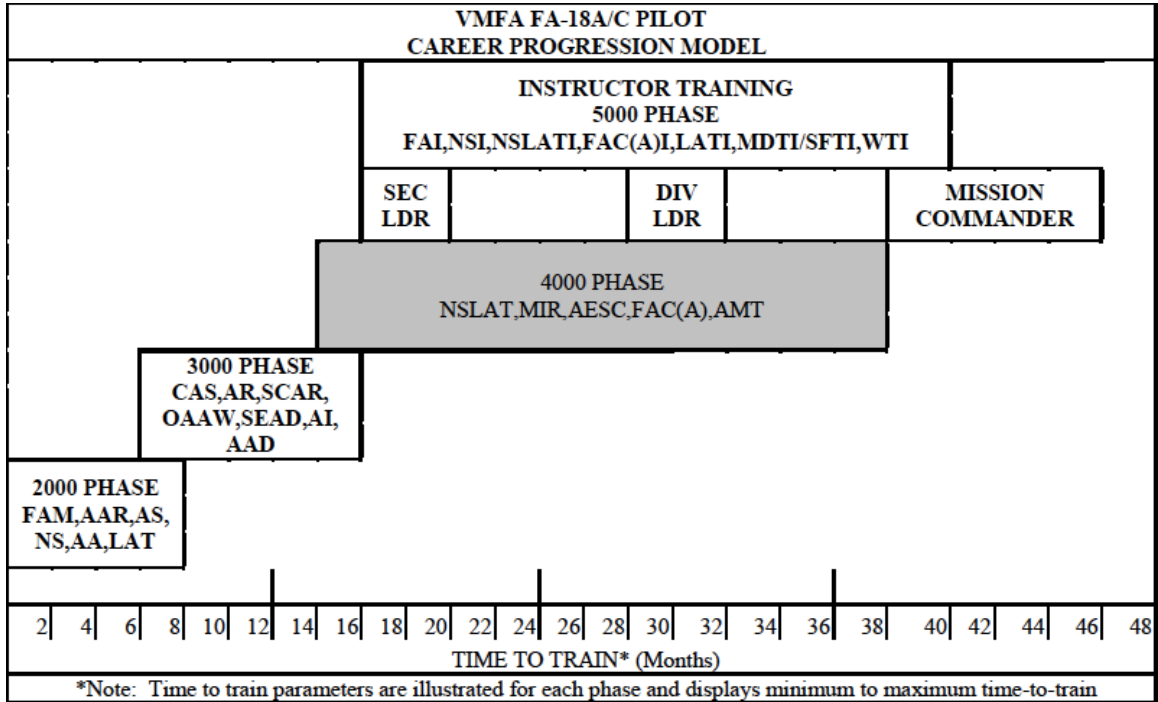
these individuals are heavily invested in and provide the Marine Corps its greatest returns on investment.

Compounding Effects

The compounded effect of current readiness rates in both equipment and personnel, and decreased flight hours per month, exposes the challenge to “achieve Training and Readiness (T&R) required certifications, qualifications and designations that support core competency requirements.”⁴⁶ Simply put, it is exceedingly difficult to train future instructors to replace the cadre of current instructors to meet tasked mission(s) minimal requirements.

Although “timing is everything”, squadrons nominate aircrew for qualifications and designations based on a multitude of factors such as talent, experience, timing, and motivation. Those aircrew become the priority for academics, simulator, and flights and progress through their respective T&R syllabi to achieve specified certifications, qualifications, and/or designations. Meanwhile, the other non-priority aircrew struggle to even remain current in some situations. In years past, squadrons could spread the workups equitably among a talented pool of aviators when it came to certifications, qualifications, and designations. However, today’s current decrease in aviator flight hours now forces squadron training officers and leadership to have their selected officer(s) go from one qualification or designation to the next assuming they don’t fail, leave the squadron, or resign.

Figure 2
VMFA FA-18 A/C Pilot Career Progression Model



Based on average time-to-train through flight school (to be discussed in greater detail on page 18, Table 5) and the FRS, a F/A-18, AV-8B, or F-35B aviator would be either a senior First Lieutenant or junior Captain arriving to a fleet-deploying squadron for the first time. Let’s say that a recently promoted and newly trained CAT 1⁴⁷ F/A-18 Pilot, Captain Ernie Drake, shows up at his new squadron fresh out of the Fleet Replacement Squadron (FRS) eager to make a positive name for himself. Captain Drake’s Aircrew Performance Record contains mostly above average grades, coupled with positive instructor input from the previous command, signifying future potential. As outlined in Figure 2,⁴⁸ the motivated pilot, while transitioning into squadron life, embarks upon his wingman syllabus within the first few months. He is a good pilot and his performance in his ground job(s) is exceeding expectations. Through the Core (2000

Phase) and Mission (3000 Phase) Skills academics, simulators and flights, he is quick to earn his Night Systems, Air Combat Maneuver (ACM) and Low Altitude Tactics (LAT) Qualifications and is already starting to outpace his peers. The squadron however, is in need of more flight leads and is not willing to wait for the other pilots to catch up. Plus, the squadron already has ‘big plans’ based on Ernie’s performance thus far in both the air and in his ground duties; he is ready to become a Section Leader (SL). SL is a flight leadership designation wherein an aviator is authorized to lead 2-aircraft operations.

Being in a SL work-up has its merits as Captain Drake is now one of the top squadron priorities, edging even further ahead of his fellow pilot peers as the squadron suffers through a maintenance slump and a difficult time producing ‘up’ aircraft. Depending on squadron shifts in priorities and various other barriers towards progression, he has no complications finishing the 15 event SL syllabus⁴⁹ at around the two-year mark in his first tour. Meanwhile, the other pilots attempt to gain traction in their 2000/3000 Phase flights, even offering to go on weekend cross-countries to make up for lost ground, but are denied because there still aren’t enough ‘up’ aircraft and they are lower on the priority scale. To make matters worse, the training officer is desperately wanting to start the lagging pilots on their SL workups to make up for shortages in his available flight leads. To no avail, the training officer realizes that not only do they not have the necessary prerequisites met to begin their SL syllabus,⁵⁰ but they are continually struggling to remain current. As frustrating as the lagging pilots’ circumstance may be in the eyes of the training officer, there is little more he can do.

Soon after being designated a new SL by the squadron commanding officer, Captain Ernie Drake, who has now made a solid name for himself and is “destined to do

great things” in the words of squadron leadership, is ready to become a Division Leader (DL). DL is a flight leadership designation wherein an aviator is authorized to lead 4-aircraft operations. Conveniently enough for the ambitious pilot, he has the necessary prerequisites met to begin the DL syllabus⁵¹ and the cycle perpetuates through follow-on certifications, qualifications, and designations until he departs the squadron executing orders elsewhere.

