

APD Calls for Service Analysis

Reimagining Public Safety Task Force
November 5, 2020



“Analysis of calls for service data provides a huge and largely untapped opportunity for researchers and practitioners to inform and transform policy and practice.”

- Vera Institute of Justice, July 2019

[The 911 Call Processing System: A Review of the Literature as it Relates to Policing](#)



Key areas of opportunity

Deep dive into specific initial and updated call problems

Inform a pilot of alternate responses

Strengthen data collection and analysis ***

*** key challenges - Regional governance through Capital Area Council of Governments ([Feb 2020 City Auditor report](#)). Key important “muscle” memory developed by call takers and dispatcher.

Agenda

1. Data analysis project plan & progress
2. About Calls for Service data
3. Insights & dashboards
- 4.

Appendix - references, definitions, and extra dashboards

Analysis goals

Get as clear a picture of our local reality as possible.

As much as possible, work to create a transparent, jointly held understanding of how the calls for service data works.

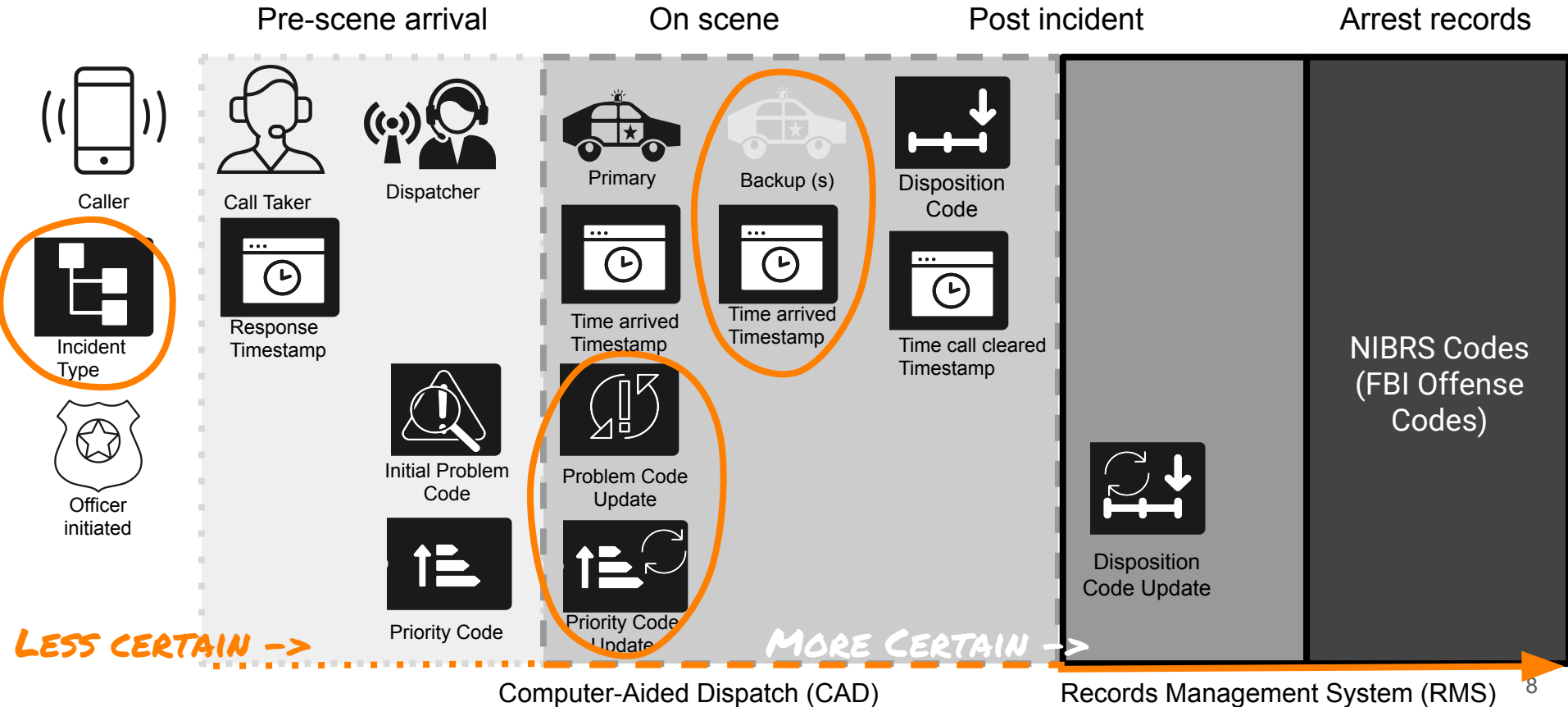
Set up dashboards to assist the Austin community answer their lines of inquiry as we co-creatively reimagine public safety.

What we've done from Aug 6 to today

1. ✓ Extending the dashboards to longer time horizons
2. ✓ (**some**) Call problem transformation - continue w/ RMS data
3. ✓ (**some**) Call outcomes - continue w/ RMS data
4. ✓ (**some**) False Alarm - continue analysis; consider how modeling and prediction can help
5. 🟡 (in progress) Location based analysis
6. 🟡 (in progress) Gentrification maps and calls for service correlation
7. ✓ Incident-level analysis - range of officer count per incident/ range in types of incidents.
8. Journey maps - a day in the life of an officer responding to calls
9. Open Data - Dallas and San Antonio each have slightly different representation of calls for service data in their open data portal

About the data

Process + data from an administratively-built system with data reliability issues, where problem definition certainty changes over time



Key lessons

Calls for service involve situational ambiguity.

Data elements from the Computer-Aided Dispatch (CAD) system were not designed with analysis in mind, creating significant data variability and reliability issues.

It is easy to first look at high volumes, but there is also a long tail of small volume, diverse problem categories that may have high importance.

“Report Written” from the CAD system is not a complete proxy for crime. (2019 CAD data showed 121k incidents with the “Report Written” disposition code. 2019 Crime Report data showed 107k incidents, amongst which we found 4000 records matching CAD records identified as “No Report Written.”)

A complete outcome analysis requires working backwards from the Records Management System (RMS) and connect to CAD data, cleaning and matching data.

Meanwhile, we are transitioning to the new national methodological crime classification. The old UCR method a single “highest offense” category,. The new NIBRS system categorizes all crimes involved in an incident, and rolls them up into 3 main categories - crimes against person, property, and society.

On referencing this data for reimagining...

Be cognizant of situational ambiguity.

