Optimizing Local Government Management: through Performance and Data Analytics

The Cincinnati Story

by

Harry Black

I have been driven my entire career to show that government can operate at a high performance level. Government organizations vary in terms of their level of performance and overall effectiveness, with some local governments optimizing performance better than others. Why is that? This case study was prepared to provide insight to that question.

Government is inherently not designed to be efficient, swift nor nimble. There are several built in challenges that must be overcome to truly optimize performance. Civil service systems are outdated, and most local governments must also manage the challenges of labor contracts. Additionally, government organizations are limited in terms of performance incentives that can be offered to the workforce.

These challenges are realities. However, the challenge is to engage local government management in such a way that these issues can be overcome by integrating sound labor management principles and practices. With performance and data analytics, this can happen.

Time is of the essence for local governments in this age of the internet of things and big data. A fundamental question is "Can government be disrupted?" The answer is "yes" and it will happen. Driverless cars, drones, big data driven algorithms and robots will serve as the source of that disruption. The way that we currently conduct business in government will change. It will require fewer people, fewer facilities and less equipment.

Disruption can be minimized and/or averted, but only if government aggressively pursues an examination of what it does and how it does it. It must daily ask itself several basic questions, "Are we making a difference? "Are we maintaining and exceeding our customer's expectations? "Are we optimizing innovation? "Are the impactful things that we are doing sustainable?"

Optimizing local government management through performance and data analytics can strengthen local government, while also enhancing its relevancy.

The Cincinnati Experience

In 2014, my phone rang while I was loading groceries into my car. It was an executive recruiter calling to talk about the city manager opening in Cincinnati, Ohio. At the time I was somewhat hesitant to pursue the opportunity. I was satisfied with what I was doing -- serving as the Chief Financial Officer for the City of Baltimore. However, since becoming a city manager had always been a career goal I decided to pursue the opportunity. Saying "yes" led to the most grueling, yet fulfilling recruitment process I ever experienced.

I made 3 trips to Cincinnati and met with over 150 business, neighborhood and religious leaders. The discussions were illuminating and various themes began to resonate with me. All those I met with shared a desire for an effective, efficient and responsive city government that would:

- Improve customer service;
- Be more responsive;
- Improve economic inclusion;
- Overcome infrastructure challenges;
- Reinvent the City's permitting process; and
- Enhance safety of the city.

It became clear Cincinnati was ripe for performance and data analytics. During my interview sessions with the Mayor and City Council Members, I began to broach the subject and was pleased

that they all were quite receptive. I knew that if I was selected I would aggressively pursue instituting a comprehensive performance and data analytics program. This is something that I attempted in the past while serving in senior management roles for other cities, but generated limited success. In those cities my role, although significant, was not as significant as the role of City Manager.

When the executive recruiter called to tell me that I had been selected, I would have the unique opportunity to show Cincinnati could buck the prevailing views and perceptions of government.

Government does not have to be characterized by terms such as mediocre, slow and inadequate customer service. Local government management can be innovative, collaborative, interactive, transparent and high performing. We can make a huge difference in the lives of children and families while also growing the local economy.

I believe that performance and data analytics can quickly assist local governments with optimizing overall performance, generating numerous economies and efficiencies, as well as operational breakthroughs.

Moving forward, this paper will focus on the City's experience using performance and data analytics to make Cincinnati government more nimble, strategic, responsive and transparent. In short, performance and data analytics has allowed Cincinnati to make a difference in the lives of its citizens. I will also share some of our successes to date.

Cincinnati has a local government supporting a residential population of 300,000. It does this with 6,400 employees spanning 25^{+} departments and offices, and a $1.4 billion budget. Cincinnati provides a full range of municipal services including police and fire protection, parks and recreation, highways/streets, waste collection, health and human services, culture, planning and zoning, and water/sewer services.

What we have endeavored to achieve in Cincinnati is a comprehensive integrated approach systematically integrating several critical components, including:

- One Page Strategic Plan
- Performance Management Agreements
- CincyStat
- Performance Budgeting
- Innovation Lab
- Open Data

I took the helm as City Manager in September 2014 and my first order of business was to prepare a business case to share with the Mayor and City Council, requesting funding to establish what is now the City's Office of Performance and Data Analytics. City Council approved funds for the creation of the office in October 2014. The positions of Chief Performance Officer and Chief Data Officer were established, and between October 2014 and May 2015 we built a stand alone, state-of-the-art facility which became the Office of Performance and Data Analytics (OPDA).

The program officially launched in May 2015. By housing the core of our program in OPDA - CincyStat, Innovation Lab and Open Data - we are able to maximize collaboration. This is a unique approach, in that other cities rarely connect these functions. Our goal in having pursued these initiatives has been to make Cincinnati the best managed city in America by using our resources better, faster and smarter.

OPDA has a cumulative impact that pays for itself over time as a result of:

- Improved quality of customer service and reduced turn-around times
- Direct cost reductions/avoidance
- Revenue enhancements
- Goodwill

OPDA's role is five-fold:

- Facilitate transparency and accountability
- Understand City operations
- Creatively and strategically problem solve
- Optimize performance
- Find opportunities for improvement
- Nurture enterprise-wide collaboration

The program has achieved several milestones since its inception. OPDA was established to develop and lead performance initiatives. The One Page Strategic Plan has been adopted and supports the setting of administrative priorities. We have designed, developed and deployed Performance Management agreements with each department head to set priorities and expectations. An Innovation Lab has been built and operationalized for process streamlining (think LEAN and Six Sigma). We are hosting bi-weekly CincyStat performance management sessions. We are using Open Data for posting municipal datasets to the public in traditional formats, as well as in visual dashboard formats. We have even dabbled in predictive analytics to apply data science tools to increase effectiveness.

<u>One Page Strategic Plan</u>

Although not well known, Cincinnati serves as the home of multiple Fortune 500 and Fortune 1,000 corporate headquarters. This means we have a plethora of talent and intellectual resources at the ready. One of the many people I met during this recruitment process was a retired Procter & Gamble executive who now works with organizations across the country to develop strategic plans. He put me and my leadership team through a one page strategic plan process, using the One Page Solutions OGSP tool. The One Page Solutions strategy emphasizes clarity and purpose and helped us hone in on what success looked like. And more importantly, it helped avoid putting together a

typical three-ring binder plan that collects dust on a shelf. The One Page Strategic Plan has five sections:

1. Mission: Concise statement of why we are here or what we do.
2. Objective: What does success look like?
3. Goals: Metrics which will track progress versus the objective.
4. Strategies: The How
5. Plans: The most important projects/actions that define each strategy.

Through this process we were able to establish five priority goals:

1. Innovative Government
2. Fiscal Sustainability and Strategic Reinvestment
3. Thriving and Healthy Neighborhoods
4. Safe Streets
5. A Growing Economy

The Plan was one of my First 100 day goals and we were off to a good start. I have always been a big believer in how you start is typically how you finish. Your first 100 days generally determine how your first year will likely go, and your first year will generally determine how your overall tenure will go.

Performance Management Agreements

Something that I was eager to experiment with was the creation of performance management agreements entered into by the City Manager and individual department heads. This is a new concept for the most part in that I am only aware of one or two other municipalities that have pursued something similar.

These agreements are tied directly to our One Page Strategic Plan, integrated into the City's budget process, the employees annual review and published. Since the introduction of these agreements, we have established 100 department level priority initiatives. In addition, there are over 1,500 data points identified for regular collection and reporting by City departments, ensuring all ships always are sailing in the same direction.

Innovation Lab

Our Innovation Lab (I-Lab) is a collaborative facility to help redesign and streamline municipal processes to deliver better, faster, economical and smarter service. Our team will identify and scope projects prior to an I-Lab event. Facilitators help apply LEAN and Six Sigma principles to optimize efficiency and effectiveness. In the I-Lab everyone is equal and all viewpoints are sought out. The I-Lab experience can be rejuvenating and often evokes passion, which is good for team building and camaraderie.

We have had many successes as a result of the I-Lab, with one of the biggest being the streamlining of our building permit review and approvals process, reducing City approval times in half from 10.5 weeks to 3 to 5 weeks. We also conducted permit fee analysis to ensure fees are competitive,

and target fee increases toward complicated projects to add resources devoted to streamlining inter-agency coordination.

Another success involved eliminating utility bill late fees. At one time the City received nearly 300 utility bills. However, we were consistently late with payment because there was no process in place to manage this, and we would incur about $133,000 annually in late fees. The I-Lab shed light on the process. We no longer pay late fees and have realized productivity gains as a result of not having 300 people involved in the paying of these bills.

CincyStat

CincyStat is our primary tool used to drive performance and strategic outcomes. It is a leadership strategy to mobilize City agencies to produce specific results. The Chief Performance Officer leads a series of regular, periodic meetings with the City Manager and leadership team, and each department's leadership. The meetings use data to analyze past performance, set new performance objectives and examine overall performance strategies.

There are Four Core Tenants that characterize Stat programs:

1. Accurate and timely intelligence shared by all.
2. Effective tactics and strategies.
3. Rapid deployment of resources.
4. Relentless follow-up

Tenant Four, in my view, is the most important.

A traditional Stat room consists of a podium for the agency head and agency staff to address questions from the panel. The panel consists of the City Manager, Assistant City Managers, Chief Performance Officer, and the heads of our Budget, Finance, GIS, Human Resources. Law and IT departments. There are two projectors that project charts and other information contained in a particular Stat memo for everyone to see. Our sources of data are various databases, our Customer Service Request system, and our Geographic Information system. Software applications aid us in organizing data, as well as assist us with visualizing it. Our performance analysts also conduct field work that is integrated into the Stat process.

For every meeting a comprehensive executive briefing memorandum is prepared, which serves as the focal point for discussion. It provides status updates on recurring operations, short-term and long-term projects. It also allows us to monitor core operations using key performance indicators. We delve into specific issues with background information, analysis, charts and questions in order to find opportunities for improvement.

Once a Stat session with a department concludes, our performance analyst prepares a follow-up memo to the department summarizing the session and identifies follow-up items to be addressed at the next Stat session.

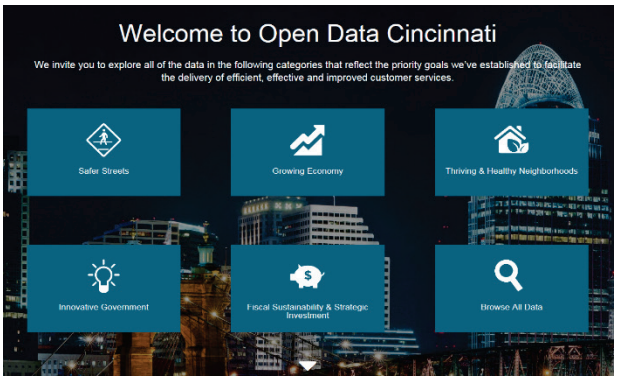
Since OPDA's inception, Cincinnati's performance management programs have had a profound impact on improving service delivery and overall efficiency. The City has been able to eliminate Customer Service Requests backlogs related to our Transportation and Engineering and Public Services departments. We have been able to achieve an initial 7% increase in average overall customer satisfaction through the use of feedback from over 1,400 surveys completed.

Open Data

The City launched its new CincyInsights website in early 2017, which provides a showcase for a wide range of interactive public dashboards. These dashboards provide anyone with internet access an opportunity to review City data by way of user-friendly visualizations. These dashboards take existing City data already found in the City's Open Data Cincinnati portal and translates the content into graphical heat maps and charts. Users are able to interact with, and easily analyze mapped data using filters such as neighborhood location, date, activity type and more.

Currently the CincyInsights website features more than 15 dashboards that contain various datasets. Dashboards range from real-time snow plow tracking information to in-progress road projects to heroin overdoses. Each dashboard is organized according to our five strategic priorities. Additional visualizations will be added over time.

