



# Securing America's Borders Through the Lens of Cost-Wise Readiness

By Pat Lorzing



**Figure 1:** A CBP Air Interdiction Agent patrols the border in an H-60 Black Hawk Helicopter

## Abstract

“With more than 60,000 employees, U.S. Customs and Border Protection (CBP) is one of the world’s largest law enforcement organizations and is charged with keeping terrorists and their weapons out of the U.S. while facilitating lawful international travel and trade.”<sup>1</sup> To accomplish this mission, CBP must ensure required operational readiness of its systems, investing billions of dollars in operations and maintenance to do so. To provide this required readiness most efficiently, CBP launched an agency-wide strategic initiative Cost-Wise Readiness (CWR) program, adopting best practices from across government and industry. CWR is now dramatically transforming CBP’s culture by promoting collaboration between operators and service providers on mission-ready systems via an analytical, quantitative, and disciplined approach to provide system operational readiness outcomes at best cost. This article highlights the accomplishments in readiness and cost. Readers are invited to contact the CBP CWR Support Team for further details.

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# Introduction

This article provides an overview of U.S. Customs and Border Protection's (CBP) approach for understanding and improving Agency readiness while determining the proper cost to achieve and sustain that readiness requirement. Although this article focuses on only two programs, the principles of Cost-Wise Readiness (CWR) are far-reaching within CBP. The audience for this article may include planners, analysts, and subject matter experts who specialize in operational requirements and intelligence/threat analyses as well as acquisition workforce professionals from all functional areas.

As explained on the CBP website, "With more than 60,000 employees, CBP is one of the world's largest law enforcement organizations and is charged with keeping terrorists and their weapons out of the U.S. while facilitating lawful international travel and trade."<sup>2</sup> To accomplish this vital homeland security mission in a dynamic threat environment, CBP must deliver and sustain mission-ready systems for the guardians of our Nation's borders. However, over the last decade CBP has been experiencing a growing inventory of deployed and aging systems with an increase in operations and support costs. This budget shift prompted consideration for a broader enterprise performance outcome-based approach to leverage cross-cutting economies of scale, lessons learned sharing, and streamlining opportunities.

To tackle this challenge, CBP chartered an Enterprise Logistics Life-Cycle Management Integrated Project Team to employ government and industry-recognized CWR best practices for achieving and sustaining readiness at the best cost. Early results of applying CWR principles in 13 CBP programs indicate up to 30% improved readiness and over \$370M/5 years in cost efficiencies

## What is CWR?

CWR is a strategic framework consisting of four performance outcome-based metrics: materiel availability (MA), materiel reliability (MR), mean downtime (MDT), and ownership costs (OC). Establishing and maintaining these key metrics by tackling key readiness degraders and/or cost drivers ensures required materiel readiness at the best cost throughout the life cycle. Mark Borkowski, CBP's Component Acquisition Executive, often reminds audiences that "readiness" is the noun and "cost-wise" is the adjective. Once the required material availability (readiness) for mission success is understood, then the cost to meet that readiness is minimized. Understanding these materiel readiness requirements and associated cost drivers enables trade-offs for achieving and sustaining required readiness most efficiently.

## H-60 Black Hawk

CBP's Air and Marine Operations (AMO) component nominated the H-60 Black Hawk (medium-lift helicopter) as one of the first "CWR Exemplars" to demonstrate CWR performance outcome-based principles. AMO has 23 H-60s and continues to expand the fleet through the end of FY27

for a total of 35 aircraft. Prior to CWR, each H-60 flew approximately 225 hours per aircraft per year, less than the required 240 hours per aircraft per year and the desired 300 flight hours per aircraft per year. Once an H-60 logs 480 flight hours, the aircraft is grounded until it goes through a Phase Maintenance Inspection (PMI), which normally takes up to 203 days total MDT (a combination of 113 days awaiting induction and 90 days inspection time). However, for readiness purposes, this combination of awaiting induction time and actual PMI inspection time needed to be no more than 110 days for AMO to meet their operational tempo/mission requirements. Before CWR, AMO utilized three inspection lines (a team of skilled maintenance technicians who can perform the detailed inspection and repairs necessary to allow the H-60 to fly safely). Adding more PMI lines costs approximately \$1.3M per line.