(what callers, call-takers, and officers think something is; how the situation is framed through law enforcement vocabulary; how incidents escalate or de-escalate before or after arriving on scene; how investigation on scene may change the nature of the problem category)

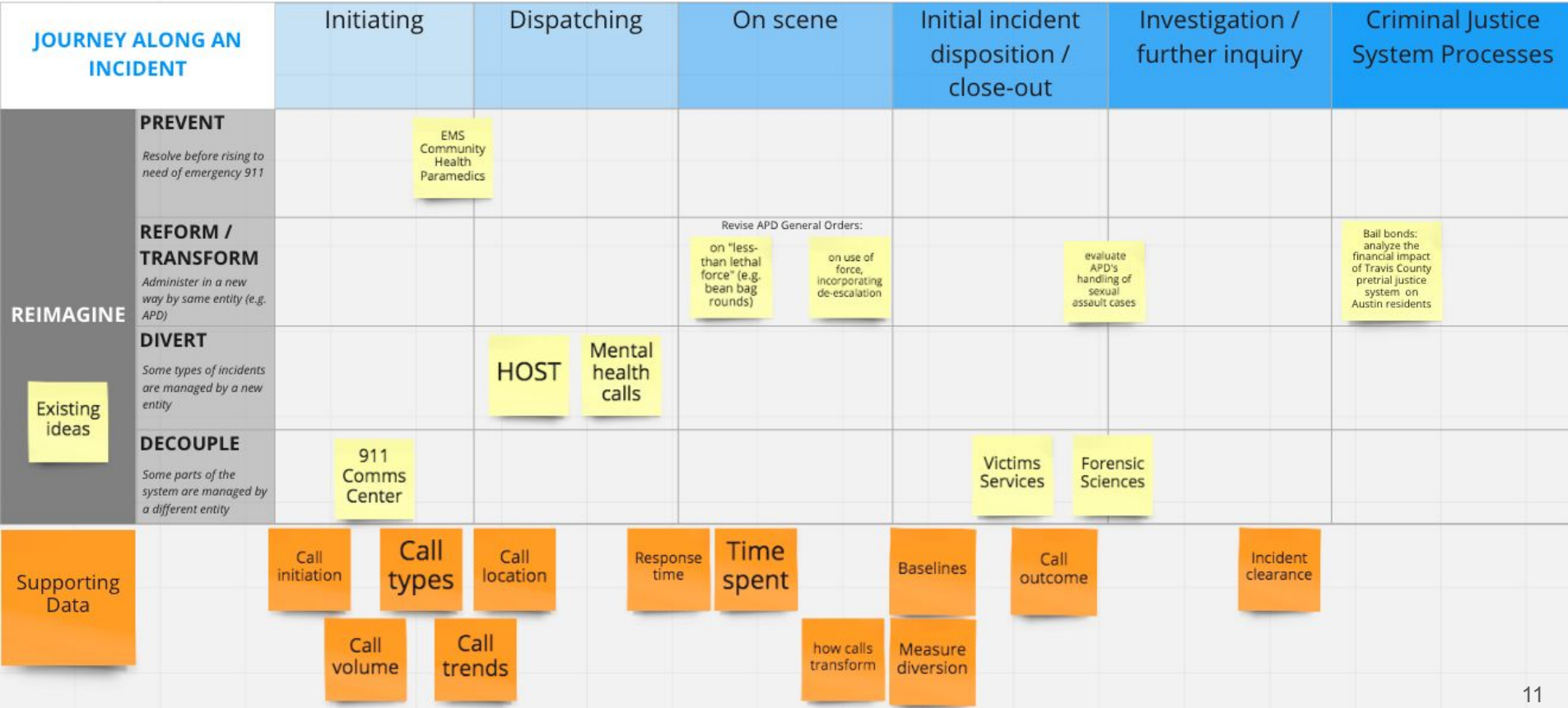
Be cognizant of data variability and reliability.

(how data is created, how the system's categories have changed over 16 years)

Inform a future-oriented exploration of “what could be,” rather than seeking strict statistical validity.

(Think in terms of patterns, flows, journeys, orders of magnitude, intervention points, potential hypotheses, and/or measuring the success of pilots, rather than specific percentage points.)

How might calls for service data inform re-imagining?



Insights & Dashboards

Call Transformation: 2019 Calls for Service vs 2019 Crime Report Data

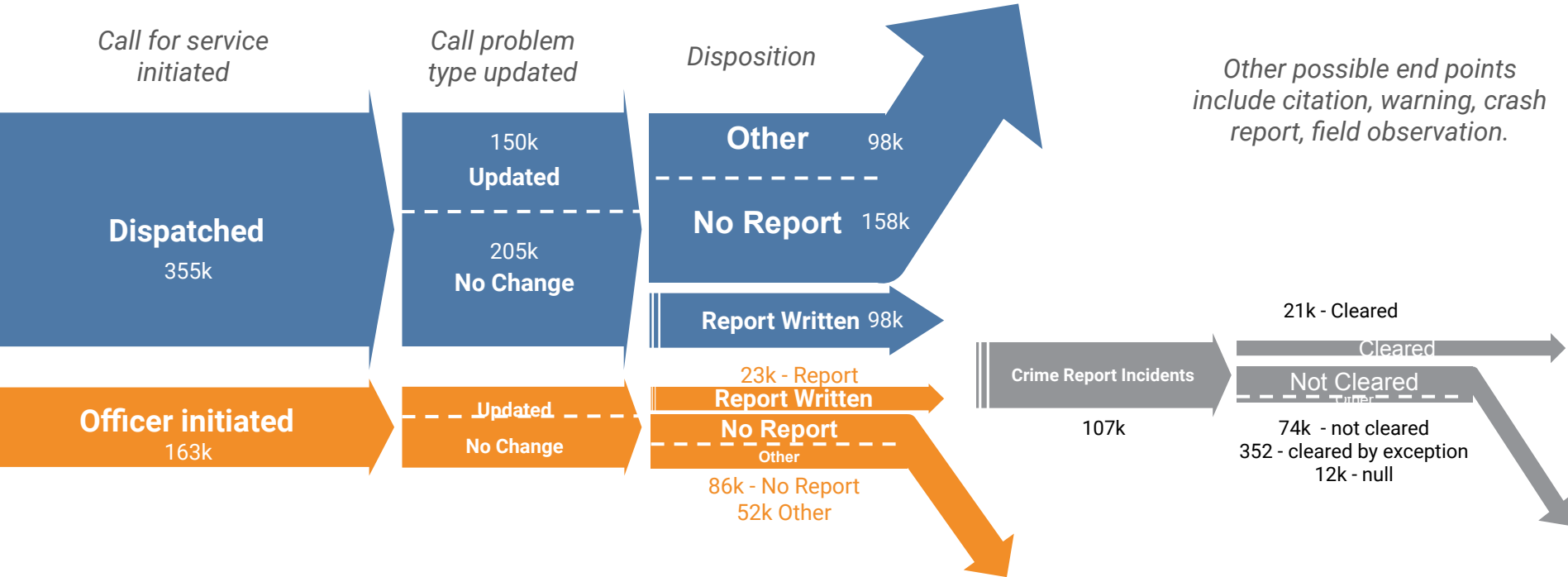
517,643 total calls, of which:

