



Tools to Help Manage COVID-19





## Introduction

The ongoing COVID-19 pandemic highlights how important it is for emergency managers to have easy access to real-time situational awareness information. The speed at which the situation is changing can be overwhelming for anyone and making sure decisions are made based on the latest data is critical for saving lives and keeping our healthcare system operational. That is why it is crucial to not just have the best most up-to-date information, but to display it in a way that can be quickly digested and acted upon. In addition to accessing the right data, responders need to be able to track information for both managing tasks and for after-action-reporting.

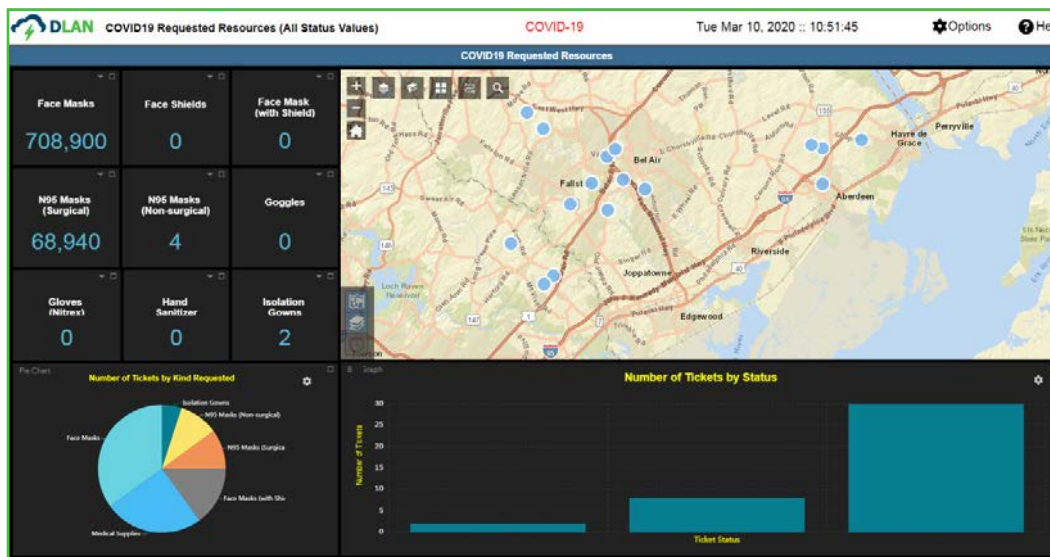


Figure 1: DLAN Custom Status Board

BCG recommends the following tools to ensure responders have all the information they need to successfully manage this crisis:

- Bed Tracking
- Quarantine Facilities Management
- Mortuary Tracking
- Common Operational Picture Map
- Situational Awareness Dashboards
- Mobile Functionality
- Asset Tracking
- Personal Protective Equipment (PPE) Tracking
- Financial Tracking

Recommendations for how these tools should function are described next.

## Bed Tracking

With a 20% hospitalization rate, COVID-19 poses a huge risk of overwhelming any healthcare system. A bed tracking solution can help provide critical situational awareness to senior level emergency managers tasked with maintaining a functioning medical system.

Figure 2: Bed tracking

BCG's bed tracking solution is used to track and report on facility bed availability, services availability, and overall facility status. Data from numerous facilities can easily be entered/updated, and aggregated to provide a comprehensive overview of facility (patient) capacity, capabilities, limitations, and needs.

