

# Customer Profile

**Information Builders enables agile information solutions with the WebFOCUS business intelligence (BI) platform and integration technologies from iWay Software.**

## Charlotte-Mecklenburg Police Department

### Snapshot

#### Organization

Charlotte-Mecklenburg Police Department (CMPD) provides police services for Charlotte and the unincorporated areas of Mecklenburg County in North Carolina.

#### The Challenge

CMPD personnel had to sift through 13 disparate data sources to analyze crime statistics, identify trends, and allocate resources. The department sought more efficient operations.

#### The Strategy

CMPD consolidated data and developed BI dashboards and reports that can be viewed in patrol vehicles. They also developed predictive analytics and crime-forecasting applications.

#### The Results

Patrolling officers have real-time information they can act upon while in the field. Supervisors can assign officers to areas that have a high likelihood of criminal activities, lowering operating costs and streamlining crime-fighting efforts.

#### Information Builders Solution

WebFOCUS with RStat, iWay DataMigrator, and Professional Services.



## Charlotte-Mecklenburg PD Fights Crime With Predictive Analytics

### WebFOCUS Law Enforcement Analytics Helps Identify Potential Criminal Activity

The Charlotte-Mecklenburg Police Department (CMPD) provides police services for Charlotte and the unincorporated areas of Mecklenburg County, North Carolina. The department, which has 1,716 officers and 530 civilian staff, serves a population of more than 700,000 citizens. The goal of the department is to make Charlotte one of the safest large cities in America. To do that, it continually advances strategies to prevent crime and increase public safety. This philosophy recently led CMPD to deploy intelligence-led, predictive policing technology from Information Builders.

Using Information Builders Law Enforcement Analytics (LEA) solution, CMPD is applying an information-based policy to predict the likelihood of crime and to improve measures designed to prevent potential future crimes. Command staff, crime analysts, and patrol officers can use operational, tactical, and predictive dashboards to visualize on a map the areas that have the highest probability of a crime occurring during any four-hour window. Interaction among past, present, and even forecasted

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data is rigorously evaluated and weighed according to a variety of predictive models. Information is evaluated over various periods of time for indicators, such as crime patterns, motives, physical location, day, time, weather, political factors, economic factors, school calendars, pay periods, events, and more. Every factor can have a substantial impact on each predictive model. The insight gained from the solution helps command staff to more knowledgeably deploy resources and allows officers to more effectively manage their areas of responsibility to deter crime.

“Information Builders WebFOCUS dashboards and predictive analytics software allow staff at every level of the police department to deal with facts in real time,” says CMPD Chief of Police, Rodney Monroe. “We are better equipped to optimally assign officers to response areas with the highest likelihood of criminal activity, resulting in reduced crime and lower operating costs.”

### **Crackdown on Manual and Inefficient Processes**

Like most police departments, CMPD has been collecting data on criminal activity for many years. It previously relied upon a manual process of sifting through 13 disparate data sources to analyze crime statistics, identify trends, and model resource allocations, so making sense of all this information wasn't easy. Users typically had to run multiple queries to be able to drill into the data and answer specific questions. CMPD command staff recognized the need for improvement and sought funding through an Urban Area Security Initiative (UASI) Homeland Security Grant.

“One of the goals of this project was not only to enable command staff and dispatchers to easily run reports, but also to push information out to officers in real time,” explains Crystal Cody, systems analysis and programming manager at CMPD. “We wanted to make it much easier for officers on patrol to get the information they need, when they need it, as well as for supervisors and other high-level staff members to deliver pertinent updates.”

During the RFP process, which is required to ensure that the department is spending tax dollars wisely, Cody and the IT team asked the chief, line officers, and other personnel what they wanted to see from an information system and what types of information they wanted to provide to officers in the field. Based on this feedback, they established guidelines for the project and sought proposals from technology vendors.

“The choice came down to Information Builders and IBM,” Cody says. “Information Builders had previous success with other police departments, which helped us to envision what CMPD could do with the technology.”

### **New Data-Driven Intelligence on the Beat**

CMPD engaged Information Builders Professional Services to implement their vision of the repeatable LEA solution. They began by loading an operational data store (ODS) that combines information from the department's records management system (which houses all cases and criminal reports), computer-aided dispatch data (including 911 calls, arrests, priority offenders, electronic monitoring, probation, gangs, warrants, as well as property and evidence), employee data, and pertinent information about special events, weather, and school calendars.

Information Builders used its ETL architecture for transferring both operational and historic data for analysis by combining real-time and batch integration techniques. iWay DataMigrator loads this operational data store and refreshes it with current data on an ongoing and nightly basis.

