CITY OF
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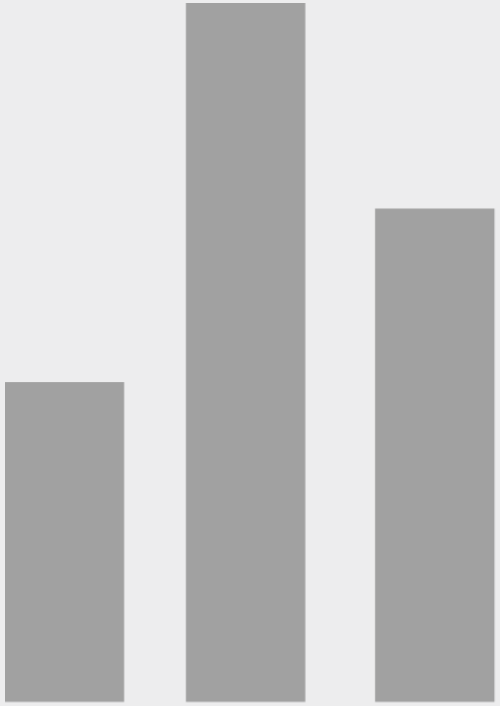

COV STAT

Outline

- ‘Stat’ Programs
- City of Covington Experience
  - CovStat
- Future Directions for Covington

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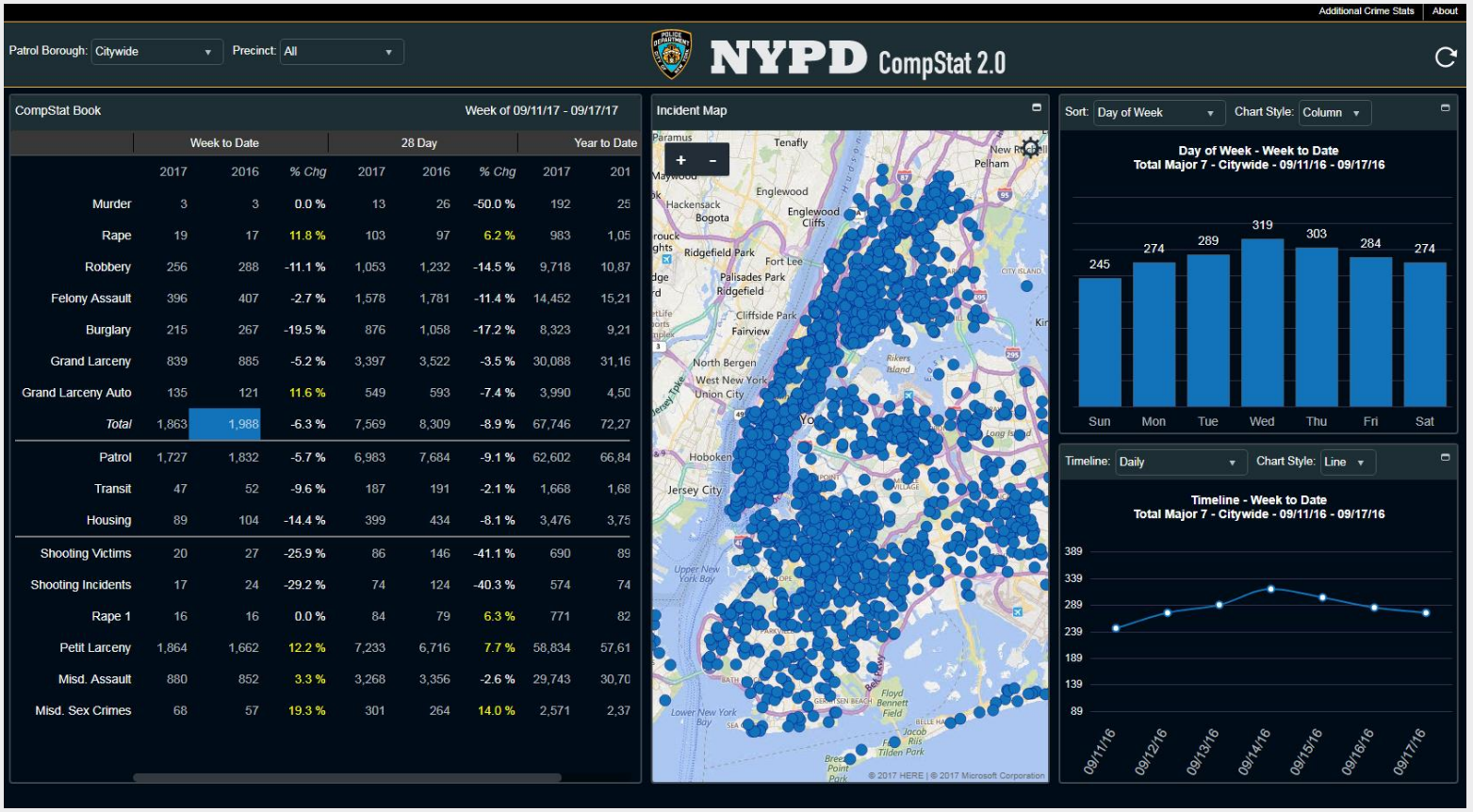
Stat Programs

- CompStat, early 1990s. NYC policing system (image below public facing tool)
- Identify problem areas, spot trends, efficient resource allocation
- **Goal:** Deploy resources to anticipate and prevent crime
- Charts, graphs, and maps visualize performance evaluation, enhance understanding, and ultimately empower a course of action



Stat Programs cont.

CitiStat

- **$760,327 operating budget FY 18**
- Baltimore: June 2000. Mayor Martin O-Malley
- https://citistat.baltimorecity.gov/
- Director, Deputy Director, Admin. Assistant, 3 Analysts

CincyStat

- **$711,410 operating budget FY 18**
- Cincinnati: May 2015. Mayor John Cranley
- http://www.cincinnati-oh.gov/manager/opda/about-leadership-contact/initiatives/cincy-stat/
- Chief Performance Officer, Chief Data Officer, Innovation Lab Manager, 3 Analysts, Interns

Stat Programs cont.

- Stat Meeting Structure
  - Regular performance meetings
  - Podium from which department head and agency staff address performance questions from panelists
  - Follow-Up meeting regarding actions taken on under performance
- **Goals:**

  (1). Promote accountability, transparency, and responsiveness

  (2). Promote efficient use of time, money, and resources

  (3). Make better decisions more quickly

  See John Hopkins University's Performance Management Getting Started Guide for 30 reasons to implement a Stat Program in your city.

CovStat

- Context for Implementation
- Performance Management Agreements
- Data Analytics and Data Management Model
- Tool Development
  - Predictive
  - Web applications
- Workflow Automation
- Department Examples
- Future Directions…

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CovStat

- Last strategic plan in 2007
  - Absent citywide strategic plan to accomplish vision
  - What does success look like?

- Bottom up approach
  - Cultural change surrounding data-driven decision-making
  - Helping managers get comfortable with talking about performance and establishing measurable priorities

THE SPIRIT OF PROGRESS 2016 VISION STATEMENT

Together, we will provide quality City services to enhance the health, safety and wellbeing of our citizens.

Together, we will strive for transparency and openness in our City government.

Together, we will become more efficient and effective in the internal operations of our City government.

Together, we will invest in our City, and its neighborhoods to improve livability for our youth, adults and senior citizens.

Together, we will promote cultural and recreational opportunities within our City.

Together, we will create a sustainability plan for our City.

Together, we will focus on attracting jobs, investment and economic growth throughout our City.

Together, we will strive to revitalize our City.

Together, we will promote a culture of inclusion, and will value the diversity of our citizens and our work force.

Together, we will strive to advance and to complete existing relevant City strategic plans and projects.

Together, we will strive for regional collaboration while championing our own unique identity.

CITY OF COVINGTON KENTUCKY

Performance Management Agreements

- Series of meetings with department and division management
- First kickoff meeting: June 27, 2016
- Following CincyStat's (City of Cincinnati) performance agreement structure

- **Objectives**
  - "make all work visible" – Lay-out department structure with a comprehensive list of goals and objectives, and measures.
  - Establish initial performance data to be collected, reported, and monitored.

- **Guiding Principles**
  - **Create a flexible and adaptable structure**. It is important that the process integrates with the management and decision making structure of the City.
  - **Align with current strategic planning**. As part of creating performance management agreements, it is important that the process aligns with current performance management and strategic planning already in place by the departments.

CITY OF COVINGTON KENTUCKY

Performance Management Agreements cont.

- **Components**
  - **Management Structure**. This section provides a detailed, visual overview of the department's management structure.
  - **Priorities.** This section identifies the priority initiatives and focus for the department.
  - **Anticipated Challenges**. This section identifies major fiscal or operational challenges.
  - **Department Goals and Objectives**. This section should represent a complete list of annual goals and objectives for the department.
  - **Performance Data**. This is the list of performance data that agencies will be expected to report to the office.

Guiding Principles

- **Create a flexible and adaptable structure**. It is important that the process integrates with the management and decision making structure of the City.
- **Align with current strategic planning**. As part of creating performance management agreements, it is important that the process aligns with current performance management and strategic planning already in place by the departments.

CITY OF COVINGTON KENTUCKY

Performance Management Agreements cont.

- **Notes on Performance Data**
  - **Measures should help with managing the organization.** Departments were instructed to think of these as the questions to regularly ask of the different sections of the department in order to monitor and manage operations**.**
  - **Start with what you have.** Agencies were guided to start with what data points they already have or could more easily obtain, and there were no set requirements for the number of measures. The appropriate amount of measures depends on the size, scope, and current state of the operation.
  - **Data should be reliable.** It is important that the there is a reliable methodology to regularly calculate the measure listed and to develop a methodology if it does not currently exist.
  - **De-emphasize targets.** The focus of the exercise was on expanding the scope of what performance data could and should be collected. Departments were instructed not to focus on creating or estimating targets.
  - **This is an iterative and ongoing process.** The set of measures published are not perfect and will never be complete. As the performance management conversation evolves, so will the measures that the departments track.