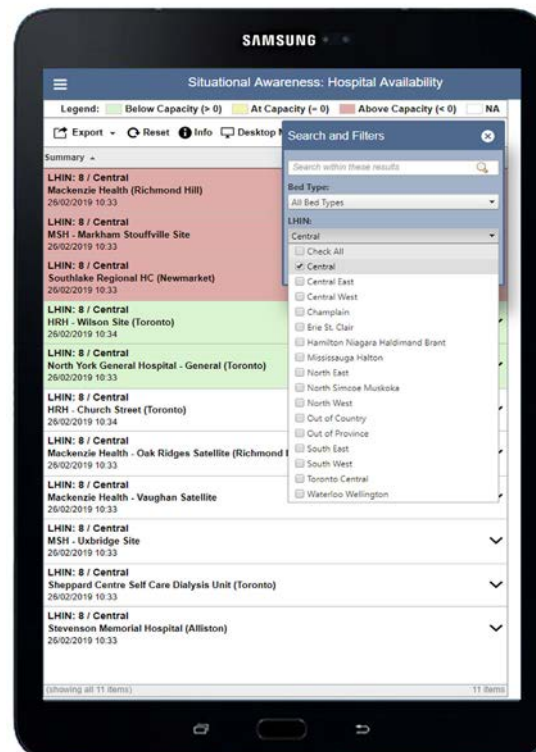


Figure 3: Mobile Bed Tracking Tools

## Quarantine Facilities Management

Tracking the availability of quarantine facilities will be essential as more individuals test positive for the virus. Manual processes will likely not be enough to identify potential sites and manage capacity levels.

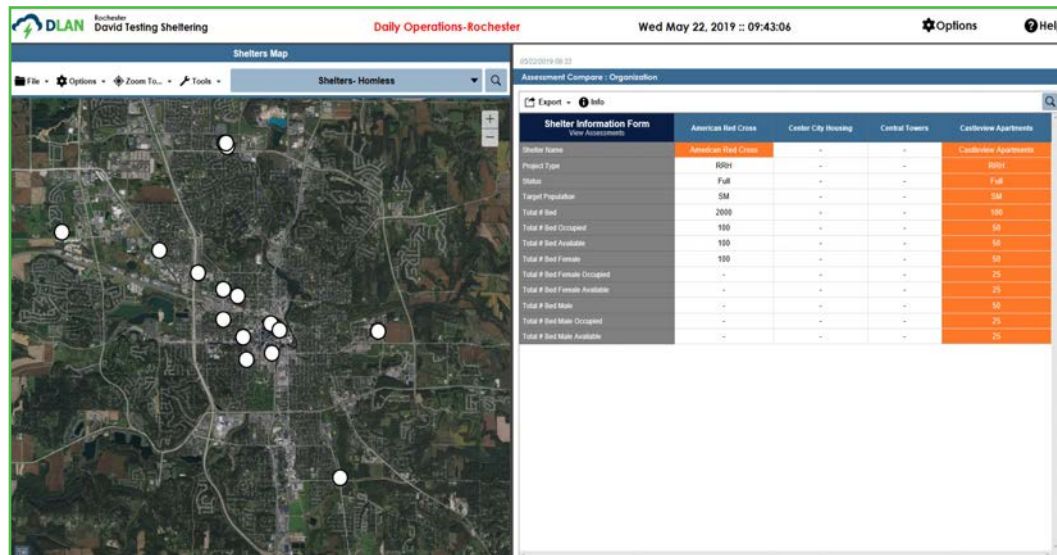


Figure 4: Quarantine Facilities Management

BCG's sheltering software can be utilized to track and manage quarantine facilities as well as the patient populations within them. Additionally, the software can be used to track the movement of people between facilities.

