

ARCHIVED REPORT

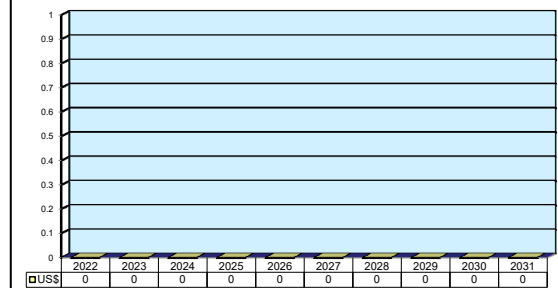
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Joint Warning and Reporting Network (JWARN)

Outlook

- JWARN Increment 2 fully operational
- Development of sensor and network software ongoing
- Integration continues across all U.S. military services
- Due to a budget restructure for FY23, the program is currently unfunded. This is not permanent, and this report will be updated once the program is realigned

Funding Forecast
2022-2031



Orientation

Description. The U.S. Marine Corps' Joint Warning and Reporting Network (JWARN) program is developing a network that can collect, analyze, and disseminate chemical, biological, radiological, and nuclear (CBRN) attack messages from a variety of sensors and detectors for better battlefield management.

Status. JWARN Increment 1 reached IOC in 2011. JWARN Increment 2 became operational in 2018.

Application. Nuclear, biological, and chemical threat/attack alert network.

Price Range. Undetermined at this time.

Sponsor

United States Marine Corps
 Marine Corps Systems Command
 2200 Lester St
 Quantico, VA 22234-6050
 USA
 Website: <http://www.marcorsyscom.marines.mil/>

Contractors

Prime

Northrop Grumman Mission Systems	http://www.northropgrumman.com , 7575 Colshire Dr, McLean, VA 22102 United States, Tel: + 1 (703) 556-1000, Prime
DCS Corp	http://www.dcsCorp.com , 6909 Metro Park Dr, Ste 500, Alexandria, VA 22310 United States, Tel: + 1 (571) 227-6000, Second Prime

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General Dynamics Information Technology	http://www.gdit.com, 3211 Jermantown Rd, Ste 700, Fairfax, VA 22030 United States, Tel: + 1 (703) 995-8700, Program Participant (Hazard Prediction Model Development and Integration)
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Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 75 Glen Road, Suite 302, Sandy Hook, CT 06482, USA; rich.pettibone@forecast1.com

Technical Data

Design Features. The JWARN is a standardized CBRN warning and reporting system that provides a comprehensive analysis and response capability to reduce the effects of CBRN attacks or incidents. The system is integrated and compatible with joint service command, control, communications, computers, intelligence, and information (C4I2) systems. The JWARN is located in command and control centers, transferring data automatically to and from the detectors and sensors in the field to provide commanders with analyzed data. Based on this data, commanders can send warnings to troops on the actual battlefield.

The JWARN 2 program supplies a software application that provides the DoD with a warning and reporting

system that enables an immediate and integrated response to threats of contamination by WMD, CBRN, and TIM (toxic industrial materials) incidents. JWARN 2 provides a digital display of CBRN reports on the Common Operational Picture (COP), presented through service-provided command and control systems resident at all echelons of command. Enhanced situational battlespace awareness provides commanders the ability to support warfighter battle management and continuity of operations in a contaminated environment. The JWARN 2 program is being moved into the BA7 MOD CBRN IS program (Project IS7) in FY22.

Variants/Upgrades

DWARN. The Domestic Warning and Reporting Network (DWARN) is reportedly a civilian version of JWARN developed by Northrop Grumman. It is marketed for civilian homeland security applications.

BRACIS. The Biological, Radiological, and Chemical Information System (BRACIS) used by the U.K. reportedly is similar in operation to JWARN. BRACIS is produced by Bruhn NewTech AS.

Program Review

Background. JWARN work began in the late 1990s. JWARN itself is a three-block program. Block I (interim capability) consisted of development of commercial off-the-shelf (COTS) and government off-the-shelf (GOTS) CBRN warning and reporting software to immediately satisfy many of the required capabilities outlined in the Joint Operational Requirements Document. The system was fielded during FY98. Existing computers run the Block I software.

