City of San José 311: Transition of non-emergency service-related calls from Police to Customer Contact Center - Data Story

Acknowledgements

The 3-1-1 call transfer to City Customer Contact Center (CCCC) was made possible by collaborative effort between multiple City of San José departments. The individuals below were key in making that transition.

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Introduction

The City of San José maintains three contact centers that handle emergency and non-emergency contacts that constitute 9-1-1, non-emergency response and 3-1-1 response for the organization including calls received at multiple 10-digit non-emergency numbers. As of 2017-2018 these groups handled over 611,000 non-emergency calls per year - 220,000 managed by the City Customer Contact Center, 360,000 handled by Police staff on non-emergency phone lines, and 31,000 handled by Fire staff on non-emergency phone lines. An audit was conducted in 2018-2019 recommending improvements to call handling across 9-1-1 and 3-1-1. This data story lays out the work City's Police Communications, Fire Communications and IT Department did with its partners Mission Critical Partners and Google.org to work on the measures recommended by the Audit to reduce non-emergency contacts absorbed by 9-1-1 staff and deliver positive customer experience.

Background

This analysis was conducted in the fall of 2019 and this document represents the state of the City's call centers at the time the recommendations and changes were made.

911 in San José

In the 1990s, to contact the Police Department for non-emergency law enforcement issues, residents had to look up the Police Department ten-digit non-emergency telephone number. Residents often resorted to calling 9-1-1 instead, therefore, tying up the emergency 9-1-1 lines. To address this issue, the City of San José launched 3-1-1 in 1997 as an easy to remember number for residents to contact the Police Department for non-emergency situations. The designation of 3-1-1 was beneficial and reduced the misuse of 9-1-1.

The City of San José Police and Fire Departments manage emergency and non-emergency calls and dispatching of public safety resources for calls made within the geographic boundary of the City. When callers in San José dial 9-1-1, they reach emergency call takers in the San José Police Department which is the Primary Public Safety Answering Point (Primary PSAP). These emergency call takers are responsible for processing the call, forwarding information to police dispatchers, and/or transferring the call to the appropriate agency.

9-1-1 calls regarding fire or medical emergencies are transferred to emergency call takers in the San José Fire Department (Secondary PSAP), who dispatch fire personnel and coordinate medical response.

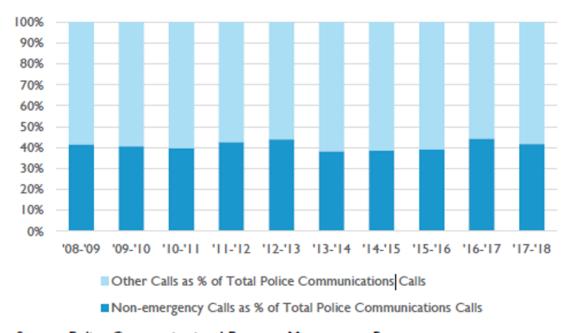
In addition to handling emergency calls, call takers in both Departments handled nonemergency and 3-1-1 calls, and police call takers take limited crime reports over the phone.

3-1-1 in San José

Police Communications call takers receive both emergency and non-emergency calls. Calls into 3-1-1 and (408) 277-8900 were routed to the PD Communications call tree where callers could select the appropriate resource or wait on the line to reach a Police Call Taker. Residents call for various reasons including: reporting non-emergency police incidents, filing police reports, requesting general police information, reporting abandoned vehicles, etc. Over time, these added responsibilities, lower staffing numbers and a growing population contributed to an ever-increasing workload for the Police Department's Communications staff.

Non-Emergency Calls accounted for about 40% of the call volume in Police Communications as can be seen in Figure 1 below.

Exhibit 21: Non-emergency Calls Make up Approximately 40
Percent of Police Communications Division Call
Volume



Source: Police Communications' Program Management Reports

Figure 1

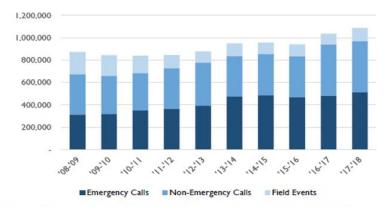
9-1-1 Answer Times

The State of California requires that 95% of 9-1-1 calls be answered within 15 seconds. In October 2017, CalOES (California Governor's Office of Emergency Services) notified San José that it was not meeting the minimum call answering* time. In 2017 87.93% of calls were answered within 15 seconds.