CITY OF COVINGTON KENTUCKY

Performance Management Agreements cont.

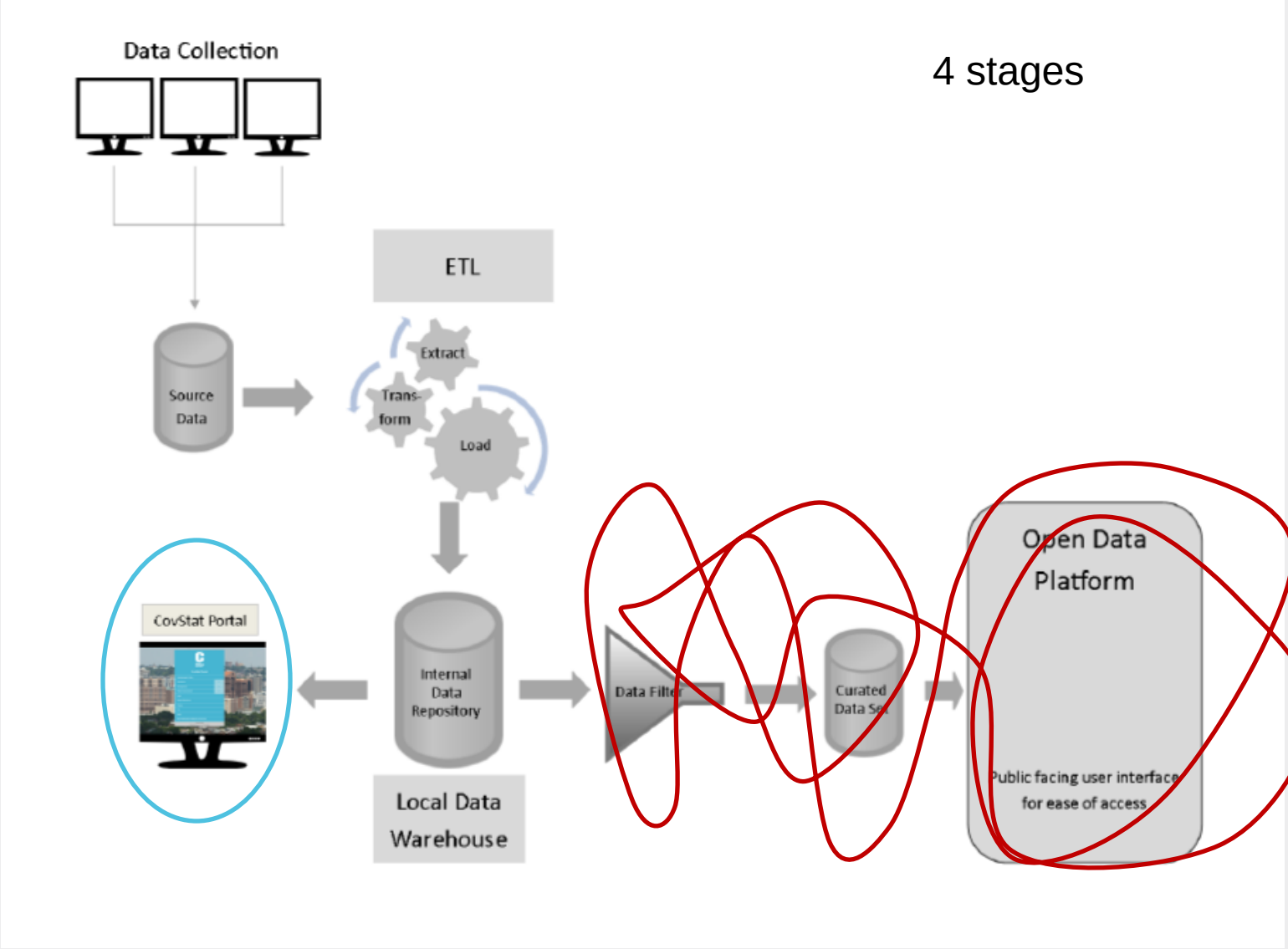
- **Status**
  - 37 performance goals
  - 115 performance measures identified

Dept./Division	# Goals	# Performance Measures
Police	4	13
Fire	4	20
Human Resources	4	9
Urban Forestry	3	10
Economic Development	5	12
Pre-Development	3	6
Community Development	3	8
Section 8	3	16
Solid Waste	4	8
Code Enforcement	4	13

Figure 2. Goals and measures
*Shaded areas have not been finalized

CITY OF COVINGTON KENTUCKY

Analytics and Data Management Model



Data Collection

- 13 externally maintained database systems
- Data silos is the greatest challenge
- Data collected in various formats (.txt, xls, .dbf, etc.)
  - Direct connections to some network-located files departments use for record keeping

Department	Database Systems / Provider
Development	Comcate; PDS; Salesforce; Tenmast; Xceligent
DPI	Lucity; FASTER
Finance	Springbrook; KVS
Fire	Firehouse; Intermedix; SafetyPad
Police	Kenton County; KyOPS; LERMS
Human Resources	Applicant Stack; KIME; Paycor

CITY OF COVINGTON KENTUCKY

Extract, Transform, Load (ETL)

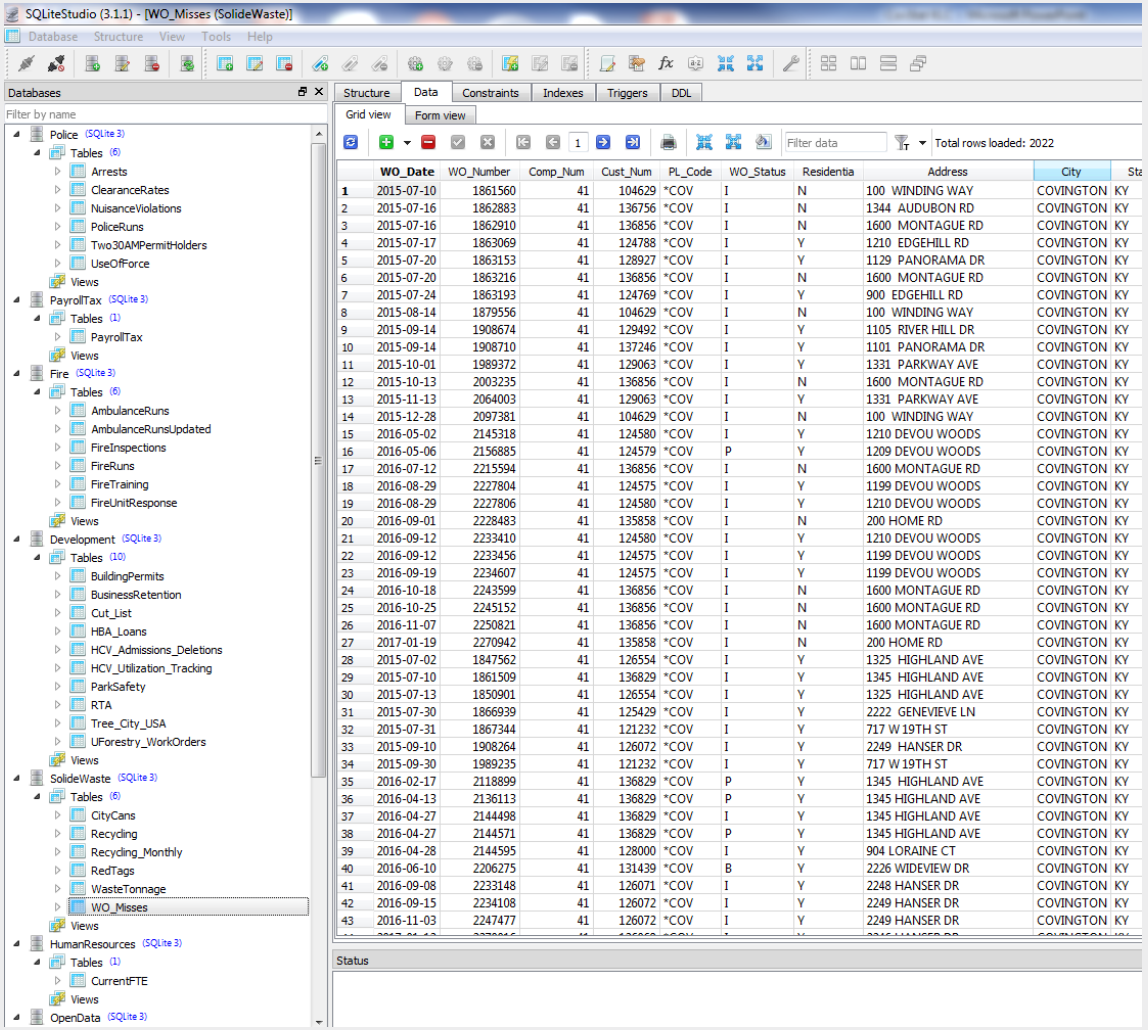
- R programming language (Rstudio code editor)
  - Process automation
  - Reproducible
- Load data extracted from departments record management systems
- Data transformations
- Load data into internal data repository

```r
### Update Quarterly ###
### Jan-Mar; Apr-June; Jul-Sept; Oct-Dec ###

setwd("U:/CityWide Performance/CovStat/CovStat Projects/Development/Economic Development/Building_Permits")

#cNames <- c("X1", "Jurisdiction", "Address", "Permit Number", "Issued Date", "Owner", "Type", "Application Date",
#           #"Value", "Count")

#Load newest update from PDS
update <- read.csv("Update.csv", header=TRUE, na.strings=c("", NA), stringsAsFactors = FALSE)

#Format value column to integer
update$Value <- as.integer(gsub("\\$|\\,|\\.\\d*", "", update$Value))

## Remove rows that are all NAs. CSV formatting might geenrate one of these-------
update <- update[complete.cases(update),]

#Within dataframe add new columns
update <- within(update, {
  State <- "KY"
  FullAddress <- paste(Address, Jurisdiction, State, sep = " ")
  Value <- as.numeric(Value)})

# Geocode location of permits
covstat_geocode <- function(df, address){
  coordinates <- geocode(address)
  df <- cbind(df, coordinates)

  # Add zero to NAs in lat and lon if geocode fails
  message(paste(sum(is.na(df$lat))), " rows with NAs found in lat and long columns", sep = " ")
    if(sum(is.na(df$lat > 0))){
      for (i in 1:length(df$lat)){
        if(is.na(df$lat[i]))
          df$lat[i] <- 0
      }
      for (i in 1:length(df$lon)){
        if(is.na(df$lon[i]))
          df$lon[i] <- 0
      }
    }
  df
}
update <- covstat_geocode(update, update$FullAddress)

# Create SpatialPointsDataFrame
covstat_cr8_SPpts <- function(dataframe,
                              crs = "+proj=longlat +datum=WGS84",
                              writeShpFile = FALSE,
                              path = NULL,
                              layerName = NULL){
  # Set spatial coordinates
  coordinates(dataframe) <- ~lon + lat
  ## Define Coordinate system for spatial points data.frame
  reference <- CRS(crs)
  proj4string(dataframe) <- reference

6:1  (Top Level)
```