35% get updated call problem type

24% get a report written

21% are in crime report data

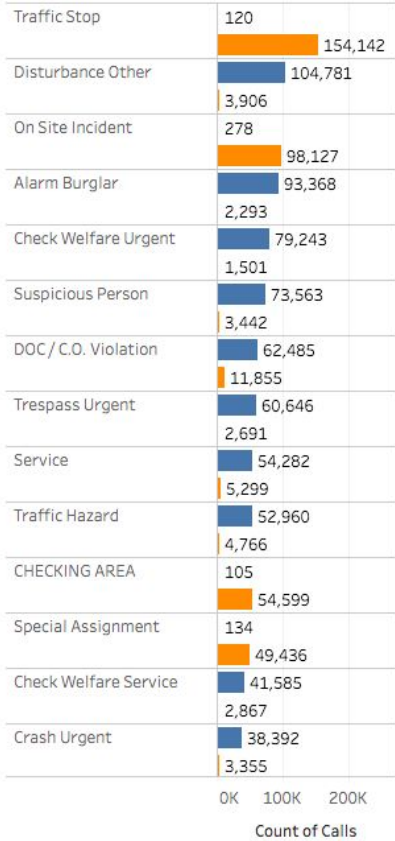
4% are cleared by arrest



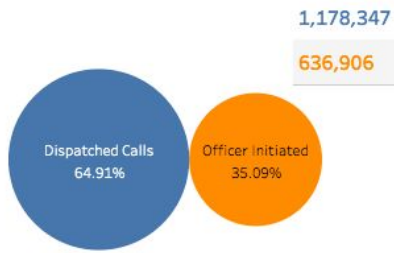
APD CALLS FOR SERVICE TRENDS: JANUARY 2017- JUNE 2020

DISPATCHED VS. OFFICER INITIATED

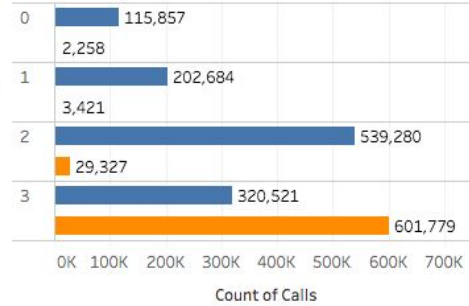
Category of Calls - List View



Count of Calls for Service



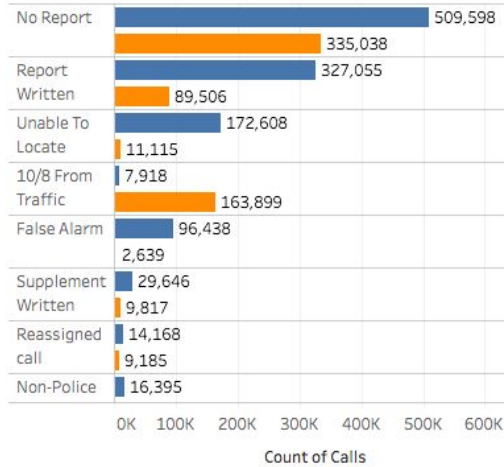
Count of Calls by Priority



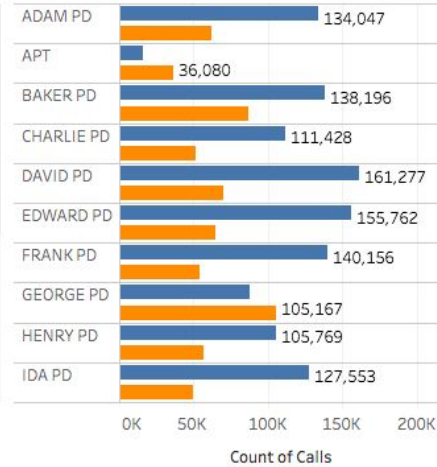
Calls Received by hour of the day



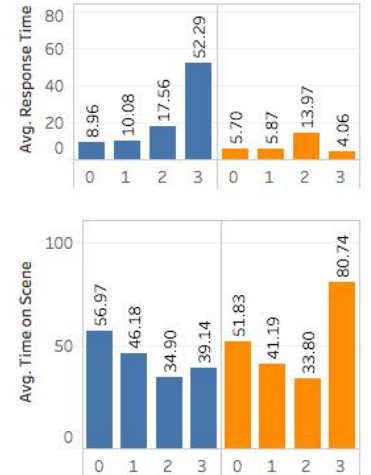
Count of Calls by Disposition



Count of Calls by Police Sectors



Time Spent Analysis

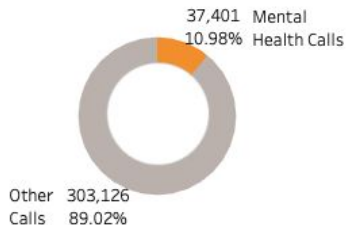


Orienting to the data - top insights

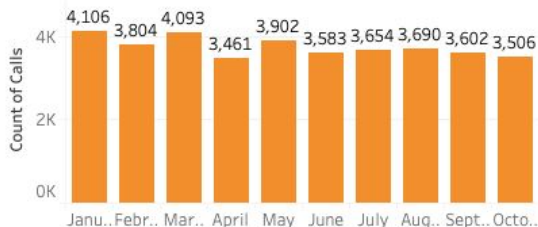
1. 41% of police officer time is spent on **priority 3** calls (life or property not at risk, immediate response not required), which account for 51% of total calls.
2. **65%** of all calls for service are **dispatched**. **35%** are **officer-initiated**.
3. Top initial call problem by volume for **dispatched** calls are: Disturbance other, Alarm Burglar, Check Welfare Urgent, Suspicious Person, and DOC/C.O. Violation (any city ordinance violation that requires a law enforcement response.)
(Initial call problem is determined through the information provided by community members when they call 911. Data cannot necessarily tell you what that is like.)
4. Top initial problem category for **officer-initiated** calls are Traffic Stop, Onsite Incident, Checking Area, Special Assignment, and Directed Patrol