Fire Communications call answering time begins when the call is transferred from Police Communications to Fire's Secondary PSAP. It ends when a Fire call taker answers the call.

Police & Fire Call Volumes and Staffing

Exhibit II: Police Communications Total Call Volume Increased by 25 Percent, But Emergency Call Volume Is 65 percent Higher Than It Was 10 Years Ago



Source: Auditor analysis of ECaTS and Police Communications' management information system reports.

Note: This chart shows call volume for only Police Communications. Emergency call volume adjusted to exclude transfers to Fire Communications, as ECaTS combines 9-1-1 call volume for both PSAPs in its reports to the State.

Figure 2

^{*}Police Communications call answering time begins when the call first reaches the PSAP and ends when a Police call taker answers the call.

Exhibit 12: Fire Communications Emergency Call Volume Is 32
Percent Higher Than 10 Years Ago

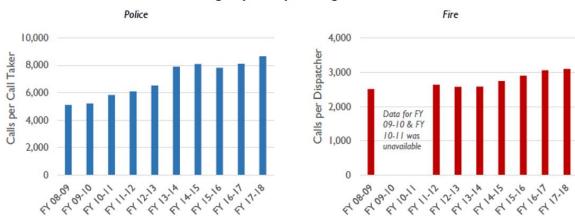


Source: Auditor analysis of San José Fire Communications management information system reports.

Note: In June 2016, the Department implemented a new management information system with capacity to report both emergency and non-emergency lines. Prior to 2016-17, the management information system could not report non-emergency call data. As such, Exhibit 12 only shows emergency calls to Fire Communications.

Figure 3

Exhibit 16: Emergency Calls per Budgeted Staff Has Increased



Source: PSAP management information system call data and Adopted Operating Budget authorized staffing data.

Note: Data shows only emergency calls. For Police, data is shown by authorized Public Safety Communications Specialist positions. For Fire, data is shown by Public Safety Radio Dispatcher positions, as there are no Communications Specialist positions dedicated solely to call taking.

Figure 4

Police Communications handled non-emergency police calls, while Fire handled after-hours calls to DOT, ESD, Public Works, and PRNS (as of October 2019).

Non-emergency call-taking imposes a significant workload on staff. Even though emergency calls are prioritized, the City should reconsider how it handles non-emergency phone calls, given the challenge of hiring emergency call takers, reliance on overtime, job stress, and overall increase in emergency call volume.

City Audit and Grand Jury Findings

In October of 2017, the CalOES notified the City that its Police and Fire Communications Centers were not meeting the minimum call answering times set by State's 9-1-1 operations manual. Partially in response to this notice, the City Auditor initiated an audit of 9-1-1 / 3-1-1 call answering times. Additionally, the Civil Grand Jury conducted an investigation into San José's 9-1-1/3-1-1 times. Both reports had similar findings:

- 1. Opportunities to improve call answering times
- 2. Growing call volume and workload has increased the urgency to hire qualified communication staff
- 3. Staffing police non-emergency phone calls with emergency call takers is inefficient
- 4. The City could improve customer service for non-emergency calls and better utilize 3-1-1

The work on these findings was split between City's IT Department (ITD)/City Customer Contact Center (CCCC), Police Department, and Fire Department where ITD and the CCCC worked on #1 and #4 while the Police Department and the Fire Department worked on #2 and the Police Department worked on #3.

