Information Builders helps organizations transform data into business value. Our business intelligence, integration, and data integrity solutions enable smarter decision-making, strengthen customer relationships, and drive growth.

City of Charlotte

Snapshot

**Organization**
The City of Charlotte is a municipal government in Charlotte, North Carolina.

**The Challenge**
Lack of standard processes for managing and maintaining addresses to meet specific city service needs resulted in redundant efforts, inconsistent information, and resource inefficiencies.

**The Strategy**
Use iWay Master Data Server to automate profiling, cleansing, matching, merging, enrichment, remediation, and monitoring activities, creating a golden set of master records to serve multiple consuming entities. Use iWay Service Manager to connect consuming services to the new master database of address information.

**The Results**
A consistent set of master records that can feed multiple information systems, improve accuracy, and give customer service representatives a more complete and consistent view of city address data.

**Information Builders Solution**
iWay, Master Data Server with Data Stewardship Portal, Service Manager, and Professional Services.

City of Charlotte Addresses Data Deficiencies With iWay

**Consistent, Shared Location Data Enables Effective Services for City Agencies**

Charlotte, North Carolina is the second-largest financial center in the U.S. and the nation’s 16th most populous city. As the city grows and experiences land use changes, officials recognized the need for accurate address information to deliver services – everything from code enforcement to garbage pickup – to businesses and residences.

Until the implementation of iWay Software from Information Builders, the City lacked a centralized repository for managing physical and mailing address information. While Mecklenburg County functions as the physical address authority for both the City of Charlotte and Mecklenburg County, the timing of address data availability and level of address granularity created challenges for city departments to provide services. This deficiency led to duplicate or erroneous address records that created additional challenges with service delivery.
Inaccurate address information was able to creep into databases whenever a name was misspelled or a duplicate address was entered, to cite two common examples. To mitigate this problem, the Office of the Chief Information Officer embarked on an Address Management Program that included a business process engineering study and the technical implementation of a master data management (MDM) solution. The MDM approach was identified to focus on automated data quality capabilities to cleanse address/location data and to provide a central repository.

“We needed a master set of address records that could be used for location and mailing purposes,” says Twyla McDermott, IT program manager for the City of Charlotte. “We also wanted to obtain a complete understanding of all address processes, from the time that an address is created throughout the history of its use.”

The City purchased iWay Master Data Server (MDS) software to automate data profiling, cleansing, matching, merging, enrichment, remediation, and monitoring activities. This mature software package, a key component of the iWay Information Asset Management Platform, now enables the City to carefully check its data records, identify duplicates, standardize discrepancies, remediate exceptions, and create a master database of “golden address records” – with associated x and y coordinates (for geo-coding), USPS address labels, tax data, and tax fee data.

**Sizing Up the Problem**

Data quality involves identifying and correcting errors in source data to ensure the accurate creation of the master address data. The process typically begins with data profiling, an assessment process that enables business users to verify data quality through metrics, discover or infer rules based on this data, and monitor the evolution of data quality over time.

City staff throughout the departments knew that data quality was essential for successful adoption of the master address repository as a source for their various business systems and processes. “In the past, it was not uncommon for a City department to create an address based on what a citizen provided if that was what was needed to deliver a service,” explains McDermott. “However, there were no validation processes to check if the address was correct, which resulted in conflicting records.”

These and other types of data quality problems increase costs and risk. McDermott offers some examples:

- When there are land use changes, such as when a property zoned as residential changes to commercial, the qualifying services change. The departments do not always know about these land use changes until they go to the address to provide a service.
- The city sends notices to residents and businesses about capital improvement projects, but if the addresses are wrong and the recipients do not receive the notices, this can cause an influx of calls to the 311 customer service department.
- For routing and asset management purposes, the city requires accurate x, y coordinates to provide specific location services for solid waste operators and monitors. The precision of the x, y coordinates provided by the iWay solution saves time in the geo-coding process.
City staff members often discovered address anomalies but there was latency involved in resolving the data issues and updating the associated databases. “While the City business units were quick to respond to mistakes, the business systems sometimes lagged,” explains McDermott.