Mental Health Call Flag - January 2020 - October 2020

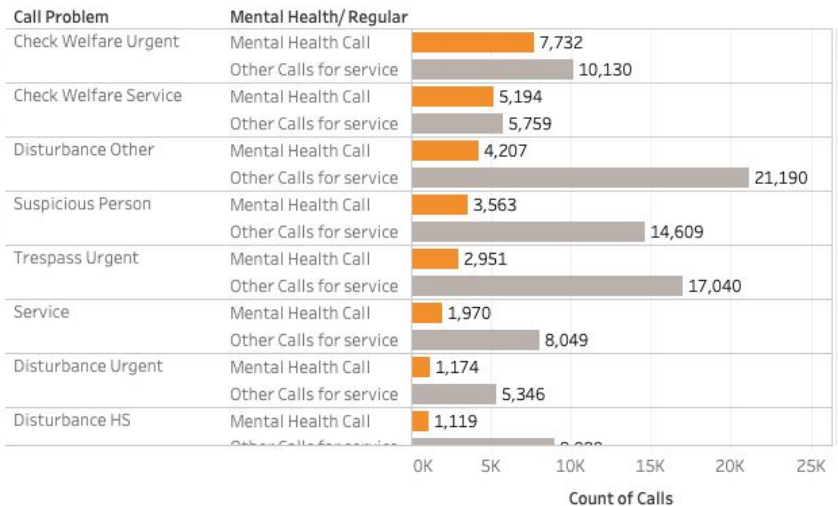
Count of Calls for Service



Count of Mental Health Calls by Month



Count of Calls by Initial Problem Category



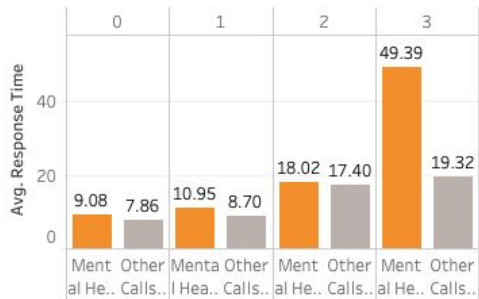
Calls Received by Hour of the Day



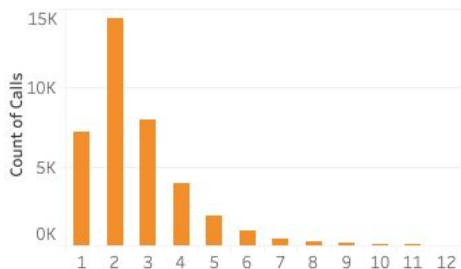
Count of Mental Health Calls by Top Disposition Categories



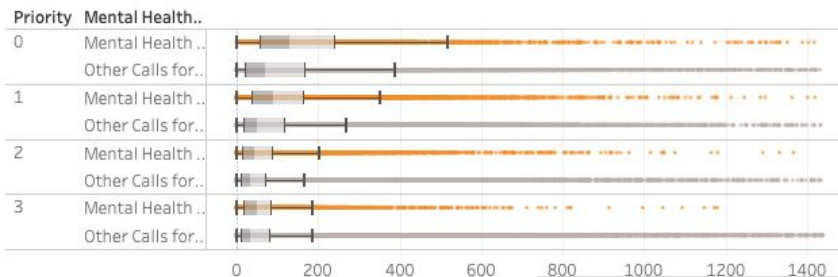
Average Response Time by Priority



Range of Police Officers Assigned per Each Mental Health Call



Distribution of Total Time on Scene for Primary and Backup Officers by Call Priority



Comparing 911 data to gentrification patterns

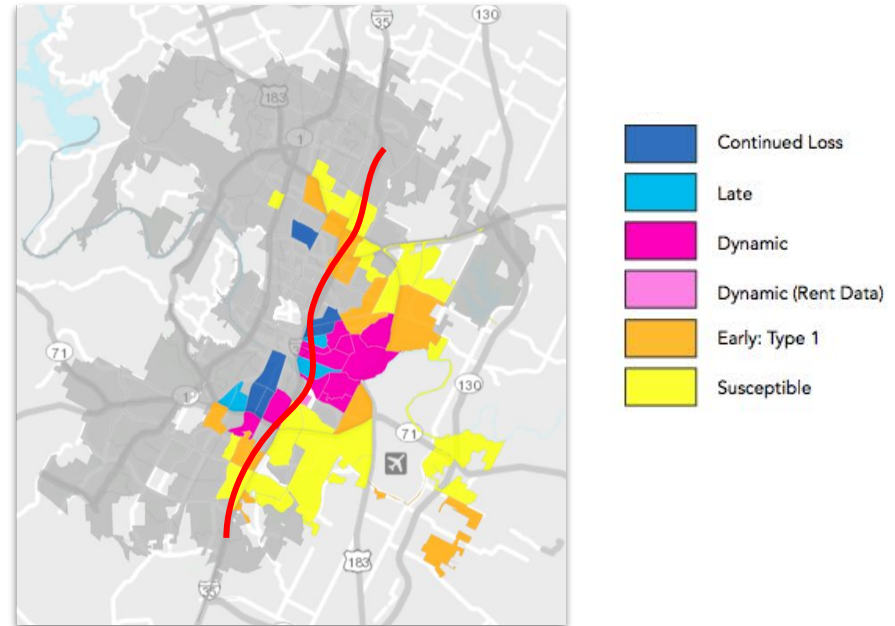
City wide median for “*disturbance other*” calls is 6.5 per 100 calls. This is not distributed equally across different neighborhoods across Austin.

A majority of non gentrifying neighborhoods (76 out of 121), have below median “*disturbance other*” calls.

A majority of neighborhoods that are “susceptible to gentrification” (29 out of 33) have above median “*disturbance other*” calls, with calls ratio ranging up to 14 per 100 calls. These neighborhoods show patterns around some repeat properties receiving as many as 16 calls in a month.

What happens after the call - the disposition patterns - remains pretty constant across all neighborhood types.