Block II provides the capability to automatically send CBRN messages at the Global Command and Control System level. Detector/sensor information is input manually. Fielding of Block II began in FY04.

Block III will provide the full JWARN capability. It will provide automatic reports of CBRN activity from sensors and detectors to command and control centers. For Blocks II and III, JWARN will use a

commercial contractor to integrate COTS, GOTS, and non-developmental item (NDI) components.

During FY02 and FY03, JWARN work concentrated on Block II integration of CBRN legacy and future detector systems. Also, the development of CBRN warning and reporting modules and battle space management modules for use by joint services C4I2 systems was begun.

FY04 plans called for starting Block III software development and conducting a development test and operational assessment as part of Block II. FY05 work involved integration testing and an assessment of Block III. Block III upgrades software to work with next-generation detectors and sensors.

Block II development was completed by the end of 2006. An overall JWARN test and software validation was conducted in FY07 as part of the test simulator demonstration. Development and functional testing

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continued through 2009, with full-scale production beginning in 2010.

A revised acquisition strategy for JWARN was developed based on the contract awarded on July 15, 2003, to Northrop Grumman Information Technology; it updated key program milestones and events. The revised strategy accelerated the effort to provide a JWARN Initial Capability (JIC) to the warfighter in the first quarter of FY05.

Under the revised strategy, the system was developed in a single block divided into two increments, to be split into three phases. This acceleration was achieved through the integration of sensor connectivity initially planned for the Pre-planned Product Improvement phase. The revised strategy eliminated the Block II Milestone Decision process, as well as the development testing/operational assessment. This alone was expected to speed the schedule for JWARN full capability by approximately 12 months.

JWARN Increment 1 (software) reached Initial Operational Capability in early 2010. JWARN Increment 1 (software and hardware) IOC was achieved by the end of 2011.

IOC for the JWARN Increment 2 "Standalone" was achieved by the end of 2016. From FY17-FY19, a multiservice operational test and evaluation (MOT&E) of Increment 2 was conducted. In FY19, JWARN 2 software development continued and CBRN sensor/detector data were integrated with the JWARN software baseline. Other work focused on completing Information Assurance certification and accreditation to support MOT&E.

During FY20-FY21, new equipment underwent operational test and evaluation, and training was provided to operational users in all branches of the U.S. armed forces. This training will continue as JWARN Increment 2 continues to be implemented across military branches.

In FY22, the JWARN 2 program is being moved into the BA7 MOD CBRN IS program (Project IS7).

Due to a budget restructure for FY23, JWARN is currently unfunded. This is unlikely to be a permanent roadblock, however, as the project has not been deemed a failure or unviable.



JWARN Analysis

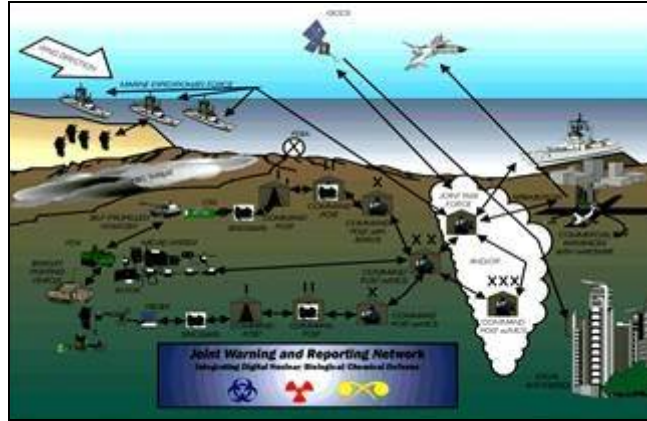
Source: U.S. Army



U.S. JWARN

Source: U.S. Marine Corps

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U.S. JWARN Block II

Source: U.S. Navy

Funding

U.S. FUNDING

	FY21 AMT	FY22 AMT	FY23 AMT	FY24 AMT	FY25 AMT	FY26 AMT	FY27 AMT	FY28 AMT
RDT&E (U.S. DoD)								
PE#0604384BP								
Chemical/Biological Defense (EMD)								
Project IS5 Information System (JWARN)	5.810	0	0	0	0	0	0	0

Note: Project IS5 funds five efforts (of which JWARN is one), which are not broken down individually. Projects and funding were reprioritized for FY12.