Objectives and Key Results

The audit and grand jury findings led to the following objectives -

Objective 1: Transition High-Impact Calls from 911 to Modern 311

- Analyze and identify top 10 calls by volume and impact
- Plan and coordinate the transition 3-5 target calls by end-December 2019
- Train and implement call transitions to 311 by end-January 2020
- Activate 311 on T-Mobile and Verizon to open the channel to residents

Objective 2: Digitize 911 contacts to improve response

- Analyze and identify top 5 contacts to 911 and 311 by impact that should be shifted to non-call mediums
- Develop an architecture/approach to more effectively build online, mobile, and chat mediums
- Train and transition at least one target call flow to non-call medium by end-January 2020, if appropriate

Objective 3: Build to Drastically Improve Customer Experience

Transition of non-emergency service-related calls from Police to Customer Contact Center

- Apply and teach CX/UX design concepts to the City's customer contact experiences through managers of the City Customer Contact Center and 911
- Define and build for the 5 key metrics that contact center managers should monitor
- Reduce abandoned calls and calls routed by a target % defined by the teams

Project Roles

City

- Drive to effort to solve non-emergency call handling needs
- Resource project and clear roadblocks to yield January 2020 results
- · Honor innovative ideas. Support solutions that work and scale

Google

- Enable deep understanding of customer journeys and data staff and public
- Propose and build solutions that can transform service delivery
- Apply advanced methods/campaign for successful adoption of solutions
- Analyze and surface trends in call types and routing opportunities

Mission Critical Partners

- Provide expert input and recommendations on call handling
- Redesign call flows and define unifying metrics
- Plan and coordinate changes for staff and public

Method

The data dive was done at two levels – Calls and City Services mainly tracked through My San José (now San José 311). The team completed the data dive in the fall of 2019 and the actual data captured in this analysis is only until October 31st 2019.

Police and Fire Call Centers

The police call volume for 2019 was largely consistent with 2018 levels. The call center received 758K calls for a total of 32Khours of agent talk time in 2019 as of Oct 31st (+1% Year over Year or YoY). Here's a breakdown of these calls:

- Police: 643K calls answered through Oct 31st, 2019 (+1% YoY)
 - Police Emergency answered 382K calls as of Oct 31st, 2019 (+2% YoY)
 - Police Non-Emergency answered 220K calls as of Oct 31st, 2019 (-2% YoY)
 - Estimated 349K calls received by IVR as of Oct 31st, 2019

Fire: 115K calls answered through Oct 31st, 2019 (+0% YoY)

California requires 95% of 911 calls be answered within 15 seconds. Based on these call volumes the State's 911 standards were unmet (see table below for details).

Year	r Calls w/ Ring Time <15 Total Calls		Proportion
	sec		within 15 sec
2017	388,811	469,813	82.76%
2018	423,163	446,814	94.71%
2019	356,954	381,859	93.48%

Table 1

9-1-1 call volumes ramp up quickly from 8am-12pm as can be seen in Figure 5, leading to an increase in ring time and a decrease in proportion of calls that meet 15 seconds threshold (Figure 6). If 8am - 12pm capacity issue was corrected, national standards could be met.