2016 gentrification map,
UT Uprooted Report



Appendix / Definitions

Priority definitions

Priority 0 - An incident involving physical harm or injury to person or property, which is **in progress and/or all involved parties are still on scene**. (E.g. shooting/stabbing)

Priority 1 - An incident involving physical harm or perceived threat to person(s) or property, which **just occurred and/or suspect(s) may still be in the area; where a quick response might aid in apprehension**. (E.g. robbery)

Priority 2 - In progress property crimes or just occurred crimes against persons. An incident warranting a rapid police response, however, **poses a minimal threat or no immediate threat, which either is in progress or just occurred**. (E.g. Suspicious Person)

Priority 3 - Incidents where life or property is **not at risk** and an **immediate police response will not likely prevent further injury, loss of property or adversely affect an investigation**. (E.g. DOC/City Ordinance Violation)

Priority 4 - Incidents where **a police response is not required**, however, the **incident does require the documentation and/or dissemination of information** to law enforcement personnel.

Disposition definitions

- 0 – Reassigned Call:** The call was reassigned (CAD system does not provide the reason)
- 1 – Report Written:** An officer wrote a report for the call
- 2 – Supplement Written:** An officer wrote a supplement either to the report or another report
- 3 – UTL:** Unable to locate the complainant
- 4 – False Alarm:** When a Burglar or Robbery Alarm was not an actual break-in or robbery.
- 5 – Non-Police Matter:** Civil Matter
- 6 – No Report:** The officer did not write a report
- 8 – 10/8:** Back in Service from a call for service or a Traffic Stop
- 10 – District Representative:** Call transferred to a District Representative
- 11 – Report Written MH:** Mental Health component to the call and the officer wrote a report
- 12 – No Report MH:** Mental Health component to the call and the officer did not write a report
- C – Cancelled Incident:** The complainant cancelled police response before officers arrived on scene
- P – Primary Unit will advise:** Should not be used as a disposition
- T – Test Call:** Used during testing or training at Emergency Communications.
- N – No 911 Call Entered:** The complainant cancelled the call prior to the 911 Operator entering the calls for patrol response.

Disposition - Report Written

What triggers the requirement for a report to be written?

APD has a general order on Incident Reporting and Documentation (G.O. 402). In part, the order states, “An incident number will be assigned and all required fields completed during documentation anytime an employee observes or receives any information concerning the following, but not limited to:

- a) Criminal or suspected criminal offenses, regardless of the victim’s level of cooperation.
- b) Citizen complaints of non-criminal incidents requiring action by the police.
- c) Self-initiated stops
- d) When Crime Scene personnel are assigned to an incident that was first initiated or responded to by sworn personnel and no tele-serve report has been made.
- e) Crashes involving bicyclists will be investigated and reported as defined in Section 34.3 Crash Investigation.
- f) Any other situation where documentation is required by law or another section of departmental general orders.

If in doubt as to whether an incident should be documented, employees shall confer with a supervisor.” This section does not include traffic crash reports, which are mandatory for crashes requiring a vehicle tow or when there are injuries. Additionally, citations document traffic stops and Field Observation reports document subject stops and other instances when a full report is not required.

Disposition - Report *Not* Written

What are the different reasons that an incident might not require a report to be written?

There are various reasons an officer may not write a report when responding to a call for service such as traffic stops (documented by a warning or citation), subject stops (documented by Field Observations), False Alarms (documented in CAD notes), calls cancelled prior to officer arrival, when officers cannot locate the complainant, and calls involving a civil matter. These are just a few examples, however, officers generally document their actions in the CAD Call notes if they do not write a report.

Process the data goes through from initial caller to call taker to dispatch to response to disposition

- 1) A 911 Operator
 - a. Answers the emergency call
 - b. Triage the call,
 - c. Determines the most appropriate initial CAD title code,
 - d. Enters the call information into the CAD Call text,
 - e. Sends the call to the appropriate APD Sector Dispatch queue. Note: the 911 Operator will send the call to the dispatch queue as soon as he/she obtains enough information to identify the call type and location. The 911 Operator will continue obtaining information while officers are in route to the call.

- 2) Police Dispatcher
 - a. Opens and reviews each CAD call sent to his/her queue
 - b. Dispatches officers according to call priority and available officers
 - c. Responds to officer requests for information
 - d. Enters officer actions and radio traffic into the CAD Call text
 - e. Closes CAD calls for officers (unless the officer closes the call on their own) and changes the Call dispositions per the officers request (unless the officer enters the CAD call disposition on their own).

- #) Officers
 - a. Officers can create calls, enter call information into the CAD call text, close calls, and assign dispositions on their own via the in-vehicle Mobile Data Computer (MDC), which is mobile CAD.

UCR vs NIBRS

The Uniform Crime Reporting System (UCR) Program divides offenses into two groups, Part I and Part II crimes. There are seven (7) Part I crimes and twenty-one (21) Part II crimes.

APD reports crime data through NIBRS using three (3) primary categories and (52) offense types. The three (3) primary categories are Crimes against Persons, Crimes against Property, and Crimes against Society.

Top initial call problem definitions

***Assist Non Emergency:** Any request for non-emergency assistance from another agency.

Alarm Burglar: Activations for premise(s) indicating unlawful entry that are in progress.

Auto Theft Service: Incidents where a motor vehicle is missing and the complainant does not know when it was taken, who may have taken it, and/or subject is refusing to return the vehicle. Incidents involving found motor vehicle thefts, and/or unauthorized use of a motor vehicle (UUMV's). Any report of an attempted auto theft.

Checking Area: An officer patrolling a high crime area for criminal activity.

Check Welfare Service: Incidents where the well-being of an individual and/or property is being questioned that does not require immediate police response and is not likely to negatively impact an investigation.

Check Welfare Urgent: Any person down due to an unknown circumstance and/or police response is warranted. Any report of abandoned/endangered person(s) that exposes the subject to intentional risk or imminent danger. Any person who is contemplating/threatening suicide; or having suicidal/homicidal thoughts.

Top initial call problem definitions con't

Crash Urgent: Collisions involving unknown/non-life threatening injuries and/or that are blocking secondary roadways. HSR collisions that have since been pulled to the shoulder or median and are no longer blocking.

Directed Patrol: An officer patrolling an area requested by a citizen for extra patrol, or an area identified by a supervisor or District Representative/Crime Analyst as a high crime area.

Disturbance HS: An incident involving physical harm or immediate threat of injury to person that is in progress and all involved parties are still on scene; which may or may not involve a weapon.