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Next, they used WebFOCUS to create a series of dashboards and up-to-the-minute graphical reports, provided directly to police officers in their patrol cars. The intelligence-led policing solution includes web-based key performance indicators (KPIs), operational dashboards, interactive-mapping capabilities, predictive analytics, and data-mining algorithms to spot trends and predict future outcomes.

“Our new BI dashboards eliminate manual reporting processes and consolidate report packages to create a more efficient crime analyst staff, and thus a safer community,” Cody says. “This application not only helps the department to reduce crime, but also ensures that police officers’ time is used effectively. The ability to target areas where crimes might occur allows us to deploy officers proactively, increase officer and citizen safety, and reduce the number of calls for service.”

The information in these dashboards and reports is role-specific, with delivery targeted to provide only relevant information to key players in a timely and efficient way. For example, weekly statistics can be automatically sent to division commanders every Monday morning.

“Previously, reports were created manually, using macros, Excel spreadsheets, and Access databases,” Cody says. “One crime analyst had to get up Monday morning at four o’clock to have these reports ready for the nine o’clock meeting. Information Builders has made things much more efficient for the crime analyst staff.”

For example, following a number of sporadic incidents of residential burglary, CMPD used the Predictive Analysis tools to look for concrete patterns and trends. When the system indicated a strong probability of burglaries within certain neighborhoods on weekdays between 11:00 AM and 3:00 PM, an officer was immediately assigned to the area, with backup from the division’s Burglary Suppression Unit and response area coordinators. Soon after, the officer received a call regarding a possible burglary at a vacant house in the targeted zone. The team moved in and quickly apprehended five subjects inside that residence.

### **Real-Time Information Makes Policing Smarter and Safer**

The officers on patrol particularly like the Priority Offender report, which gathers information about priority offenders and makes it available on laptop computers in the patrol vehicles. Previously, officers had to search different databases for different things (for instance, stolen vehicles or burglaries). Now they can find this information all in one place and obtain instant updates on the items that interest them.

### **Predictive Modeling: WebFOCUS RStat**

WebFOCUS RStat provides a single platform for BI, data modeling, and scoring. This eliminates the need to purchase and maintain multiple tools, and frees analysts and other statisticians from spending countless hours extracting and querying data. It also reduces costs, simplifies maintenance, and optimizes IT resources.

## Find Out More

To find out how our solutions can help your company succeed, talk to an Information Builders representative today. Contact your local Information Builders office, visit us at [informationbuilders.com](http://informationbuilders.com), or in the U.S. and Canada, call **(800) 969-4636**.

They can also get all-points bulletins (APBs) and mid-shift information updates so they can be on the lookout for certain people, places, or events. The sergeants can put out instantaneous bulletins to let officers on patrol know what to focus on during their shifts. Previously, most communication of this type had to be delayed until a shift change.

"Patrol officers now have targeted information available at their fingertips for every call to service, which reduces the element of surprise and makes their jobs safer on a daily basis," says CMPD Deputy Chief, Harold Medlock.

### Statistical Models Help Predict Criminal Activity

LEA's predictive policing capabilities are built using WebFOCUS RStat (which leverages the open source R statistical engine) in conjunction with statistical models and algorithms to develop crime-forecasting applications. By using WebFOCUS RStat, the predictive models are completely integrated with the LEA environment and much quicker to deploy. In all, seven different predictive models were designed, developed, tested, and deployed at CMPD in a matter of months.

Using historical data about crime patterns, these predictive models tell CMPD commanders when and where they should deploy resources to fight crime. Implementing these models through WebFOCUS lets the police department drill down through the data to allocate officers based on up-to-the minute insights. Commanders aren't the only staff benefiting from this solution – every officer and civilian within the department now has access to predictive analytics.

"While CMPD has always used crime data to understand trends, this is the first time the department has been able to use a specific set of data from multiple sources to forecast future activities," Cody explains. "The ability to put our collected crime data into algorithms helps us find important correlations between events. WebFOCUS RStat makes that possible."

The LEA predictive models help identify the likelihood of certain types of crime occurring in certain areas by evaluating historical data in the context of current activity. Charlotte has experienced record reductions in crime since the start of this initiative, some of which Chief Monroe attributes to their evolving IT capabilities: "Information technology is an important tool that the department can use to affect crime rates and leverage all of the data that we have been collecting."

Cody agrees. "WebFOCUS Law Enforcement Analytics helps us identify where and how resources should be deployed to reduce crime," she sums up. "As a result of this BI solution, CMPD is better equipped to proactively fight crime with intelligent, timely, and complete information."