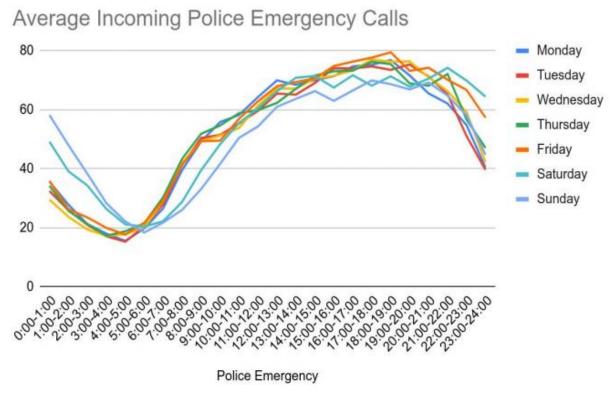


Figure 5

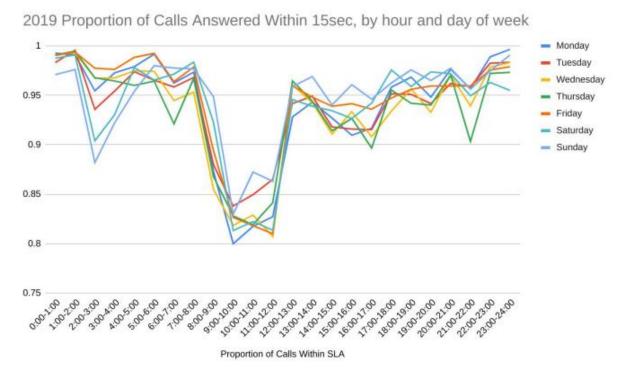


Figure 6

To help understand the long wait times on the call the team looked at the breakdown of the calls. 30% of the calls were for non-emergency or TRAC reports. This included calls on 9-1-1 or emergency 10-digit lines to update a police report, report an abandoned vehicle, barking dogs, etc. 20% of all Police 911 calls were related to accidental dials & when caller doesn't stay on the line call-takers were mandated to re-establish a connection to ensure that there's no emergency. Since 2017, these calls have increased by 20% annually (in line with national trend). 8% of the calls that Police and Fire call-takers receive every year are for an alarm response. Although Fire Department alarm calls have been decreasing, Police Department alarm calls increased almost 20% in 2019.

As observed in 2019 across all telephone lines Police Department call-takers spent an average of 2,600+ minutes/day or 16,000+ hours/year handling non-emergencies, 159 minutes/day or 965 hours/year handling alarm calls, an estimated 81 minutes/day or 495 hours/year handling accidental calls, which require 1-2 callbacks averaging 35 seconds, and are increasing at 20%/year. Fire Department call-takers spent an average of 46 minutes/day or 280 hours/year handling non-emergencies, 27 minutes/day or 164 hours/year handling alarm calls. Accidental Calls are estimated to account for 20% of total (incoming 9-1-1 + outgoing) calls.

When it comes to 911 calls, seconds matter. These inefficiencies prevent the highly skilled & extensively trained staff from handling life or death calls.

The team looked at calls that were less than 15 seconds in length, had an outgoing call to the same number within six hours, were not associated with a CAD (Computer Aided Dispatch) event (other than 'unk call'). Calls where caller stayed on the line to confirm accidental dial were not captured, and were estimated at 50% of the identified calls, or a further 3.5% of total calls. 7% of incoming calls can be directly identified as accidental calls and require 1.3 outgoing calls per incoming call.

Year	Incoming Identified Calls	Agent Talk Time (hours)	Outgoing Calls	Agent Processing Time (hours)	Total Agent Time (hours)
2017	20129	33	35316	373	406
2018	24891	41	32592	338	379
2019 (est)	28199	47	36437	378	425

Table 2

Police 9-1-1 Accidental Calls:

As observed in the Fall of 2019 the 9-1-1 Accidental calls had been increasing substantially over the past two years and this was just Agent Talk Time (incoming) + Total Process Time (outgoing) and was not representative of total time required to answer and return calls.

Year	Incoming Count	%YoY
2017	20129	
2018	24891	+24%
2019 (till Oct 31st)	23510	
2019 (est)	28199	+13%

Table 3

Daily Incoming Accidental Calls (rolling 7day average)

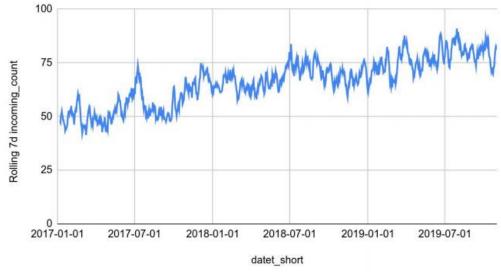


Figure 7

Police and Fire Calls CAD Linkage:

After analyzing the calls linkage to CAD events, the team found that for Police calls 52% of Non-Emergency calls result in CAD events and 60% of Emergency calls resulted in CAD events, while for Fire Calls 12% of calls on non-emergency lines resulted in CAD events and 82% of calls on emergency lines resulted in CAD events. The proportion of Non-Emergency Police calls resulting in a CAD event had been increasing, while proportion of Emergency police calls resulting in CAD had been falling.

Proportion of calls resulting in CAD events	2017	2018	2019*
Police Non-Emergency	48%	52%	52%
Police Emergency	63%	60%	60%
Fire Emergency	80%	81%	82%
Fire Non-Emergency	13%	14%	12%

^{*} Officer-sourced CAD events excluded

Table 4

Police non-emergency is expected to receive substantial incoming calls. The analysis showed that 11% of non-emergency calls came through 10-digit number prior to 3-1-1 switch and many police non-emergency calls were transferred from 3-1-1 back to police call center. Police needed to continue to account for mid-weekday non-emergency bump in calls.