CITY OF COVINGTON KENTUCKY

Local Data Warehouse

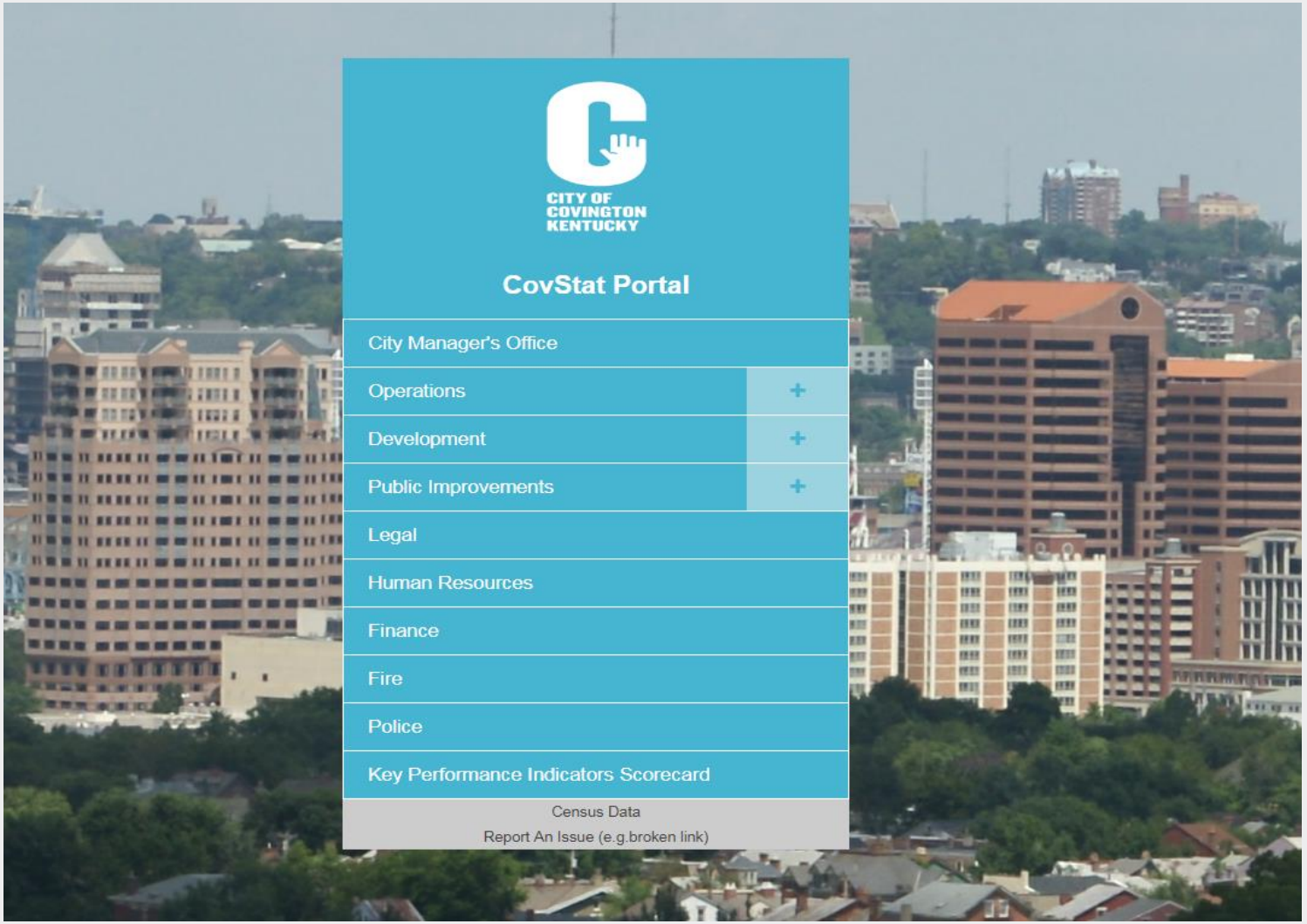
- SQLite database engine (SQLiteStudio database manager)
  - Potential shift to SQL Server for application development



CITY OF COVINGTON KENTUCKY

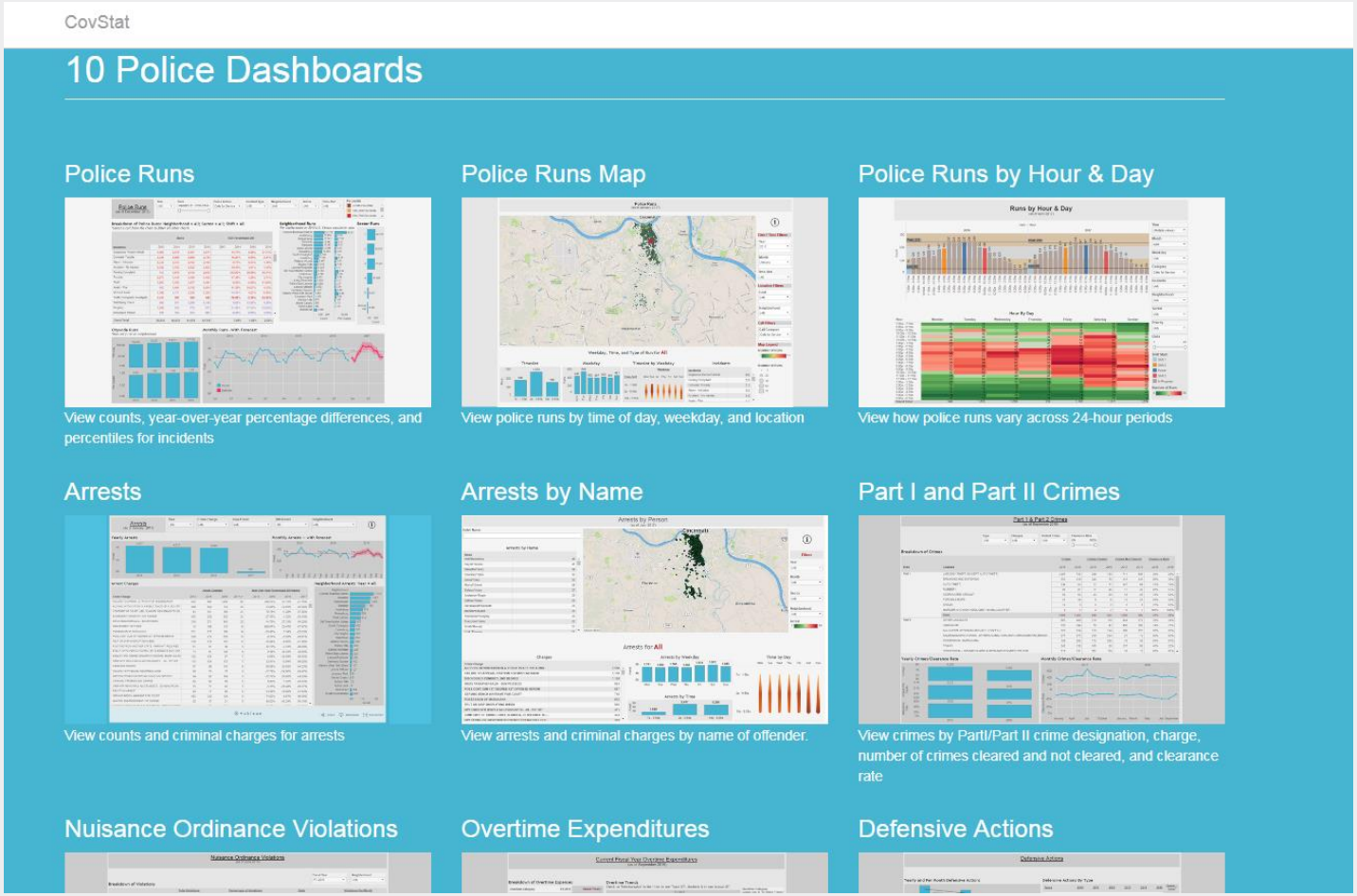
CovStat Portal

- Reporting hub
- Located on internal network



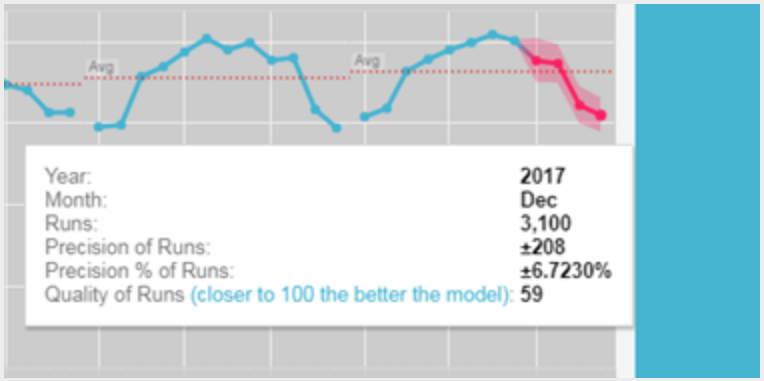
CovStat Portal

- Example: Police dashboard hub
- Dashboards created using Tableau Desktop (Tableau Public is free version)
  - Connections to local csv files
  - SQLite3 ODBC drive connection for tableau desktop