One might expect Captain Drake to be a sought-after commodity, if and when he returns to a fleet squadron, picking up where he last left off in the qualification and designation chain until eventually becoming a Weapons and Tactics Instructor (WTI). In an ailing fleet that is suffering to make replacement instructors as “company grade manpower shortfalls due to force-shaping measures and delays in pilot production further tax aviation readiness recovery,”⁵² this is becoming increasingly true.

Back to Reality

Losing a high-quality aviator with numerous certifications, qualifications, and/or designations was not as impactful in years past as it is today given the deep pool of squadron instructors. In fact, increased aircrew manpower and increased numbers of aircraft to fly meant tactical flight squadron commanding officers were responsible for “strictly controlling the number of instructors (WTI, ACTI, LATI, TERFI, NSI, etc.) produced,” otherwise requiring “written approval from the Marine Aircraft Group (MAG) commanding officer to train additional instructors in excess of the requirements listed in the respective T&R manuals.”⁵³ Unfortunately, today’s aviation squadrons are largely under-staffed, under-manned, under-trained, under-resourced, under-budgeted, and over-worked. Combined with an increasingly competitive civilian market, the

Marine Corps may be losing its high-quality aircrew and instructors. This is clearly a valuable manpower resource loss, which it cannot afford.

After realizing the cascading effect these variables pose toward further separation of valuable aviation talent from the Marine Corps, the Deputy Commandant for Aviation (DC/AVN) and Deputy Commandant for M&RA are partnering an MOS initiative. The aim of the initiative is on “enhancement of combat readiness” through the “creation of metrics that prevent inefficient manning and staffing while also creating opportunities for directed retention incentives of our Marines who have attained advanced qualifications.”⁵⁴ Furthermore, the effort will establish Additional Military Occupational Specialties (AMOS) paired to aviation designations and qualifications,⁵⁵ similar to the AMOSs aviation personnel receive upon successful graduation from the WTI course.⁵⁶ Additional information more specific to the MOS initiative will be forthcoming.

Monetary Analysis and Solution

A possible solution for the directed retention incentives would be to align them with return on investment value of an individual based on his/her qualifications and/or designations, thereby monetarily incentivizing talent. A stair-stepped approach to higher levels of advanced qualifications would entail not only a financial incentive, but also an attached additional service obligation.

Figure 3
TACAIR PWTI Prerequisites

F/A-18 A/C Pilot	
a)	Qualified 7523
b)	500 Flight Hours in type
c)	Mission Commander
d)	MDTC or TOPGUN
e)	FAI or former ACTI or SSFAC(A)
f)	LAT(I)
g)	Read in to TS/SCI

Staying with the previous F/A-18 pilot example, it is likely Captain Drake would be nominated for WTI upon completion of all Prospective WTI (PWTI) prerequisites identified in Figure 3.⁵⁷ Currently, “acceptance of orders to the WTI course incurs an active duty obligation of 24 months upon graduation from the course.”⁵⁸ Monetarily, that could entail a maximum authorized \$25,000 per year of service agreement incentive. Regressing down the ladder, a graduate of the Marine Division Tactics Course (MDTC) would incur an active duty obligation of twelve months⁵⁹ upon graduation from the course and authorized \$15,000 per year of service agreement incentive. Regressing as far down the ladder where certifications, qualifications, and/or designations are achieved outside the minimum service obligations⁶⁰ of aircrew, based on career progression models determined by individual T/M/Ss, would anchor the bottom of the stair-stepped approach.

For instance, if a Mission Commander designation were anticipated after the minimum service obligation, an aviator might then incur an active duty obligation of six to nine months post designation and authorized \$7,500-\$10,000 incentive. The idea of the stair-stepped approach is to sync monetary amounts and additional service obligations together, and have them increase or decrease based upon the corresponding level of qualification or designation achieved by aircrew. This, in turn, is ultimately synced relative to return on investment, and talent generation and management.

Return on Investment: It's Worth It

Although one side of the aisle argues “if you give them an inch, they’ll take a mile” as if to incite a ‘money-hungry’ attitude among aviators, the other side simply argues that it is right and warranted to compensate commensurate with work load,

responsibilities, and/or return on investment. Moreover, some might also argue a psychological impact. Perhaps when the Marine Corps offers even a small amount of monetary compensation within a known fiscally austere environment, it shows that respective aviators are more than just ‘cogs in the wheel’; that the Marine Corps honors and values their contribution and shows that they are making every effort to retain talent amidst the civilian airlines “massive hiring surge.”⁶¹

Despite the subjective viewpoints Marines or individuals reach on a certain topic, such as the percentages listed in Table 4, truth in tangible fiscal data is less subjective (even if the interpretive analysis of the data leads to different viewpoints).

Table 5			
FY 2015 Time-to-Train and Cost-to-Train for USMC Aviator Pipelines			
Pipeline	Avg Time-to-Train (Years)	Avg Cost-to-Train (Dollars)	Cost/Year of Payback (6 Years) ⁶²
Maritime (KC-130J)	1.4	\$346,492	\$57,749
Rotary-wing (A/UH-1, CH-53)	1.5	\$289,945	\$48,324
Tilt Rotor (MV-22)	1.7	\$349,370	\$58,228
Strike (F/A-18, AV-8B, F-35B)	2.1	\$1,496,127	\$249,355
*Table adapted from data received from USMC Training Command, Aviation Production Management and CNATRA Financial Management Office, 2015.			

Table 5 is a FY15 snapshot of time-to-train, cost-to-train, and cost per year of payback (six-year contract) for an aviator from Instrument Flight School through earning the coveted ‘Wings of Gold’.⁶³ For example, a pilot selected to fly the F/A-18 Hornet would likely have spent 2.1 years in the training command at a training cost just short of \$1.5 million, equating to a nearly \$250,000 per year of payback (given the six-year contract). Upon arrival at the FRS, pilots quickly embark upon a CAT 1 syllabus, which will involve numerous academic classes, simulators, and a little over 100 hours⁶⁴ in model (F/A-18), not including reflly sorties, currency/warmup, direct support, or red air

flights. Graduating from the FRS, our newly trained CAT 1 F/A-18 Pilot has finally arrived at the new squadron, eager to make a positive name for himself/herself.