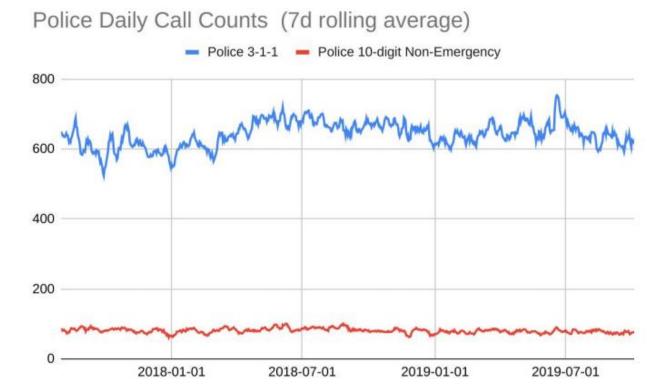


Figure 8

Average Police Incoming Non-Emergency Calls 60

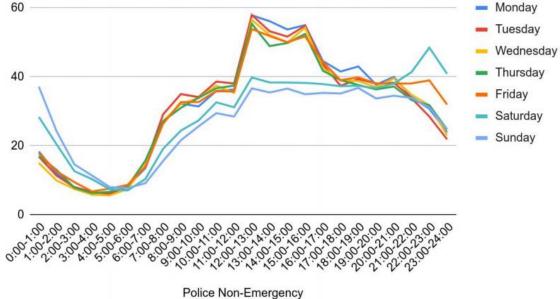
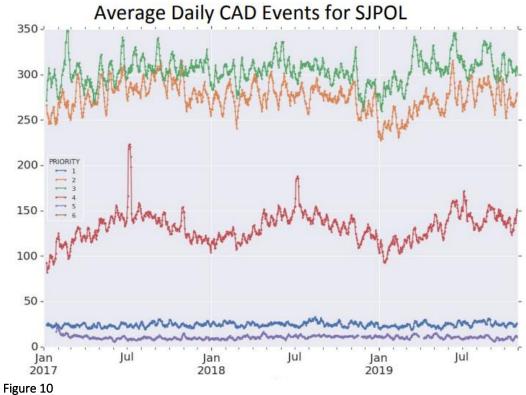


Figure 9



CAD events data (excluding Officer-sourced) have been relatively flat over time

	2017	2018	2019 (est)	Avg% Change
SJPOL	379887	397563	402730	2.98%
SJFIR	105939	102621	105215	-0.30%

Table 5

	Top 5 Non-Officer CAD Event Types (SJPOL) (% of calls of priority X)								
		1 st	2 nd	3 rd	4 th	5 th			
	1	Alarm Silent (14%)	Disturbance, Weapon (13%)	Burglary (9%)	Suspicious Circumstances (6%)	Alarm, Audible (5%)			
>	2	Disturbance (20%)	Welfare Check (14%)	Disturbance, Family (10%)	Unk Type: 911 Call (6%)*	Suspicious Person (6%)			
Priority	3	Alarm, Audible (20%)	Disturbance (7%)	Stolen Vehicle (7%)	Trespassing (5%)	Welfare Check (4%)			
Pri	4	Parking Violation (25%)*	Disturbance, Music (15%)	Information Only Event (8%)	Meet the Citizen (6%)	Municipal Code Violation (6%)			
	5	Parking Violation (10%)*	Mentally Disturbed Person (7%)	Suspicious Circumstances (7%)	Vehicle Accident, Minor Injuries (5%)	Vehicle Accident, Property Damage (4%)			

^{*}Type has seen significant increase over time

Table 6

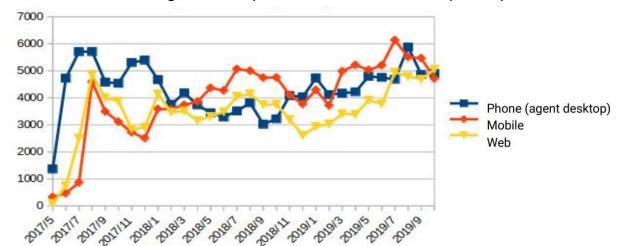
City Services

The team analyzed the data through the service requests created through City's My San José (now San José 311) platform.

