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1. Introduction

Law enforcement has a long history of adopting new techniques, tools and tactics to keep pace with an ever-changing world. Technological advances have made public safety professionals more efficient, better equipped and have increased their capability of addressing complex problems in an increasingly complex world.

Critical Response Group Inc. (CRG) is uniquely positioned to pave the way for a paradigm shift in the way public safety professionals conduct contingency planning, emergency response and critical infrastructure assessments by providing them with cutting edge technology and techniques they need in a reliable, expedient manner. CRG leverages lessons that were learned by the U.S. military's Special Operation forces by transforming written emergency operations plans into highly-usable, GeoRelevant (SMART) visual plans known as Collaborative Response Graphics. The plans are made available to first responders through GXP OnScene, a secure, web-based application on their smart phones/devices or computers. The application allows first responders to visualize their location on the actual plan, and incident commanders can better coordinate the scene because assets can be tracked in real time (regardless of the agency or public safety discipline they represent).

Public safety professionals must adapt to the rapidly evolving threats our communities encounter. That requires our first responders to be quick and efficient at the onset of an emergency response situation. The complexity of crisis events must be considered, therefore, some method of simplifying the initial response must be implemented. CRG operates under the premise that for any emergency operations plan to be useful or real, two factors must exist: 1) The plan must be accessible to the emergency responders; and 2) The plan must be understandable. CRG recognizes that organizations take great care to develop written plans because of policy or statutory requirements, but in most instances those emergency plans are contained in binders in an office and inaccessible to first responders when a crisis strikes. To be truly effective, an emergency operations plan must quickly establish a common operating picture and communication method because in many instances responders will be unfamiliar with the interior and/or exterior of a particular facility.

Extensive and time consuming planning processes will soon be a thing of the past. Collaborative Response Graphics (CRGs) are now providing the ability to share assets, information, operation plans, logistics and changing conditions of an event across a variety of platforms. The techniques discussed herein are adaptable and allow the many

different agencies that respond to emergencies to coalesce around what truly is the most effective method of planning for and responding to emergencies.

The integration of CRGs into the law enforcement planning and emergency response function will dramatically improve response capabilities and overall efficiency. CRGs will benefit first responders of all types (police, fire, EMS, OEM, etc.) as well as tactical units, search and rescue teams and more. The value in the planning process cannot be overstated. In short, their use will increase the safety of the public as well as the safety of emergency responders of all types. Their use will greatly benefit risk management professionals and will also be invaluable to investigators when a critical incident has occurred.

Critical response Group, Inc. (CRG) was launched with the specific purpose of establishing a business focused on integrating and implementing the principles of visual planning and collaborative emergency responses to critical events. The CRG team consists of Police Chiefs, SWAT team commanders, Fire Chiefs, Emergency Management Coordinators, Fusion Center Directors and former members of the U.S. Military Special Operations Command who have served numerous tours in combat. Working in cooperation with BAE Systems Electronic Systems Inc. and in particular its Geospatial eXploitation Products™ (GXP®) business unit, our team is implementing the most contemporary and evolutionary business practices ever designed to ensure collaboration, shared situational awareness and, most importantly, better critical incident management.



President Barack Obama, Vice President Joe Biden, and the national-security team monitoring Operation Neptune Spear (the Osama Bin Laden raid) in real time and referencing Collaborative Response Graphics.

Source: Pete Souza/Official White House photo

2. What Exactly Are Collaborative Response Graphics™?

Simply put, they are the GeoRelevant products that are created using BAE Systems' SO CET GXP® software that result from taking images drawn from any number of sources and “exploiting” the metadata contained therein for a wide variety of uses. SO CET GXP is a data agnostic software system that is able to exploit data collected by satellites, aircraft, drones, pictures gleaned from news agency coverage or taken on-scene with digital cameras or smartphones. Even photographs of relevant persons, vehicles or structures can be added from the scene in mere seconds.

These images are enhanced by overlaying a GeoRelevant coordinate gridding system that divides an image of an area or building into easily identifiable sections (Lettered horizontally and numbered vertically). This allows users to quickly pinpoint specific locations on that image, even if they have no prior knowledge of the building or area. This grid system creates a common operating picture, or language, that facilitates communication across all disciplines.