Giving this tool to the general public encourages individuals and groups to develop creative ways to engage, improve and serve the community. The CincyInsights project is an extension of the City of Cincinnati's overall commitment to transparency and data-driven government innovation.



Perhaps the single most powerful tool that makes this possible is the City's Geographic Information System (CAGIS). It is an enterprise-wide information system that provides access to real-time data for decision support, leading to improvements in the coordination, efficiency and quality of public service. The system embeds existing business rules and the management of information resources directly into departmental workflows, all made possible through the innovative integration of geographic information system (GIS) technology with automated business-process workflow software.

Cincinnati's data strategy, deployed city-wide, ensures transparency and enhanced customer service through frequent publication of high quality data for public consumption while enhancing performance management.

Conclusion

Through these initiatives founded in the principles of performance and data analytics the City has been able, and is positioned well to continue, to enhance customer service delivery, increase accountability and stimulate economic activity through information sharing.

This is only made possible through strong executive leadership starting with the Mayor and City Council who have embraced this approach from day one. Additionally, the thousands of employees

who have contributed greatly in developing and implementing these changes are the real heroes and are to be commended.

OPDA has generated a 7-to-1 return on investment and has enhanced fiscal monitoring and financial oversight.

Just as Cincinnati has used these methods to optimize management effectiveness, so can other governments. It works. It is helping us meet and exceed the expectations of our residents and all those who live, work and play in Cincinnati.

Appendix A provides additional highlights that show other positive impacts that Cincinnati has been able to achieve through performance and data analytics.

Appendix A

Office of Performance & Data Analytics Year Two Cumulative Impact Summary

Note that while some initiatives directly affect the bottom line, much of the impact manifests through enhanced oversight, avoiding increased costs, and saving time through operational efficiency.

city of CINCINNATI
Interdepartment Correspondence Sheet

May 9, 2017

FOR YOUR INFORMATION

To: Mayor and Members of Council

From: Harry Black, City Manager

Subject: Performance Management Year 2 Fiscal & Customer Service Impact

With your strong support, the City is making tremendous strides in implementing your priorities in order to transform the City of Cincinnati into the best managed local government in the nation.

What follows is a reporting of the stellar work done since the Office of Performance & Data Analytics (OPDA) was commissioned. Programs include CincyStat, the Innovation Lab, Open Data and the execution of department director performance management agreements.

Critically important is the fact that these efforts are not done in a vacuum. They are interwoven into everything we do beginning with the Administration's 5 Strategic Priority Goals (Safer Streets, A Growing Economy, Thriving & Healthy Neighborhoods, Innovative Government and Fiscal Sustainability & Strategic Investment) and actualized through the annual operating budget. This approach, uniquely ours, is resulting in remarkable achievement.

On behalf of the entire City Administration, including the countless staff who have worked so diligently to embrace this work, I am proud to highlight the many successes to date. We know these efforts are making a tangible difference because they have been built in a manner allowing us to closely track progress against benchmarks.

Fiscal Impact

The attached report details a more than $3.3 million cumulative fiscal impact. This comprises costs savings and cost avoidance, as well as revenue enhancement.

- **CollectionsStat.** Regular meetings with Law and respective City departments in order to understand, quantify and triage outstanding claims and bills has resulted in $523,840 in Calendar Year (CY) 2016 savings.
- **FireStat.** $972,491 in reduced firefighter limited duty costs has been realized by closely monitoring overtime to ensure resources are deployed strategically.
    - An additional $150,000 in Fiscal Year (FY) 2017 EMS revenue was realized through FireStat.
- **PoliceStat.** In 2012, due to cost, the City ceased contracting with Rand Inc. who designed and maintained a traffic stop early warning system as called for in the Collaborative Agreement. OPDA, working with CPD is able to absorb this vital function in-house, representing $350,000 in cost avoidance.

- **Data Infrastructure.** As municipalities rely more heavily on data analytic capabilities the ability to process, manage and centralize data infrastructure is of tremendous importance. By building and maintaining this data warehouse in-house the City has avoided $500,000 in specialized consultants and data management services.
- **IT Infrastructure.** Started as part of the Open Data Initiative, OPDA has avoided $860,000 by purchasing, developing, centralizing and automating IT services through our Chief Data Officer. Excitingly, these systems represent a robust foundation for the future.

Customer Service Enhancements

The value of the performance management approach is not solely quantifiable in dollars and cents. At the end of the day it must be about transparency and improving the customer experience.

- **CincyInsights.** This website maps massive amounts of City data allowing users to interact in real-time. Anyone interested is invited to explore road conditions, potholes filled, heroin overdoses, crime statistics and much more. Totaling 16 dashboards, this tool has proven quite popular with over 58,000 hits since the December 2016 launch. https://insights.cincinnati-oh.gov/
- **Customer Service Survey.** April 2017, 75% of survey respondents were satisfied with how Customer Service Requests (CSRs) were handled and closed out. This represents a more than 10% increase in customer satisfaction since October 2015, and a 6% increase over the last year.
- **Greenspace Beautification.** Greenspaces representing some of the most visible neighborhood gateways are now cleaned and maintained 300% more compared to the same period last year.
- **Complaints.** Litter and tall grass/weed CSRs have plummeted 59% since FY16.
- **Private Lot Abatement Program (PLAP).** The number of blighted properties abated is now pacing more than 1,000 per year compared with 250 two years ago.
- **Customer Responsiveness.** The time it takes to review permit applications has been reduced by more than half.

Conclusion

The City's suite of performance management programs is allowing us to work smarter, faster and with greater customer responsiveness. They allow us to accomplish more with what we have through innovation, hard work and the utilization of data and technology. These improvements are built to be sustainable and foster an environment conducive to exponential innovation.

On behalf of those we serve, I remain grateful for the opportunity provided by the Mayor and the City Council to jump in with both feet in bringing these performance management tools to the City of Cincinnati. Without your steadfast support, the hard work of Ms. Leigh Tami and her team at OPDA and the many departmental staff involved, this is simply not possible.

Attachment

FOR YOUR INFORMATION

MAY 8, 2017

TO: Harry Black, City Manager

FROM: Leigh Tami, Chief Performance Officer

SUBJECT: Office of Performance & Data Analytics Impact Update: Year 2

The purpose of this memorandum is to provide an update on the cumulative impact realized by the Office of Performance & Data Analytics (OPDA) during its second year.

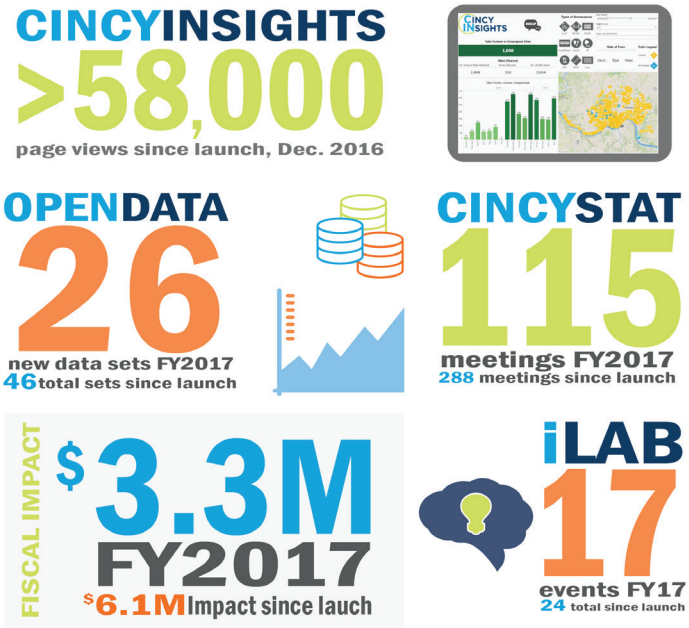
During year two, OPDA has realized more than $3.3 million in cumulative fiscal impact (detailed below). Through the CincyStat process, we've seen significant increases in EMS billing revenue and citywide debt collection, while also seeing a reduction in firefighters on limited duty and redundant IT purchase requests enterprise wide. We've continued to use data to monitor public safety overtime costs, construction coordination in the right-of-way, and this year, we also began monitoring general fund contracts using the CincyStat process. Entities receiving significant general fund grants from the City presented their budgets, key performance indicators, and ROI models in the CincyStat room (and will continue to provide updates on a biannual basis).

While OPDA's first year was about establishing goals, identifying "quick wins," and cultivating a culture driven by performance, our second year was spent building on this foundation while also designing, developing, and deploying a sophisticated technological infrastructure that has enabled us to use "big data" to do big things. Through creativity and process automation, we've built a system that aggregates data from all over the City, cleans it, creates and updates interactive visual dashboards and publishes them as consumable insights — entirely automatically. I am proud to say that developing this infrastructure in-house (using limited resources) has generated enormous savings on a critical 21st century deliverable: clean, robust, centralized, real-time data, available for strategic decision-making and operational intelligence.

In addition to generating significant financial savings, this office has continued to promote government transparency and accountability. While more than doubling the City datasets published to our Open Data Portal, OPDA launched CincyInsights, a first-of-its-kind, public-facing dashboard portal designed to make public data usable and approachable for all users, even those with no relevant or prior experience. As a result, citizens can see, in real-time, the location of trash trucks and street sweepers, when streets have been treated during winter weather, how long customer service requests remain open, and geographic spikes in heroin overdose responses. Our interactive dashboards also allow users to, for example, drill down into a specific pavement condition, see customer service request activity on their street, and search by address to find neighborhood community councils.

Cities around the country have implemented performance and data analytics initiatives with varying outcomes, but have consistently reported on one point: this work is not possible without significant commitment and unwavering support from City administration and leadership. The strides we've taken have only been made possible through the support of the Mayor and City Council, and through your visionary leadership as City Manager. Without buy-in at the executive level, our data analytics infrastructure and initiatives could not have been deployed as quickly, effectively, or comprehensively.

A "smart" city is a data-driven city. Our goal is to increase the scope, volume, quality, and utility of City data to make Cincinnati even "smarter." As we move into our third year, OPDA will continue to use data in innovative ways to improve performance, enhance customer service, and generate efficiency through creative problem-solving while promoting government transparency and accountability.