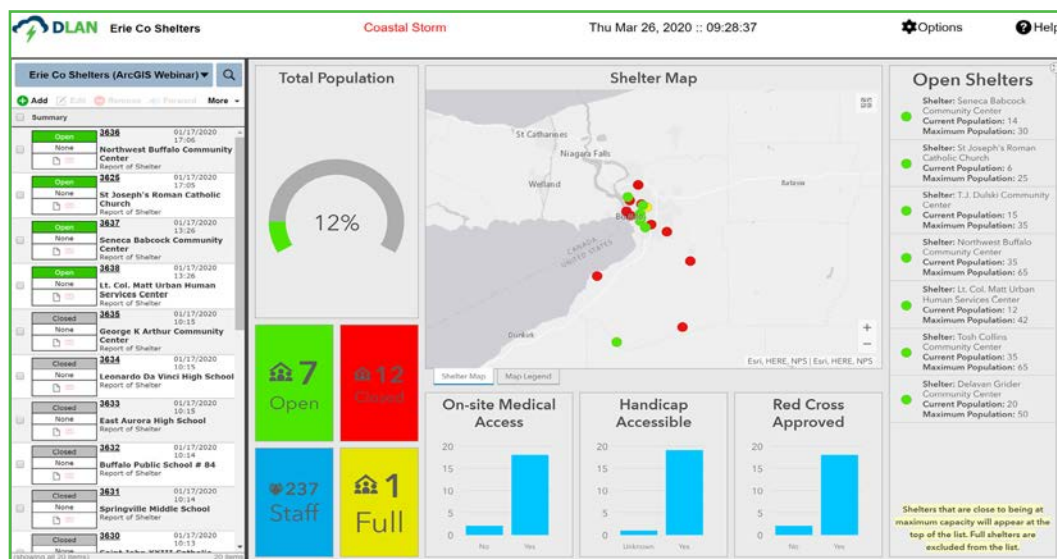


Figure 5: Custom ArcGIS Quarantine Facilities Dashboards



## Mortuary Tracking

When an incident such as the COVID-19 Pandemic results in a high volume of deaths, a multitude of unusual problems can occur. Temporary storage locations may need to be identified throughout the region and refrigerated trucks may be used to both store and transport bodies. This makes it difficult to track the availability of storage areas and to locate specific bodies for burial release.

**Mortuary Tracking Report**

ID	Status	Hospital Name	First Name	Middle Name	Last Name	Additional Identification - Date of Birth	Additional Identification - SSN	Additional Identification - Hospital Record #	Place Of Death	Death Tag Number	Body Bag Number	Death Final
2856	New Ticket	St. Barnabas Hospital	Julia	Lyli	Packard	03Apr1951	123-32-1234	238481294	St. Barnabas Hospital	ADC987	23423525	Yes
2855	New Ticket	Jamaica Hospital	Greg	Brian	Gill	11Apr1967	088-88-7458	3H47034	Jamaica Hospital	JH-1959	1596	Yes
2854	New Ticket	Jamaica Hospital	Mary	Anne	Libowski	11Apr1967	099-89-7458	3H47031	Jamaica Hospital	JH-1955	1599	Yes
2853	New Ticket	Jamaica Hospital	Bobbie	Ronald	Kennedy	11Apr1967	099-89-7458	3H47029	Jamaica Hospital	JH-1949	1574	Yes
2852	New Ticket	St. Barnabas Hospital	John	Ray	Doe	03Apr1951			St. Barnabas Hospital	AB12324	9788888	No
2851	New Ticket	Jamaica Hospital	Charles	Matthew	Castille	11Apr1967	088-88-7458	3H47028	Jamaica Hospital	JH-1948	1573	No
2849	Information Only	Mount Sinai	Joshua		Doe	02Jan1960			Mount Sinai	DOB8992		No

Showing all 7 items

Request of Mortuary Tracking Record

Modified: 04/09/2020 22:25  
 Created: 04/09/2020 22:25  
 Incident: COVID-19 Capabilities Demo  
 County: Bronx

#2852 - 50 year old male  
 Status: New Ticket  
 Priority: None  
 Routed To: Multiple Routings  
 Forms: Mortuary Tracking Form  
 Contacts: Multiple Contacts

Figure 6: Mortuary Tracking Report

DLAN's Mortuary Tracking tools will allow you to properly process, track, and locate bodies, as well as manage storage facilities and trucks. For mortuary tracking, DLAN utilizes data collection forms, which can include photos, electronic signatures, and GPS tracking. Information on current and incoming bodies can be entered and tracked regardless of their location, using the Mobile Responder App.