Platform	# of service requests	% of service
	excluding bots/spam	requests
Phone	48,736	38.0%
Email	189	0.15%
Mobile App	52,036	40.6%
Website	27,334	21.3%
Total	128,295	

Table 7

Based on the analysis the team concluded that the residents preferred online tools, were 95% more likely to submit a service request online when option was available and more than 60% of service requests were submitted through app or website. They also observed that the number of Service Requests had been increasing steadily.



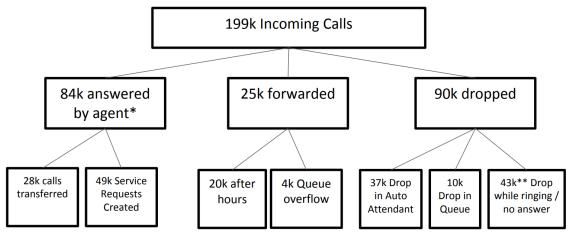
Below is the chart showing the monthly breakdown of the service requests by source

Figure 11

Some of the challenges faced by the City Customer Contact Center (CCCC) were:

- Most service requests handled by agents couldn't be completed online, including water & garbage billing & support, which account for 53% of calls.
- Staff felt limited in their tools & resources.
- Chat was time consuming for call takers. Responses were entered manually.
- Most calls answered were transferred or rerouted.
- Most low-English proficiency residents chose English option, assuming it would be easier & faster. When they didn't, at least 3x amount of time was spent on Spanish & Vietnamese calls due to the need to get a translator.

CCCC Call Volume 2019 (through 10/31/2019)



^{*} These don't break down cleanly into subcategories as some calls are neither transferred, nor is a service request created

Figure 12

^{**} This includes 36k dropped while ringing, 2k ring no answer, 4k calls workgroup no answer CCCC calls have been flat in recent years

Year	Total Calls	Answered Calls	Forwarded Calls	Dropped/no answer Calls
2017	252K	105K	35K	107K
2018	234K	92K	33K	110K
2019 (through	199K	84K	25K	90K
10/31)				
2019 (Est)	235K	100K	31K	104K

Table 8

Weekly Answered, Weekly Transferred and Weekly Total Incoming

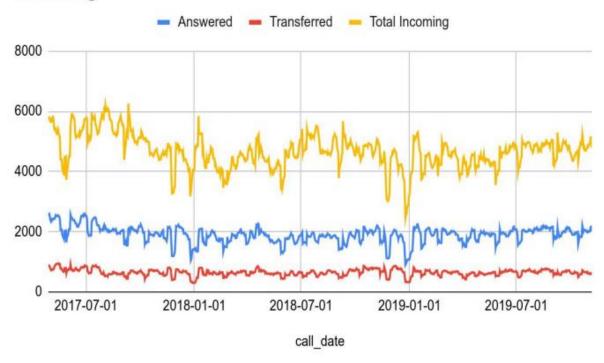


Figure 13

Service Requests coming through Web and Mobile had significantly more variation over time than agent desktop.

2019 Service Requests (Through 11/12/19)				
Agent Desktop – Utilities	25,844			
Agent Desktop – Excl Utilities	22,885			
Mobile	52,036			
Web	42,203			

Table 9

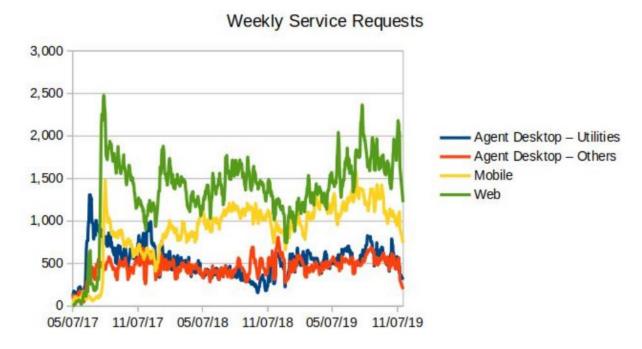


Figure 14

Mobile App had the highest proportion of high frequency users (averaging at least 1 service request/month). Service Requests from likely bots accounted for the majority of high frequency service requests on the web portal.