The pilot soon embarks upon his/her wingman syllabus within the first few months progressing through the Core (2000 Phase) and Mission (3000 Phase) Skills academics, simulators, and flights, earning several qualifications and flight leader designations in his first fleet tour. The calculated cost per F/A-18 aircraft-only flight hour is currently \$13,256⁶⁵ and based on flying 15.7 hours/month,⁶⁶ this equates to a little over \$208,000. Assuming he/she is on the standard minimum length tour of thirty-six months, the Marine Corps will have spent \$8,000 short of \$7.5 million⁶⁷ on training during his/her first tour in the fleet. Likely progression of certifications, qualifications, and/or designations would see the pilot earning his/her Mission Commander designation either before or after becoming a Marine Division Tactics Instructor. This would likely take place towards the beginning or midway point of his/her second tour in a squadron. Following any clean-up items not already earned per Figure 3, the pilot is now ready to attend the WTI Course.

7577 Cost									
	AV-8B	F-35	F/A-18	MV-22	KC-130	UH-1Y	AH-1Z	AH-W	CH-53E
MOS	7509	7518‡	7523	7532	7557	7563	7565(Z)	7565(W)	7566
Flt Hr Pre Req	500	N/A	500	500	700	500	500	500	500
Minimum FH Prereq Cost	\$4,504,482.50	N/A	\$6,628,021	\$5,656,445	\$2,179,009	\$2,263,213	\$1,607,480	\$3,724,155	\$10,336,338
PWTI Avg Flight Time (In model)¥	840	1040	894	794	1731	701	726	726	729
Cost per Flt Hr	\$9,009	\$2,773	\$13,256	\$11,313	\$3,113	\$4,526	\$3,215	\$7,448	\$20,673
Avg TPT(In Model) + Course Cost	\$7,806,608	\$3,123,289	\$12,089,979	\$9,221,512	\$5,627,456	\$3,412,102	\$2,573,139	\$5,646,551	\$15,309,458
7577 Investment									
24 Mos Payback- Instructor Experience Investment									
Hours/ Month †	15.4	16	15.7	16.2	23.9	17.9	18.2	15.9	15
Cost per Flt Hr	\$9,009	\$2,773	\$13,256	\$11,313	\$3,113	\$4,526	\$3,215	\$7,448	\$20,673
Cost	\$3,329,713	\$1,064,940	\$4,994,877	\$4,398,452	\$1,785,542	\$1,944,552	\$1,404,295	\$2,842,275	\$7,442,163
7577 Total Cost *	\$11,136,322	\$4,188,228	\$17,084,855	\$13,619,964	\$7,412,998	\$5,356,654	\$3,977,433	\$8,488,826	\$22,751,621
Average	\$10,446,322								
¥ Based on WTI 2-16 Data									
‡ Time In Model includes previous TACAIR time for 7518s									
† Minimum hours per aircrew per month to achieve T-2.0									
* Does not include ordnance costs or external support (Aggressors, FAC(A) Support, Indirect Fire, etc.) outside of WTI Course Costs									

Figure 4
7577 AMOS T/M/S Cost Breakdown and Payback Value

Figure 4⁶⁸ depicts the cost breakdown estimation of respective T/M/S PWTI based upon flight hour and cost per flight hour variables. Referencing the highlighted F/A-18 column of Figure 4 and assuming he/she showed up with the PWTI average flight time of 894 Hornet hours combined with calculated cost per F/A-18 flight hour of \$13,256, the Marine Corps will have spent approximately \$10,000 short of \$12.1 million⁶⁹ on F/A-18 training alone to this point in his/her career. Because acceptance of orders to the WTI course incurs an active duty obligation of twenty-four months upon graduation from the course, the Marine Corps will receive a return on investment of almost \$5 million assuming the pilot flies 15.7 hours per month for those two years as indicated in Figure 4.

To this point in his/her career, the Marine Corps has spent approximately \$1.5 million on his/her training during flight school and \$17.1 million on his/her F/A-18 training (post two year WTI payback) for a total of \$18.6 million. Realize that this number is a minimum estimated value as ordnance, external support (aggressors, indirect fires, etc.), simulator costs, and non-aviation costs prior to flight school are not included. Furthermore, the calculated cost per F/A-18 flight hour of \$13,256 is an estimate for only one aircraft, and therefore does not accurately represent the total expenditure for 2-aircraft and 4-aircraft operations, which would likely have constituted upwards of 95% of the flight time per the example F/A-18 calculations.

Objective cost-benefit analysis of the cost-to-train and return on investment information was elaborated on in the previous paragraph(s), and would lead most to believe that it is worth it for the Marine Corps to provide directed retention incentives to retain all aircrew in critical MOSs. Solutions like the previously proposed stair-stepped

approach to higher levels of advanced qualifications would help increase current and future instructor motivation and retention. Hence, these should be the foremost priority for directed retention incentives given the crisis of manpower.

Not Just About the Money

With that said, “while monetary incentives help keep pilots in the military, the service chiefs warn that pay alone cannot keep them on board.”⁷⁰ In an address before the Senate Armed Services Committee, Air Force Chief of Staff David Goldfein detailed the balanced approach required between quality of service and quality of life in combating retention issues:

What we found in the past—and we’ve been through this before because airlines have hired before—is quality of service is as important as quality of life. And quality of service is making sure that you’re given the opportunity to be the best you can be in your design, in your chosen occupation. Pilots who don’t fly...will walk. In my mind, readiness and morale are inexplicably linked. Where we have high readiness, we tend to have high morale because they’re given the opportunities to compete. Where we have low readiness, we have our lowest morale.⁷¹

Beyond the short- and long-term solutions already in place to improve quality of service in addressing current readiness and low aircrew flight hours, the Marine Corps can and should do more to lift the burden of an ever-increasing collateral load imposed on aircrew.

Reducing Additional Duties/Requirements

Today

Burdened by the weight of additional duties/requirements, today’s aircrew are struggling to find the time to balance MOS, collateral duties, and family. The numerous mandated training requirements by DoD, DoN, and/or the Marine Corps combine with an abundance of collateral duties to cause aircrew to spend more time working and less time

at home. To make matters worse, the hours committed to completing ground jobs are overwhelming the ability of aviators to focus on perfecting their tradecraft. The total effect realized is that reduced amount of personal/family time generates lower general quality of life in comparison to a perceived civilian sector (Table 4); 79.2% are influenced to leave for the Marine Corps for civilian job opportunities (Table 3).

Although the Marine Corps has made efforts to “create efficiencies in training and optimize time available to unit commanders to conduct Mission Essential Task List-based training,”⁷² further measures such as reduction in the number of requirements imposed on commanders and Marines from higher headquarters are required. The Air Force recently recognized this issue, and in response to Airmen’s pleas, is currently taking steps toward reducing additional duties and streamlining demands on their time:

We have heard your concern and frustration on the issue of additional duties that compete with accomplishing our primary Air Force missions...Operational demands are at unprecedented levels, yet our force is smaller than it has ever been. In meeting with Airmen at installations around the globe, we have heard consistently that additional duties assigned at the unit-level affect our ability to focus on core missions, which in turn impacts our readiness.⁷³

The Marine Corps should do the same.