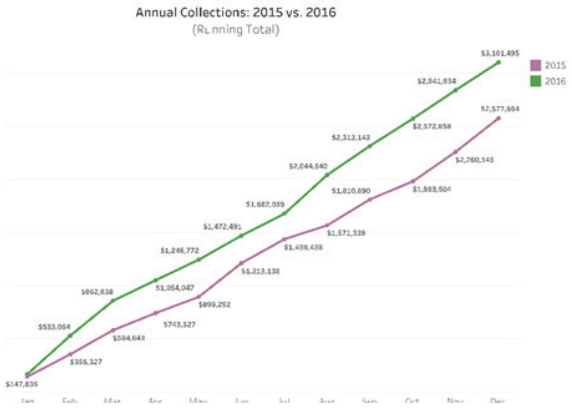


FISCAL IMPACT

CollectionStat		
Increased Collections Revenue	$523,840	Increased Revenue
PartnerStat		
General Fund Contract Monitoring & Oversight	In Progress	Savings: Monitoring & Oversight
ITStat		
IT Governance & Procurement Oversight	In Progress	Savings: Monitoring & Oversight
FireStat		
Increase EMS Revenue	$150,000	Increased Revenue
Overtime: Financial Monitoring & Oversight	In Progress	Savings: Monitoring & Oversight
Limited Duty Reduction	$972,491	Savings: Monitoring & Oversight
PoliceStat		
Collaborative Agreement: Data Analysis (Rand Study)	$350,000	Cost Avoidance
TranStat		
Construction Coordination: Monitoring & Oversight	In Progress	Savings: Monitoring & Oversight
Street Rehabilitation & Preventative Maintenance Project Monitoring	In Progress	Savings: Monitoring & Oversight
ECCStat		
Overtime Monitoring	In Progress	Savings: Monitoring & Oversight
CAD Project Implementation Oversight	In Progress	Savings: Monitoring & Oversight
Staffing Level Monitoring	In Progress	Savings: Monitoring & Oversight
Innovation Lab		
Special Event Permits	In Progress	Cost Avoidance
Site Plan Review	In Progress	Cost Avoidance
Revocable Street Privileges	In Progress	Cost Avoidance
OPEN DATA & DATA ANALYTICS INFRASTRUCTURE		
Data Processing, Management, & Centralization		
Data Processing, Cleaning, Normalizing, Geocoding, Etc. For Enterprise Analysis & Operational Insight	$500,000	Cost Avoidance
Open Data		
Personnel Savings: FOIA Request Efficiencies	In Progress	Cost Avoidance
IT: Personnel & Technology Infrastructure		
Database Administrator	$85,000	Cost Avoidance
Application Developer	$85,000	Cost Avoidance
IT Manager (ITAM)	$90,000	Cost Avoidance
Hardware Support	$85,000	Cost Avoidance
Tableau Server (Additional & External)	$365,000	Cost Avoidance
Website Design & Ongoing Site Maintenance	$50,000	Cost Avoidance
Tableau Visualizations	$40,000	Cost Avoidance
Automation Oversight & Process Management	$50,000	Cost Avoidance
Servers (Repurposing Rather Than Purchasing)	$10,000	Cost Avoidance
TOTAL IMPACT:	**$3,356,331**	

CINCYSTAT & INNOVATION LAB

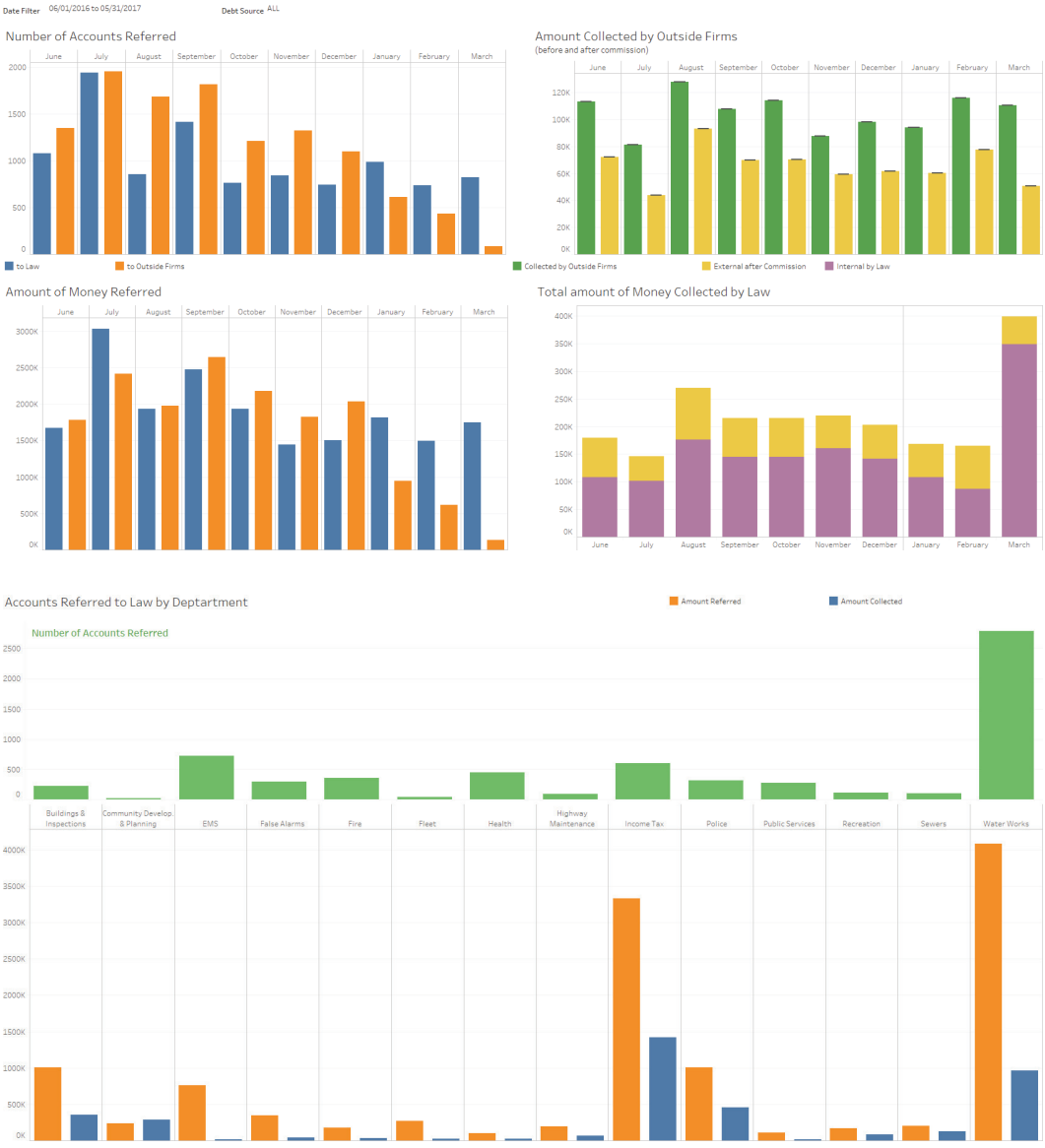
CollectionStat



During 2016, citywide debt collection increased by **$523,840**. The chart to the right demonstrates the significant overall revenue increase over the course of Calendar Year (CY) 2016.

In addition to increasing revenue from debt collection, the Collections group in Law has completely triaged the outstanding debt backlog, allowing collection efforts to strategically focus on more recent (and more collectible) outstanding claims, while tracking the types of claims (and claim amounts) coming in from various City departments.

The following charts show how Law has begun strategically tracking outstanding debt accounts coming in from departments, as well as revenue collected (through both internal collection efforts and via referral to outside collections agencies).



ITStat

As part of a comprehensive, citywide review of central IT function, OPDA has worked with Enterprise Technology Solutions (ETS) to develop recommendations for the improvement and standardization of the City's IT service delivery model. This includes a deep dive into the City's enterprise-wide inventory of hardware, software, IT personnel, licenses, data solutions, IT vendor contracts, applications, and IT service needs.

To reduce redundant IT purchases of licenses, hardware and software, while leveraging existing contracts and technology subscriptions, the City began convening an executive IT Governance and Oversight Committee. The purpose of this committee is to oversee IT procurement (both capital and operational) to ensure digital solutions and technology purchases align with both department/line-of-business needs and the City's enterprise vision for information and technology management.

PartnerStat

In January 2017, OPDA began holding External PartnerStat meetings with organizations directly supported in the City of Cincinnati All Funds Budget (pursuant to Council motion). These meetings are structured the same way as CincyStat meetings. PartnerStat meetings will be held at least twice per fiscal year, and to ensure the process is thorough and objective, all participating organizations are required to submit the following information in advance of scheduled meetings:

- Mission statement and scope of work;
- Budget (particular emphasis on funds received from the City of Cincinnati);
- Key initiatives and projects;
- Key Performance Indicators for each key initiative/project; and
- Any additional information pertinent to the City's ROI derived from the funding provided for the specified work.

The following 16 organizations participated in the first round of PartnerStat meetings:

- African American Chamber of Commerce
- Cincinnati Works
- CincyTech
- Cintrifuse
- Closing the Health Gap
- Community Action Agency
- Community Development Corporation
- Film Cincinnati
- Greater Cincinnati Energy Alliance
- MORTAR
- Port Authority
- REDI
- Strategies to End Homelessness
- Talbert House
- UC Economics Center
- United Way

The goal of PartnerStat meetings is to provide objective oversight through performance management to ensure optimal ROI for the City's investment in local organizations.

PoliceStat

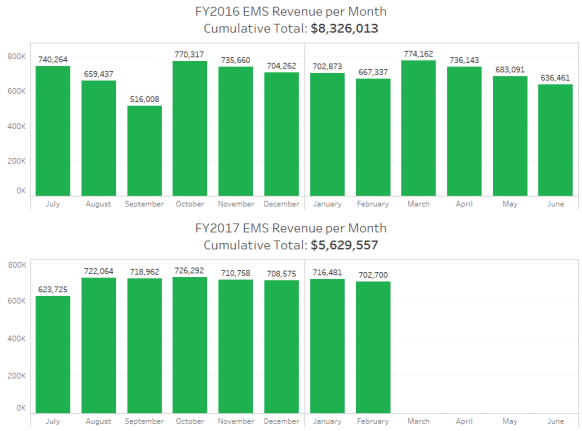
Collaborative Agreement: RAND Study. This year, the City is embarking on a voluntary "refresh" of the Collaborative Agreement. As part of this agreement, the Cincinnati Police Department (CPD) partnered with the RAND Corporation to collect, analyze, and maintain data related to policing activity, with emphasis on traffic stops and citations. Rand designed and maintained an early warning system to detect potentially problematic traffic stop practices by identifying patterns and outliers among peer officers.

While RAND's work with CPD was discontinued in 2012 due to cost, CPD has been working closely with OPDA and has made great strides in overall police data management, oversight, and transparency through publication of data to the Open Data Portal, analysis for the Cincinnati Initiative to Reduce Violence (CIRV), and the Manager's Advisory Group (MAG). Moving forward, OPDA will also be working with CPD to redesign and maintain the early warning traffic system previously created by RAND.

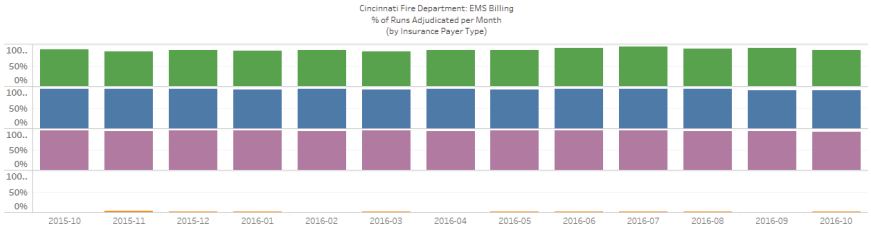
The cost avoidance associated with bringing this work in-house is **$350,000 annually**.

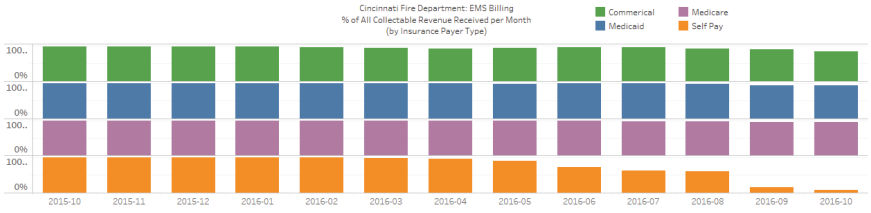
FireStat

EMS Revenue. Approximately 86% of all Cincinnati Fire Department (CFD) responses are for emergency medical services (EMS), for which the department is able to bill. In order to maximize collectible EMS revenue, the team worked with CFD's billing vendor, McKesson, to generate reports showing how much revenue has been collected, as well as the collectability of that revenue (based on insurance, adjudication, etc.). CFD has also begun offering financial aid to patients without insurance, which has resulted in increased revenue from self-pay patients.



The following charts show how these revenue increases have been tracked.



