Northrop Grumman Systems Corporation
Information Systems Sector
Civil Systems Division
Civil, Cyber and Security
15010 Conference Center Drive
Chantilly, Virginia 20151

June 27, 2012

U.S. Forest Service, Contracting
Owyhee Building - MS 1100
3833 S. Development Avenue
Boise, Idaho 83705-5354

Attn: Ms. Melinda G. Draper mgdraper@fs.fed.us
Contracting Officer

Re: Request for Information for Computer Aided Dispatch (CAD) System
Solicitation Number: SN-2012-12
National Interagency Fire Center

Dear Ms. Draper:

Northrop Grumman Systems Corporation, acting through Northrop Grumman Information Systems Sector, Civil Systems Division (Northrop Grumman) is pleased to provide this response to the above Request for Information regarding a Computer Aided Dispatch (CAD) System.

Our company mailing address is:

Northrop Grumman Systems Corporation
15010 Conference Center Drive
Chantilly, Virginia 20151

Your point of contact for concerning this RFI will be:

Ms. Jill Thomas
(312) 720-7500
jill.thomas@ngc.com

For initial reference the following entities are currently using a Northrop Grumman CAD:

Customer	Point of Contact	Phone Number
California Department of Forestry	BC Terry Eastwood	916-654-1013
City of Chicago Office of Emergency Management and Communications	Yil Halac	312-746-6367
London, United Kingdom, Ambulance Service	Peter Suter	UK +44 077 664 45364
Virginia State Police	Julie Henry	804-674-2017
Arizona Department of Public Safety	Graciano Cervantes Jr., Manager, Information Systems	602-223-2660

For the requirement, "Indicate if you are considering competing in the CAD procurement as either a Prime Solution Provider or System Integrator (prime or sub-contractor)", Northrop Grumman would compete as a Prime Solution Provider; because we are also a Large Systems Integrator, we can draw upon those capabilities as needed for this project.

Following please find our full response to the US Forest Service's Request for Information. We would appreciate the opportunity to demonstrate our capabilities to the Forest Service at your offices at your convenience, or to host a visit to one of our client reference sites. Please do not hesitate to contact us if you have additional questions or would like to schedule a demonstration.

Sincerely,

John C. Kouri
Contracts Manager
john.kouri@ngc.com
(571) 313-2605

cc: Jill Thomas
Pat Boyle

INTRODUCTION

Northrop Grumman is a leading global security company providing innovative systems, products, and solutions in aerospace, electronics, information systems, and technical services to government and commercial customers worldwide. We provide advanced solutions that deliver timely, enabling information where it is needed most for its military, intelligence, civilian, state and local, and commercial customers.

Northrop Grumman is a leader in the provision and integration of leading edge, complex, mission-enabling public safety systems and solutions that help first responders and critical decision makers communicate and collaborate, in real-time, across organizational and jurisdictional boundaries, safely and securely.

We team with public safety agencies to deliver systems engineering and integration expertise in consolidated emergency communication and dispatch systems that incorporate the latest digital communications and information processing technologies. We are highly experienced at designing, integrating, and optimizing secure, complex wireless networks that meet the real-time, fail-safe needs of first responders, public safety agencies, and jurisdictions.

Providing public safety systems since 1968, Northrop Grumman is one of the world's largest providers of public safety applications and solutions. With systems in use by seven of the 10 largest U.S. cities, state-wide agencies such as CALFire and the Arizona Department of Public Safety and by the US Navy, our installed systems help our clients protect millions of people in the United States, Canada, the Republic of Ireland, and the United Kingdom 24 hours-a-day, 7 days-a-week.

Northrop Grumman offers single and multi-agency fire, law enforcement, and emergency medical services clients a complete and comprehensive portfolio of public safety solutions including Computer Aided Dispatch (CAD), Records Management Systems (RMS), Automated Field Reporting (AFR), Geographic Information Systems (GIS), Automatic Vehicle Location (AVL), and Automated Vehicle Routing and Recommendation (AVRR) technology, Wireless Communications, and Mobile solutions.

Northrop Grumman's Computer Aided Dispatch systems are multi-agency, multiple discipline, all hazards command and control systems that serve the needs of municipal structural-based fire suppression and large scale operations associated with wild land firefighting. From Task Force creation and management, to the establishment of units and incidents on the fly, to air unit travel calculations, Northrop Grumman CAD helps fire agencies manage events from small localized incidents to full scale wide area campaigns. Additionally, our CAD has an existing interface with FEMA's ROSS (Resource Ordering and Status System), which was created for CALFire – an existing Northrop Grumman customer.