An Inverse Relationship

Sequestration and the need to drawdown to 182K from 202K by FY17 brought about TERA, VSP, and other implemented force reduction measures, which proved highly successful in reducing manpower capacity as indicated in Figure 1. The Marine Corps failed to recognize that the increase of additional duties/requirements at 202K dramatically increases the burden of responsibility on the 182K force. As a result, commanders now have the responsibility of enforcing institutional, unit, and individual

training requirements in addition to reporting, inspections, working groups, and other like requirements that ask Marines to do even more with fewer people and less time. Cumulatively, eighteen annual training requirements,⁷⁴ eighty-nine Commanding General's Inspection Program (CGIP) functional area inspection items,⁷⁵ Professional Military Education (PME), and additional (collateral) duties and miscellaneous requirements (such as ceremonies, working parties, and events) are all tasks distributed among a unit's Marines regardless of MOS.

Figure 5
Primary and Additional Assigned Duties

MAJ	S-1	PriDu	ADMIN/PERSONNEL OFFICER
		AddDu	GOVERNMENT TRAVEL CHARGE CARD
			GENERAL ADMINISTRATION
			PROMOTIONS
			SEPARATIONS/RETIREMENTS
			PERSONAL AFFAIRS
			MANPOWER MANAGEMENT
			MILITARY PAY SYSTEM MANAGER
			TAD PROCEDURES
			PRIVACY ACT OFFICER
			SAVINGS BOND OFFICER
			ANTITERRORISM WORKING GROUP MEMBER
			AWARDS BOARD MEMBER
PHYSICAL SECURITY WORKING GROUP MEMBER			
 			
CAPT	S-1	PriDu	ASSISTANT ADMIN OFFICER
		AddDu	POSTAL OFFICER
			AWARDS OFFICER
			VOTING ASSISTANCE OFFICER
			ADJUTANT
 			
CAPT	S-1	PriDu	ASSISTANT ADMIN OFFICER
		AddDu	LEGAL OFFICER*
			DEPUTY FAMILY READINESS OFFICER
			OPSEC MANAGER
			VICTIM WITNESS ASSISTANCE PROGRAM OFFICER
EXCEPTIONAL FAMILY MEMBER PROGRAM OFFICER			

Continuing the example from before, shortly after arriving back to a squadron on his second tour, squadron leadership assign newly promoted Major Ernie Drake as the S-1 Administrative/Personnel Officer, his primary ground duty (Figure 5).⁷⁶ Beyond the thirteen additional duties, he is also personally responsible for overseeing two Captains charged with Assistant Administration Officer primary ground duties and respective

additional duties as indicated in Figure 5, as well as the enlisted Administrative Marines internal to the shop. In addition to his own primary and additional duties and the Marines in his charge, he is now responsible for fifteen of the fifty total CGIP functional area inspection items (Appendix C) that a F/A-18A/C/D squadron is assigned. Any further reduction in the squadron staffing goal (i.e., in his section below two Captains and perhaps two to three enlisted Marines) invariably increases the workload on all the Marines in his section, including himself. While this alone would prove challenging, Major Drake is also equally and individually responsible for completion of the following:

- 18 annual training requirements
- Operations-driven aircrew training (lectures, chalk talks and self-paced readings)
- Pre-deployment training proceeding a squadron deployment
- PMOS responsibilities involved in any workup certification, qualification and/or designation (pre-flight plan, prepare for his brief and debrief, set up his briefing board, in addition to the actual conduct of the brief, event and debrief) as he progresses to becoming a WTI.
- “Last minute” taskers or requirements that tend to arise daily

Is there enough time for personal and professional development and work-family balance when this is his palette of responsibility? The above data makes it clear to see why the general consensus among the aviators surveyed in the *2015 Aviator Retention Survey*, felt that “pay is not commensurate with work load or responsibilities,” and currently, achieving work/personal life balance is a major friction point.⁷⁷

Charting a Course Ahead

The Marine Corps has taken a notable step in placing a number of the annual training requirements back in the hands of the commanders through Unit Training,⁷⁸ thus affording them the opportunity to manage their own unit readiness. However, more can and should be done to reduce the number of additional collateral duties/requirements

commensurate to the decrease in aviation manpower. Much like the Air Force which recognizes duties originate from a variety of sources, the Marine Corps is equally weighted by DoD and DoN requirements that are institutionalized one-by-one. This piecemeal creep exacerbates deficiencies, while simultaneously increasing workload and friction. According to Deborah Lee James, then Secretary of the Air Force, taking on, tackling, and streamlining “these additional duties, as well as the complete set of requirements, functions, training, and reports that detract from our core missions”⁷⁹ is integral to achieving a balance in the force and improving individual and collective readiness. The likelihood is that Marines, either by previously directed Operational Planning Teams or individual contribution, have analyzed the growing list of additional duties/requirements and developed thoughtful solutions and recommendations to the ongoing problem. Marine Aircraft Wings could leverage these contributions from MAG derived inputs and submit their data to a tasked team of experts. They, in turn, could synthesize the compiled information and offer Headquarters Marine Corps (HQMC) actionable solutions moving forward. Like the Air Force, beginning to put these solutions into action will curb the potential hollowing of quality in the force.

The Realized Effect

In his 2010 master’s thesis titled “The Impact of Ground Training on Aviation Readiness,” Major Brett Allison stated best the realized effects of competing additional duties and requirements. “Due to the complex nature of aviation...operations, a high-level of proficiency must be maintained in order to complete missions successfully and safely. Increased ground training requirements threaten the proficiency of Marine aviation units and impede their ability to perform their missions.”⁸⁰ Squadrons,

regardless of T/M/S, are struggling to keep aircrew in workups for their next certifications, existing instructors proficient,⁸¹ and all other aircrew even current.⁸² Despite every effort to address limited pilot flight hours, the continued decrease in flight hours for aircrew remains most troubling. One pilot arrived to an F/A-18 squadron in 2012 and averaged 1.9, 1.6 and 1.3 flights per week for his first three years in the squadron respectively.⁸³ Assuming a 1.3-hour sortie length per flight, that equated to approximately 10, 8.5 and 7 hours per month. This is an alarming situation given: 1) a 2016 AVPLAN calculated minimum of 15.7 hours per aircrew per month is required to achieve T-2.0, and 2) fifteen hours a month is the minimal acceptable level to safely fly military aircraft.⁸⁴