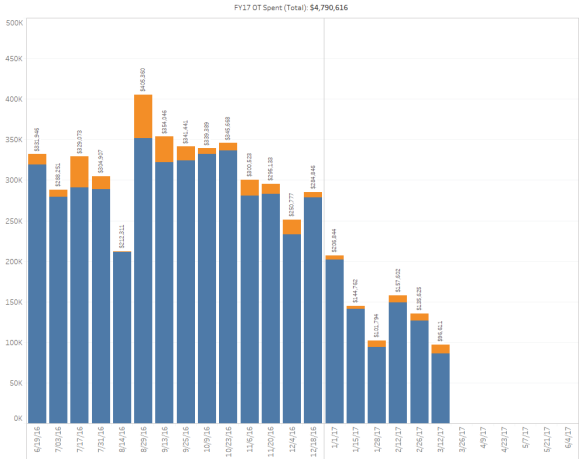


Hardship Fillings

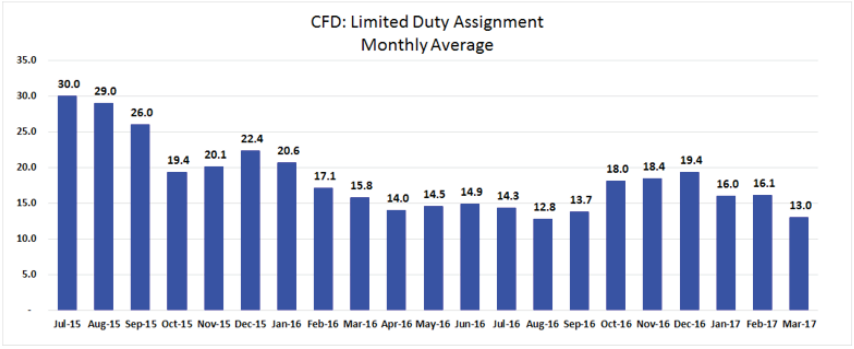
	2016						2017		
	July	August	September	October	November	December	January	February	March
Requested	21	23	15	38	25	18	33	23	29
Granted based on HHS schedule of discounts	18	16	7	26	16	8	17	17	18
Granted for uninsured or underinsured based on updated policy	2	1	4	8	2	2	9	3	3
Additional information required	1	5	3	4	5	2	3	3	4
Revenue collected from Hardship Decisions -30 days	375	$899	$386	$1,964	$465	$264	$1,220	$1,354	$845

Over the past two fiscal years, EMS revenue has increased significantly: projected revenue increase for this fiscal year is approximately **$150,000**.

Overtime Monitoring & Limited Duty Reduction. As the demand for public safety emergency response continues to increase, monitoring overtime has become a key component of ensuring resources are strategically deployed. In addition to continuously monitoring overtime spending, the team has continued to see reductions in limited duty assignment over the past two years. Reducing the number of personnel on limited duty increases the number of firefighters available for deployment, therefore reducing the costs of overtime related to meeting minimum staffing (193 firefighters per day).



The annual savings associated with the reduction is an estimated **$972,491**.



Innovation Lab

Over the last year, OPDA has continued to streamline processes, improve customer service, and find ways to utilize technology to creatively problem solve while improving citizen user experience. In addition to IT review-related innovation lab events, OPDA has also focused on improving the following processes:

Centralized Site Plan Review

- **Goal:** creating a centralized application process for developers to ensure centralized, unified, coordinated City review by multiple departments for major land development projects
- **Deployment:** Summer/Fall 2017

Special Event Permitting

- **Goal:** Redesigning customer user experience in applying for special event permits by creating a "one-stop shop" via online application
- **Deployment:** Summer 2017

Revocable Street Privilege Inventory & Data Management

- **Goal:** Creating a streamlined process for revocable street privilege application, contract approval, and data recording
- **Deployment:** Winter/Spring 2017

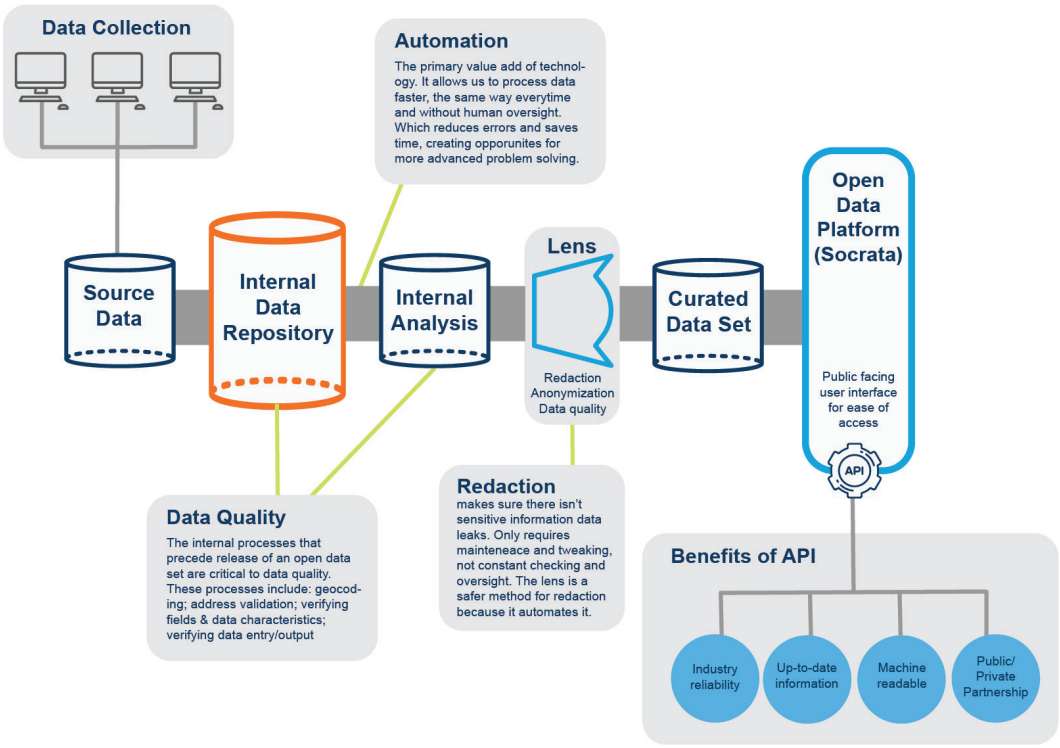
OPEN DATA & DATA ANALYTICS INFRASTRUCTURE

Data Processing, Management & Centralization

This year, OPDA dedicated an enormous amount of brainpower and resources to creating an infrastructure for processing data from around the City. Achieving clean, high quality data is a heavy lift, one that is often delegated to specialized consultants. When done correctly, it requires answers to a lot of difficult questions:

- What business process does this data represent?
- How are the data structured?
- What information populates these data categories?
- How is this data input?
- Is this data incomplete? How can I be sure?

The following infographic shows the basic structure of OPDA's data analytics & data management model.



True data analytics requires intimate familiarity with the data and all its nuances, and the ability to mentally picture how the data needs to be arranged to answer important questions and provide insight into the underlying business processes.

Optimizing this model also means making data aggregation and collection easier for departments operationally. Rather than asking departments to continue to report performance data to our office primarily through Excel spreadsheets, OPDA worked to become directly "plugged into" department data sources, in real-time. Having updated, highly granular (transaction-level) data is critical to ensuring that data-based decision-making is as precise and time relevant as possible. This has also provided an opportunity for departments to start managing and using data rather than just being responsible for reporting it.

Using this model, OPDA has processed hundreds of datasets from City departments and made them available to departments for easier problem-solving and data consumption. These datasets include:

- GPS data (pulled from Zonar) to track location and status of City vehicle assets;
- CAD (computer-aided dispatch) data, used to record public safety responses and in-field activity by first responders;
- RMS (case data) for CPD (geocoding, cleaning, and joining with CAD incident data);
- EMS on-scene response data (SafetyPad);
- Proactive greenspace and city cleaning activity (by Department of Public Services);
- Health Center Clinic data (geocoding and cleaning up address data so the Cincinnati Health Department (CHD) can identify trends on a neighborhood level);
- Performance data and workflow data entry recorded using Qualtrics, a web-based survey tool, to make manual data entry easier, faster, and seamless for departments without access to more robust data solutions;
- Customer service request survey data (generated by surveys received from citizens once service request tickets are closed out by departments);
- Development data (tracked in Salesforce)—geocoded for use by Community & Economic Development (DCED) in tracking development trends and activity;

As OPDA continues to work with departments, the team anticipates an increase in the volume and amount of City data processed through the Office. The conservative estimated cost savings associated with automated in-house data processing, cleaning, and management is **$500,000**.

Open Data

Since July 2016, the City of Cincinnati has added significantly to the volume of data available on the City's Open Data Portal. Most notably, OPDA worked with CPD to automate the daily publication of frequently requested datasets for public consumption, including:

- Traffic Stops and Citations;
- Use of Force;
- Assaults on Officers;
- Officer Involved Shootings;
- Part I Crime;
- Shootings; and
- Police Calls for Service

In order to preserve data quality as well as privacy and anonymity, OPDA employs a robust data review and oversight procedure prior to publishing any City datasets to the Open Data Portal. Law, the "owner" department (here, CPD), and OPDA are all required to sign off on the publication of datasets to the portal before they are approved for publication. In addition to promoting transparency in government processes and information, this also significantly decreases the amount of time, energy, and work associated with responding to repeated or redundant FOIA data requests. As a result of increased data published to the Open Data Portal, CPD has been able to direct records requesters to the portal, resulting in time and labor savings for employees responsible for FOIA requests.

IT Personnel & Technology Infrastructure

Developing, deploying, and successfully maintaining the data analytics infrastructure outlined above is typically the responsibility of an entire information technology team. Most major cities with robust data infrastructures and digital transformation initiatives have an application developer, a hardware support specialist, a database administrator, and an IT manager in addition to a chief data officer to manage data collection, centralization, and governance.

The City of Cincinnati's data analytics infrastructure has been developed and technologically managed by OPDA's one-person IT team: Chief Data Officer Brandon Crowley. To maximize the effectiveness of the City's centralized data infrastructure, OPDA has relied heavily on Crowley's programming skills, creative process automation, and strategic delegation of work to maximize IT capacity. OPDA's entire team has expanded its skillset in order to support the IT/development work needed to sustain the City's data infrastructure.

The OPDA team has also devised creative alternatives to otherwise expensive technology solutions in order to maximize service delivery while minimizing the cost to taxpayers. In the development of CincyInsights, OPDA designed a process for automating the publication of dashboards that avoided the purchase of an expensive external server.

In addition to back-end data management, OPDA has also realized significant savings by doing all website design, Tableau dashboard creation, and automation oversight in-house. All members of OPDA's staff have learned how to create, update, and modify the data visualization dashboards used for internal analysis (in CincyStat or by departments) as well as external insight (on the CincyInsights portal). The OPDA team is also responsible for overseeing the automation processes, troubleshooting when IT issues emerge, and ensuring all CincyInsights pages go live at the appropriate times (particularly important for the City's snow plow tracker, which is only turned on in the event of a winter weather emergency).

The cost avoidance associated with OPDA's lean and agile IT staffing and automation processes is **$860,000**.