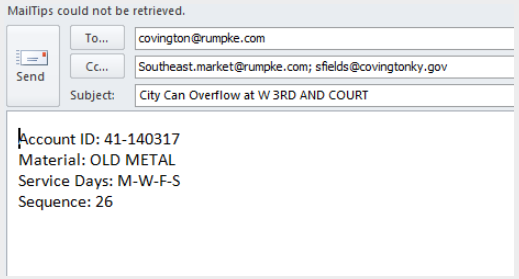


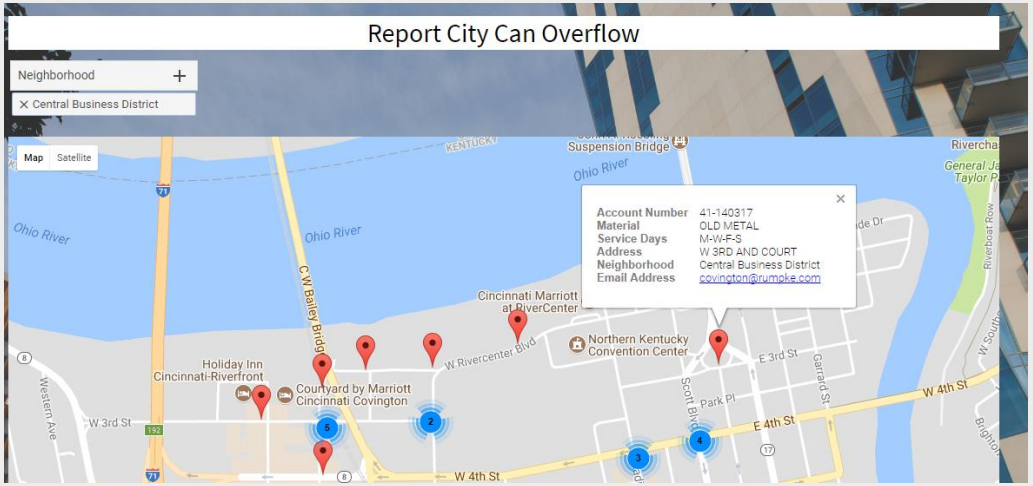
Tool Development

- Police calls for service prediction
  - Neighborhood, shift, patrol area

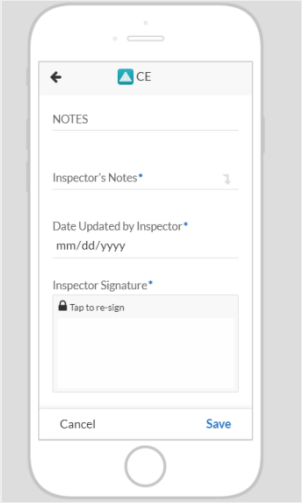


- Solid Waste City Can Tool





- Code Enforcement Vacant Property Updates



CITY OF COVINGTON KENTUCKY

Workflow Automation

- Green stickers for solid waste
- Good standing review
- City cut list

```r
library("xlsx")
library("tidyverse")
library("readxl")


load_excel_sheet <- function(fileName, sheetName, ...){
  # load file
  outName <- read_excel(fileName, sheet = sheetName, col_names = TRUE)
  # remove rows with all NA
  outName <- outName[rowSums(is.na(outName)) < 10,]
  # remove columns with all NA
  outName <- outName[, colSums(is.na(outName)) < nrow(outName)]
}

#load the file
create_list <- load_excel_sheet("O:/AllUsers/Vacant Property List/MasterVacantPropertyList.xlsx", "Property Listing")

#add additional columns
create_list <- within(create_list, {
  `Cut List Comments 2017` <- ""
  `<30` <- ""
  `>30` <- ""
  `Cut Date` <- ""
})

# keep only records that are on the cut list; change order, and capitalize names``
reduce_list <- function(x){
  names(x)[6] <- "Code"
  x <- subset(x, `City Cut List` != "X" | x$`City Cut List` != "")
  x <- x[, c(6, 7, 1, 2, 3, 8, 18:21)]
  x[is.na(x)] <- ""
  names(x) <- toupper(names(x))
  x <- x[with(x,order(STREET, `#`)),]
  return(as.data.frame(x))
}
create_list <- reduce_list(create_list)

write.xlsx(create_list, "O:/AllUsers/Vacant Property List/Cut List ToddSeptember20.xlsx",
           sheetName = "Property Listing",
           row.names = FALSE)

write.xlsx(create_list, "I:/Property list Mike Yeager all Files/Cut List 2017/Cut List Todd September20.xlsx",
          sheetName = "Property Listing",
          row.names = FALSE)

```

- Ad Hoc Requests
  - EX: Remove duplicate emails from list of several hundred emails

CITY OF COVINGTON KENTUCKY

Department Examples

- Police
- Fire
- Solid Waste & Recycling
- Housing Choice Voucher Program

CITY OF
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Police Department

- Goals/Objectives

GOALS/OBJECTIVES

1. Ensure Safety in Public Spaces
2. Provide Excellent Customer Service
3. Hold Offenders to Account
4. Use Force Effectively and Efficiently

Measure	Goal #
A. Fatal traffic accidents per capita	1
B. DUI arrests per capita	1
C. Citizen rating of safety in their neighborhood during day and after dark	1
D. Citizen rating of safety in business areas during day and after dark	1
E. Average time from top priority call dispatch to arrival on scene	1,2
F. Dollars invested in training per FTE.	1,2
G. Citizen rating of quality of contact with police	1,2
H. Percentage of violent crimes cleared	1,2,3
I. Number of charges handed down	1,2,3
J. Percentage of incident calls involving a gun	1,2,3
K. Percentage of arrests involving a gun	1,2,3
L. Percentage of arrests involving force	2,4
M. Percentage of arrests involving force resulting in suspect injury	2,4

CITY OF COVINGTON KENTUCKY

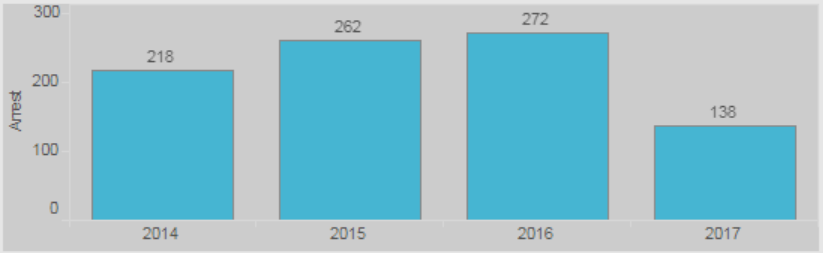
Police Department

- DUI Arrests

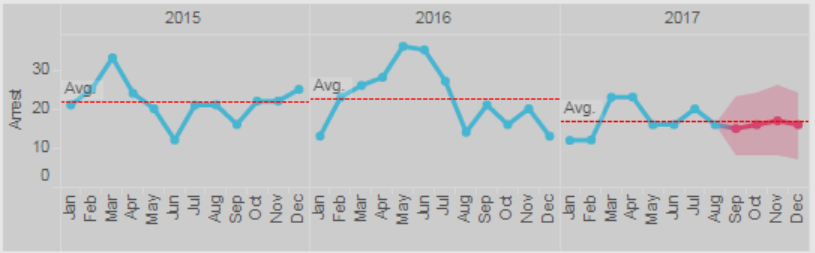
Arrests
(as of previous month)

Year	Crime Charge	Gun Arrest	DUI Arrest	Neighborhood
(All)	(All)	(All)	YES	(All)