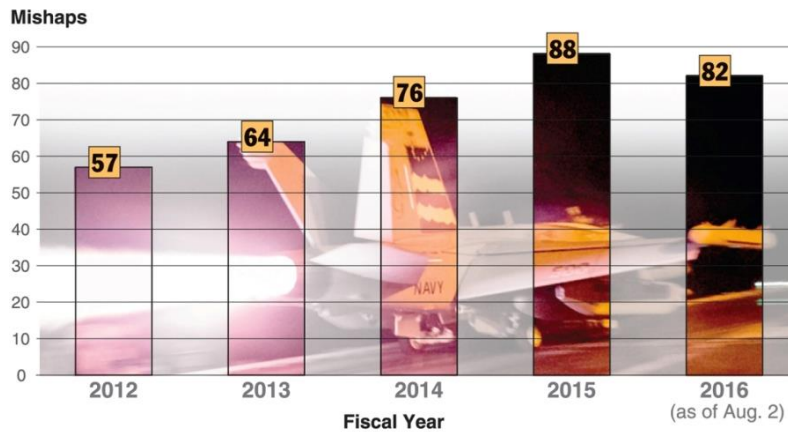
As squadrons see more of their aircrew normalize around flight times that barely allow them to remain current, they become less proficient in even the most basic skills, increasing the risk per sortie exponentially. In a 30 December 2016 article by Carl Forsling, he remarked that “human errors are a lot more likely when pilots don’t get enough practice. A well-practiced crew can usually overcome the friction points that happen in military aviation, be that weather, fatigue, or personal stress. One that isn’t is a lot more likely to have severe problems when events go astray.”⁸⁵ The increased risk induced by this and compounding conditions is ultimately related to the number and frequency of mishaps occurring today.

Figure 6
F/A-18 Hornet or Super Hornet Class A-C Mishaps

The Navy and Marine Corps label their three most serious incidents as Class A through C.

Since the services took cuts to their operations and maintenance budget in 2013, the number of Class A through C mishaps for F/A-18 Hornet and Super Hornet aircraft has risen 44 percent.

- **Class A** is the most serious, which can mean the death of a pilot and at least \$2 million in damage to the aircraft.
- **Class B** is at least \$500,000 in damage and permanent partial disability or three or more people hospitalized.
- **Class C** mishaps have at least \$50,000 damage to the aircraft.



SOURCE Naval Safety Center

NOGA AMI-RAV/Stars and Stripes

Mishaps are an unfortunate reality of aviation, made even more unfortunate when one realizes the events which led to the Class A/B/C, defined in Figure 6, could have been altogether avoided. Mishaps are costly, not only in monetary terms ranging from damaged equipment to complete loss of aircraft, but also in loss of personnel. Each loss of aircraft and/or human life results in reduced force readiness and capability. According to Figure 6, the number of F/A-18 Hornet and Super Hornet Class A-C mishaps has increased 44% compared to historical norms.⁸⁶ Updated data from the Naval Safety Center now reflects a total of 104 mishaps (eight Class A, ten Class B, and eighty-six Class C) in FY16 and 62 Class A-C mishaps already during the first six months of FY17.⁸⁷ At this rate, based on recent historical data and trend analysis, it is likely that the total number of mishaps for FY17 will be higher than the 104 in FY16. Unfortunately,

since the beginning of FY16 to present, the Marine Corps has suffered six F/A-18 Class A mishaps resulting in the total loss of six F/A-18 legacy aircraft, four USMC pilots, and at a cost of approximately 475 million dollars.⁸⁸

Any Class A-C mishap leads to a detailed internal investigation revealing causal factors that the appointed Aviation Mishap Board (AMB) feels are directly or indirectly causative to the given mishap. Because Safety Investigation Reports produced by AMBs are considered privileged information and not released for public discourse, speculation has arisen that the lack of aircrew flight time is to blame for the recent spike in mishaps. As Seth Cropsey, a former Navy officer who served as the Deputy Undersecretary of the Navy in the Ronald Reagan and George H.W. Bush administrations said, “a lack of flying time does add to the rise in accidents. When you send pilots up there who haven’t had time in the planes – [that is] what you get...something has to give.”⁸⁹

Squadron commanders are literally doing everything they can to make up the difference in lost flight time by allowing their junior aircrew to sit in on briefs and debriefs of the few aircrew getting to fly on a particular day, chalk talks and briefing labs, and additional simulator usage when able and available. However, the overwhelming number of requirements spread among diminished ready room populations combine in a ‘perfect storm’ to hinder squadron Marines from advantaging time to be great at their MOS, their ground jobs, and most importantly, their families.

Conclusion

As Marine Corps senior leadership works diligently on top-down solutions to address aviation shortfalls, bottom-up approaches such as those outlined in the *2015 Aviator Retention Survey* should “provide valuable input from the fleet and shape HQMC

Aviation’s advocacy efforts.”⁹⁰ Understandably, the Marine Corps is investing in capabilities and advanced aviation systems that will render it the nation’s force in readiness both today and in the fight of the future.⁹¹ With equal determination and priority, investing in immediate action-oriented solutions to retain the most qualified and experienced aircrew is just as important for they are future innovators and commanders. Not doing so risks a deepening crisis of manpower and further problems in addressing future aviation readiness. Of course, no single solution will ever be able to address a complex problem like aircrew retention by itself. Therefore, it is imperative the Marine Corps “use a combination of partial solutions to get through the immediate crisis while it rebuilds its aviation fleet.”⁹² Improving manpower while reducing additional ground duties/requirements increases readiness and time for aviators to study, perfect, and instruct their tradecraft. All helping to increase both quality of service and quality of life, while ensuring the talent we require for the Corps is retained in the rank and file.

Epilogue

At the time of this writing (early April 2017), new developments in both monetary incentives for aviators and ground training requirements are unfolding. In a 29 March 2017 address before the House Armed Services Subcommittee on Military Personnel, USMC Deputy Commandant M&RA, Lieutenant General Mark Brilakis, expounded on the Corps’ desire to offer retention bonuses to select pilots for the first time in six years.⁹³

The Commandant is going forward, requesting from the Secretary of the Navy and the Secretary of Defense, authority to pay a retention bonus in three communities: F-35, F-18—because the legacy platform is our most challenged platform right now—and then the V-22. F-35 and V-22 are currently growing communities and we don’t want to be caught short in those aviation communities.⁹⁴

While Lieutenant General Brilakis did not comment on the details of the proposed pilot retention bonus for the three communities (i.e. basic eligibility requirements or bonus amount(s)), this is a step in the right direction. Time will tell if these retention bonuses will go toward retaining the best aviators in these platforms, and what effect such bonuses will have on retention efforts.

Additionally, as discussed in the preface, the aforementioned proposed solutions must apply not only to Marine aviators but, equally important, to the highly-qualified maintainers who are just as integral in terms of aircraft, and therefore, mission readiness. In a move to address this specific issue, experienced maintainers are also being offered a financial incentive in order to retain experience “so they can train the next generation in those certification requirements.”⁹⁵ The Marine Corps should consider the stair-stepped approach for both the aircrew and maintainer directed retention incentives going forward.