CUSTOMER SERVICE ENHANCEMENTS

CUSTOMER SERVICE

Customer Service Survey Responses

12% increase in customer satisfaction

Clean Cincinnati Initiative & Service Delivery

59% reduction in litter and tall grass/weeds complaints from FY16 to present

Blighted lots cleaned: increase from 250 in 2014 to 1,245 in 2016: 1,063 in FY17 Year to date

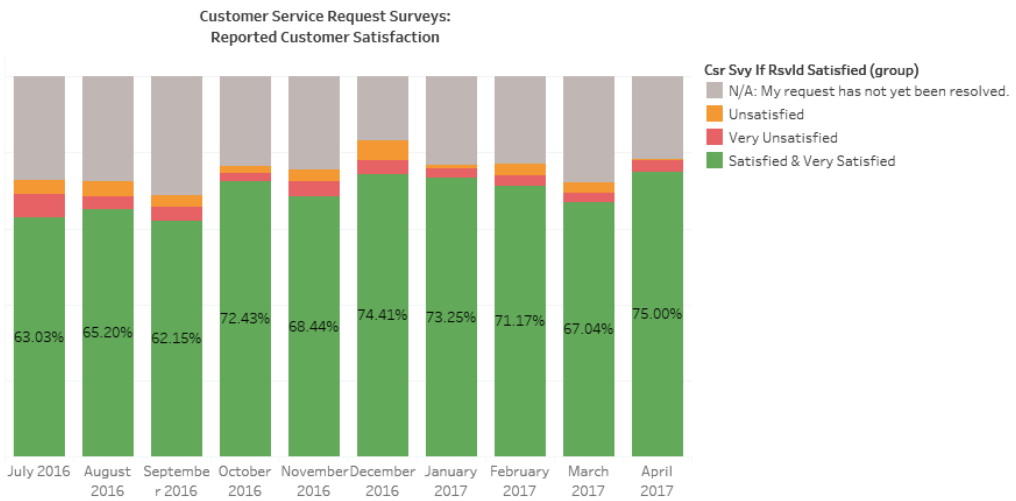
300% increase in proactive greenspace maintenance since this time last year

Permitting: Application Review Turnaround Time

50% reduction in turnaround time from application submission to first review

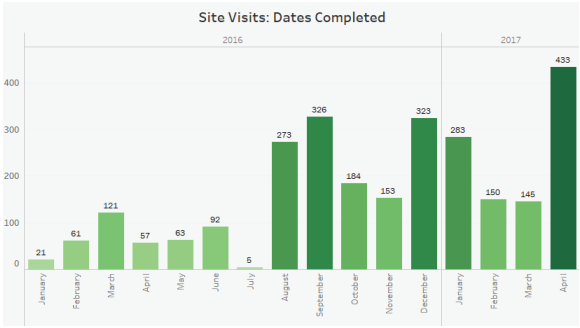
Customer Service Requests: Increase in Customer Satisfaction

Beginning in September 2015, OPDA worked with CAGIS to automatically send residents a customer service satisfaction survey via email once their Citizen Service Request (CSR) is closed out/completed by City departments. Since this point, reported customer satisfaction has steadily increased — since the beginning of Fiscal Year (FY) 2017, reported customer satisfaction with service provided by the City has increased 12% (see chart below).



Clean Cincinnati Initiative: CleanStat

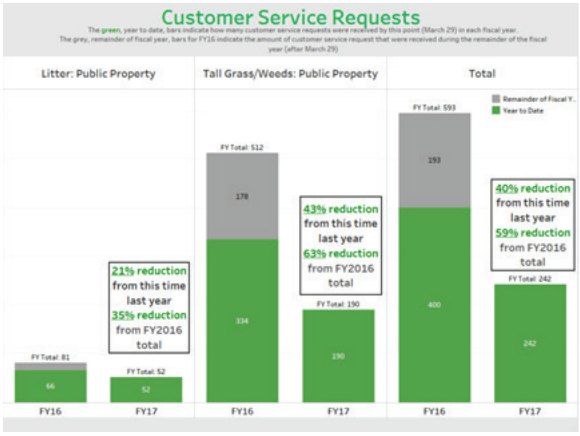
As part of the CleanStat initiative, OPDA and DPS worked collaboratively to transform the City's neighborhood cleaning approach from reactive to proactive. Historically, the City's approach to greenspace maintenance was reactive, meaning most sites were cleaned as a result of CSRs, rather than as part of a preemptive, proactive comprehensive greenspace plan. As part of its new plan, the team identified high visibility sites; consolidated cleaning routes to maximize resource deployment; and began tracking greenspace site maintenance using CAGIS and OPDA's web-based data entry tool, Qualtrics.



The following chart (right) shows the vast increase in the number of greenspace site visits since implementation of the City's proactive neighborhood cleaning plan at the beginning of FY2017 (July 2016).

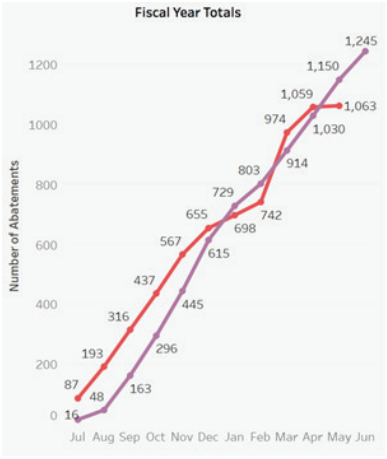
Overall, proactive greenspace cleaning and site maintenance has increased 300% for 2017 (calendar year-to-date) when compared with the same time last year.

This has consequently resulted in a steep decrease in customer service requests for litter and tall grass/weed abatement on public spaces and in the right-of-way. The next chart shows the significant decrease in CSRs since FY2016.



Overall, customer service requests for litter and tall grass/weed abatement in public spaces and the right-of-way have decreased by 59% since FY2016.

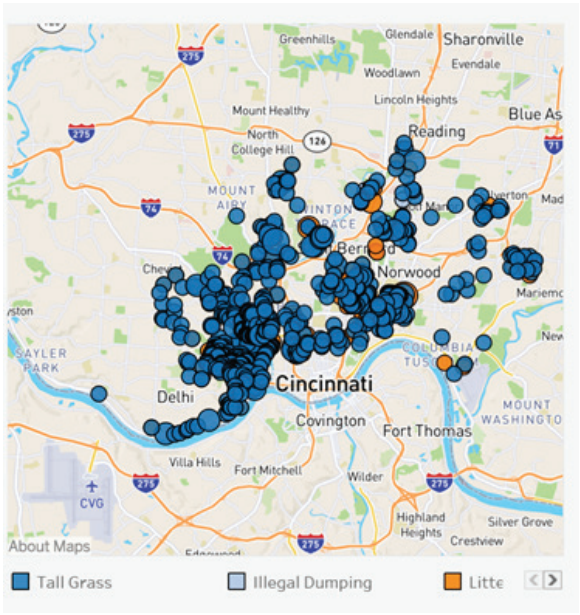
Private Lot Abatement



The City has been aggressive in holding absent landlords accountable for their properties through PLAP, the City's Private Lot Abatement Program. In 2014, PLAP was overhauled through a proposal by Mayor Cranley and City Council to clean overgrown lots and blight on private property in Cincinnati neighborhoods. PLAP has two critical components: civil citation issuance (via code enforcement), and lot cleaning/abatement.

The program has seen tremendous success. In 2014, the City performed only 250 abatements. However, 1,245 abatements were performed in FY2016, and 1,063 so far in FY2017. This represents a substantial increase in abatements and quality of life improvement.

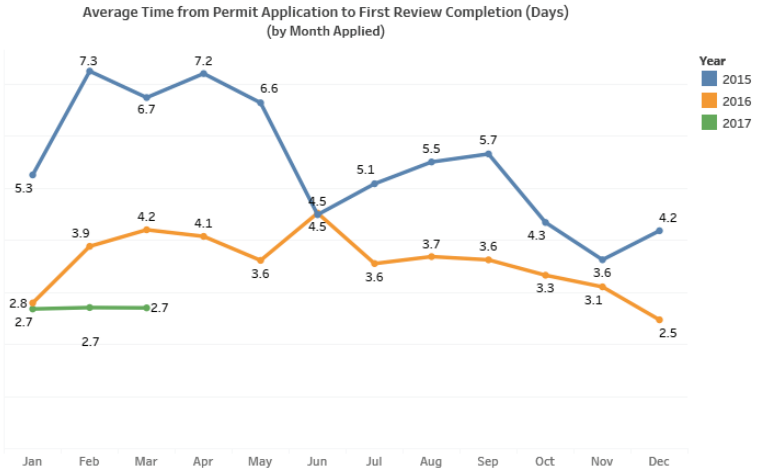
The following graphics show the measurable progress made in cleaning up blight in neighborhoods as a result of PLAP.



Permit Applications: First Review Turnaround Time

As part of the PermitStat process, the team has continued monitoring turnaround time for building permit application reviews. Reducing turnaround time for permit applications is a critical component of enhancing overall customer experience through timely delivery of services.

While fielding significant increases in permit application volume, the Department of Buildings & Inspections (B&I) has significantly decreased permit application (to the City) time, as well as the time it takes for the completion of first review. The following chart shows the steady reduction in turnaround time between application submission and completion of first review by B&I, by month of permit application. While turnaround time fluctuates based on time of year (and permitting volume), time between application submission and completion of first review has consistently, significantly decreased.



DATA ACCESSIBILITY

CincyInsights

On December 7, 2016, OPDA launched CincyInsights, the City's real-time, interactive open data dashboard. The goal of CincyInsights is twofold: first, to show citizens and residents what's happening in their neighborhoods; and second, to promote citizen engagement through data accessibility and enhanced user experience. **Since it's launch on December 7, 2016, CincyInsights has received more than 58,000 views.**

These dashboards, organized according to the City Manager's five strategic priority goals, bring performance management and data transparency to the next level of insight and business intelligence. The following excerpts provide brief explanation of each dashboard, and its implications for monitoring city services and overall performance.

As OPDA continues to aggregate, process, and visualize more data, more layers will be added to the dashboards and more insights to this interactive portal. In this information age, OPDA is committed is to making City data accessible and insightful for all users and residents, regardless of data experience or technological prowess. CincyInsights demonstrates the City's commitment to increasing citizen engagement and government accountability through open source data sharing.

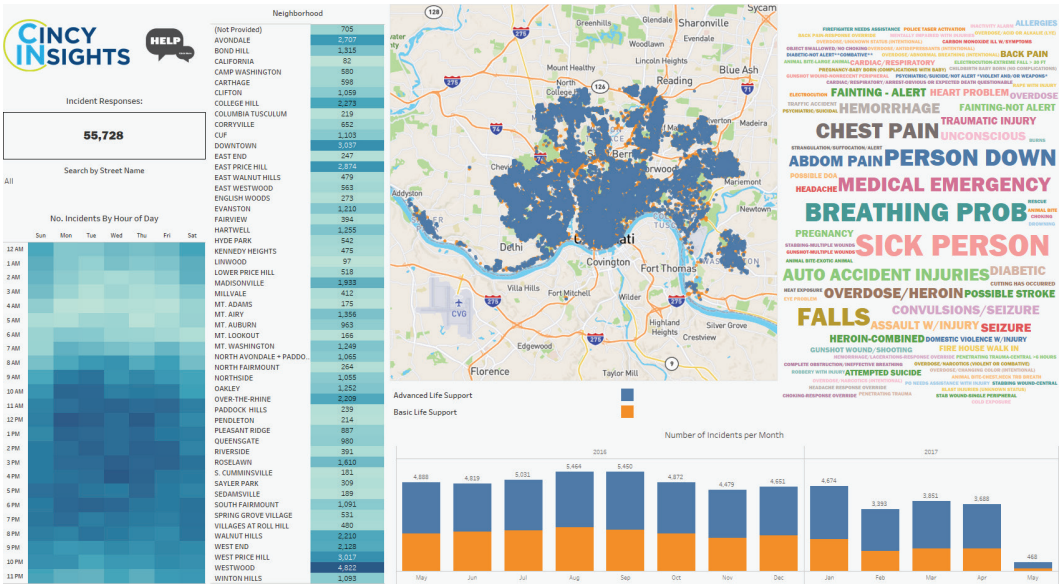
Safer Streets

CFD: EMS Incident Response Activity

The Emergency Medical Service dashboard refreshes daily to show 13 months of Cincinnati Fire Department responses to reporting emergency medical incidents that are recorded by the city's Computer Aided Dispatch (CAD). The data can filter by time and location the response occurred and by disposition.

Why it's important:

- Citizens can filter to see EMS responses in their neighborhood to gain insights on when and why responses are occurring, and what factors could be driving responses.