2019	Distinct Users	Distinct HF Users	Anonymous Service	Total Service	SR from HF Users	Proportion of SR* from HF
			Requests	Requests		Users
Agent Desktop	4,778	18	41,866	48,729	480	7%
Mobile	9,977	1032	1,791	52,036	27,780	55%
Web	9,332	436	4,141	42,203	21,017**	55%

^{*} Service Requests from non-anonymous sources

Table 10

While General Requests had the most number of Service Requests, of the defined Service Requests most were Abandoned Vehicles.

^{** 15}k of these are from users with greater than 1500 SR/year, likely bots

2019 Service	Agent	Email	Mobile	SFDC-DOT	Web
Requests	Desktop				
Abandoned Vehicle	4,088	8	21,783	1373	27,156
General Request –	25,844	0	0	0	4
Water / Utilities /					
Payment					
General Request –	17,613	175	6,048	0	5,254
all others					
Graffiti	30	0	9,527	13,646	1,897
Illegal Dumping	833	4	10,784	7401	2,281
Pothole	63	1	1,615	464	1,900
Streetlight Outage	258	1	2,279	46	3,680

Table 11

Results

Observations from the Police / Fire Call Center analysis -

- 1. Addressing 8am-12pm wait times would allow call center to meet 9-1-1 targets.
- 2. Accidental Calls were a significant and increasing problem and would have to be addressed to reduce load on call-takers.
- 3. 52% of Police non-Emergency calls and 14% of Fire non-Emergency calls result in CAD events, further study should be done to determine how to reduce load of remaining calls.

Key observations from the Call Center Data analysis are -

- 1. Around 45% of CCCC calls were dropped by residents due to the instructions on call tree asking them to hang up and call 911 or due to afterhours message realizing City is closed. This underscores the importance of updating the phone tree.
- 2. When available, residents used the app and website more frequently than the phone to submit service requests.
- 3. Some residents that do not want to create an account online would call instead (i.e., illegal dumping and abandoned vehicles).
- 4. Around 50% of calls were regarding utility payments and billing inquiries.
- 5. Of the known request types, abandoned vehicles and utility payments/billing inquiries were the categories with the highest call volume.

The team also conducted usability testing and UX research on various aspects of call center and San José 311 platform and came up with following recommendations.

- Transition 311 calls from Police Department to the City Customer Contact Center
- · Activate 311 dialing for T-Mobile and Verizon cell phone users
- Change My San José branding to San José 311
- Staff more Police call takers during the 8AM-12PM period
- Institute the call back feature for accidental Police calls
- Launch marketing campaigns to educate the public as to the appropriate numbers to call and online resources to use
- Measure the impact of the 3-1-1 call back feature
- Improve call classification to identify next areas of automation and improvement (i.e. utility support and payment for water and garbage)
- Improving phone and web payment processing for utilities
- Add virtual agents to automate some of the processes
- Add new services to the San José 311 platform

Conclusions

Changes implemented

Based on this analysis and the recommendations, City implemented the following changes -

- In March 2020, 3-1-1 calls were transitioned over from Police Department to City's Customer Contact Center that now handles all City's service-related calls. There are still many non-emergency calls that need to go to police loud vehicles or other law violations that are not emergencies.
- 311 dialing was activated for T-Mobile and Verizon cell phone users to bring them at par with AT&T and Sprint.
- My San José was rebranded to San José 311 on National 3-1-1 Day in 2020 making City Customer Contact Center the unified 3-1-1 center for the City.
- In June 2020, to align with the City's plan to have San José 311 serve as the omni channel platform, chatbot service was added to the website and mobile app.
- Another change implemented in June 2020 was the addition of CAPTCHA for Service Request creation to prevent the use of bots.
- Police Department modified their non-emergency call tree to have San José 311 as option-1 in October 2020
- Spanish and Vietnamese Language Translation was added to the San José 311 platform in November 2020.
- In December 2020, English and Spanish virtual agents were added to the call tree to automate some of the processes and free up time for City Customer Call Center staff to take more complex calls.
- New Recycling and Garbage services were added to the San José 311 platform in March 2021 that brought huge volumes of Service Requests to the platform.
- Marketing campaigns were launched to educate the public this is a continuing effort as the City continues to add more services to the platform.