As you move forward through the RFI process and into the eventual RFP process, you will likely have both systems integrators and CAD product vendors describing possible solutions. Northrop Grumman will be distinctly different from these other companies: we are not just an integrator or a CAD product

provider; we are a world-class systems integrator that also develops and maintains our own line of Commercial Off-The-Shelf (COTS) public safety products, giving us both the public safety vision needed from a partner and the means to fulfill that vision. A case in point – our current CAD capability meets all 39 of your key RFI requirements without modification, and we have the current experience to ensure that your 100-site implementation moves swiftly and seamlessly forward.

When our corporate experience in complex systems integration is coupled with our long-time public safety product development and implementation background, the end-result is a one-of-a-kind public safety solutions company with the proven ability to implement the optimal solution to best meet your needs. For this opportunity, we would compete as a Prime Solution Provider; because we are also a Large Systems Integrator, we can draw upon those capabilities as needed for this project.

Northrop Grumman would appreciate the opportunity to demonstrate our capabilities to the Forest Service at your offices at your convenience, or to host a visit to one of our client reference sites. Please do not hesitate to contact us if you have additional questions or would like to schedule a demonstration.

REFERENCES

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SYSTEM REQUIREMENTS

The table below provides an assessment of our deployed CAD products against the FAM CAD system requirements.

1.	The System should support web based technologies, such as mobile and cloud computing.	X
2.	The System must support the ability to merge an instance of the database with another instance, as in the case where data is created and stored in a standalone database that then must be combined with another database to consolidate the data. Note: For example, when two dispatch centers are becoming one.	X
3.	The System must have disaster recovery processes that include data redundancy.	X
4.	The System must have robust interoperability with established systems with the ability to share data easily and efficiently.	X
5.	The System must be available (24/7) at the local dispatch center without interruption for any reason so as to maintain operational continuance at the local level at all times.	X
6.	The System must support a multi-user platform with real-time access.	X
7.	The System must meet all Federal and Agency requirements for security.	X
8.	The System must have on-going technical and user support.	X
9.	The System must be based on an interactive Graphical User Interface (GUI) environment.	X
10.	The System must support real time, read-only access to data by local and remote fire managers and GACC personnel.	X
11.	The System must meet the needs of an all-risk dispatch center.	X
12.	The System must be scalable and flexible to accommodate individual dispatch center data, policy and business practices while complying with national agency requirements for standardized data elements and reporting requirements.	X
13.	The System must be able to create an Incident from any computer via the internet.	X
14.	The System must include a variety of robust mapping features that allow the dispatch center to determine the location of a potential incident quickly and easily.	X
15.	The System must be able to produce standard and ad hoc reports.	X
16.	The System must allow for local management to pre-determine the resource response by incident type, response area, and response level.	X
17.	Daily log and entries may be retained as part of the official record of an incident.	X
18.	When multiple incidents are created but should be tracked as one incident, the multiple incidents are merged, (i.e. A reported smoke incident and a reported vehicle collision, are the same incident.) When incidents are merged, all documentation and resource data is tracked in one incident.	X
19.	The System must provide multiple ways to create an incident, such as using a function key or typing in an address or designating a map location through lat/long or GIS, etc.	X
20.	The System maintains an incident log that records activity on an incident, such as radio communications, phone communications, dispatcher activity, notifications, etc.	X
21.	The dispatcher must be able use a timer to track status, and position checks of resources. For example, if it is a law enforcement incident the timer will notify the dispatcher when a safety check is required. For aircraft, Automated Flight Following may want a verbal check back every 15 minutes to track the location in case of loss of contact.	X