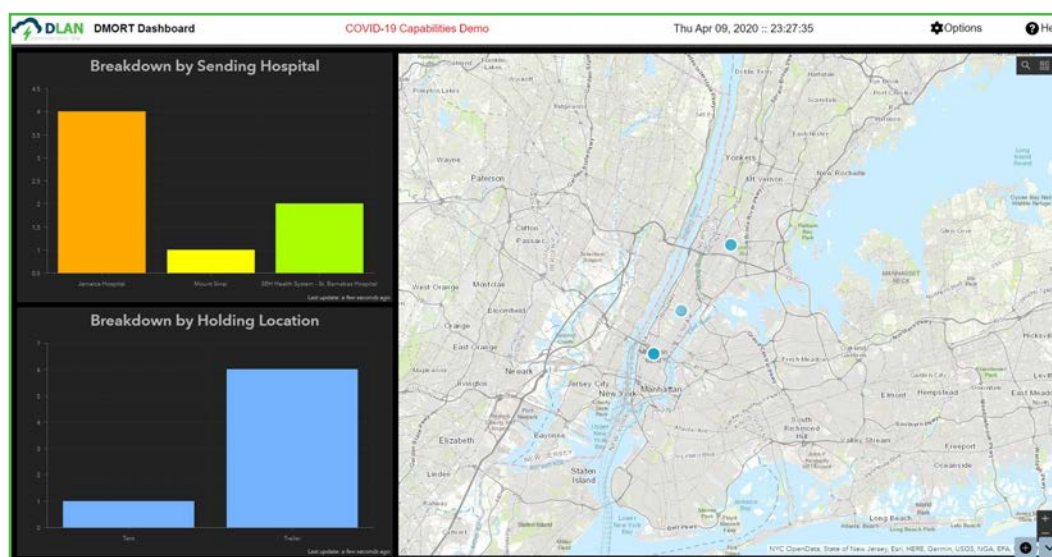


Figure 7: Mortuary Tracking Dashboard

All this information can be tracked on an individual basis to keep families informed and for burial release. It can also be tracked in aggregate to view which facilities/trucks are at capacity and which can accept new bodies. All information can be displayed in dashboards for improved situational awareness.

## Common Operational Picture Map

Having a list of addresses isn't nearly as helpful as placing that information on a map. Maps allow users to take a large amount of information and understand how they relate to each other geographically. The right mapping tools will allow responders to look at multiple different types of information simultaneously for improved situational awareness.



Figure 8: Common Operational Picture Map

BCG's GIS tools allow users to fuse together geospatial information from virtually any external or internal source onto one common display. User-friendly tools allow users to interact with underlying data. For example, these tools can be used to track COVID-19 resource stockpiles.

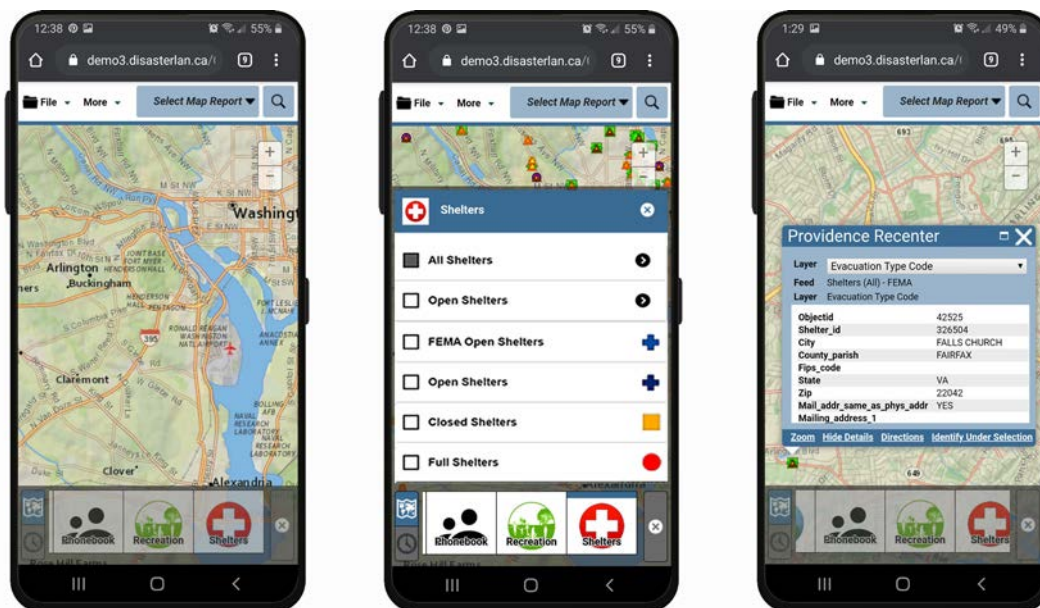


Figure 9: COP Map - Full Mobile Functionality



## Situational Awareness Dashboards

Like maps, dashboards make it easier to quickly understand changing information by turning data into a more visual format. Custom dashboards can be created for specific roles, incidents, and stakeholder groups. This ensures that everyone can easily view the information pertinent to them and efficiently perform their response roles.