Yearly Arrests



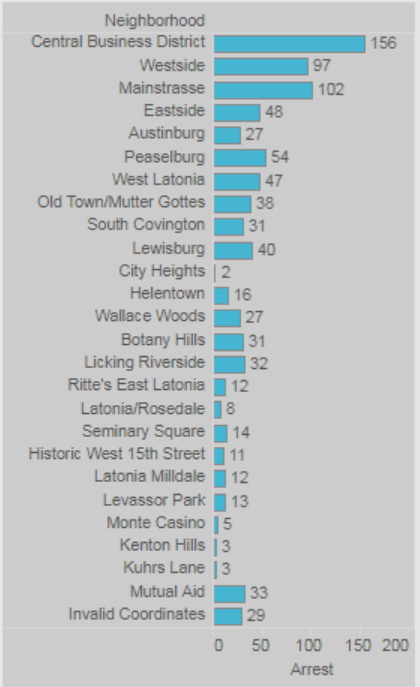
Monthly Arrests -- with forecast



Arrest Charges

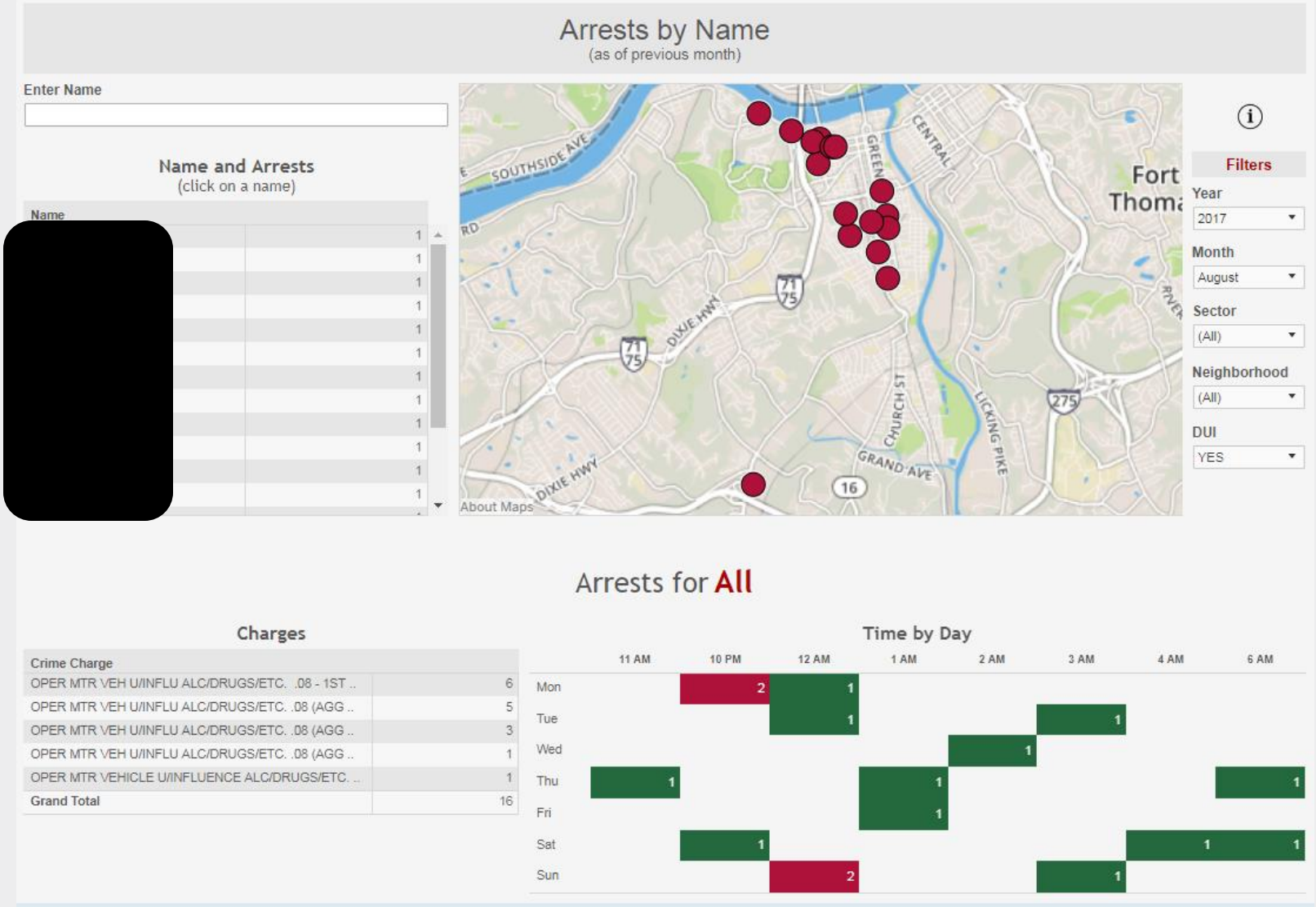
	Arrest Charges				Year Over Year Percentage Difference			
Crime Charge	2014	2015	2016	2017	2014	2015	2016	2017
OPER MTR VEH U/INFLU ALC/DRUGS/ETC. .08 - 1ST OFF	115.0	154.0	175.0	95.0		33.91%	13.64%	-45.71%
OPER MTR VEH U/INFLU ALC/DRUGS/ETC. .08 (AGG CIRCUM) ..	75.0	71.0	43.0	25.0		-5.33%	-39.44%	-41.86%
OPER MTR VEH U/INFLU ALC/DRUGS/ETC. .08 (AGG CIRCUM)...	10.0	14.0	31.0	10.0		40.00%	121.43%	-67.74%
OPER MTR VEH U/INFLU ALC/DRUGS/ETC. .08 - 2ND	15.0	16.0	15.0	3.0		6.67%	-6.25%	-80.00%
OPER MTR VEH U/INFLU ALC/DRUGS/ETC. .08 (AGG CIRCUM) ..	3.0	5.0	6.0	1.0		66.67%	20.00%	-83.33%
OPER MTR VEH U/INFLU ALC/DRUGS/ETC. .08 (AGG CIRCUM) ..				1.0				
OPER MTR VEH U/INFLU ALC/DRUGS/ETC. .08 (AGG CIRCUM) ..		2.0	1.0	1.0			-50.00%	0.00%
OPER MTR VEH U/INFLU ALC/DRUGS/ETC. .08 4TH OR >			1.0	1.0				0.00%
OPER MTR VEHICLE U/INFLUENCE ALC/DRUGS/ETC. .08 - 2ND..				1.0				
OPER MTR VEH U/INFLU ALC/DRUGS/ETC. .08 - 3RD	2.0	1.0				-50.00%	-100.00%	
Grand Total	220.0	263.0	272.0	138.0		19.55%	3.42%	-49.26%

Neighborhood Arrests: Year = All



Police Department

- DUI Arrests cont.



Police Department

- Violent Crimes

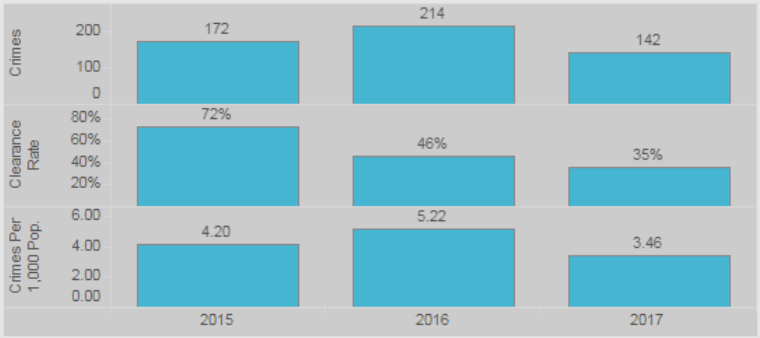
Part 1 & Part 2 Crimes
(as of previous month)

Year	Date	Type	Charges	Violent Crime	Clearance Rate
(All)	1/31/2015 – 8/31/2017	(All)	(All)	(Multiple values)	0% – 100%

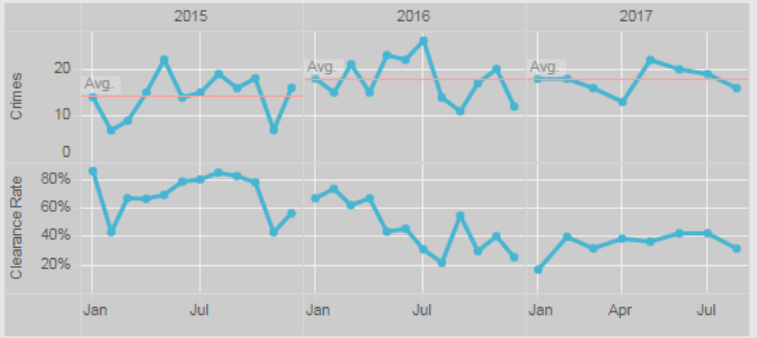
Breakdown of Crimes

		Crimes			Crimes Cleared			Crimes Not Cleared			Clearance Rate		
Type	Charges	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017
Part I	AGGRAVATED ASSAULT	59.0	73.0	63.0	43.5	39.1	29.8	16	34	33	74%	54%	47%
	FORCIBLE RAPE	21.0	34.0	20.0	6.0	7.0	1.0	15	27	19	29%	21%	5%
	MURDER AND NON-NEGLIGENT MANSLAUGHTER	4.0	2.0	1.0	4.0	2.0	0.0	0	0	1	100%	100%	0%
	ROBBERY	88.0	105.0	58.0	71.2	51.1	19.0	17	54	39	81%	49%	33%
	Total	172.0	214.0	142.0	124.7	99.3	49.8	47	115	92	72%	46%	35%
Grand Total		172.0	214.0	142.0	124.7	99.3	49.8	47	115	92	72%	46%	35%

Yearly Crimes/Clearance Rate



Monthly Crimes/Clearance Rate



Fire Department

- Goals/Objectives

Goals/Objectives

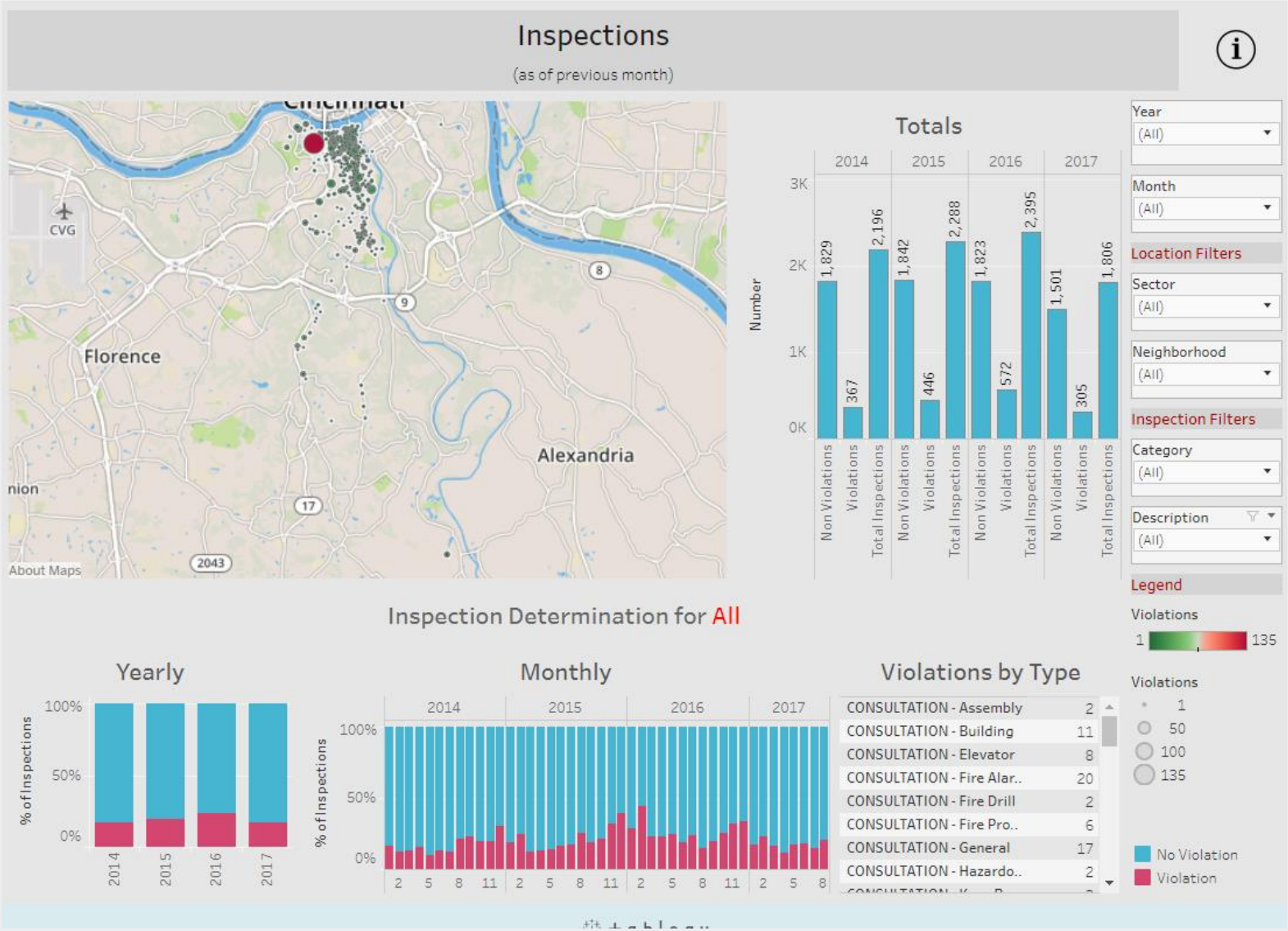
1. Minimize Loss of Life and Property
2. Respond to Emergency Events Effectively and Efficiently
3. Meet National Fire Protection Association (NFPA) Performance Standards
4. Provide Excellent Customer Service