Disturbance Other: Incidents involving non-violent (verbal) disturbances that are in progress or just occurred (within five (5) minutes).

Disturbance Service: Any violent or non-violent incident that is no longer in progress, did not just occur, and no longer poses an immediate threat.

Disturbance Urgent: An incident involving physical harm or perceived threat of injury to person(s), which may or may not involve a weapon that just occurred (within five (5) minutes).

DOC / C.O. Violation: Any city ordinance violation that requires a law enforcement response.

Top initial call problem definitions con't

Hang-ups: Any call received from a business or coin phone that is either abandoned, or a hang up; communicated to be a misdial by the caller; or an open line with no apparent disturbance heard in the background.

Nature Unknown Urgent: An unclear incident that is in progress with a perceived threat to person(s) and/or property.

On Site Incident: An officer initiated call for service because an officer was waived down by a citizen or observed a law or city ordinance violation.

Service: Any incident that does not fit into any other call type category and does not pose an immediate threat to life, public safety, or property.

Suspicious person: An incident involving person(s) suspected of some suspicious and/or lewd activity that is in progress or just occurred (within five (5) minutes).

Suspicious unknown: Unclear incident(s) that may be significant but do not pose an immediate threat to person(s) and/or property.

Suspicious vehicle: Incident involving vehicle(s) suspected of suspicious activity that is in progress or just occurred (within five (5) minutes).

Top initial call problem definitions, con't

Subject Stop: An officer initiated call for service for an officer stopping a pedestrian because the officer observed suspicious activity or observed a law or city ordinance violation.

Theft: Incidents that are in progress or just occurred (within five (5) minutes) where a person intentionally takes property that is not their own without consent.

Traffic Hazard: Impediments located on minor roadways not posing an immediate hazardous situation, however, if not addressed could cause future problems. Persons soliciting at a high speed roadway (HSR) or major thoroughfare. Pedestrians in a lane of travel on a minor roadway.

Traffic Hazard HS: Any hazard on high speed roadways (HSR), including frontage roads, which may cause a collision, injuries, or otherwise cause undue traffic congestion except pedestrians or solicitors at HSR intersections or thoroughfares.

Traffic Stop: An officer initiated stop of a motor vehicle for a traffic/equipment violation.

Trespass Urgent: Any person on a premise without consent and/or refusing to leave that is in progress.

Working Traffic: An officer patrolling a designated location or intersection where there have been a high number of traffic violations or collisions. Working a school zone while school is in session may also fall into this category.

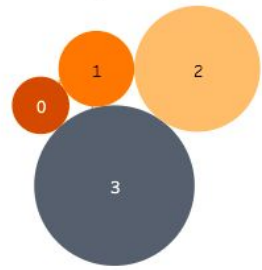
Other dashboards

APD Calls for Service General Trends - JANUARY 2017- JUNE 2020

Cancelled Calls are Removed

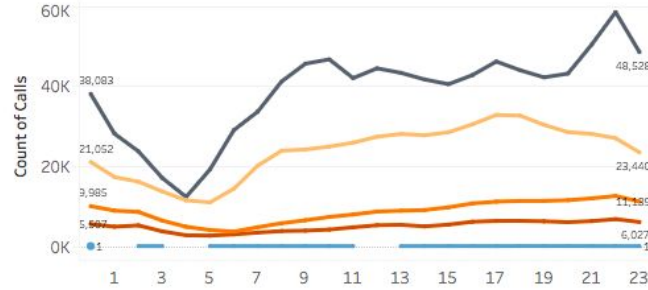
0	118,115
1	206,105
2	568,607
3	922,301
4	126

Count of Calls for Service by Priority

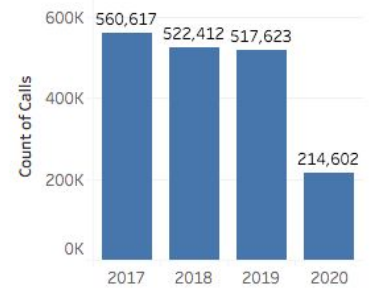


- Priority Definition**
- 0 = in progress, on the scene
 - 1 = just occurred, may be on scene
 - 2 = in progress/just occurred; minimal/ no immediate threat
 - 3 = life or property not at risk; immediate response not req'd
 - 4 = police not req'd but documentation is

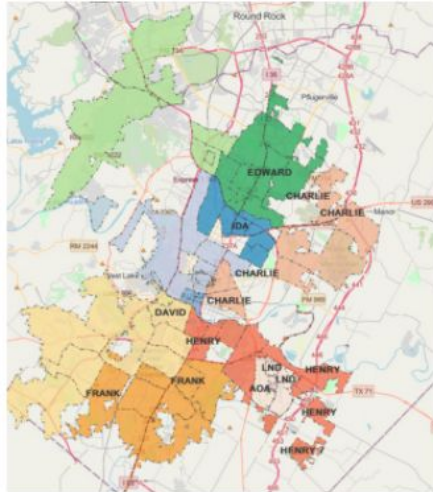
Calls Received by Hour of The Day



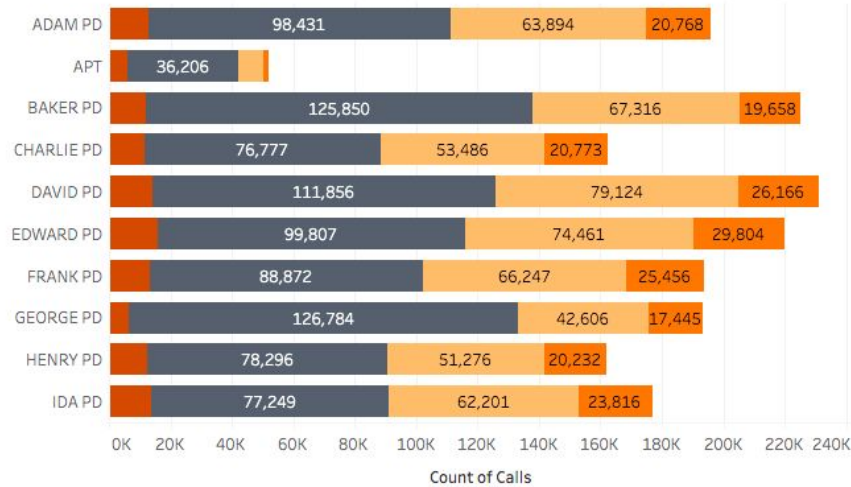
Count of Total Calls by Year



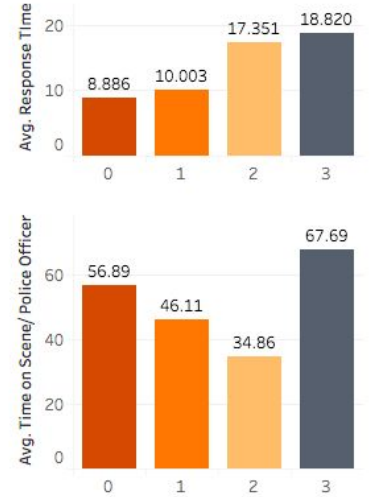
Reference Map- APD Sectors November 2018