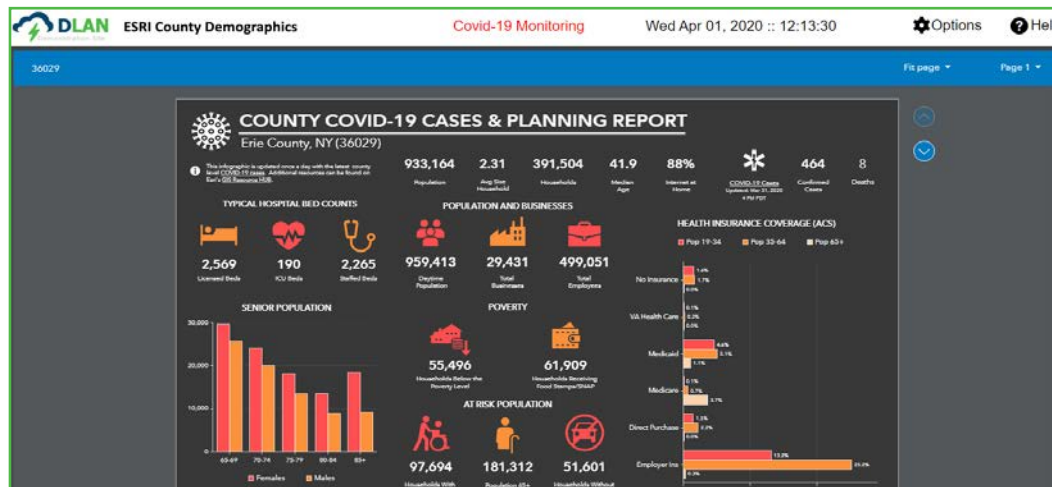


Figure 10: Situational Awareness Dashboards

Similar to our mapping tools, BCG's status boards can display information from a variety of internal and external sources, including both user-generated content and automated feeds. Information can be displayed as text, interactive reports, images, maps, charts, graphs, and other display types.