Using BAE Systems' SO CET GXP software, Critical Response Group analysts precisely integrate scale floor plans into the product. This means the floor plans are “registered” on top of the imagery and the geospatial metadata from the base layer seeps through the layers of imagery making them GeoRelevant. Additional overlays, or features, are incorporated into the image and may include the labeling of street names, buildings and parking lots, hallways or stairways (Numbered and/or color-coded), critical features (e.g. locations of gas line shutoffs, the nurse's office, or gymnasiums) and even specific terrain information. Locations of emergency action plan components and equipment required by OSHA Part 1910 standards can also be rendered within the imagery. In addition to identifying Critical features, the CRGs also use the Incident Command System and the National Incident Management System labeling conventions to convert the written Emergency Action Plan into a visual format. This technique allows first responders of all disciplines to understand and act on the Emergency Plan in seconds. The intent of the CRG is not to replace the written plan but to enhance the plan by enabling it be understood by all parties in seconds.

Aside from the obvious benefits to schools, places of worship and private buildings when planning for emergency responses, CRGs are ideal for preplanning major events including concerts, parades, sporting events and other large or small scale gatherings. When used in conducting field searches for missing persons, suspects or evidence, CRGs take large unfamiliar areas and allow responders to navigate them easily while also tracking personnel movements and communicating location.

2.1. Issues and/or Problems Faced

In today's world, critical incidents require law enforcement to deploy a variety of resources when responding to assist. Consider the examples of an active shooter in a school or the search of a large area for a missing person or fleeing suspect. These events will probably require the response of multiple agencies including police, fire, EMS, mutual aid agencies and perhaps local, county, state and federal assets may also be needed.

Issue 1: Responders being unfamiliar with the location: It is unrealistic to think that all of the people responding to a particular scene to provide assistance will have sufficient familiarity of the buildings, streets, residences, fields, etc. Therefore, consideration must be given to decide what should be the best means to bridge this gap in knowledge. Consider the large facilities and buildings (malls, hospitals, colleges, office complexes, schools, etc...) in your jurisdiction and the challenge they present to first responders. Even local emergency responders may not be intimately familiar with the layout of the facility, much less mutual aid responders who have never been at that location. This presents a critical gap for a timely and effective response to a crisis event

Issue 2: Communication: Interoperable communication has been a problem with which public safety personnel continue to grapple. More than 15 years after 9/11, implementing systems that allow for true interoperable communication remains a challenge. Even when the technical interface issue is resolved, first responders are unable to actually communicate because they are not oriented on a common operating picture for reference (they are not on the same page). Consequently, this inhibits true communication because although first responders may be able to talk, they are essentially speaking different languages. In other words, first responders must quickly, (and literally) get on the same page in order to truly communicate. As an example, with today's commonly used planning and response methods, people with direct knowledge of a particular school might transmit information about an incident in a school by saying "...they're in the Guidance Office". The problem is that "Guidance Office" is a meaningless descriptor for someone with no knowledge of the building's layout. However using a CRG, responders will immediately be oriented to their surroundings and will be able to identify, locate and respond to any part of a building with ease and expediency because they will have a common frame of reference between all communicating parties. Regardless of your profession or knowledge of a building, when told that the problem is in grid square H5 or at the intersection of the red and green hallways, you know where to go.

Issue 3: Impractical Emergency Plans: Most written emergency plans are cumbersome and impractical. They are often volumes of written information kept in binders, in a few specific locations, and are often inaccessible or obsolete. Even if the information is accessible, it often cannot be distributed to critical personnel in a timely manner. CRGs reduce an entire plan into an easily accessed, single-page, GeoRelevant graphic that can be quickly accessed and distributed to every first responder.

Issue 4: Command and Control: Anyone who has ever managed a crime scene, major storm, hazardous situation or other significant event realizes the difficulty of maintaining continuity of the scene and keeping resources properly aligned. Typically, those first critical moments are spent orienting people to the scene and dealing with a variety of unplanned variables (i.e. people self-deploying to a scene).