Equally important is a pending MarAdmin which will reduce online training requirements for Marines effective 1 May. According to a Corps Report released 1 April 2017, “commanders will use small-unit leadership led discussions, reducing online training by more than five hours. Small-unit leaders will receive training support packages to standardize training.”⁹⁶

Although a five-hour reduction may appear minimal considering the cumulative effect of the previously mentioned annual training requirements, CGIP functional area inspection items, PME, and additional (collateral) duties and miscellaneous requirements, it signifies the Marine Corps’ intent to further condense training and streamline demands on a Marine’s time. There is still

much work to be done, however, in order to bring significant relief to many strained aircrew (reference Major Drake's individual responsibilities on page 25) and Marines in equally demanding MOSs.

Endnotes

¹ Headquarters United States Marine Corps, *Marine Corps Operating Concept; How an Expeditionary Force Operates in the 21st Century*, (Quantico, VA: Marine Corps Combat Development Command, September 2016), <http://www.mcwl.marines.mil/Portals/34/Images/MarineCorpsOperatingConceptSept2016.pdf?ver=2016-12-02-073359-207>, i.

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²³ R. Garza, *2016 MOS Status Report*, Quantico, VA: Marine Corps Manpower Plans and Policy (MPP-30).

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³⁸ Interview with Manpower Plans, Programs, and Budget official, January 12, 2017.

³⁹ Scott Maucione, “Bonus pay for military pilots becomes sticking point for services,” *federalnewsradio.com*, Sep. 21, 2016, <http://federalnewsradio.com/defense/2016/09/bonus-pay-military-pilots-becomes-sticking-point-services/>.

⁴⁰ Seck, “Service Chiefs,” last modified Sept. 15, 2016.

⁴¹ Seck, “Service Chiefs,” last modified Sept. 15, 2016; “Davis-Monthan Air Force Boneyard in Tucson: Boneyard Layout, Operations, Tours, and Maps,” *Airplane Boneyards.com*, January 16, 2017, <http://www.airplaneboneyards.com/davis-monthan-afb-amarg-airplane-boneyard.htm>. The Davis-Monthan Air Force Base in Tucson, Arizona, has become “the largest aircraft boneyard in the world” after being designated for storage of military aircraft post World War II. The area’s environment (low humidity, meager rainfall, hard soil, and high altitude) makes it the ideal location for natural aircraft preservation for eventual cannibalization or potential reuse.

⁴² Scherrer, “Below Glideslope and Going Lower,” 2.

⁴³ Salas, *2015 Aviator Retention Survey*, 3.

⁴⁴ Salas, *2015 Aviator Retention Survey*, 5.

⁴⁵ Salas, *2015 Aviator Retention Survey*, 2. Questions 45-47 of the survey sought written inputs from aircrew on factors incentivizing retention decisions and factors weighing heavier on separation decisions.

⁴⁶ Commandant of the Marine Corps, *Aviation Training and Readiness (T&R) Program Manual*, NAVMC3500.14C, August 23, 2011, 22, http://www.marines.mil/Portals/59/Publications/NAVMC_3500.14C_1.pdf.

⁴⁷ Aircrew Production Data Analyst, VMFAT-101, email to the author, January 22, 2017. The FRSs define CAT 1 as “the training necessary for qualifying the Category 1 pilot to achieve designation as a Strike Fighter Weapons and Tactics Level 1 aircrew upon course completion.”

⁴⁸ Commandant of the Marine Corps, *FA-18 Training and Readiness Manual*, NAVMC 3500.50C, April 5, 2016, 2-3, http://www.marines.mil/Portals/59/Publications/NAVMC%203500_50B%20PT%201.pdf. The FA-18 A/C Pilot Career Progression Model “represents the recommended training progression for the average aircrew” though are mostly utilized by the training officer(s) to generate individual training plans.

⁴⁹ Commandant of the Marine Corps, *FA-18 T&R Manual*, 2-73.

⁵⁰ Commandant of the Marine Corps, *FA-18 T&R Manual*, 2-73. The F-18 T&R Manual specifies that “Prospective section leaders (PSL) shall have a minimum of 200 hours in model, 400 hours total, and be complete with all 2000 and 3000 phase events prior to commencing the section lead syllabus (SL-6301 to SL-6315).”

⁵¹ Commandant of the Marine Corps, *FA-18 T&R Manual*, 2-83. The F-18 T&R Manual specifies that “Prospective division leaders (PDL) shall have a minimum of 400 hours in model, 600 hours total, and have flown a minimum of three flights as a designated section leader.”

⁵² Headquarters United States Marine Corps Department of Aviation, “USMC’s Air-Group Task Force,” *Wings of Gold*, Summer, 2016, 20.

⁵³ Commandant of the Marine Corps, *Aviation T&R Manual*, 22.

⁵⁴ HQMC Department of Aviation, “USMC’s Air-Group Task Force,” 20.

⁵⁵ HQMC Department of Aviation, “USMC’s Air-Group Task Force,” 20.

⁵⁶ Commanding Officer MAWTS-1, *WTI 1-16 Planning Guide*, June 12, 2015, 3-2.

⁵⁷ Commanding Officer MAWTS-1, *WTI 1-16 Planning Guide*, B-1.

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⁵⁹ Commandant of the Marine Corps, *Separation and Retirement Manual (Short Title: MARCORSEPMAN)*, MCO 1900.16, November 26, 2013, 87, <http://www.marines.mil/Portals/59/Publications/MCO%20%201900.16.pdf>. Per the Marine Corps Separation and Retirement Manual, “officers attending school under various programs or who receive special training in compliance with official orders must complete the additional service obligation incurred.” Since MDTC is less than 20 weeks in duration (approximately 7 weeks), it would incur an additional service obligation of 1 year.

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⁶¹ HQMC Department of Aviation, “USMC’s Air-Group Task Force,” 20.

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⁶³ Palmer, “Retaining the Best Marine Aviators,” 10.

⁶⁴ Aircrew Production Data Analyst, VMFAT-101, email to the author, January 22, 2017.

⁶⁵ HQMC Marine Aviation, *WTI Calculation*, email to the author received from MAWTS-1, January 18, 2017.

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⁶⁷ HQMC Marine Aviation, *WTI Calculation*, January, 18, 2017. “Does not include ordnance costs or external support (Aggressors, Forward Air Controller (Airborne) Support, Indirect Fire, etc.).”

⁶⁸ HQMC Marine Aviation, *WTI Calculation*, January 18, 2017.