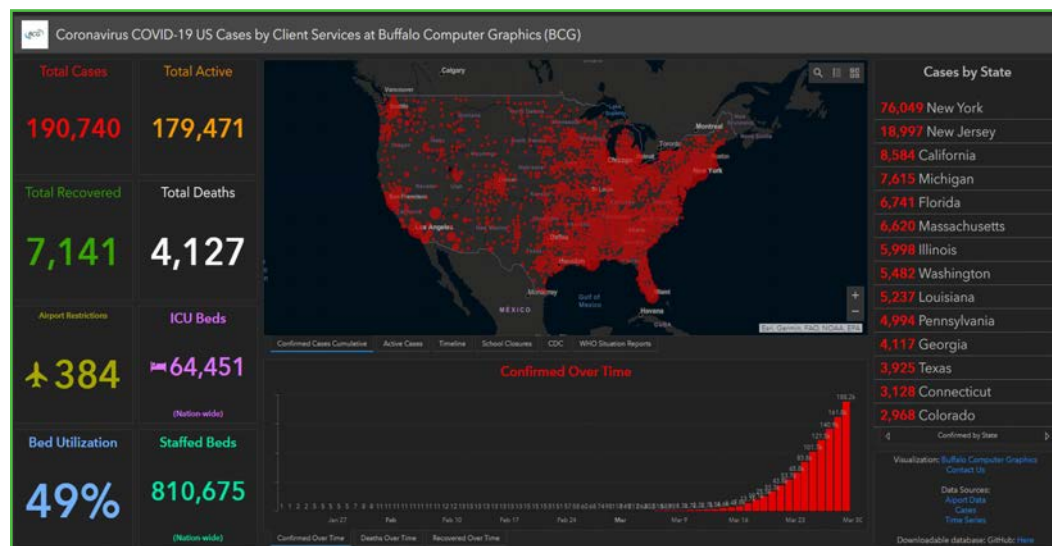


Figure 11: COVID-19 Situational Awareness Dashboard

In addition to user created custom dashboards, BCG also creates boards that can be used by any customer. For example, BCG has put together different ArcGIS based boards specifically for COVID-19 response efforts. Each board is based upon publicly available CDC/WHO data that is currently being updated on an ongoing basis. In this way users can leverage both organization specific custom dashboards and boards created by experts in the field.

## Mobile Functionality

Now more than ever, the ability to work from anywhere on any device is critical. Working from mobile devices means responders don't need to gather in a centralized location in order to work on a response. This saves time and adheres to social distancing policies. In addition to performing a variety of response tasks, mobile apps are specifically well suited for collecting patient data at homes or within clinics and collecting facility information as needed.



Figure 12: Mobile Functionality

BCG's Incident Management Systems are designed to allow the system to be accessed from any mobile device. It includes a specific mobile responder app designed for disaster area use, which can function regardless of connectivity. Mobile forms can be rapidly created and deployed to field workers. Forms can be filled in offline and then published to the system when connectivity is restored. Field data can be aggregated and displayed on dashboards to provide critical situational awareness.



## Asset Tracking

In the frenzy of an ongoing response, it is easy to lose track of equipment and other assets. Without proper tracking, precious time can be lost trying to locate lifesaving resources in warehouses during a response and after a response it may be difficult to retrieve expensive equipment from multiple locations. Accurate asset tracking saves time and money.

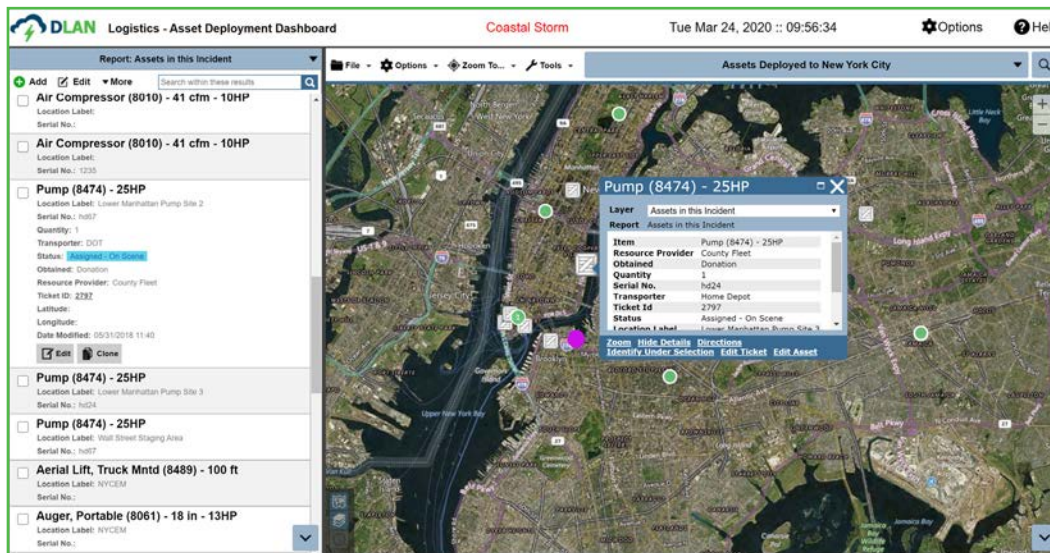


Figure 13: Asset Tracking

BCG's asset tracking provides a way for users to track deployed assets and resources for a particular incident and quickly view the status, quantity, and location of all deployed assets in the asset ledger. It integrates with most asset tracking devices for quick and easy tracking of personnel and equipment.