Can you honestly say you currently have the ability to manage a scene involving numerous first responders from different agencies (who handle a variety of different functions and responsibilities) as they converge on a single location in your jurisdiction? Do you currently have the ability to immediately provide all those responders with copies of the emergency plan relevant to their responsibilities, a full set of blueprints for the building and surrounding area and are you able to track their movements to ensure proper coverage of a scene, perimeter or search area?

The Solution: The introduction of CRGs into your emergency plans and scene management will eliminate most of these issues resulting in a far more efficient overall response, more concise planning capabilities and an increase in the safety of all involved. It will allow first responders to quickly take control of a scene and for incident commanders to manage an event over extended periods of time. Simplifying the early stages of an event through the use of a CRG will allow public safety professionals to tend to more pressing issues.

2.2. GXP OpsView™ Solution

GXP OpsView is the “cloud-based” server that securely stores the CRGs for reference when needed. Separate folders can be used to differentiate between different groups, jurisdictions or agencies so each group can provide access as needed to anyone responding to or involved with a particular incident or event. It can limit or eliminate anyone’s ability to view files that they are not appropriately cleared to access.

GXP OnScene is a mobile application that can be downloaded onto any Android or iOS smartphone/tablet at no cost and provides on the go access to authenticated users. In addition to enabling real-time access of the CRGs, the application also allows for authenticated users to display their location to other first responders participating in the incident.

Most smart phones today have a GPS chip that uses satellite data along with Wi-Fi and cellular signal strength to calculate your location. The GXP OnScene mobile application uses that location information to enable a responder to be tracked (when they want to be) as he/she moves about on a scene or as they are enroute to an incident. The application can also be used to document their movements during an incident which can be an invaluable tool when conducting field searches and other missions where an analysis of the terrain that was covered is relevant. This feature can also be helpful in establishing “safe zones” when dealing with hazardous materials, explosives and other dangerous items or situations. A known safe distance from a particular substance or hazardous material can be placed on the CRG and transmitted to responders within minutes, allowing them to establish perimeters to keep people safe. Finally, this feature allows a responder with the GXP OnScene mobile app to upload GeoRelevant photos and videos from the field immediately to their Commander’s digital map.

2.3. A Summary of the Benefits

- A. Emergency plans become instantly accessible, living documents that are capable of being changed “on the fly” and instantly disseminated to responders across all specialties. Hundreds of pages can be reduced to a single, easily understood and GeoRelevant plan.
- B. CRGs eliminate confusion and provide everyone involved in a particular event or incident with immediate situational awareness and access to the information that is relevant to their response. Emergency plans, evacuation routes, staging areas and assignment positions are instantly available.
- C. Using BAEs GXP OpsView, command personnel have the ability to visualize the location of all key first responders logged into the free and secure smart device application GXP OnScene and instantly communicate in a common language, changes in plans, critical safety updates and adjust resources with pinpoint accuracy.
- D. Every CRG is completely customized to the building, facility or location for which it was developed, and with the use of BAE Systems’ GXP OpsView the specific characteristics of that location become immediately available to an emergency responder having access to that information in the field via the free iOS or Android app.
- E. First responders from other agencies or jurisdictions arriving at a scene can be quickly added to an organization’s server (for free) which gives them access to

critical planning elements that an incident commander needs disseminated. This minimizes wasted time and allows them to begin dealing with any given situation more quickly and efficiently.

- F. This business practice has been fully vetted and adopted by our nation's most elite military/intelligence planners and tacticians. Not a single operation is even contemplated by those forces which is not planned, coordinated in real time, and later assessed with this methodology.
- G. The costs associated with implementing this simple but critical shift in the way public safety planning and critical incident coordination is conducted is inexpensive. In fact, it is so inexpensive that continuing to plan for and conduct responses to emergencies in a manner that is inconsistent with the lessons our country has learned and implemented at the highest level, creates a liability for those tasked with these responsibilities.