The challenge: optimizing the total inspection-related downtime against the cost and sustainability of adding new lines while meeting their mission flying-hour requirements. Before CWR, AMO had two steady PMI lines and an occasional third line for a fleet of 23 aircraft, with a total downtime of 203 days on average per inspection. Applying CWR performance outcome-based principles and predicting resource-to-outcome-sensitivities, MDT was reduced from 203 days to an optimum 90 days using process improvement techniques. This MDT reduction resulted in two additional aircraft ready for operations.

In addition, a sensitivity analysis was provided for the optimal number of PMI lines and the optimum MDT required to meet the readiness requirements as the H60 fleet continued to grow to meet anticipated increased mission requirements and commensurate flight hour increase to 300 hours per aircraft per year. This modeling provided a great perspective on the impact of fluctuations on aircraft utilization by operations and maintenance downtime, allowing materiel readiness considerations to guide necessary changes to perform effective and quality maintenance on the H-60 fleet. After eight months of intense analysis and modeling of multiple scenarios, AMO was able to improve consistently the average total MDT per PMI from 90 to 100 days—a 47% reduction of downtime for operations to perform the CBP mission.

## Mission-Essential Lighting

As previously mentioned, the CWR process begins by looking at the major degraders and/or drivers affecting the ability to meet users' requirements at the best cost. The Mission-Essential Lighting Team discovered that the labor cost to replace obsolescent lamps plus the energy cost to operate the lamp itself, was greater than the cost of the lamp. Additionally, these obsolescent lamps were less energy-efficient and sometimes provided poor visibility. With that knowledge, the Mission-Essential Lighting team endeavored to find lighting reliability and cost solutions, thereby providing better visibility while reducing energy and maintenance labor costs.

The team focused on essential lighting (approximately 29,000 lights) for a variety of applications, including vehicle inspection lanes at land ports of entry (LPOE), processing areas in LPOEs and Border Patrol Stations, controlled entry areas, lighting at firing ranges, security lighting, and watch rooms for monitoring remote video surveillance systems. After developing modeling assumptions, conducting comprehensive analyses, and piloting two facilities, the team demonstrated that by swapping out the obsolescent lamps with Light Emitting Diodes,

reliability in terms of mean time between failure (MTBF) would improve by a factor of three (from 20,000 hours MTBF to 60,000 hours MTBF), reducing OC from \$3.2M per year to \$2.3M per year while providing better visibility overall.

Based on their findings, the team received an Energy Conservation Technologies Award for \$624,000 from the U.S. Department of Energy Federal Energy Management Program Assisting Federal Facilities. The monetary award will help facilitate the implementation of their CWR initiative with the adoption of energy efficiency, renewable energy, and operational resilience technologies at critical facilities. It will be used to perform an analysis of design, performance, maintenance, and reliability for their CWR exemplar initiative supporting approximately 70 small remote border facilities nationwide. CBP was one of 16 federal agencies to receive this grant.

## Summary

The H-60 Black Hawk and Mission-Essential Lighting exemplars demonstrated how optimizing reliability and downtime improved readiness and ownership cost. They represent just two of fifteen programs identified by CBP's Deputy Commissioner to fast-track using CWR principles. Similarly, significant CWR outcomes were recognized in additional areas, including Vehicle Tires, Land Border Integration, TECS Modernization, Transportation, Integrated Fixed Towers, Biometrics, Systems/Applications/Products, Automated Commercial Environment, Mobile Vehicle Surveillance System, Small Unmanned Aircraft Systems, Cameras, Multi-Role Enforcement Aircraft, and Mobile Surveillance Capability programs.

As one CWR program team member exclaimed, "Before CWR, we were just looking to get things in and out the door, but now we're working on why they're in the door to begin with!" The entire CWR portfolio consists of nearly 50 programs and continues to grow every day as the CWR transformation continues to spread throughout the agency and will one day become just the normal way of doing business in CBP.

## About the Author

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## Notes

1. U.S. Customs and Border Patrol, About CBP, Accessed 7/5/22, <https://www.cbp.gov/about> .
2. Ibid.

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