Resources: Incident Asset Ledger						
Report: Assets in this Incident						
Item	Quantity	Resource Provider	Location Label	Status	Date Modified	
Pump (8474) - 25HP	1	FEMA / EMAC Agreement	Waterbury EOC	Ready for Demob	03/22/2017 14:46	
Pump (8474) - 25HP	1	Dept. of Transportation	Queens Debris Collection Site A	Assigned - On Scene	03/22/2017 14:46	
Pump (8474) - 25HP	1	Dept. of Transportation	Queens Debris Collection Site A	Assigned - On Scene	03/22/2017 14:46	
Chain Saw (8191) - 25 in	1	Dept. of Homeland Security	Queens Debris Collection Site A	Assigned - On Scene	03/22/2017 14:46	
Chain Saw (8191) - 25 in	1	Dept. of Homeland Security	Queens Debris Collection Site A	Ready for Demob	03/22/2017 14:46	
Chain Saw (8191) - 25 in	1	Dept. of Homeland Security	Queens Debris Collection Site A	Ready for Demob	03/22/2017 14:45	
Chain Saw (8191) - 25 in	1	Dept. of Homeland Security	Queens Debris Collection Site A	Ready for Demob	03/22/2017 14:45	
Chain Saw (8191) - 25 in	1	Dept. of Homeland Security	Queens Debris Collection Site A	Out of Service	03/22/2017 14:45	
Pump (8474) - 25HP	1	County EM Stockpile	Queens Debris Collection Site A	Assigned - On Scene	03/22/2017 14:44	

Figure 14: Asset Ledger

## PPE Tracking

Lack of Personal Protective Equipment (PPE) is one of the biggest challenges facing medical personnel right now. Knowing current stockpile levels, current need, and which outside partners have resources available are critical to keeping first responders safe.



Figure 15: PPE Tracking

BCG has a number of tools to help track, distribute, and account for PPE. Inventory counts can be filled in from the mobile responder app from stockpile warehouses and hospitals, or automatically updated through integrations with current stockpile software. This information can then be aggregated and displayed in PPE tracking dashboards. Dashboards can be used to monitor incoming and stockpiled supplies across multiple facilities, identify areas of need, and match them up to available resources. As current stockpiles are depleted and new resources received, the dashboards update counts in real-time for improved situational awareness and decision making.

The screenshot shows the 'EMCT - Personal Protective Equipment' mobile form on a Samsung tablet. The form is titled 'EMCT - Personal Protective Equipment' and includes a 'General Information' section. Below this, there is a 'Masks' section with a 'Total Available: 57' indicator. The form lists various mask types with their respective counts, order status, and availability:

Mask Type	On Hand	On Order	Available
3M N95 1860	22	0	22
3M N95 1860S			
3M N95 1805	0	100	0
3M N95 1805S			
3M N95 1870	18		18
3M N95 1870+			
3M N95 1804			
PPE Gloves - Latex	0	100	0
PPE Gloves			

Figure 16: Mobile PPE Tracking Forms



## Financial Tracking

Though financial concerns may not be the top priority when working to save lives and contain the spread of the virus, eventually bills will need to be paid. FEMA has very specific reporting requirements and if expenses are not properly tracked, time will be lost after the event trying to gather the appropriate information or worse claims may be denied.

The screenshot displays the DLAN Finance Board interface for 'Coastal Storm' on Tuesday, March 24, 2020, at 10:24:45. The interface is divided into two main sections: 'Total Incident Costs' and 'Rental Costs'. Both sections include a 'Report: Incident Costs' and a 'Report: Incident Rental Costs' with search filters and export options. The 'Total Incident Costs' table lists items such as Aerial Lift, Self-Propelled (8491) - 60 Ft. Ht. - 30HP, Aerial Lift, Self-Propelled (8493) - 125 ft. - 85HP, Aerial Lift, Truck Mntd (8487) - 61 ft., Air Compressor (8010) - 41 cfm - 10HP, Air Compressor (8011) - 103 cfm - 30HP, and Air Compressor (8013) - 175 cfm - 90HP. The 'Rental Costs' table lists items such as Aerial Lift, Self-Propelled (8493) - 125 ft. - 85HP, Aerial Lift, Truck Mntd (8487) - 61 ft., Air Compressor (8010) - 41 cfm - 10HP, Air Compressor (8011) - 103 cfm - 30HP, Air Compressor (8013) - 175 cfm - 90HP, and Air Compressor (8016) - 1100 cfm - 350HP. The bottom of the interface features a 'CZ\_Landing Page Link Bar Panel' with various icons for different modules like Bed Tracking, Bed Tracking (BMT), Checklist, Communications, COP Map, Damage - Ready, Damage - Structures, File Library, Finance, MCE Forms, MPE, MPE - Social (PBA), Phonebook, and Send Alert.