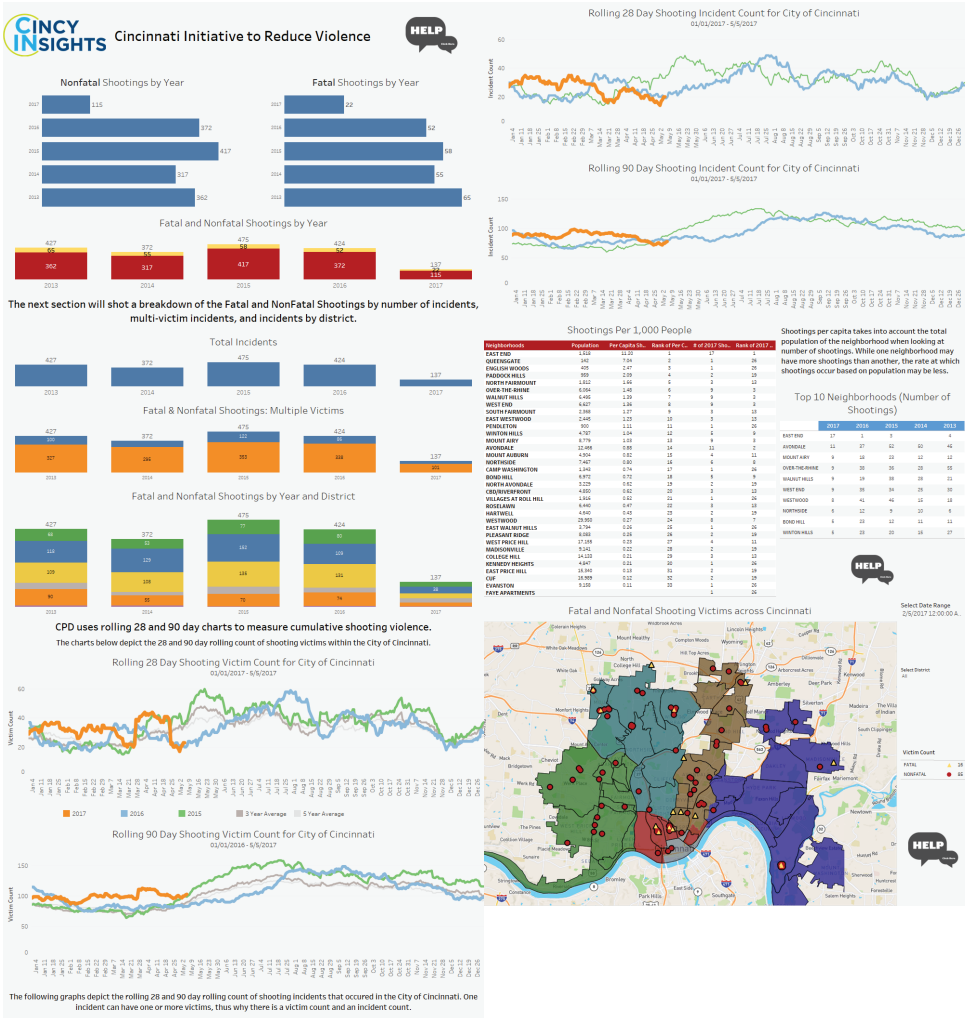


Cincinnati Initiative to Reduce Violence (CIRV)

The CIRV dashboard is updated daily to show fatal and non-fatal shootings in Cincinnati. The dashboard offers a comparison in the number of shootings from 2013 to present. It also compares neighborhoods' per capita shootings. A map, which filters for different date ranges, displays the location of all shooting.

Why it's important:

- This visual displays and compares trends in shootings to highlight historical increases or decreases.
- Internally, this data is used to create targeted law enforcement and community efforts for strategic outreach.

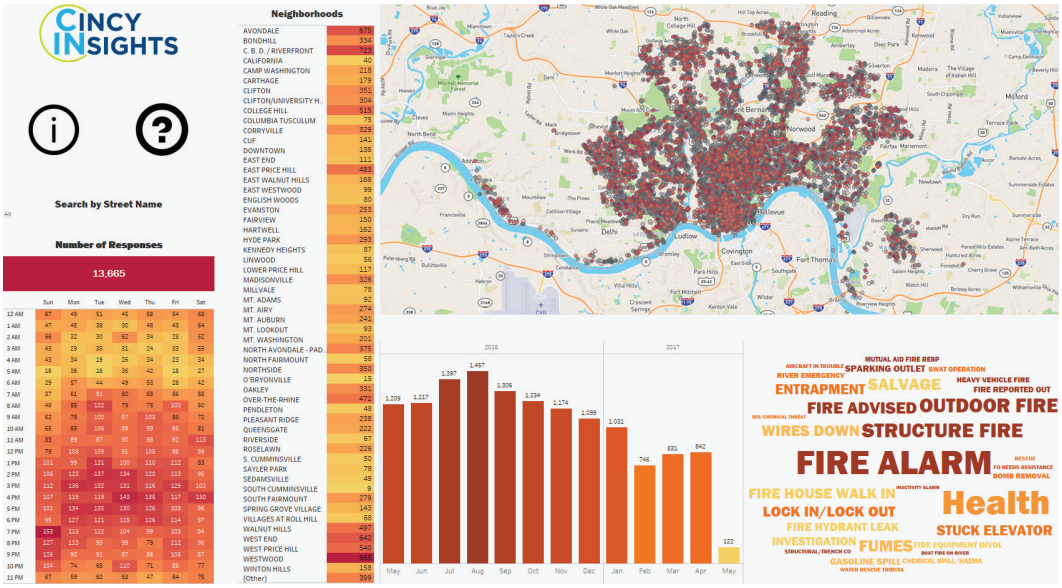


Fire & Rescue Incidents

The Fire & Rescue dashboard refreshes daily to display CFD incident responses recorded in the CAD system for the past 13 months. The data can filter by the time, location and response type.

Why it's important:

- Citizens can filter to see Fire response in their neighborhood to gain insights on when and why responses are occurring.

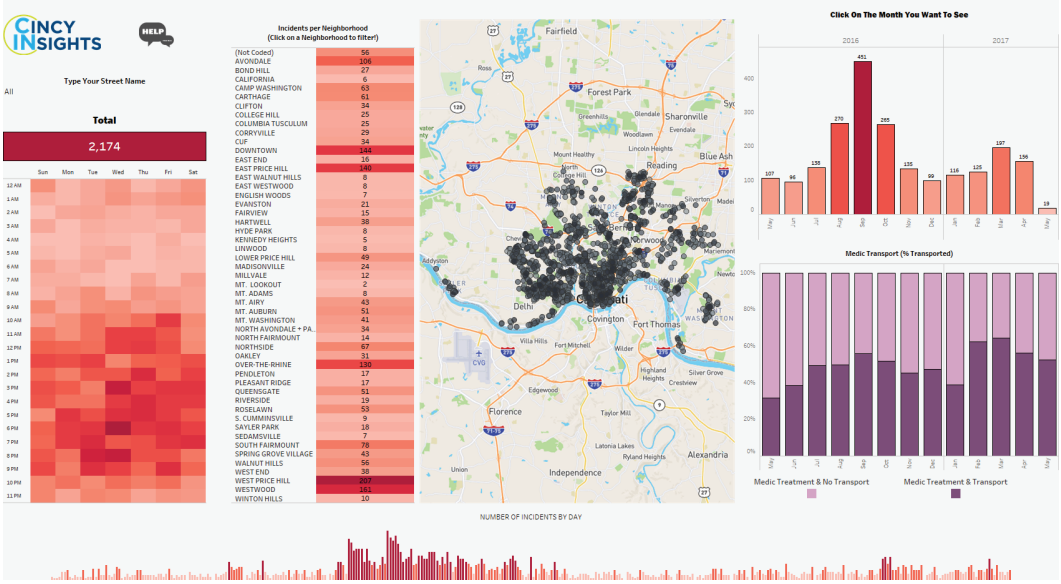


Heroin Overdose Response Tracker

The Heroin dashboard refreshes daily to show heroin overdoses in Cincinnati over the past 13 months. The displayed data is EMS responses to heroin overdose incidents recorded in the CAD system. The data can filter by time and location of the response, along with whether the response resulted in transport to a medical facility.

Why it's important:

- This visual was used to identify key areas to station the City's roving medic units during the unprecedented spike in heroin overdoses that occurred in summer/fall 2016.
- The Health Department uses this visual on a daily basis for community outreach, informing City Council and the Board of Health, and working with Cincinnati Children's Hospital Medical Center and University of Cincinnati Medical Center.
- Non-government entities, like Talbert House, use this visual to develop strategies for Narcan training via community outreach programs.

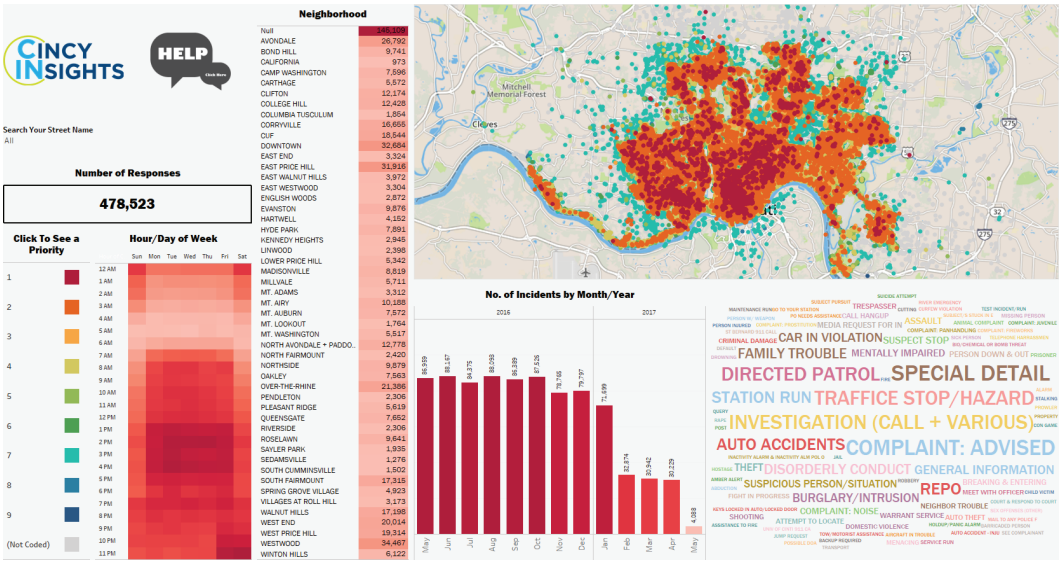


Police: Calls for Service

The Police: Calls for Service dashboard refreshes daily to display CPD incident responses recorded in the CAD system for the past 13 months. The data can filter by time and location of a response and by incident type.

Why it's important:

- Citizens can filter to see police calls for service to gain insights on when and why responses are occurring.



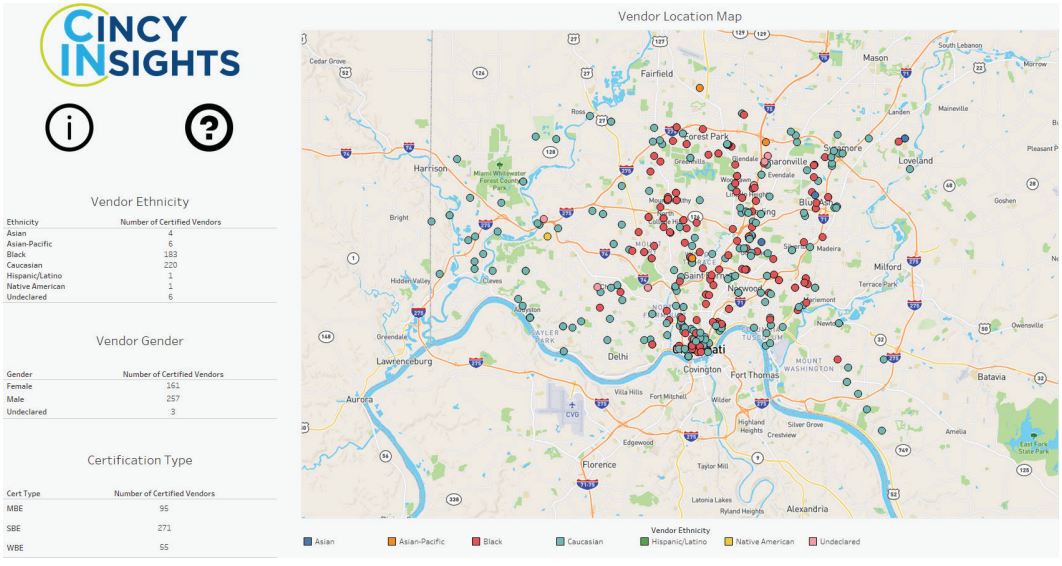
Growing Economy

Certified Vendors (MBE/WBE Program)

The Certified Vendor dashboard displays Minority-owned (MBE), Women-owned (WBE) and Small Business Enterprises (SBE) certified by the Department of Economic Inclusion (DEI).

