Routine or Disaster:

BARB has Loudoun County Covered

The Loudoun County Combined Fire and Rescue System (LC-CFRS) frequently found themselves in a giant game of “Go Fish” while responding to their county’s needs during large-scale incidents. In a scramble to quickly find the necessary resources, the LC-CFRS and their neighboring agencies oftentimes exhausted their manually maintained run-cards in a matter of minutes, forcing dispatchers to spend precious time making countless phone calls to find available resources while lives were at stake. To better position their department for the future, the LC-CFRS turned to BARB to revamp and automate their run-card process.

The Loudoun County Combined Fire and Rescue System, located in Leesburg, VA, was operating on a static run-card system in a twenty-year-old text-based CAD, with heavy reliance on automatic aid as well as mutual aid. After experiencing continuous difficulties with run-card maintenance, dealing with an ever-changing street centerline due to an average of 50-75 miles of new streets built per year, and having to account for continuously added resources, the LC-CFRS’s experiences served as the catalyst to focus on finding a more efficient run-card system.

Deccan’s BARB (Box-area Automated Run-card Builder) software automates the building of static run-cards and enables personnel to use interactive maps that clearly display the most accurate routes. Leveraging Esri-functionality, BARB’s technology automatically creates error-free, dependable run-cards.

County Population: 423,774

Response Area: 521 sq. miles

Employees: 700+ Career and 1,000+ Volunteers

Fire Stations: 21

Unique Operation Variables:

- Loudoun County operates in a CAD-to-CAD environment servicing 4.5 million people in the Washington DC Metropolitan area
- 70% of the world's internet traffic comes through the county
- There are more unpaved roads in Loudoun than in any other county in Virginia
- Loudoun County boasts the highest household income in the country

“Utilizing BARB, we now have the ability to defend and analyze our response orders.”

Michael Carter, CAD System Analyst, Loudoun County Combined Fire and Rescue System

BARB allowed the LC-CFRS to greatly expand their depth in run-cards to over 250 stations. This resulted in run-cards that could handle “everyday” responses, as well as large-scale incidents - without having to switch to a different set of run-cards. This saved the LC-CFRS hundreds of hours of labor that it would have taken personnel to manually edit all response zones.

Why did the Loudoun County Combined Fire and Rescue System purchase BARB?

As the department’s "power user" of BARB, Michael Carter, CAD System Analyst, advocated for the purchase of the tool because it:

- Automates the run-card building process and automatically applies any changes
- Is science-based and removes any guesswork in creating run-cards
- Can be customized to your GIS data, and your business rules
- Provides continuity in your run-card maintenance
- Reduces the number of any errors when making manual run-card adjustments
- Easily exports into virtually any run-card format
- Provides a rational and defendable method for run-card changes based on current GIS data
- Assists in validating response routes
- Incorporates specialty apparatus and distribution maps

Creating a More Routable County

When disaster strikes, it's not uncommon for agencies to quickly go through their run-cards, exhausting all of their run-cards in just minutes. Prior to 9/11, the LC-CFRS only had their run-cards built 12-20 stations deep. With the implementation of BARB, the department could now operate in an automatic-aid environment, with over 250 stations deep in run-card orders. With zero notification delay between their CAD-to-CAD system shared amongst their partner agencies, automatic-aid could now immediately be dispatched without ever picking up the phone.

When first setting up their BARB application, the LC-CFRS found that they did not have a routable centerline. Staff drove the entire county, gathering information such as speed limit data, directionality, etc. Loudoun then used that data to build a base for their routing network, which was joined to other northern Virginia jurisdiction GIS data; this became part of their regional routable centerline street map. GIS staff from the region used this data to help develop a complex model that was adopted by the state.

Image Caption: *Loudoun County maps out their street network.*

The LC-CFRS then added that information into their BARB application to create their routable street centerline, for Loudoun County as well as surrounding agencies in Virginia, West Virginia, Maryland, and Washington DC. This allowed Loudoun to incorporate units from over 40 agencies and jurisdictions that are within one hour or less drive time to Loudoun County access points.