Note: Due to a budget restructure for FY23, the program is currently unfunded. This is not permanent, and this report will be updated once the program is realigned

All \$ are in millions.

Source: U.S. Department of Defense FY23 RDT&E Budget Item Justification

Contracts/Orders & Options

<u>Contractor</u>	<u>Award (\$ millions)</u>	<u>Date/Description</u>
Northrop Grumman	48.0	Mar 2009 – Follow-on to the company's initial award in 2003. Under the contract, with the Space and Naval Warfare Systems Command in San Diego, CA, Northrop Grumman integrated JWARN's capabilities into operational-level C2 systems while continuing to develop advanced JWARN sensor networking and system functionality. The Joint Program Executive Officer, Chemical and Biological Defense was responsible for program management and technical direction. Work was performed at Northrop Grumman facilities in Orlando, FL, and San Diego. (Contract award number not available)

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<u>Contractor</u>	<u>Award (\$ millions)</u>	<u>Date/Description</u>
Northrop Grumman	7.6	Dec 2013 – Follow-on cost-plus-fixed-fee contract from the U.S. Navy for JWARN software development and maintenance. This contract provided various updates to support modernization of the fielded JWARN product baseline, carried forward existing functionality, and developed new capabilities to provide joint automated CBRN warning and reporting capability across the services. This contract contained options which, if exercised, would bring its cumulative value to \$31,498,929. Work was performed in Herndon, VA, and completed in Dec 2014. Fiscal RDT&E funds and fiscal 2014 Procurement funds in the amount of \$1,323,000 were obligated at time of award. This requirement was solicited using full and open competition via the Space and Naval Warfare Systems Command E-Commerce Central website and the Federal Business Opportunities website, with three offers received. The U.S. Navy's Space and Naval Warfare System Command, San Diego, CA, was the contracting activity. (N00039-14-C-0027)
DCS Corporation	50.2	Mar 2019 – Contract to provide technical development of the JWARN program for the Joint Program Manager Information Systems (JPM IS) in San Diego, CA. DCS Corp will provide software development, integration, testing, post-deployment software support, and sustainment support for JWARN. DCS has been supporting the JWARN program since 2003, providing CBRN messaging support as a subcontractor. With this new award and expanded role, DCS will establish an office in Orlando, FL, and increase its footprint in San Diego.

Worldwide Distribution/Inventories

The JWARN program is led by is the **United States Marine Corps**. Although international sales have not been widely reported, Canada, the U.K., and Saudi Arabia have reportedly expressed interest in such a system.

Forecast Rationale

The Joint Warning and Reporting Network (JWARN) provides the U.S. military with a comprehensive early warning analysis and response capability to minimize the effects of hostile chemical, biological, radiological, and nuclear attacks, incidents and accidents. It provides the operational capability to employ technology that will collect, analyze, identify, and locate CBRN threats and disseminate CBRN warnings. JWARN will transition from a command and control (C2) platform to a Web-based service-oriented architecture (SOA), meeting the DoD's evolution to a more comprehensive common operating environment (COE).

JWARN 2 is fully operational and provides an expansion of sensors that connect to JWARN, increased automation of message handling, improved false alarm filtering, integration of a route-planning calculator, and interoperability with additional C2, medical information, and evolving bio-surveillance systems.

JWARN is located in command and control centers at the appropriate level and employed by CBRN defense specialists and other designated personnel to improve the efficiency of limited CBRN assets. This employment transfers data automatically from sensors to provide commanders with the capability to support operational decision-making in a CBRN environment.

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Ten-Year Outlook

ESTIMATED CALENDAR YEAR RDT&E FUNDING (in US\$)												
Designation or Program		High Confidence				Good Confidence			Speculative			
	Thru 2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
Northrop Grumman Mission Systems												
JWARN <> United States <> Department of Defense												
	406,968,000	0	0	0	0	0	0	0	0	0	0	0
Total	406,968,000	0	0	0	0	0	0	0	0	0	0	0