Why it's important:

- This visual promotes participation of minority- and women-owned businesses in City contracts to bolster the City's economic inclusion efforts.



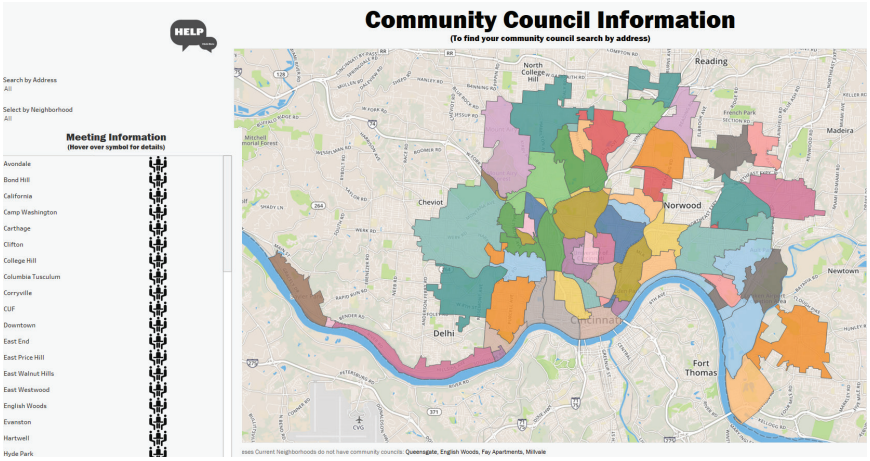
Thriving & Healthy Neighborhoods

Community Council Neighborhoods

The Community Council dashboard allows residents to find their community council and information about meeting times.

Why it's important:

- Residents can type in their address to identify information about their community council.
- Community council meeting time and contact information is also provided.
- The feedback survey at the bottom of the Insights page allows for community council members to quickly and easily update contact and meeting information.



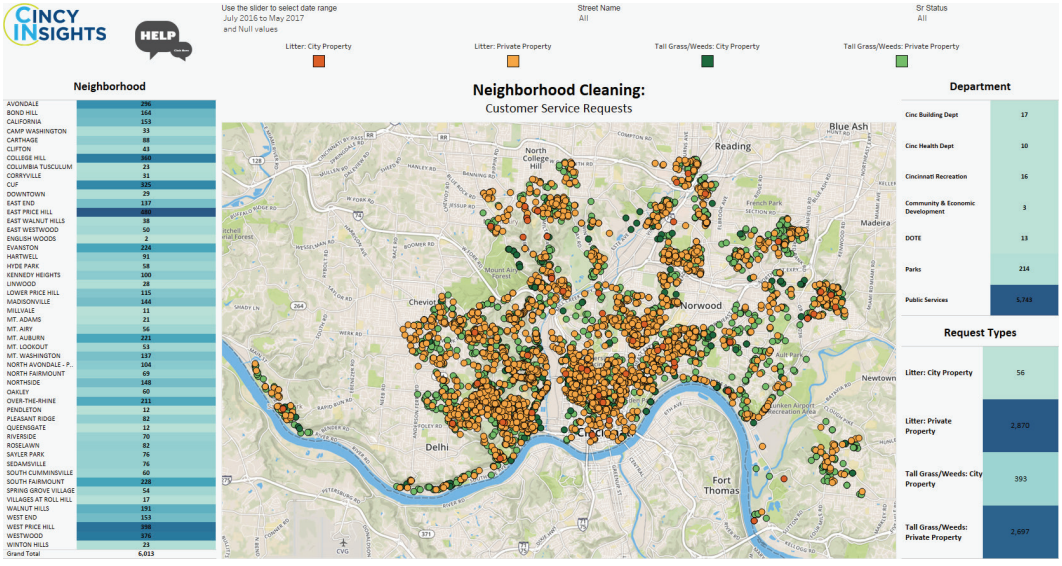
Proactive Greenspace Maintenance Plan

Through its proactive Greenspace Maintenance Plan, the City's Neighborhood Operations Division (NOD) cleans and maintains city green spaces, right-of-ways, steps, public fences, bridge underpasses, guardrail buffers, alleys, walls, concrete islands and lots owned or cared for by DPS. The Greenspace Maintenance dashboard contains data since January 2016.

The Neighborhood Cleaning dashboard shows CSR tickets for litter and tall grass/weeds cleaning and abatement request by department and neighborhood.

Why it's important:

- In order to automate this dashboard, the Department of Public Services (DPS) is working with OPDA to restructure data entry for completed greenspace sites. By creating a faster and easier data-entry system, DPS can more accurately monitor progress on the Greenspace Maintenance Plan and update the plan to reflect reality (work hours, frequency of cleaning required, etc).
- DPS uses this visual to monitor its progress.
- Citizens can identify greenspace sites to see if they've been cleaned recently.

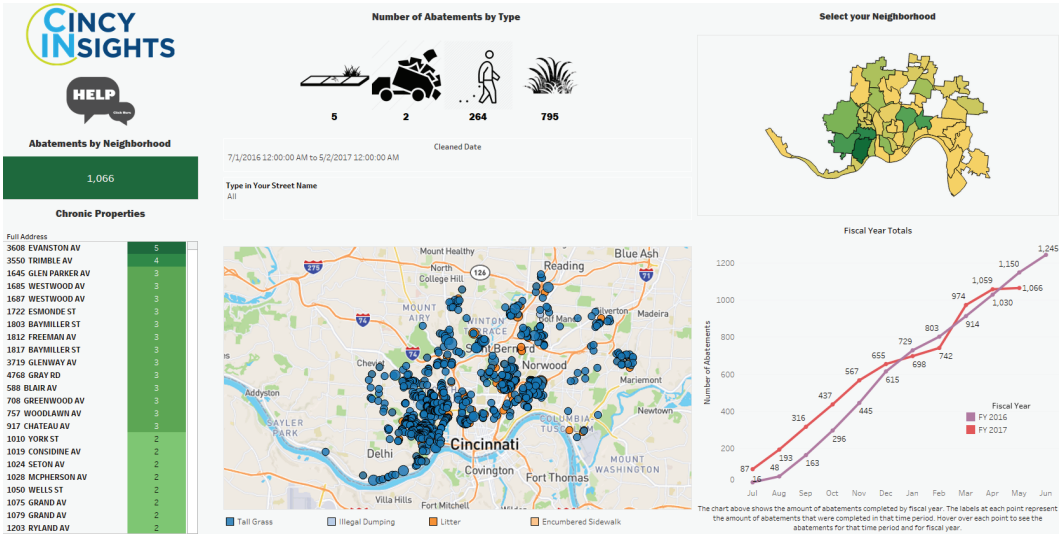


Private Lot Abatement Program (PLAP)

The PLAP dashboard refreshes daily to show the location and number of cleaned and abated private lots. When a property is blighted or overgrown, a citation is issued. After a second citation is issued, the property is considered “abandoned” and NOD crews clean the property.

Why it’s important:

- This visual is used to identify chronic properties and discuss options to deal with chronic properties in DPSStat.

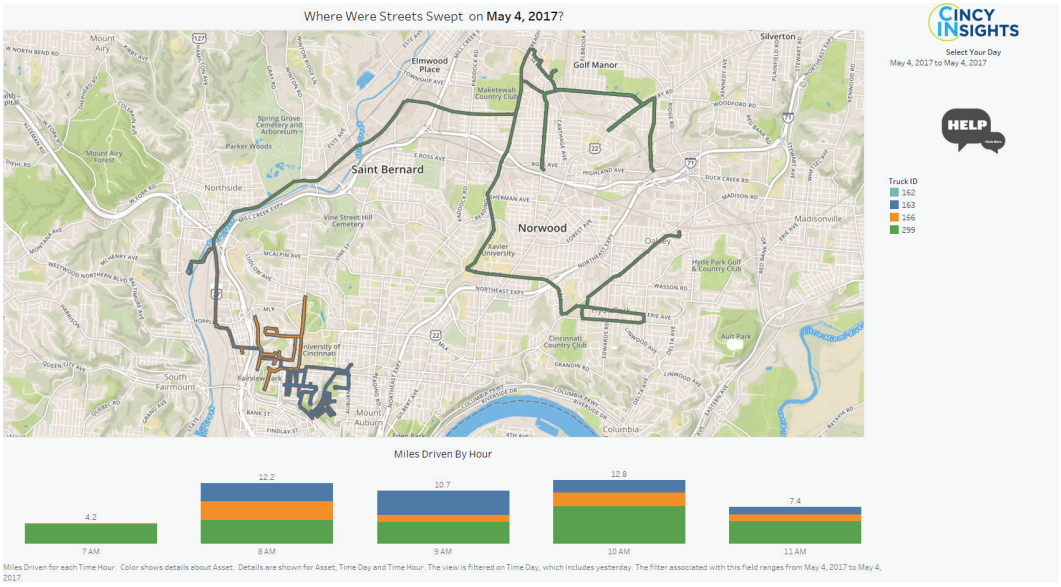


Street Sweeping Tracker

The Street Sweeping page contains two visuals tracking DPS sweeper vehicles. The “live” tracker is updated every hour when sweepers are in use. The “historical” dashboard contains data since November 2016, so it can be filtered to show where sweepers were on a given day.

Why it’s important:

- Citizens can see if their street has been swept on a given day.
- DPS uses this visual as part of its promotion of the new sweeper schedule. Residents can verify that their street was swept on the appropriate day.
- DPS uses this visual to monitor sweeper truck performance.

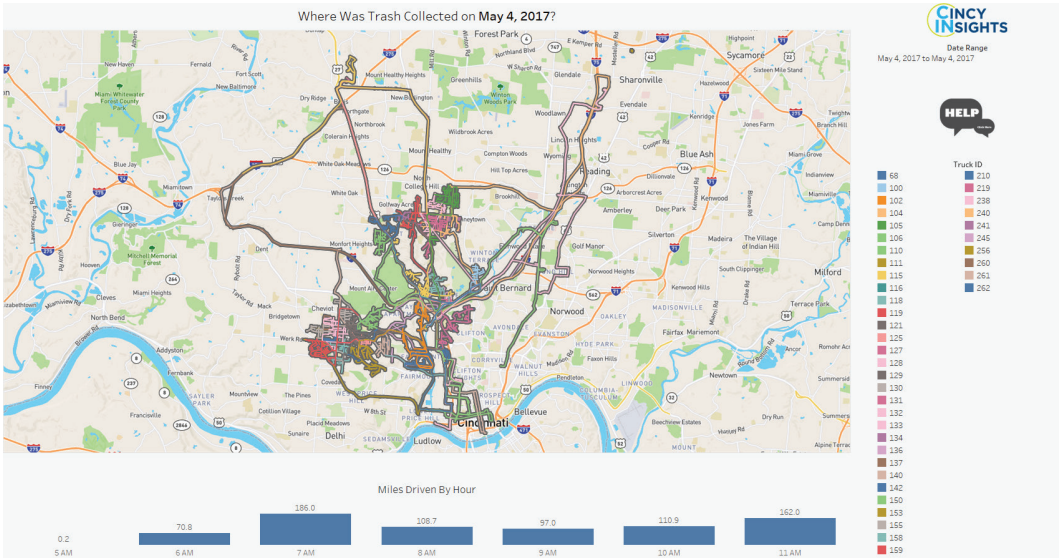


Trash Collection Routes

The Trash Collection page contains two visuals tracking DPS trash vehicles. The “live” tracker is updated every 30 minutes when trash trucks are in use. The “historical” dashboard contains data since November 2016, so it can be filtered to show where trash was collected on a given day.