After implementing BARB and updating their run-card orders, the LC-CFRS saw an unexpected result in their ADAM application (Deccan's Apparatus Deployment Analysis Module, which they had previously implemented) - a 20+% improvement in their projected response times in some zones. Why? For many years, Loudoun had used the assumption for their run-orders that “this is the way things have always been,” with no improvements ever factored in for growth, speed limit changes, road improvements, etc. In many cases, they were previously sending units from farther stations. With BARB, the LC-CFRS is now able to send the closest units as shown in their static run-card orders.

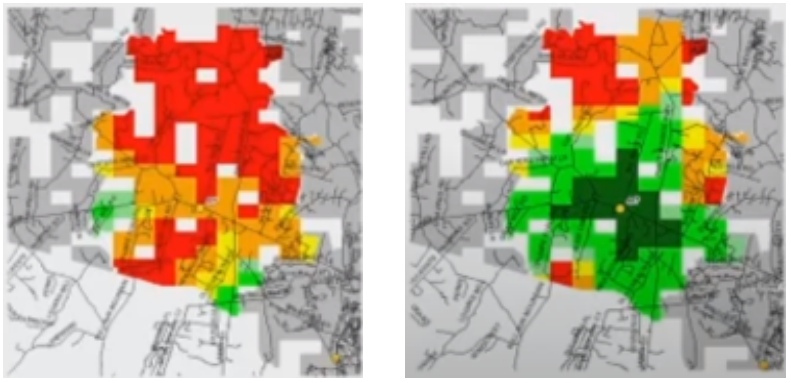

Image Caption: *Loudoun County utilizes Deccan's ADAM for station planning in their community. Pictured above, you can see the response time improvement ADAM projects by adding a new station in this specific response area.*

Precise Routing for Large-scale Events

Both expected and unexpected events happen, and when they do, it is crucial to be prepared with the right tools in place to best serve your community. In February of 2011, the Loudoun County Combined Fire and Rescue System saw "Red Flag" weather conditions, which led to hundreds of wildfires across Virginia, West Virginia, and Maryland – this prompted units from all surrounding regions to respond to these wildfires. “With Deccan’s BARB already in place, the LC-CFRS was able to pull units from as far as 145th due using our run-card orders without having to ask for statewide mutual-aid assistance from the Virginia Department of Emergency Management,” said Carter. “Simply put, BARB provides the needed run-card depth for handling the ‘big ones’”.

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Image Caption: *Loudoun County run-orders made using BARB.*

With BARB in place to keep their department on track, the Loudoun County Combined Fire and Rescue System has since utilized BARB as a crucial operating tool for the run-card depth and routing accuracy they need during both planned and unplanned events, including:

- Community-wide events, such as parades or inaugurations
- Road closures due to hazardous weather conditions, such as flooding, blizzards, etc.

- Adding alternate temporary station sites as existing station locations become inaccessible due to disasters
- Adding temporary shelters or staging sites
- Incorporating alternate hospitals or pop-up treatment sites in the event of an MCI

Unlike traditional AVL, which sends the closest unit based on GPS data, BARB's unique technology allows dispatchers to send the most appropriate units to respond to an incident via static run-card orders. "Many agencies think, 'We have AVL data, we don't need BARB', but that's just not the case," said Carter. "No GPS data means no AVL data." When the LC-CFRS experienced a GPS outage, it left the department with no way to dispatch the closest units to the scene via AVL for several days. However, with BARB in place, the department was able to use its static run-cards as a back-up solution without skipping a beat.

"With Deccan's BARB already in place, the LC-CFRS was able to pull units from as far as 145th due using our run-card orders without having to ask for statewide mutual-aid assistance from the Virginia Department of Emergency Management."

Michael Carter, CAD System Analyst,
Loudoun County Combined Fire and Rescue System

The Loudoun County Combined Fire and Rescue System Plans for the Future

The LC-CFRS continues to push the envelope in looking for new ways to incorporate BARB into their everyday operations. As their community's needs change and evolve, so must their run-cards. The LC-CFRS is working on future projects with Deccan in expanding their BARB application to incorporate data such as:

- Adding additional routing features (e.g., a bridge is too small or dangerous to accommodate a certain type of fire apparatus, a turn restriction, etc.)
- Adding Medevac helicopter due-orders by box area
- Mapping 100+ miles of hiking and biking trails in the county to create trail centerlines for more routable access points

To learn more about BARB, please contact Deccan Sales today at sales@deccanintl.com or via phone at 858-764-8400, Option 1.