22.	Standard land-based geospatial data layers should be available within the System.	X
23.	Response area data includes: response levels, associated Fire Danger Rating Area, response areas.	X
24.	Dispatch (run cards) data includes: response types, incident types with incident subtypes, response types, response levels, dispatch strategy, copying and reporting dispatch strategies, dispatch action required.	X
25.	Interfaces with radio console over a serial data connection to select frequencies and tones (repeaters). Dispatcher can click the [SELECT] button on the CAD screen to select dispatch frequencies and tones on the radio console screen.	X
26.	Provides an application administrator with the ability to add a common place name to the geographic data file with only a latitude/longitude location (location is off-road).	X
27.	Provides an application administrator with the ability to configure response areas for fixed (run order) or dynamic (road network calculation) unit recommendation.	X
28.	Provides a dispatcher with the ability to assign a weather-based dispatch level to response areas that have been organized into dispatch zones.	X
29.	Recommends units based on the current weather conditions (dispatch level) in the response area associated with incident location. The dispatch level influences the selection of a response plan.	X
30.	Calculates a bearing and distance for recommended units that travel through the air.	X
31.	Provides an application administrator with the ability to assign air-to-air and air-to-ground frequencies to individual response areas.	X
32.	Generates a fire number in addition to an incident number from a federal or local fire number counter as specified in the response area record associated with the incident location.	X
33.	Provides an application administrator with the ability to create a hazard record at a latitude/longitude location.	X
34.	Alerts the dispatcher when a call is entered at a latitude/longitude associated with a hazard record.	X
35.	Provides a dispatcher with the ability to set the dispatch priority of units in a fire station where there is more than one unit of the same type.	X
36.	Displays an automatically-updated fire coverage window with the dispatch coverage status in green, yellow, or red.	X
37.	Provides the dispatcher with the ability to assign the person responsible for completing the fire or investigation report by entering a command.	X
38.	Replicates live CAD incident and unit information to a backup device.	X
39.	Provides a dispatcher with the ability to select an alternate tactical and/or air to air frequency when the primary tactical frequency is in use.	X

TECHNICAL INFORMATION BEING REQUESTED

1. How many staff months (project management, analysis, design, coding, documenting, and testing) and calendar months do you estimate it would take to modify your CAD system to meet all of the requirements listed above?

   Answer: The Northrop Grumman CAD system is fully compliant with the system requirements listed above. As a result, based on the level of information provided in the RFI regarding requirements, it does not appear that modifications are required to the existing Northrop Grumman CAD system"

2. How many multi-site CAD customers does your company currently have?

   Answer: We have over 100 active CAD installations supporting major cities like Chicago, Los Angeles, New York, Phoenix, and Houston. Our CAD products are also supports large geographic regions like the California Department of Forestry and the states of Arizona and Virginia. Most of our solutions include 2 data centers sites (production and disaster recovery) and generally 2 to 3 call centers. We also have installations with multiple CAD systems linked together and operating independently in a manner similar to that described for the existing FAM CAD solution. We have 6 major multiple site customers: Commonwealth of Virginia State Police (VSP), State of Arizona Department of Public Safety (DPS), Navy Emergency Response Management System (NERMS), Marin County (CA), Los Angeles Sheriff's Department, and California Department of Forestry (CALFire).

   Northrop Grumman supports a variety of system implementation models based on customer requirements. These range for single sites with the system co-located in the same facility as the call center, high-availability solutions with multiple geographically separated data centers, and multiple remote call centers (with workstations) connected to one or more data centers. Our CAD solutions are also virtualized to simplify administration and management, reduce costs and allow for secure, cloud-based, implementations.

3. How many physical servers are required to run your full CAD system with ROSS and other interfaces including testing and training instances of the system?

   Answer: Based on the information provided, a minimum configuration of three (3) Windows 2008 servers clusters: two (2) server clusters for production and one (1) shared cluster for training and test.. Using our virtualized approach, the "physical" servers are implemented within a larger virtual machine. We are able to size our solutions and provide room for growth without requiring new capital investment when workload changes occur. Additional capacity is accessed by re-allocation of resources from within the virtual server farm.

4. What is your company's estimated annual revenue from CAD system sales, consulting services, and maintenance fees?

   Answer: Northrop Grumman does not release financial data at this level in the organization. Our CAD system sales, consulting services, maintenance fees, etc. are a component of Civil Systems Division of Northrop Grumman Information Systems. 2011 revenues for Northrop Grumman Information Systems were approximately $8B, with Civil Systems contributing approximately $1.7B.

5. How many procurements for a CAD project exceeding $2 million has your company responded to in the 24 months just prior to the release of this RFI?

   Answer: Eleven (11) including federal, state, local and international procurements.

6. What is the probability 0 – 10 (10 being the highest) that your company would participate in a best value Request For Proposal process for the CAD described above where all requirements must be met in order to qualify?

   Answer: Ten (10). As reflected in the System Requirements table above, our currently deployed CAD products comply with the System Requirement. Northrop Grumman looks forward to the opportunity to participate in a best value Request for Proposal process.

7. What is your estimated cost to provide a CAD system that would meet all of the requirements listed in this request for information?