Why it’s important:

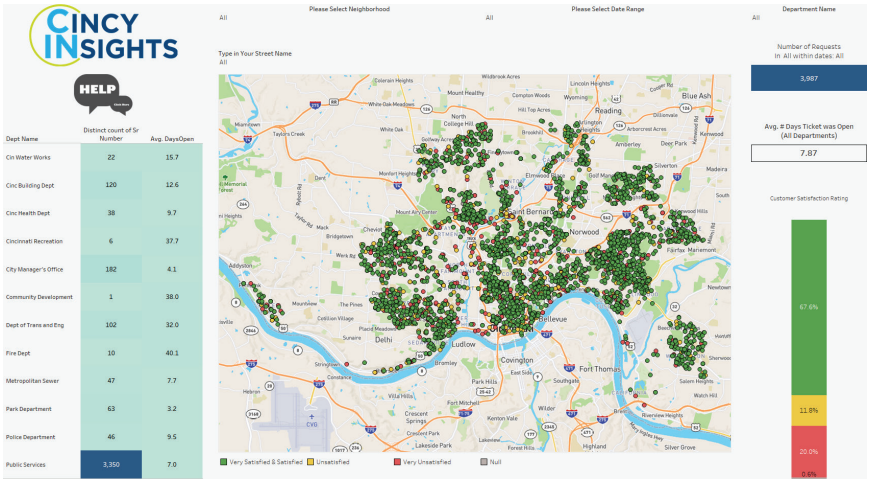
- Citizens can see if their trash was collected on a given day.
- DPS uses this visualization to monitor trash trucks.

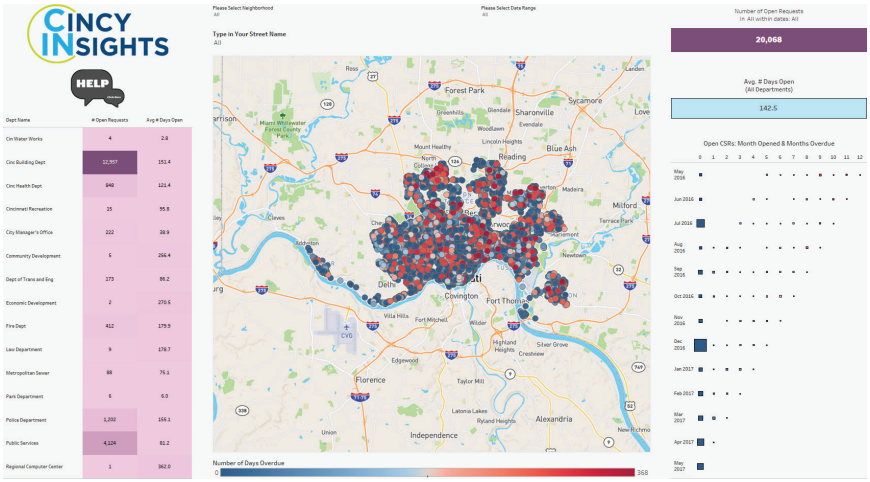


Innovative Government

Customer Service: Citizen Service Requests (CSR)

The CSR dashboards are updated daily to display information about service requests submitted through the Fix it Cincy mobile app, the customer service request online portal (591600.com) and hotline (591-6000). The first visual displays all currently open CSR tickets. It filters by neighborhood, City department, and date range to show the average number of days a ticket is open. The second visual shows citizen satisfaction on closed CSR tickets. When a CSR ticket is closed, the person who submitted the ticket receives a feedback survey.





Why it’s important:

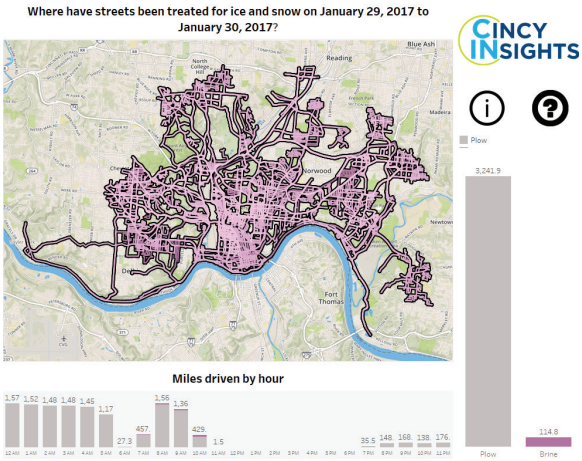
- Easily gauge citizen satisfaction with CSRs and City services.
- Offers the ability to compare how long it takes departments to close CSR tickets.

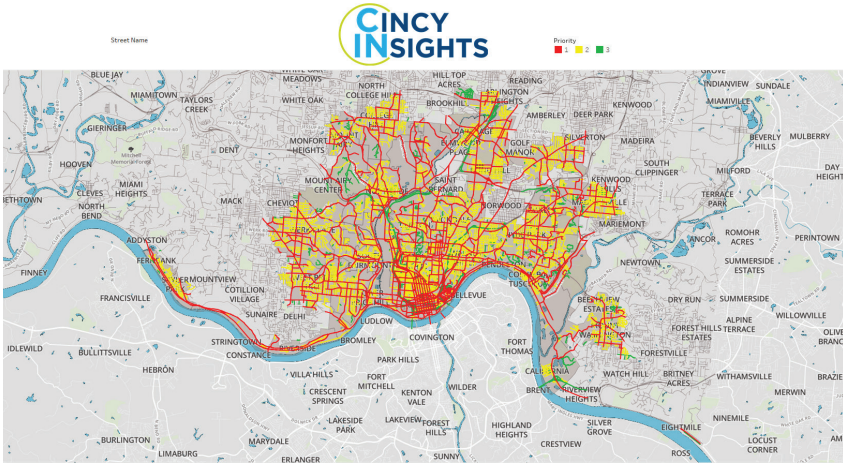
Snow Plow Tracker

The Snow Plow Tracker page contains three dashboards: “live” tracker, historical tracker, and snow priority routes. The “live” tracker is updated every 7 minutes during a winter weather event to show where the plow and brine trucks have been. The historical dashboard contains data for winter events since December 2016. The priority route map is static and offers information about how the City prioritizes streets during a winter weather event.

Why it’s important:

- Citizens can see when their street was plowed.
- DPS uses this visual to monitor plow trucks and review performance.





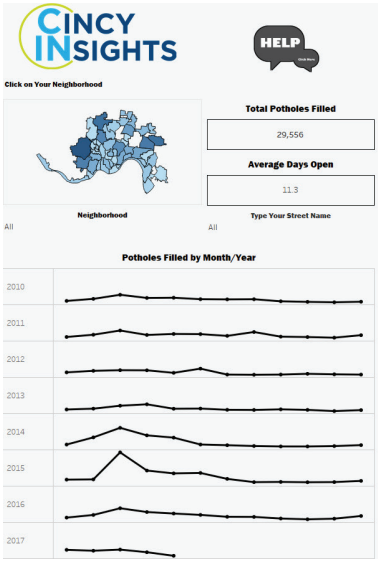
Fiscal Sustainability & Strategic Investment

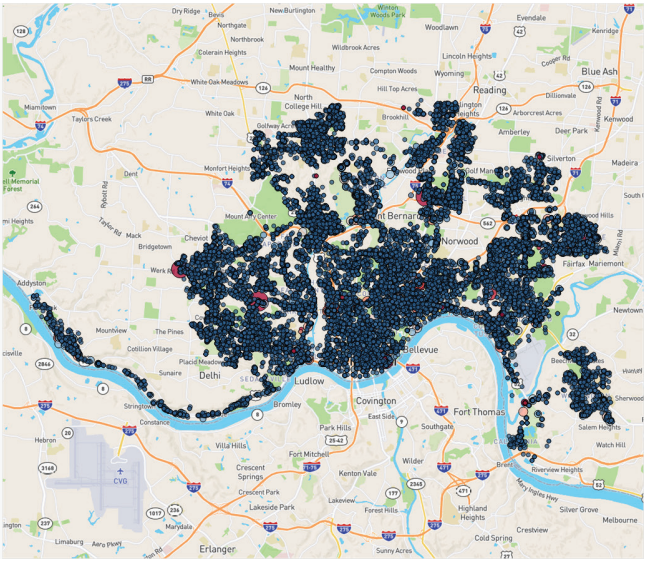
Streets: CSR Pothole Requests

The Pothole dashboard displays data for CSR for potholes submitted through the Fix it Cincy app, the customer service requests online portal and the telephone hotline.

Why it’s important:

- Allows users to easily compare the time to fill potholes between geographies, and over time.



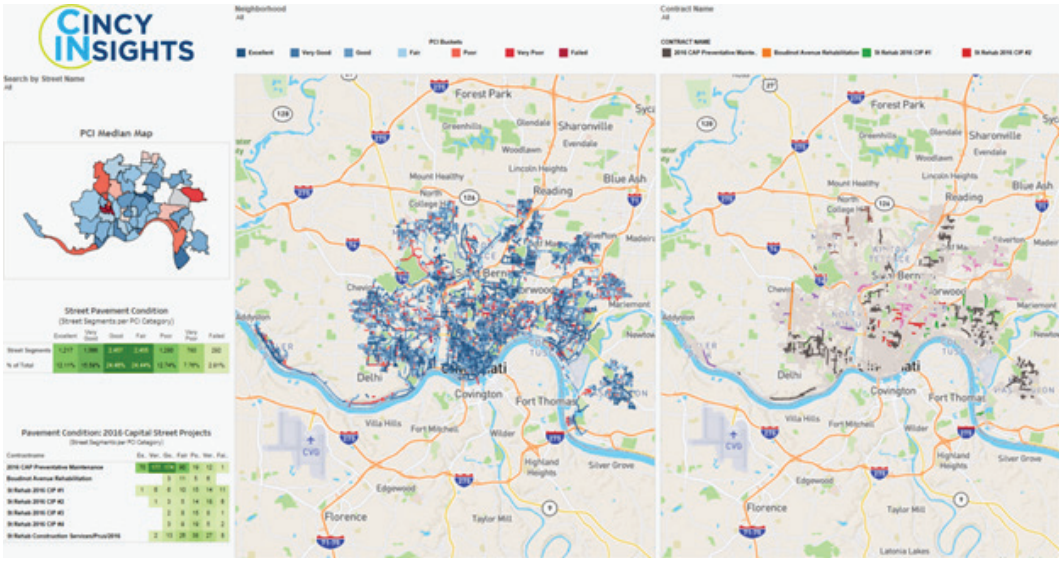


Streets: Pavement Condition & Street Rehabilitation

The maps in this visual display the Pavement Condition Index (PCI) and Capital Acceleration Plan (CAP) street rehabilitation contracts. The data used to create the street rehabilitation dashboard is updated monthly; the pavement condition of Cincinnati streets is evaluated annually.

Why it's important:

- This dashboard allows users to look up street condition, and see when roads will be paved.



Featured Insights

The Featured Insights page highlights data visuals made by members of the Cincinnati community. Data visuals can be submitted through a form on the Featured Insights page as a way to promote and share usage of Cincinnati-related data.

Why it's important:

- Community sourced visuals can provide interesting information and encourage people to engage with the data on CincyInsights and the Open Data Portal.