

# Fleet Readiness Center Southwest Naval Air Station North Island San Diego, CA

## Organizational Profile

The E-2/C-2 Planned Maintenance Interval (PMI) Production Line at Fleet Readiness Center Southwest (FRCSW), on Naval Air Station North Island delivers reconnaissance and cargo aircraft critical to the war-fighting and war-winning needs of the Navy.

The primary customer is Commander, Airborne Command Control and Logistics Wing who is responsible for deploying ready-for-tasking E-2C Hawkeye airborne early warning and C-2A Greyhound transport aircraft. Key stakeholders include Naval Air Systems Command, who provides Engineering and Logistics support for the platforms; FRCSW, who provides all internal and external maintenance solutions and support services; and Commander, Naval Air Forces, who commands and deploys all the Navy aviation weapon systems.

The E-2/C-2 Product Line's mission is to deliver cost-wise, ready-for-tasking (RFT) aircraft. The overarching vision is to be the maintenance solutions provider of choice for products and services to customers and stakeholders. FRCSW performs work on 10 E-2 and 10 C-2 aircraft per year with a \$45M average annual revenue.

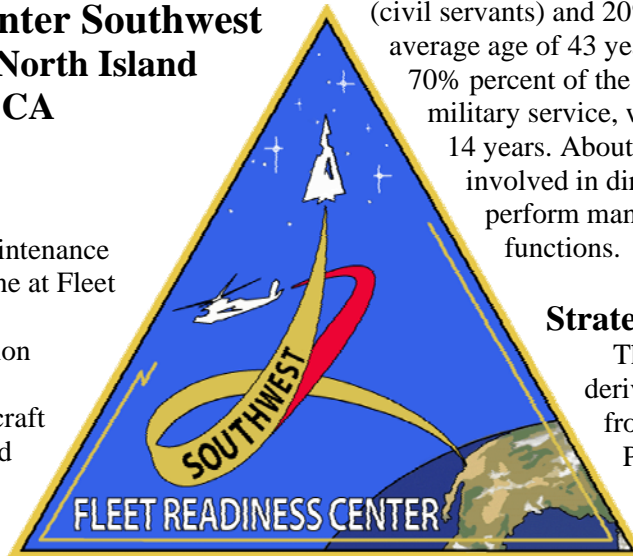
The Product Line's mission is to consistently deliver quality, cost-wise, ready-for-tasking aircraft to the Navy. The strategy is to transform the organization into a high-performing team that produces on-time, affordable, reliable products; and be the maintenance solutions provider for the E-2 and C-2 communities.

The primary service provided is Planned Maintenance Interval (PMI) services in which key areas of the aircraft and its components are removed, inspected, repaired, or overhauled, to ensure that the aircraft can perform its assigned mission.

## People

The E-2/C-2 workforce is made up of 80% Navy Civilian Employees

(civil servants) and 20% contractors. They are an average age of 43 years old, and approximately 70% percent of the workforce has previous military service, with an average education of 14 years. About 83% of the workforce is involved in direct product work and 17% perform managerial and administrative functions.



## Strategic Direction

The E-2/C-2 production line derives its strategic direction from the FRCSW Strategic Plan, which is focused on promoting organizational and operational excellence.

Utilizing all aspects of Hoshin Planning, the overarching goal is to continually improve performance and sustain the fleet's confidence in FRCSW's ability to produce quality, cost-wise, Ready-for-tasking (RFT) E-2C and C-2A aircraft; by employing a high-performing workforce that produces timely, affordable, and reliable products.

## Key Objectives

- 1. Delivery:** Continually identify bottlenecks and constraints, reduce work-in-process, and deliver aircraft that meet the fleet's requirements
- 2. Reliability:** Continually identify the sources of quality and reliability problems, and resolve them.
- 3. Responsiveness:** Continually improve workforce ability and capacity to provide cost-wise quality products, services, and improvements to Fleet readiness.

## Tactics for Achieving Goals and Objectives

The E-2/C-2 production line has developed a



comprehensive, cohesive framework through Balanced Score Card perspectives which include:

- Delivering warfighter readiness by improving product flow and throughput.
- Delivering reliable war fighting products by consistently producing safe, quality products.
- Being responsive to emergent needs by improving workforce and workplace capability and capacity;

The Balance Scorecard framework is designed to:

- Clarify and translate all vision and strategy into action
- Communicate and integrate objectives and measures
- Plan and set targets; and align initiatives
- Continually adjust and improve to exceed expectations and needs

The ultimate goal is to unleash a high performing organization that produces on-time, affordable, reliable products. FRCSW uses the disciplined structure of a Balanced Score Card with very specific objectives, measures, targets, and initiatives, to stay on track toward stated goals.

### **E-2/C-2 Lean Journey**

In March 2005 the E-2/C-2 Production line began implementing *AIRSpeed* continuous process improvement tenets which include the best business practices of Lean, Theory of Constraints, and Six Sigma. *AIRSpeed's* focus is to remove all non-value added activities to achieve cost-wise readiness.

Analysis of the E-2/C-2 product line revealed that the primary driver for poor execution was a lack of material – 80 percent of the organization's problems and barriers to success were attributed to material constraints.

As a result of the study, the production line was reshaped and transformed by removing non-value material and equipment, and creating in a single-piece flow, cell-based work environment (CBWE), with workload synchronized to Fleet demand. The production line was reduced from 11 to eight work cells.

Parallel to the CBWE effort was a synchronized initiative with internal and external suppliers to increase the accuracy of bill of materials, implement standard work, and develop a robust, tightly coordinated supply forecasting process.

To improve the availability of parts and monitor their affect on turn-around-time (TAT), a "war room" was created to coordinate, catalogue, and visually track E-2/C-2 operations. As production was

monitored, the timing for parts at specific work cells became evident and tightly coordinated.

### **E-2/C-2 AIRSpeed Results:**

*AIRSpeed* allowed FRCSW to identify and eliminate non-value added activities. It made the command see the value of communicating with customers to truly understand their needs and demands. To meet demands, the production line engaged all internal and external support and supply chain elements that prevented the organization from meeting customer's needs. Along the way, many bad behaviors were eliminated, enabling the implementation of good behaviors.



As a result of these efforts:

- TAT for E-2C aircraft was reduced from 250 to 180 production days
- C-2A aircraft TAT dropped from 390 to 330 days.
- Quality: C-2A flights-to-sell were reduced by 60%; E-2C Flights-to-sell dropped 33%
- Labor Hours: C-2A PMI-3 hours were reduced by 11%; E-2C PMI-2 hours were reduced by 16%; E-2 PMI-1 hours were reduced by 85%
- Cycle Time: C-2 PMI-3 was reduced by 74%; E-2 PMI-2 was reduced by 90%
- Material buys: Reduced material buys by 60% through the use of non-material solutions

### **E-2/C-2 Lean Sigma Journey: The Future**

The journey thus far, has allowed the E-2/C-2 production line to expose non-value added activities and constraints. Future continuous improvement efforts are focused on expanding the benefits of Lean Sigma to influence the activities of internal and external suppliers, and customers. The objective is to improve the enterprise and to reach consensus among all stakeholders, and to identify obstacles and non-value added activities that negatively contribute to the goal of cost-wise readiness.