⁶⁹ HQMC Marine Aviation, *WTI Calculation*, January 18, 2017. Includes a WTI Course cost of approximately \$239,000 per student not including External Air Support costs or student temporary additional duty funds.

⁷⁰ Maucione, “Bonus pay for military pilots.”

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⁷³ Deborah Lee James and Gen Dave Goldfein, Secretary of the Air Force and Chief of Staff, U.S. Air Force, memorandum for all airmen, August 18, 2016.

⁷⁴ Commandant of the Marine Corps, *Annual Training and Education Requirements*, 2-1 – 2-4.

⁷⁵ HQMC Inspector General, *Functional Area Checklists*, Washington, DC: Department of Defense, last visited January 25, 2017. <http://www.hqmc.marines.mil/igmc/Resources/Functional-Area-Checklists/>.

⁷⁶ F/A-18 Squadron, *Primary and Additional Collateral Duties Jan 17*, email to the author, January 27, 2017.

⁷⁷ Salas, *2015 Aviator Retention Survey*, 2.

⁷⁸ Commandant of the Marine Corps, *Annual Training and Education Requirements*, 2-4.

⁷⁹ Deborah Lee James, Secretary of the Air Force, memorandum for all airmen, August 18, 2016.

⁸⁰ Brett Allison, “The Impact of Ground Training on Aviation Readiness,” (master’s thesis, Marine Corps University, 2010), i.

⁸¹ Commandant of the Marine Corps, *FA-18 T&R Manual*, 2-4 – 2-5. “Proficiency is a measure of achievement of a specific skill. Proficiency periods establish the maximum time between demonstration of those particular skills. To regain proficiency, an individual shall complete delinquent Events with a proficient instructor, crewman/flight lead as delineated by the T/M/S Syllabus Sponsor (see Chapter 3 of the Program Manual on specific instructor requirements for Low Altitude Flight, Night Systems, ACM, DM, DACM, DCM, FAC(A)).”

⁸² Commandant of the Marine Corps, *FA-18 T&R Manual*, 2-4 – 2-5. Currency is “a control measure used to provide an additional margin of safety based on exposure frequency to a particular skill. It is a measure of time since the last event demanding that specific skill. For example, currency determines minimum altitudes in rules of conduct based upon the most recent low altitude fly date. Specific currency requirements for aircrew individual type mission profiles can be found in Chapter 3 of the Program Manual.”

⁸³ Ryan Cunningham, “Saving the Hornet on the Flight Line and in the Ready Room,” (unpublished manuscript, January 21, 2017), Microsoft Word file.

⁸⁴ Carl Forsling, “What The Latest Marine Aviation Mishap Says About Pilot Readiness,” *Task and Purpose*, last modified December 30, 2016, <http://taskandpurpose.com/latest-marine-aviation-mishap-sends-alarming-message-training-levels/>.

⁸⁵ Forsling, “What The Latest Marine Aviation Mishap Says,” *Task and Purpose*, December 30, 2016.

⁸⁶ Tara Copp, “F/A-18 crashes rise rapidly as budget constraints have led to overused planes, undertrained pilots,” *stripes.com*, September 1, 2016, <http://www.stripes.com/news/f-a-18-crashes-rise-rapidly-as-budget-constraints-have-led-to-overused-planes-undertrained-pilots-1.426688>.

⁸⁷ Naval Safety Center, *F/A-18 aviation mishap data for the last 10 years*, email to the author, March 29, 2017.

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⁸⁹ Copp, F/A-18 crashes rise rapidly,” September 1, 2016.

⁹⁰ HQMC Department of Aviation, “USMC’s Air-Group Task Force,” 20.

⁹¹ HQMC Department of Aviation, “USMC’s Air-Group Task Force,” 22.

⁹² Carl Forsling, “Pilot Retention is in a Death Spiral. Here’s How the Marine Corps Can Fix it,” *Task and Purpose*, last modified January 27, 2017, <http://taskandpurpose.com/pilot-retention-death-spiral-heres-marine-corps-can-fix/>.

⁹³ Jeff Schogol, “Marine Corps Plans to Offer Pilots Retention Bonuses for First Time Since 2011,” *Marine Corps Times*, March 29, 2017, <https://www.marinecorpstimes.com/articles/marines-to-offer-retention-bonuses-to-pilots-again>.

⁹⁴ *Military Pilot Shortage: Hearing before the House Armed Services Military Personnel Subcommittee*, 115th Cong., 17 (2017) (statement of Lieutenant General Mark Brulakis, Deputy Commandant, M&RA).

⁹⁵ Schogol, “Marine Corps Plans to Offer Pilots,” March 29, 2017.

⁹⁶ *The United States Marine Corps Twitter Account*, The Corps Report Apr 1, accessed April 3, 2017, <https://twitter.com/USMC/status/848142929444995073>.

APPENDIX A
Acronyms

ACIP	Aviation Career Incentive Pay
ACM	Air Combat Maneuver
ACP	Aviation Continuation Pay
AMB	Aviation Mishap Board
AMOS	Additional Military Occupational Specialties
ASM	Aviation Manpower and Support Branch
AVPLAN	Aviation Plan
CGIP	Commanding General's Inspection Program
DC/AVN	Deputy Commandant for Aviation
DL	Division Leader
DoD	Department of Defense
DoN	Department of Navy
FRS	Fleet Replacement Squadron
FW	Fixed Wing
FY	Fiscal Year
HQMC	Headquarters Marine Corps
LAT	Low Altitude Tactics
M&RA	Manpower and Reserve Affairs
MAG	Marine Aircraft Group
MAWTS	Marine Aviation Weapons and Tactics Squadron
MDTC	Marine Division Tactics Course
MMOA	Manpower Management Officer Assignments

MOS	Military Occupational Specialty
MPP	Manpower Plans and Policy
PME	Professional Military Education
PMOS	Primary Military Occupational Specialty
SL	Section Leader
T&R	Training and Readiness
TACAIR	Tactical Aircraft
TERA	Temporary Early Retirement Authority
T/M/S	Type, Model, and/or Series
VSP	Voluntary Separation Pay
WTI	Weapons and Tactics Instructor

APPENDIX B
2015 Aviator Retention Survey Results Overview

10 Nov 2015

INFORMATION PAPER

Subject: 2015 Aviator Retention Survey Results

Purpose: To inform leadership on the survey results and to identify areas for further analysis. Questions in the survey are intended to identify areas for policy change and development. The available answers are intended to provide magnitude on sentiments.

Background: Manpower & Reserve Affairs uses historical data to develop models that are intended to forecast future conditions. The model results are then used to support decisions on how to utilize USMC manpower resources. This method has proven productive but also has potential flaws due to its reactive nature. Additionally, past behavior does not always predict future results due to the dynamic nature of reality.