   Answer: Based on previous Northrop Grumman CAD proposals submitted to similar sized agencies a benchmark price range for our customers to implement a Northrop Grumman CAD solution is between $4M – $12M. This price range is for budgeting and planning purposes only and is representative of dependencies and complexities in a CAD project, which can include but are not limited to:

   - Desired functionality
   - Level of customization
   - Level of system redundancy
   - Continuity of Operations (COOP) requirements
   - System performance requirements
   - Final concurrent users licensing and system sizing
   - Current network infrastructure
   - Desired timelines and periods of performance
   - Desired level of maintenance and corresponding maintenance period (generally 5-year minimum maintenance support)
   - Desired level of system support

- Warranty provisions
- Transition approach
- Training approach

With the above caveats in mind, the lower end of the benchmark range can be associated with a COTS system including limited interfaces and standard redundancy. The higher-end of the benchmark range can be associated with moderate-to-high level of enhancements to the COTS CAD system, development of new, non-standard interfaces, and a higher availability performance and COOP approach

ADDITIONAL INFORMATION

1. Provide any additional information not requested above but which you deem important and relevant to this RFI.

   Answer: Northrop Grumman's Computer Aided Dispatch systems are multi-agency, multiple discipline, all hazards command and control systems that serve the varying needs of municipal structural-based fire suppression and large scale operations associated with wild land firefighting. From Task Force creation and management, to the establishment of units and incidents on the fly, to air unit travel calculations, Northrop Grumman CAD helps fire agencies manage events from small localized incidents to full scale wide area campaigns. Additionally, our CAD has an existing interface with FEMA's ROSS (Resource Ordering and Status System), which was created for CALFire – an existing Northrop Grumman customer, and has a standard CAD-to-CAD interface specification for information sharing between neighboring systems along with a standard foreign system data transfer capability.

   Northrop Grumman has provided public safety systems and solutions since 1968; we do this work 24/7 x365. As a result, we both work with and support the first responder community in many ways including:

   - We are supporting members of APCO, BAPCO, IJIS, IACP, IACA, *e*Republic (Emergency Management), and local customer foundations
   - We sponsor booths at APCO, IACP, and a number of State Police Chief Associations
   - We attend and/or garner speaking engagement at APCO, IAFC, IJIS Industry Briefings, IACLEA, IACA, and State NENA Conference
   - We develop and publish whitepapers in response to calls for input/comment (FCC and NFPA)
   - We are contractors of merit to FEMA, DHS, NCIS, IRS, HHS, the US Navy, the States of California and Virginia and large municipal customers such as NYC, Los Angeles, Chicago, Houston, Phoenix, and Indianapolis

2. Provide any lessons learned from other similar projects.

   Answer: Implementation of a COTS-based CAD system can be disruptive to existing business operations. Established workflows customized for legacy systems and supporting manual

processes can be difficult to effectively replace without impacting operations staff and, in some cases, the agency's ability to achieve mission objectives.

Northrop Grumman addresses these risks by identifying potential process and information gaps between existing business practice and the capabilities of the new CAD system immediately following project initiation. The purpose of this joint customer/contractor activity is to ensure alignment between the CAD product capabilities and the operational procedures of the agency.

Our approach is to perform a functional test using workflow scenarios such as call taking and unit recommendation. A demonstration server system is provided by the Northrop Grumman. A scenario-driven comprehensive test plan, reflecting normal daily work processes and off-nominal scenarios, is developed by Northrop Grumman and used as the basis for test and evaluation. The objective of the test plan is to encompass the totality of the operational procedures that exercise a comprehensive set of the requirements. Northrop Grumman system engineers use the product requirements, legacy system training and workflow documentation, and other system information to develop these scenarios The agency provides access to knowledgeable technical staff and operational staff to support exchange of questions/issues or information during this activity in addition to existing training and / or workflow documentation to aid in the development of test

Potential gaps in functionality and business processes identified during this activity are discussed and resolved with either business process operation procedural alternatives or potential customization to the CAD product. Performing a disciplined, methodical gap analysis of the combined capabilities of the CAD product and agency processes at the start of the implementation phase has consistently resulted in smoother, on-time deployments of our CAD systems.

3. Ongoing annual maintenance and technical support.

Answer: Northrop Grumman provides ongoing 24x7 / 365 day-a-year maintenance coverage and technical support as part of our standard operational model to our public safety customers. We offer multiple flexible contracting approaches for ongoing maintenance and technical support ranging from standard 24x7/365 support to full site technical and programmatic support, based up the specific needs of each client.

We also support our customers through dedicated user group meetings, and in-person and online educational seminars. These activities provide an avenue for our customers to interact and share best practices with other users of Northrop Grumman public safety solutions. We also regularly survey our client base on a range of topics including evaluation of our current support, future enhancement suggestions, and their view of next-generation technology, incorporating their feedback into our product roadmaps.