2.4. Law Enforcement/Private Sector Applications

- A. **Law Enforcement:** Emergency action plans, critical infrastructure protection, SWAT operations, crime scene processing, mutual aid responses, executive protection and aviation support.
- B. **Prosecutors & District Attorneys:** Courtroom presentations, storyboards and enhanced crime scene documentation.
- C. **OEM:** Disaster planning, response & recovery, flood evacuation coordination and prioritization and interoperability among a variety of agencies.
- D. **Fire/Rescue:** Emergency action plans, safety perimeter establishment, wildfire risk assessment, dive team support and search & rescue operations. Hydrant locations, GPS information, gas shutoff, electrical panel location, location of hazardous materials. All available real time to firefighters on the same hand held smart devices they use in their daily chores.
- E. **Private sector:** Emergency plan creation and training, GPS routing, map-based collaboration, custom mapping, executive protection, building management, maintenance documentation and much more.
- F. **Emergency Planning Enhancement:** Real time access and understanding to the critical elements of emergency plans for local schools, hospitals, houses of

worship, critical infrastructures or any other location. The time saved planning for and coordinating responses to critical incidents has and will continue to save lives.

3. Conclusion

The United States Military Special Operations and Intelligence Communities have relied on the use of visual planning technology to improve and enhance its planning processes and coordinate the execution of critical tasks throughout the war on terror. It is the standard platform for a wide range of sensitive tasks from drafting plans for routine operations to the most complex tasks of deploying munitions and planning high-risk, high-profile raids and attacks on strategic targets.

Law enforcement and all emergency services have been seeking solutions to the myriad of problems that come with emergency planning, multi-jurisdictional mutual aid response and working across the many layers of response involved with critical incidents. Implementing the use of CRGs is a single solution that resolves most of those issues and it will revolutionize the way public safety professionals plan, respond and share information.

4. About Critical Response Group, Inc.

Formed in 2016 and formerly the Geospatial Intelligence Division of The Rodgers Group, LLC, Critical Response Group is a team of dedicated, experienced and proven professionals from the U.S. Military Special Operations and domestic public safety communities. Our team members are tenacious problem solvers and tireless advocates for leveraging best practices and cutting edge technology to protect the public and critical infrastructure.

Members of our team have served as Police Chiefs, SWAT team commanders, Fire Chiefs, Emergency Management Coordinators, Fusion Center Directors and former members U.S. Military Special Operations Command who have served on numerous tours in combat.

They have a proven record of success operating in environments ranging from the war on terror overseas to man-made and natural disasters here at home.

To learn more about our company and the services we offer, please visit our website at www.CRGplans.com or email us at - Info@CRGplans.com

5. About the Author

Chief Michael Bruno retired as Chief of Police in Tenafly, New Jersey after 28 years of service with 11 years as Chief. His focus throughout his career was on improving the training of police officers. He holds more than a dozen separate instructor certifications and has been a featured instructor in a number of events including the statewide Police Conference in Atlantic City, NJ, instructing active shooter and terrorism response.

He is a graduate of the NJSACOP West Point Command and Leadership Program, the FBI Law Enforcement Executive Development Program at Princeton University and is an FBI-certified Crisis Negotiator. He holds ICS Certifications I-100, 200 & 300 from the N.J. State Police, IS 700 NIMS and IS 800 National Response Framework certifications through FEMA. He is the recipient of the US Department of Justice/FBI Investigative Award, the Chiefs Achievement Award and multiple Honorable, Meritorious Service and Lifesaving Awards.

While Chief, he served as Chairman of the Bergen County New Jersey Police Chiefs Association SWAT Committee and authored the SWAT team standards that still apply to all tactical teams in the county. He was appointed by the County Prosecutor as Chairman of the SWAT Regionalization and Specialized Services Committee which was tasked with regionalizing and streamlining all tactical teams in the county. The committee was instrumental in forming the Bergen County Regional SWAT team that is responsible for handling SWAT calls for a county with over one million residents.

Upon his retirement he was appointed and still serves as the Executive Director of the largest suburban food pantry in Essex County, providing food, clothing and other services for people in need.

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