Key Points:

- Aviation Attrition Rates according the MP, M&RA (Aug 2015):
 - NO attrition issues in the aviation community.
 - Attrition in FY 15 among 75XX Marines were approximately 3 percentage points or 58% lower than the 26 year average.
 - US Bureau of Labor Statistics shows little change in US commercial airline employment until 2022.
 - US military pay and benefits are greater than those in the private sector.
 - Manning/Staffing difficulties are attributed in part to CNATRA production shortfalls.
- DCA sponsored Aviator Retention Survey:
 - Modified M&RA officer retention survey used as template
 - E-mail notifications sent out to 3,517 officers with a 7315 and 75XX PMOS.
 - 2,173 (60.7%) usable results were generated.
 - Participation was commensurate with MOS and grade representation.
- Survey results:
 - #1-20 uses Likert scaled questions intending to measure satisfaction with current USMC/aviation/MOS conditions.
 - Overall and when filtered by O4, O3, FW and RW; “Dissatisfied” responses occur with *amount of flight hours/training, manning level and personal/family time*. “Very dissatisfied” with *availability of equipment, parts and resources*.
 - Tiltrotor O3 and O4 return an increased number of “Dissatisfied” responses including *training/professional development and deployments*. UAS was returned several more “Dissatisfied” responses to include the only breakout group with an overall dissatisfaction with their primary MOS.
 - #21-32 uses Likert scaled questions intending to measure intention toward retention or separation from the Marine Corps.
 - Most responses fell into the “influence to leave” category to include “strong influence to leave.”
 - 72.7% of Lieutenants and 73.5% of Captains state intention to either separate after their term or obligation or are unsure if they will separate. 40.9% of Lieutenants and 33.1% of Captains intend to leave after the completion of their next term.

- With the exception of Majors, each breakout groups expressed large increases for intent to separate from active duty from when they first entered to their current intent.
- #33-42 uses Likert scaled questions obtaining individual impressions on differences between civilian and USMC incentives.
 - Most responses fell into the “much better as a civilian” category to include “strong influence to leave” for *amount of personal/family time, hours worked per week and how would improvements in the civilian job market influence your decision to remain on active duty.*
 - In all filtering options, each group felt that finding civilian employment with similar incentives as their USMC incentives was “easy” or “neither” difficult or easy.
- #43-44 uses the same Likert scale as questions #21-32 and attempts to expand on previously asked civilian employment and pay questions.
 - In all filtering options, each group expressed an influence to leave active duty if they felt their civilian career options were expanded.
- #45-47 seeks inputs on which factors weigh heavier on separation decisions and which factors would incentivize a retention decision.
 - 191,602 words were provided in these 3 questions.
 - “Bonus”, “ACP”, and “money” were used over 1,000 times
 - In general, the comments were spread across the spectrum of possibilities.
 - General themes were displeasure with a lack of flight training, extensive time away from family, pay not commensurate with work load or responsibilities.
 - Comments seemed to differ generationally with younger individuals concerned with a lack of operational experience while older individuals concerned by extensive operational tempo.

Talking Points:

- The survey shows a greater intent to separate from active duty in comparison to historical separation rates.
- Re-occurring themes included insufficient equipment, parts and resources that negatively affect opportunities for flight training. Another theme is with extensive hours at work with its negative affect on personal/family time.
- Bonus money appears to be a positive influence toward retention but its absence is not a sole factor toward separation.

Action: None. Information only.

APPENDIX C
F/A-18 CGIP Functional Area Inspection Items

1040	CAREER PLANNING	CARPLAN
1050	GENERAL ADMINISTRATION	S-1
1320	MARINE CORPS SPONSORSHIP PROGRAM	S-1
1400	MARINE CORPS OFFICER AND ENLISTED PROMOTION	S-1
1500.52	MARINE CORPS WATER SURVIVAL TRAINING PROGRAM	S-3
1500.59	MARINE CORPS MARTIAL ARTS PROGRAM	S-3
1553.3	UNIT TRAINING MANAGEMENT	S-3
1610	PERFORMANCE EVALUATION SYSTEM	S-1
1650	MILITARY AWARDS	S-1
1700.23	REQUEST MAST	SGTMAJ
1700.28	HAZING PREVENTION RESPONSE	EO
1700.36	SINGLE MARINE PROGRAM	SMP
1720	SUICIDE PREVENTION PROGRAM	S-5
1742	VOTER ASSISTANCE PROGRAM	S-1
1752	SEXUAL ASSAULT PREVENTION AND RESPONSE	UVA
1754.9	UNIT, PERSONAL, AND FAMILY READINESS PROGRAM	FRO
1900.1	SEPARATION AND RETIREMENT	S-1
1900.2	LIMITED DUTY	S-1
3000	UNIT READINESS	S-3
3040	CASUALTY AFFAIRS	S-1
3070	OPERATIONS SECURITY	S-3
3302	ANTI-TERRORISM	S-2
3400	CBRN DEFENSE	S-3
3500.14	AIRCREW TRAINING	S-3
3574	MARINE CORPS COMBAT MARKSMANSHIP PROGRAM	S-3
3700	AVIATION OPERATIONS ADMINISTRATION	S-3
3710	NATOPS	S-5
3750	AVIATION SAFETY	S-5
3800	INTEL OVERSIGHT	S-2
4113	MOBILITY READINESS	S-4
4600	GOVT TRAVEL CHARGE CARD PROGRAM	S-1
4650	DEFENSE TRAVEL SYSTEM	S-1
5040	COMMAND INSPECTION PROGRAM	XO
5060.1	COLOR GUARD	SGTMAJ
5100A	GROUND SAFETY	S-5
5100B	ORM & INDUSTRIAL HYGIENE	S-5
5110	POSTAL AFFAIRS	S-1
5210	RECORDS REPORTS AND DIRECTIVE MANAGEMENT PROGRAM	S-1
5239	CYBER SECURITY MANAGEMENT	S-6
5300	SUBSTANCE ABUSE PROGRAM	SACO
5351	COMBAT AND OPERATIONAL STRESS CONTROL PROGRAM	S-5
5354	MILITARY EQUAL OPPORTUNITY PROGRAM	EO
5510.3	INFORMATION AND PERSONNEL SECURITY	S-2
5530	PHYSICAL SECURITY	S-2
5750	MARINE CORPS HISTORICAL PROGRAM	S-3
5800.14	VICTIM AND WITNESS ASSISTANCE PROGRAM	S-1
5800.16	LEGAL ADMINISTRATION	S-1
6000	HEALTH SERVICE SUPPORT	MED
6100	PHYSICAL FITNESS PROGRAM	S-3
6110	BODY COMPOSITION AND MILITARY APPEARANCE PROGRAM	S-3

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