Count of Calls by Police Sectors

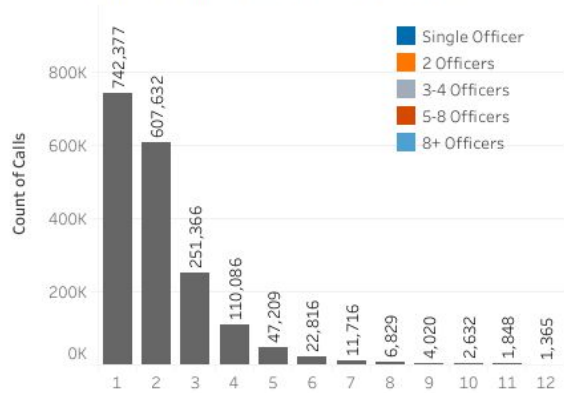


Time Spent Analysis

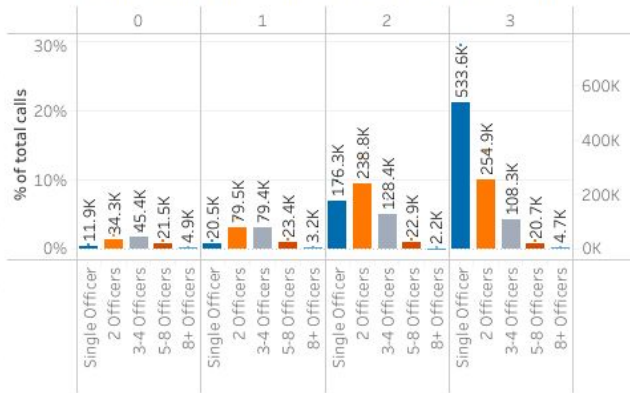


APD 911 Call for Service: Time Spent Analysis by Police Officer Assignment January 2017 - June 2020

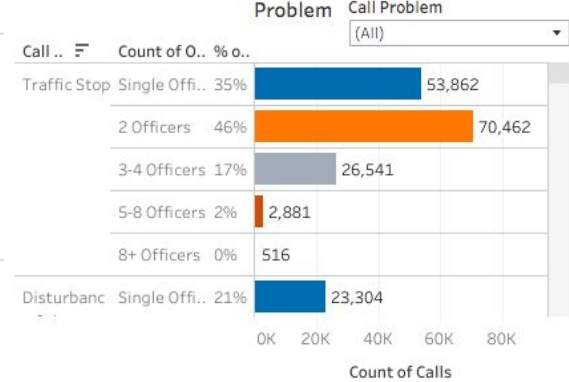
Range of Police Officers Assigned per Call



Count of Calls for Range of Police Officers by Priority

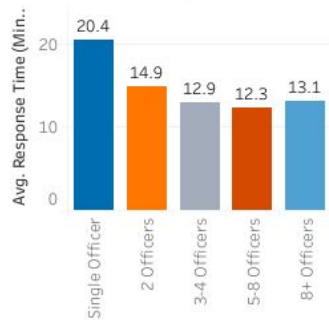


Count of Calls for Range of Police Officers by Initial Call



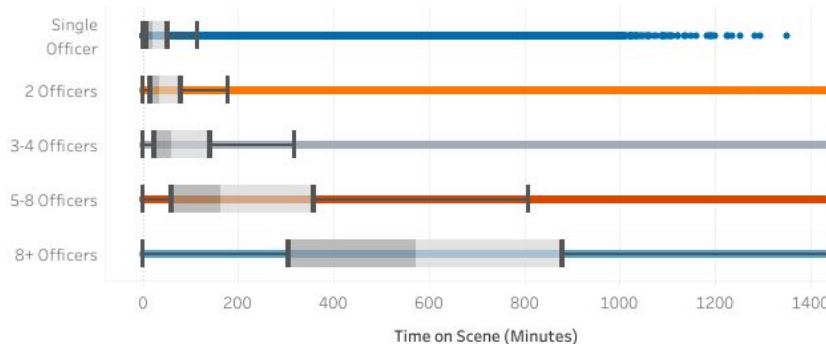
Avg. Response Time by Range of Police Officers

Hover over the bar to see distribution by priority

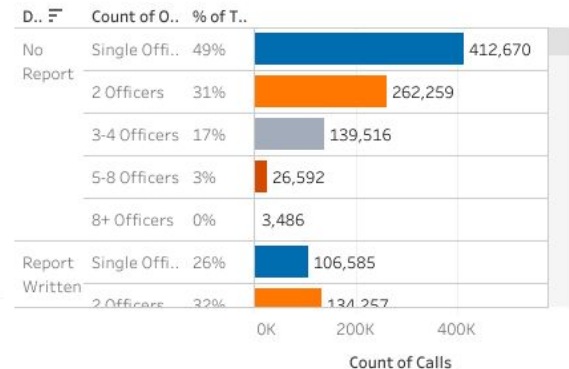


Distribution of Total Time on Scene for Primary and Backup Officers by Range of Police Officers

Hover over the box to see median, 25th and 75th Percentile Value (lower and upper hinge)



Count of Calls for Range of Police Officers by Disposition



Initial Call Problem Category by Disposition and Priority - January 2017 - June 2020