Figure 17: Financial Tracking

BCG's finance module provides the necessary tools to track costs for missions, tasks, and resources and assist with properly reporting them to FEMA for reimbursement. Current resource cost codes are available for all default resource types based upon FEMA cost codes and custom resource codes can be added by DLAN system administrator. Information about the item, delivery info, wage info, and invoicing are all recorded by the system.

The screenshot displays the DLAN Financial Ledger interface for 'Coastal Storm' on Tuesday, March 24, 2020, at 10:24:45. The interface shows a 'System Reports' sidebar on the left with options like Total Incident Costs, Power Generation Costs, Incident Rental Costs, Incident Personnel Costs, and Rentals. The main area displays a 'Report: Total Incident Costs' table with columns for Item, Ticket ID, Category, Quantity, Currency, Unit Cost, Payable By, and Expected Cost. The table lists items such as Aerial Lift, Self-Propelled (8491) - 60 Ft. Ht. - 30HP, Aerial Lift, Self-Propelled (8493) - 125 ft. - 85HP, Aerial Lift, Truck Mntd (8487) - 61 ft., Air Compressor (8010) - 41 cfm - 10HP, Air Compressor (8011) - 103 cfm - 30HP, Air Compressor (8013) - 175 cfm - 90HP, Air Compressor (8016) - 1100 cfm - 350HP, Ambulance (8040) - 150HP, Ambulance (8041) - 210HP, Assessment Team, Assessment Team, and Automobile, Police (8073) - 250HP. The bottom of the interface features a 'CZ\_Landing Page Link Bar Panel' with various icons for different modules like Bed Tracking, Bed Tracking (BMT), Checklist, Communications, COP Map, Damage - Ready, Damage - Structures, File Library, Finance, MCE Forms, MPE, MPE - Social (PBA), Phonebook, and Send Alert.

Figure 18: Financial Ledger

## Conclusion

As this crisis continues to evolve, responders need the right tools to share real-time information, visualize data, and track everything. Tools for bed, patient, PPE, and facility management will be key to evaluating the state of healthcare services. Maps and dashboards will help responders maintain complete situational awareness and make informed decisions. Mobile tools will help keep staff working regardless of location. Asset and financial tracking will help responders both during the response and during demobilization and after-actions.

BCG's Incident Management products offer all of these functions and much more. BCG's flagship solution, DLAN, has been helping emergency managers stay on top of disasters since 2002. This proven solution will help your team respond to COVID-19 and prepare for what comes next. BCG's team has the experience necessary to consult you on best practices as you move into a virtual EOC environment to support COVID-19.

**Improve your COVID-19 Readiness and Response with DLAN!**



## About BCG

DLAN is engineered by Buffalo Computer Graphics, Inc. (BCG), a veteran owned small business that has over 35 years of experience in software, hardware, and systems engineering. We have earned a reputation for providing superior products and excellent service to both our private sector and government customers. All of our engineering is done in house by our experienced and talented team. In addition to working closely with our customers to determine their exact needs, BCG prides itself on our ability to provide quick and expert support on all systems we have installed. Our core belief in developing relationships, not just selling products, sets us apart from our competitors.

BCG has recently been recognized by Inc. 5000 and the Deloitte Technology Fast 500 as one of North America's fastest growing companies. BCG was also named as one of govCIO Outlook's Top 10 Emergency Management Solution Providers.

### Our Mission:

To engineer superior products and offer outstanding service tailored to our customer's needs.