Measure	Goal #
A. Residential structure fire incidents per 1,000 population	1
B. EMS responses per 1,000 population	1
C. Percentage of structure fires confined to object/room	1
D. Percentage of structure fires confined to floor/building	1
E. Percentage of structure fires NOT confined to building of origin	1
F. Number of inspections completed	1
G. Percentage of inspections completed that result in violation	1
H. Percentage of inspection violations that are remedied	1
I. Personnel injuries w/time lost per 1,000 incidents	1,2
J. False alarms resulting from system/detector malfunction as a percentage of false alarms	1,2
K. Ambulance response times (enroute to on location; dispatch to on location; on location to hospital; dispatch to in service)	1,2
L. Emergency alarm processing time for fire/ems events (dispatch to alarm/enroute)	1,2,3
M. Response time of effective firefighting force from alarm to arrival	1,2,3
N. Response time of first arriving engine from alarm to arrival	1,2,3
O. Training classes attended by personnel	1,2,4
P. Number of hours spent in training by personnel	1,2,4
Q. Dollars invested in training per FTE	1,2,4
R. Number of school children educated about fire safety/prevention	1,4
S. Citizen rating of fire service quality	1,4
T. Citizen rating of EMS service quality	1,4

CITY OF COVINGTON KENTUCKY

Fire Department

- Fire inspections



Fire Department

- Engine response times

Response Times for Engine Units to Fire Incidents by Neighborhood, Day, and Incident Number
(as of previous month)

Note: Response times are from notification to arrival.

Year	Month	Sector	Neighborhood	Fire Description	Fire Run Description	Response Time (notification to arrival)
2017	August	(All)	(All)	(All)	(All)	2.13 – 21.22

Response Time By Incident: August 2017

Inci No	Year of Alm Date	Day of Alm Date	Sector	Neighborhoods	Fire Run Description	Unit				
						P2	P5	P6	P8	T7
17-0006967	2017	August 1, 2017	CF6B	Westside	Outside rubbish, trash or waste fire			6.22		
17-0007119	2017	August 5, 2017	CF2A	Central Business District	Passenger vehicle fire	8.85		9.38		
17-0007139	2017	August 5, 2017	CF1A	Central Business District	Natural vegetation fire, Other	6.67				
17-0007170	2017	August 6, 2017	CF8A	West Latonia	Outside rubbish, trash or waste fire			13.90		17.92
17-0007279	2017	August 9, 2017	CF8D	Latonia/Rosedale	Building fire	7.90	20.53	8.78	6.52	4.42
17-0007283	2017	August 9, 2017	CF2A	Botany Hills	Outside rubbish, trash or waste fire	12.08				
17-0007311	2017	August 10, 2017	CF1B	Eastside	Cooking fire, confined to container	3.08		4.05	7.50	
17-0007419	2017	August 14, 2017	CF1B	Eastside	Cooking fire, confined to container	2.38		3.32	6.88	
17-0007500	2017	August 17, 2017	CF8E	South Covington	Mobile property (vehicle) fire, Other				8.10	
17-0007620	2017	August 21, 2017	Mutual Aid	Mutual Aid	Cooking fire, confined to container				6.13	
17-0007622	2017	August 21, 2017	CF6D	Peaselburg	Cooking fire, confined to container	7.08		7.02		
17-0007695	2017	August 23, 2017	CF1B	Eastside	Building fire	21.22		4.65	21.17	6.03
17-0007747	2017	August 24, 2017	CF2A	Botany Hills	Outside rubbish, trash or waste fire	8.42				
17-0007804	2017	August 27, 2017	CF1B	Eastside	Building fire	7.43		3.13	7.60	2.13
Total Average						8.51	20.53	6.72	9.13	7.63

CITY OF COVINGTON KENTUCKY

Solid Waste & Recycling

- Goals/Objectives

GOALS/OBJECTIVES

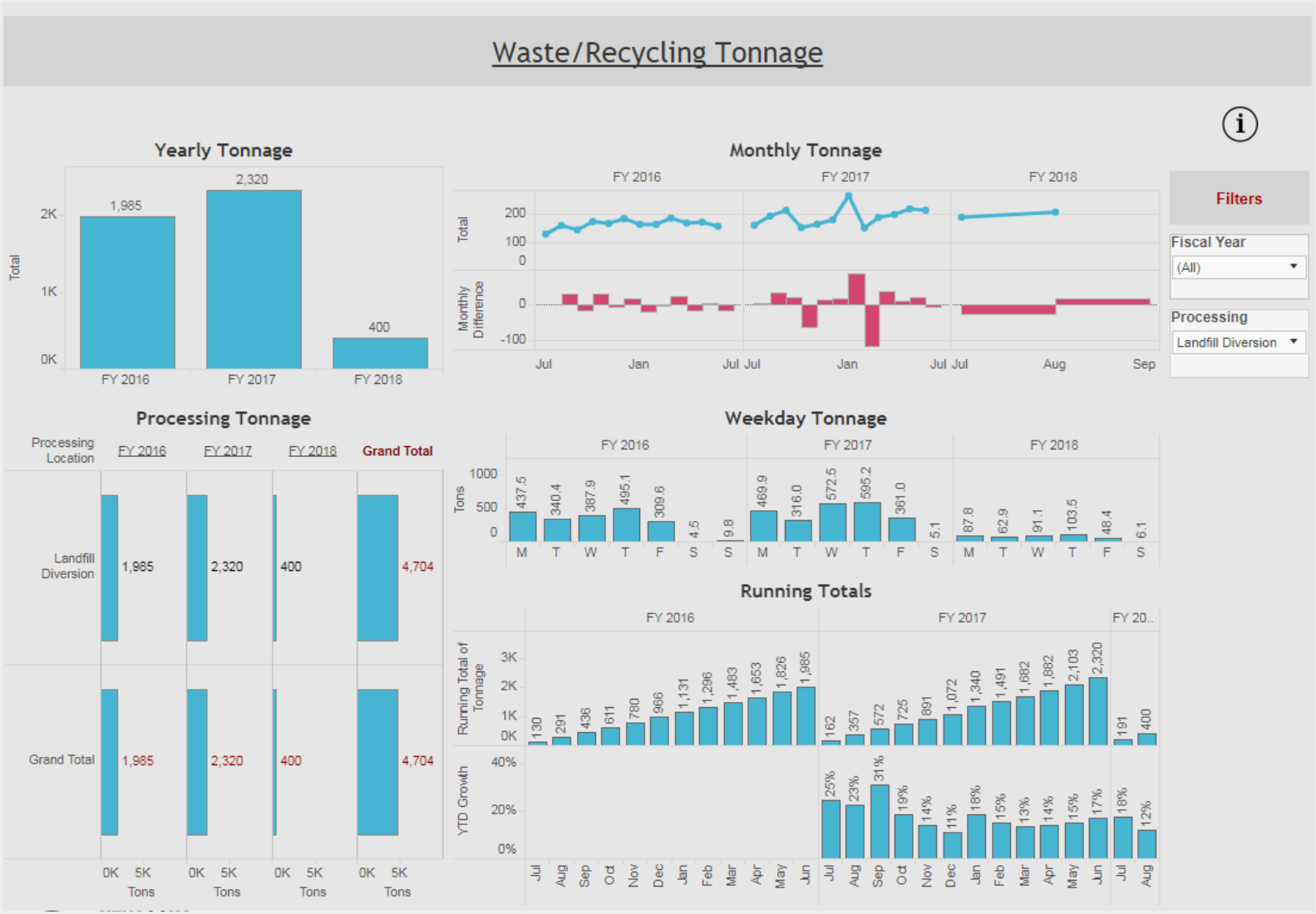
1. Maintain Public Health and Safety
2. Protect the Beauty of Covington's Streets
3. Reduce the Waste Stream
4. Hold Rumpke Accountable as a Waste/Recycling Service Provider

Measure	Goal #
Number of red tag set outs	1, 2
Total waste tonnage produced	3
Daily waste tonnage produced	3
Total recycling tonnage produced	3
Daily recycling tonnage produced	3
Number of recycling accounts	3
Total service stop misses	4
Daily service stop misses	4