Priority
(Multiple values) ▾

Call Problem
(All) ▾

Priority

- 1
- 2
- 3
- 4
- 0

Priority descriptions -
most urgent = 0; least
urgent = 4

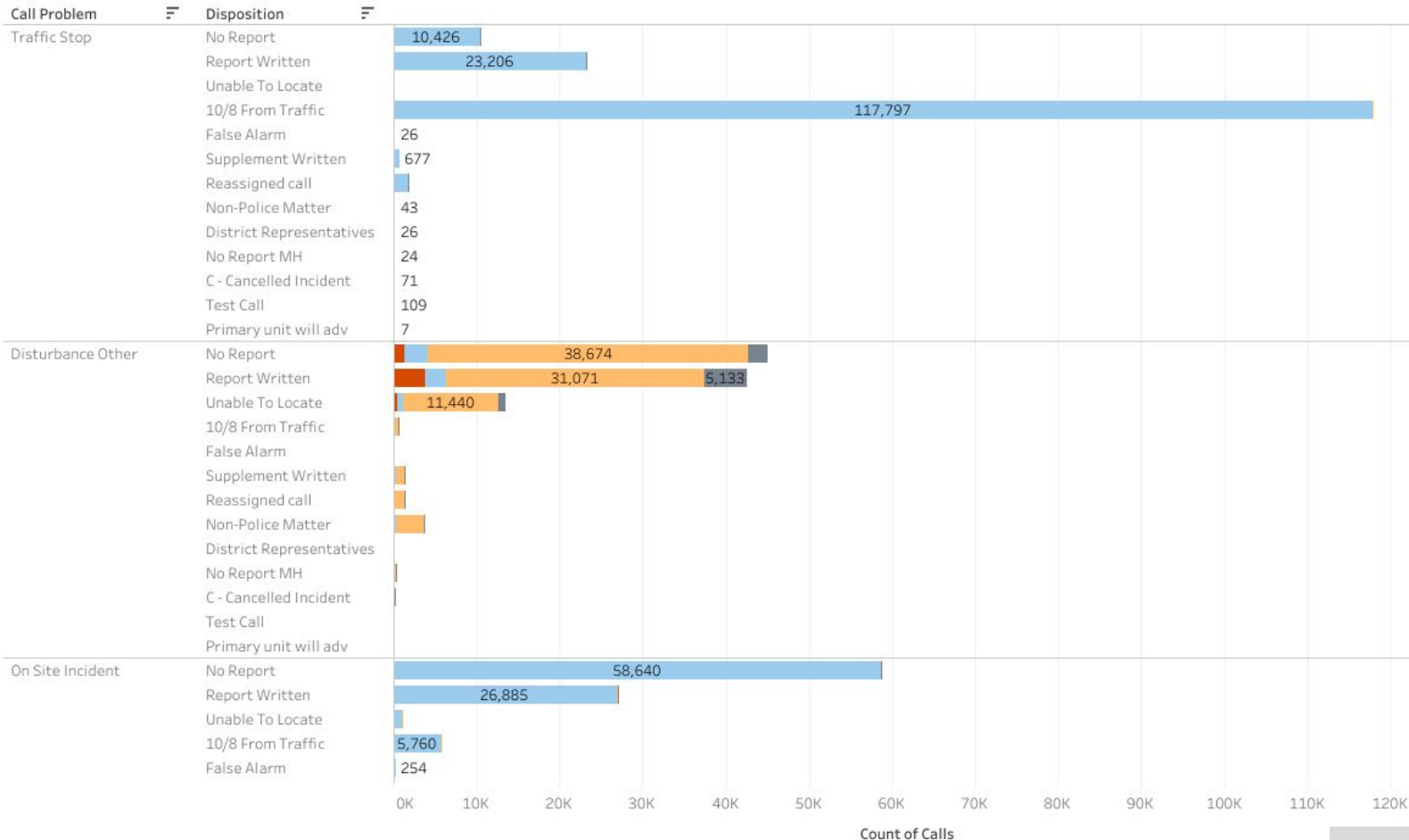
Priority 0 - incident in
progress, persons on the
scene

Priority 1 - incident just
occurred, persons may be
on scene

Priority 2 - in progress or
just occurred; minimal or
no immediate threat

Priority 3 - life or property
not at risk; immediate
response not necessary

Priority 4 - police response
not required; incident
requires documentation

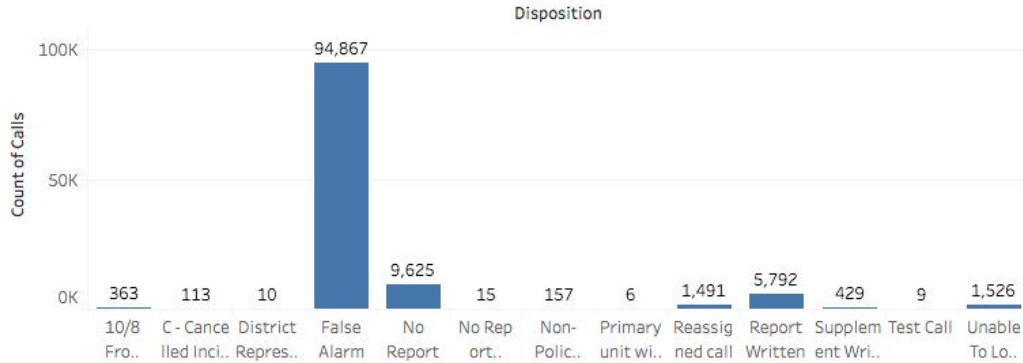


Count of Calls

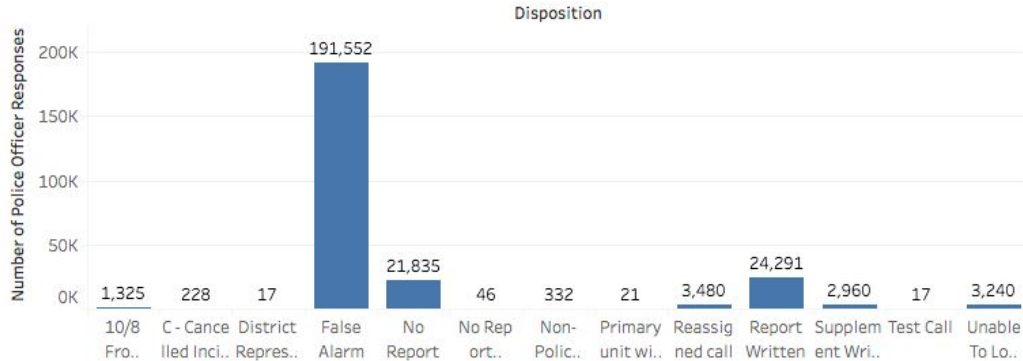
False Alarm Indicator: January 2017- June 2020

Calls which have "alarm, robbery, burglary" word in the initial call problem are considered. Call disposition shows how many of them are False.

Count of Calls by Disposition



Count of Police Officer Responses by Disposition



Count of Calls by Initial Problem Category