All of these data quality issues cost money by requiring extra resources for resolution. Adding them up, the City projected a four-year payback on an MDM address improvement solution. With an emphasis on accurate addresses for timely identification and delivery of appropriate service delivery, the project was referred to as “SIMBA,” which stands for Service Impact Messaging by Address.

In Search of an MDM Solution
The City partnered with Mecklenburg County Land Records on the SIMBA project, in recognition of the county’s vital role with the initial assignment of physical addresses. The SIMBA team established the design for a master data management repository, which would serve as the sole source for city business systems. They mapped business processes that city and county agencies performed during land development projects, building inspections, water turn-on services, capital improvement projects, and other address-related functions. They completed maps for 70 business and system processes related to addressing across 15 city agencies and four county agencies.

Once the business process component of the effort was completed, the City sent out a request for proposal (RFP) to acquire MDM software and services. The RFP process resulted in the selection of another solution for a pilot implementation, which was unsuccessful so it was time to pivot.

“We asked Information Builders if they were interested in working with us,” says McDermott. “We wanted their advice on how we could make our project a success. The Charlotte-Mecklenburg Police Department already had Information Builders’ Law Enforcement Analytics (LEA) solution, which included iWay and WebFOCUS software as part of their intelligence-led policing solution. We knew that the partnership was strong and the solution had been implemented quickly and successfully. We also paid attention to the strong commitment that Information Builders demonstrated for customer service.”

Getting Started With iWay
Information Builders and the City worked together on the MDM initiative to create the address master repository, which entailed integrating three sources of information:

- Location data from the city’s Solid Waste Services department
- Computer-aided mass appraisal addresses (CAMA) from Mecklenburg County
- Master address table (MAT) physical address assignment records from Mecklenburg County

DeLisa Tolbert, the city’s project manager for the iWay implementation, helped establish the requirements and lay out enterprise standards for the City. She was careful to ensure that the new MDM environment would enable city workers to easily make corrections, share data, and validate mailing accuracy with a USPS address validation service. “The idea was to give numerous city agencies a common source of accurate data that could feed numerous business operational systems,” she says.
Tolbert and her team worked with Information Builders to process nearly 1.3 million records through iWay Master Data Server: 377,850 CAMA location records; 508,013 county MAT records; and 393,171 Solid Waste Services locations records were consolidated into 553,103 golden address records.

Each group of instances was evaluated, and each unique set of key values resulted in a single master record. The City also introduced a first iteration of tax parcel data mastering, based on the tax parcel identification number. In addition to cleansing these records, they enriched the master repository with metadata that includes a USPS mailing label, latitude/longitude information, address verification, and geo verification accuracy codes.

“This was the first large-scale MDM project for the City and we are now live with a production model,” says Tolbert. “iWay gives us flexibility to create the master address database and integrate the data with consuming systems.”

Using the Master Data

Today the City of Charlotte has processes in place to cleanse, master, and ensure the quality of addresses. The City is using iWay Service Manager in conjunction with Biztalk to integrate the data with consuming systems. Initially, two City departments will use the address information from SIMBA. The Cityworks application within the Solid Waste Services department will be the first application to consume the master address information, followed by a new CRM system for CharMeck 311.

"iWay facilitates connections to the address database so consuming systems can use the golden records," McDermott says. In phase 2 of the SIMBA project, the City is using iWay to refine the model repository and orchestrate consuming services.

McDermott credits Information Builders Professional Services for its ongoing assistance. "We have been happy with the outcome and the skills transfer," she says. "We now have an orchestration of information rather than a cacophony of address noise, along with in-house expertise to manage the MDM project going forward."

The new middleware layer, based on iWay, will enable city systems to communicate and interact in a transactional capacity. McDermott says the master address records will especially help the city’s 311 organization to obtain a complete and consistent view of address data that can be linked to views of city services.

"Charlotte’s master data management solution for addresses, based on solid technology and outstanding service from Information Builders, has enabled the city and the county to work towards the common goal of enhanced citizen service," concludes Jeff Stovall, chief information officer, City of Charlotte.