CITY OF COVINGTON KENTUCKY

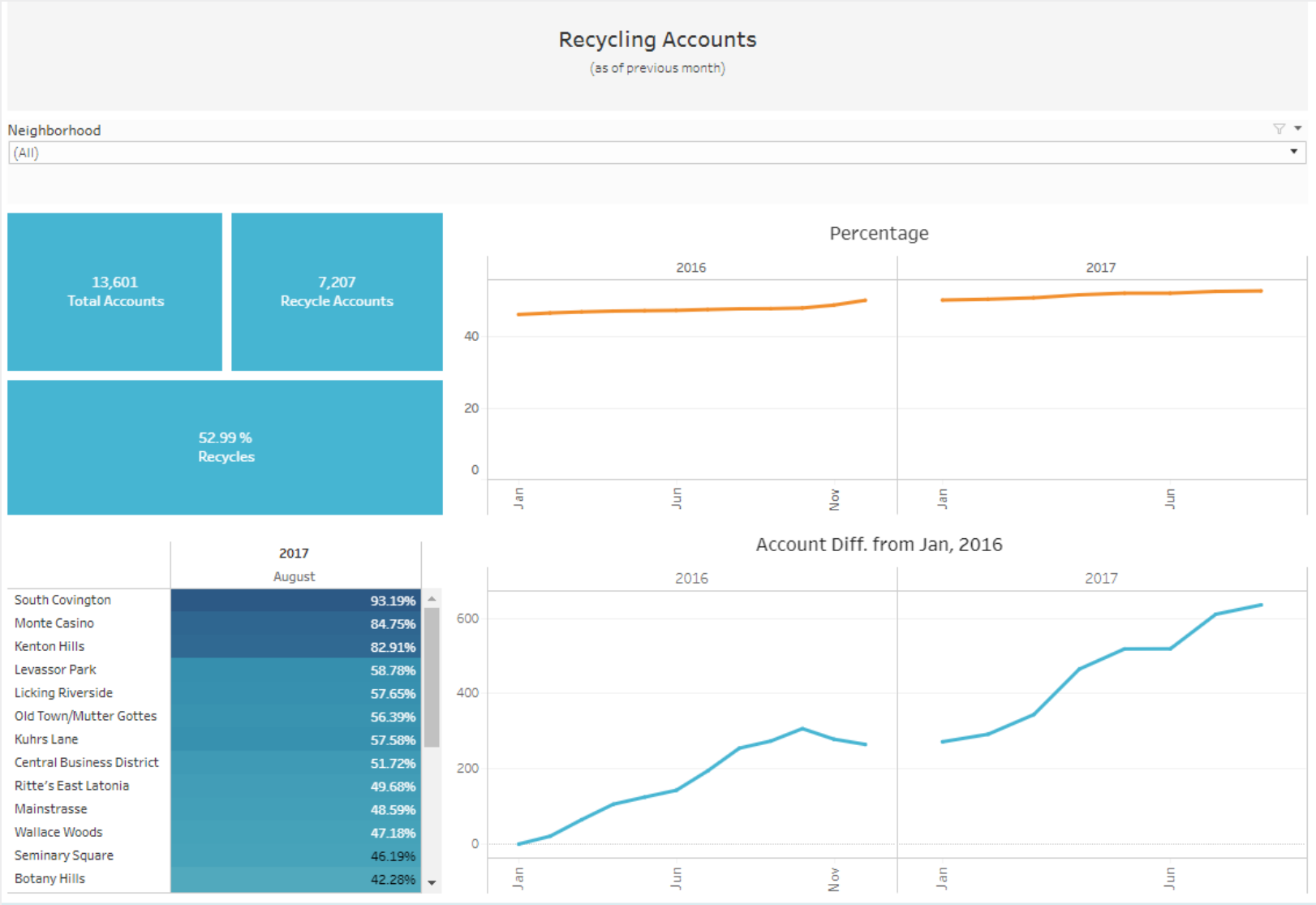
Solid Waste & Recycling

- Recycling tonnage



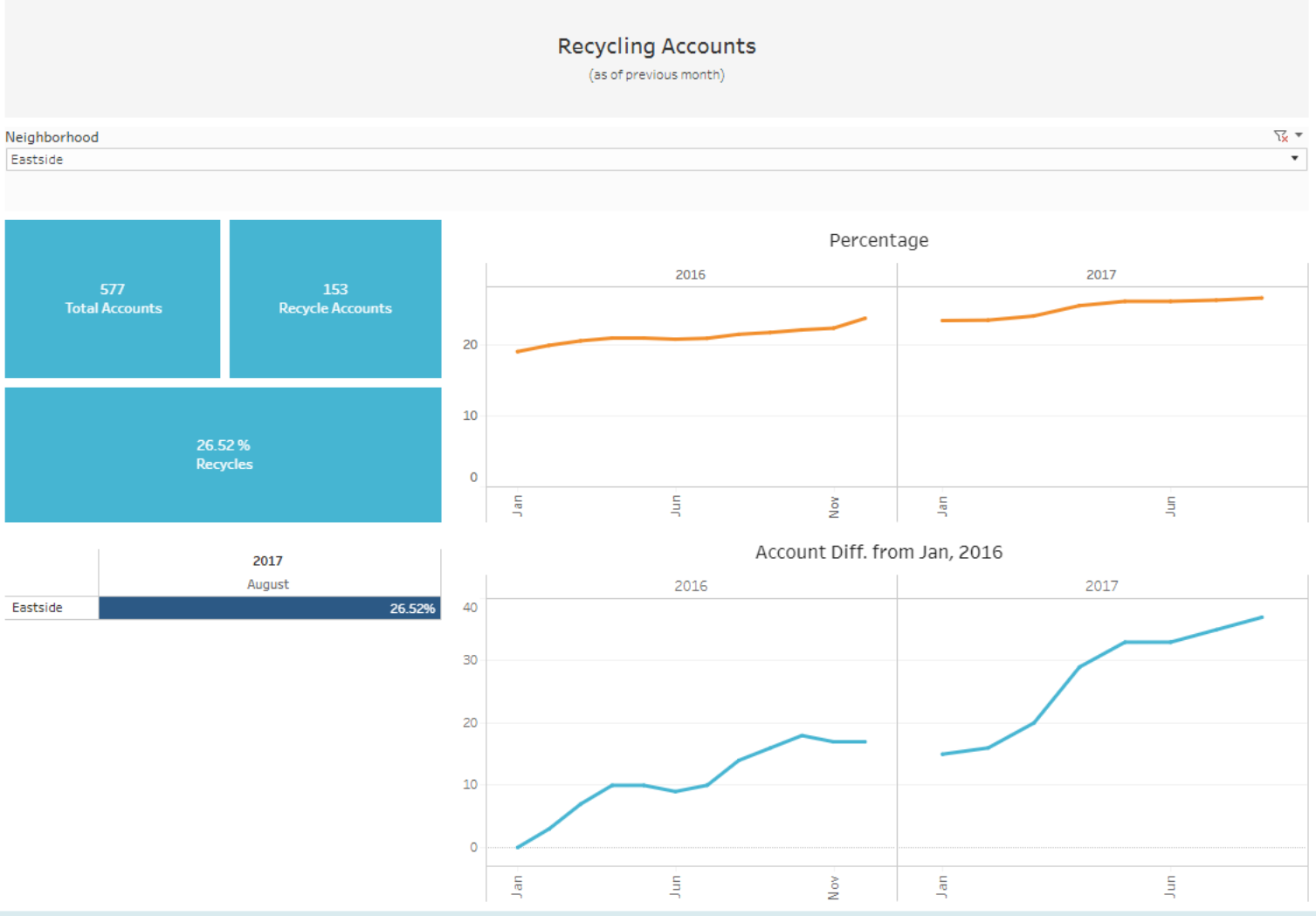
Solid Waste & Recycling

- Recycling accounts



Solid Waste & Recycling

- Recycling accounts Eastside
- Change in recycling accounts from 19% to 27% (+37 accounts)



Housing Choice Voucher

- Goals/Objectives

GOALS/OBJECTIVES

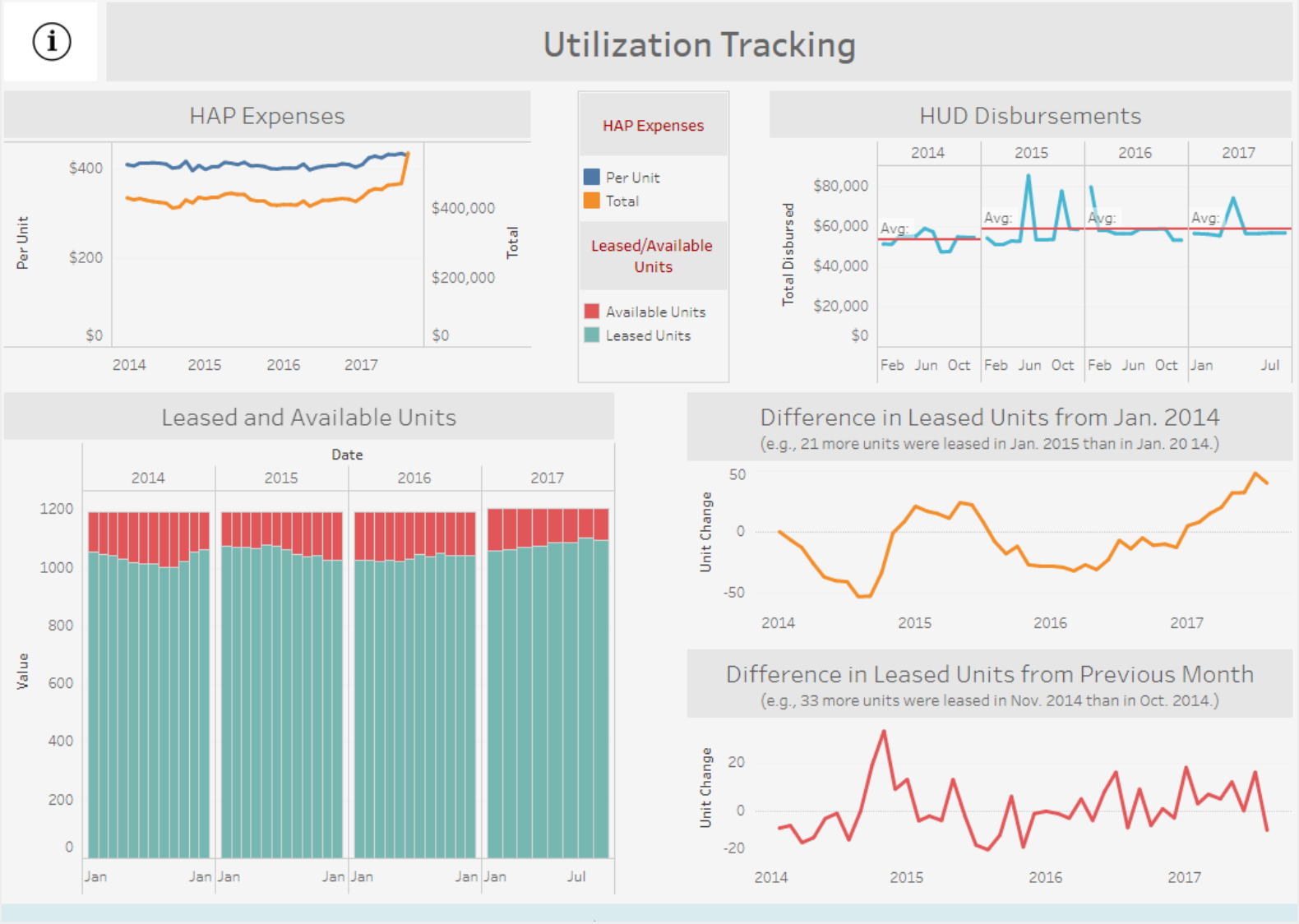
1. Assist eligible elderly, disabled, or very-low income households obtain decent, safe, and sanitary housing
2. Assist eligible households in a timely and efficient manner
3. Maintain compliance with the U.S. Department of Housing and Urban Development

Measure	Goal #
Number of people under lease on first day of month	1
Number of people leaving the program each month	1
Total housing assistance payment expenses	1
Housing assistance payment per unit cost	1
Total housing assistance payment revenues	1
Percentage of Housing Quality Standards inspections that pass and fail	1
Number of police calls for service and code violations at properties	1
Days from Rec'd RTA in office to good standing review	2
Days from Rec'd RTA in office to forwarded to service rep	2
Days from good standing review to forwarded to service rep	2
Days from forwarded to service rep to forwarded to inspector	2
Days from forwarded to inspector to 1st inspection scheduled	2
Days from 1st inspection scheduled to pass date	2
Days from pass date to lease date	2
Days from Rec'd RTA in office to Lease date	2
Days from RTA in office to 1st inspection scheduled (within 14 days is HUD standard)	3

CITY OF COVINGTON KENTUCKY

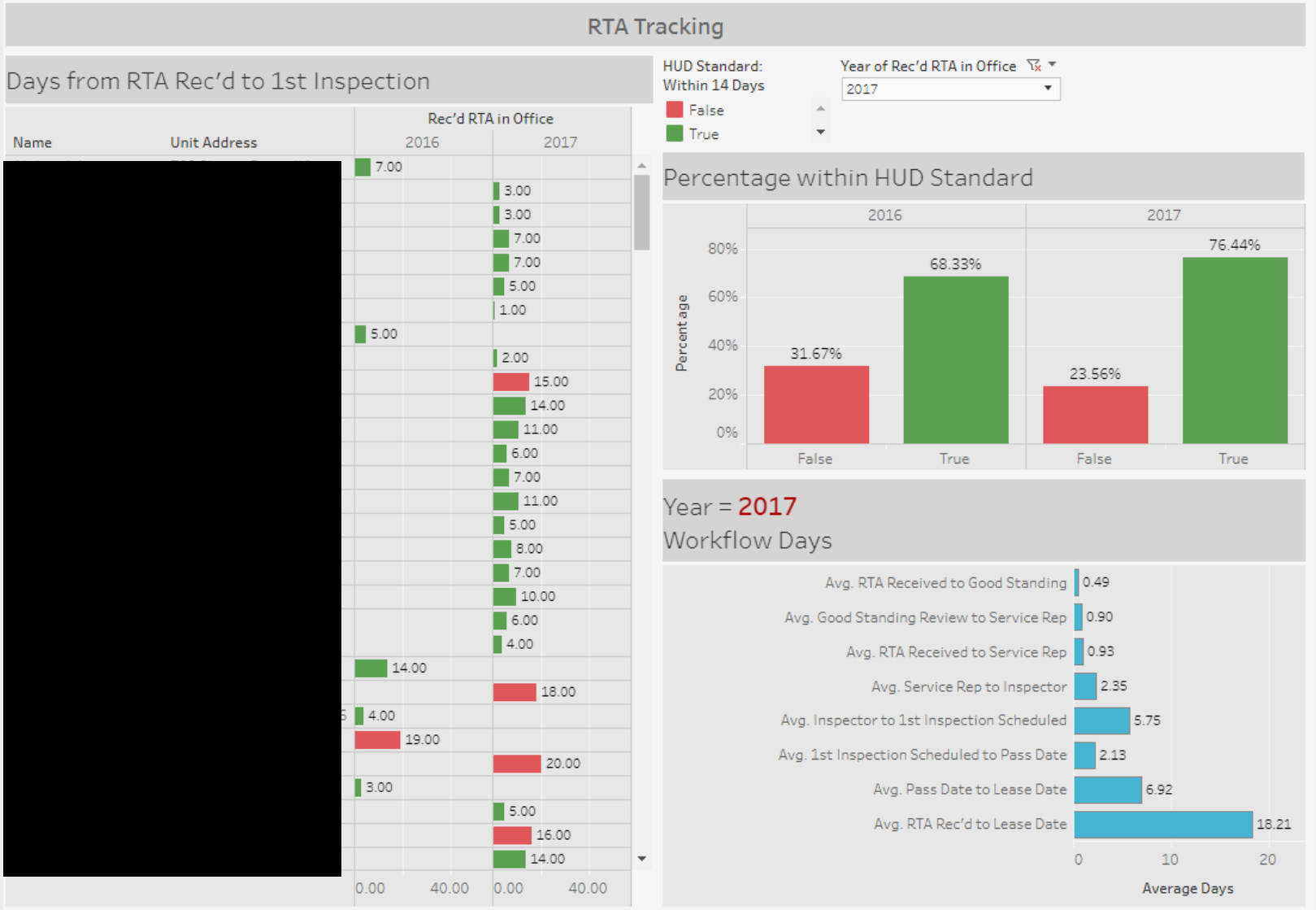
Housing Choice Voucher

- Utilization tracking



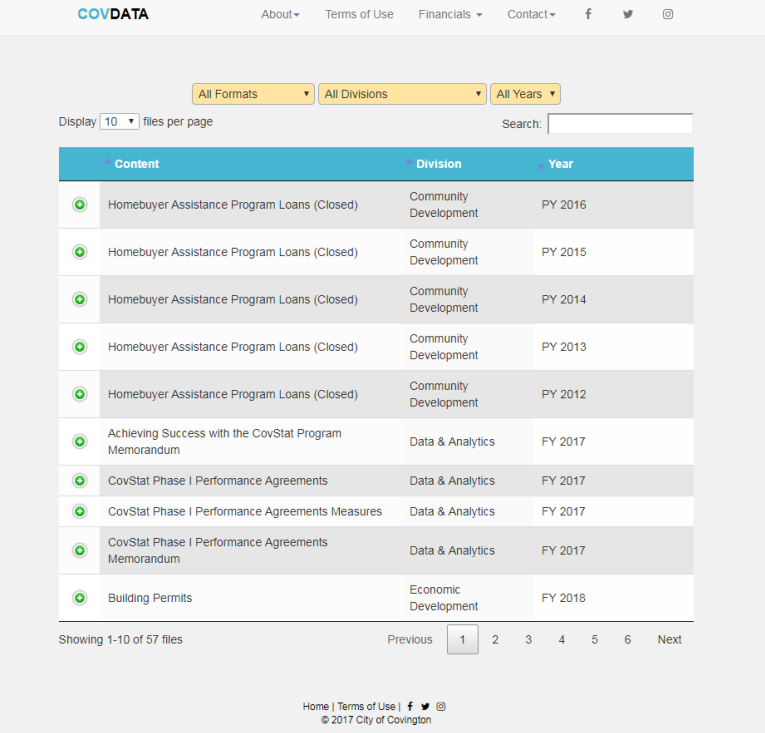
Housing Choice Voucher

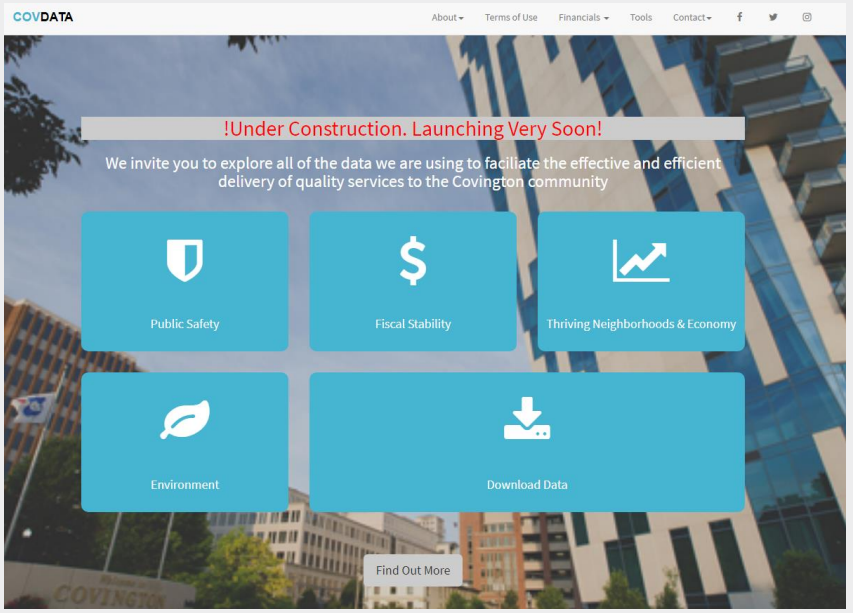
- Request for tenancy approval (RTA) tracking



Future Directions

- OpenData Portal





- Citywide Priorities
- CovStat Forum

CITY OF COVINGTON KENTUCKY

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