• City continues to take feedback from call takers and the San José 3-1-1 platform to improve call classification and adapt to the needs.

Here's a timeline of changes for the City Customer Contact Center and San José 3-1-1 (My San José) platform.

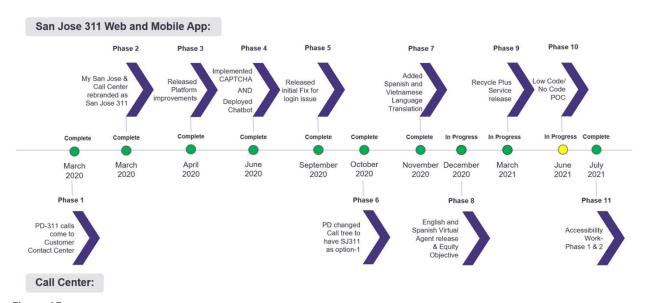


Figure 15

Impact

Police Call Center

A quick analysis (Table 12) of the 911 emergency call numbers shows no change in the percent of calls being answered within 15 seconds.

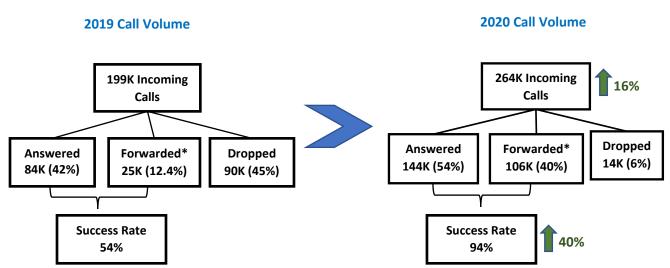
Year	Calls w/ Ring Time <15 sec	Total Calls	Proportion within 15 secs
2017	388,811	469,813	82.76%
2018	423,163	446,814	94.71%
2019	356,954	381,859	93.48%
2020	488,862	529,933	92.25%

Table 12

Police and Fire Call centers' ability to improve on some of these recommendations were limited during this evaluation period attributed to the distortional events caused by the pandemic. Post analysis on the 911 emergency calls was done with limited resources and staff. Additional resources and detailed analysis is required to get a complete understanding of the impact the implemented changes had on the 911 emergency calls.

City Customer Contact Center

The City Customer Contact Center call volume went up in 2020 compared to 2019 as can be seen in the comparison and breakdown chart in Figure 16 below.



^{*}Forwarded calls are the calls directed to another department within the City, or its contracted service providers, either by our call center staff or by the caller themselves by selecting an option on the call tree.

Figure 16

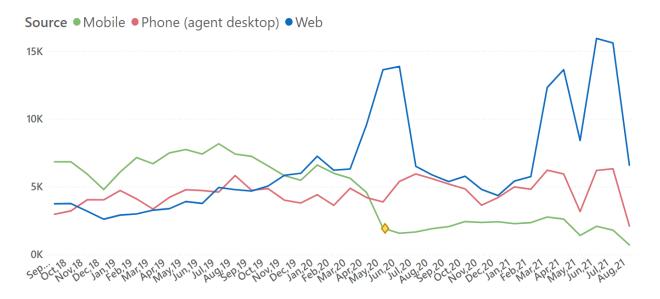
In 2020, the City Customer Contact Center handled 16% more calls and the call answering success rate went up by 40%. In addition to the above counts, Call Center also handled approximately 25k additional non-emergency service-related calls from the Police Department in 2020.

San José 311

The Service Request volumes received through City's My San José (now San José 311) have stayed the same in 2020 perhaps due to the pandemic. City launched Recycling and Residential Garbage services in March of 2021 and the number of service requests for 2021 has already (captured until August) surpassed the previous years. Another interesting observation from the data as can be seen in Table 13 and the line chart in Figure 17, there has been a switch from Mobile to Web use in 2020 and 2021 which could also be attributed to the pandemic when people spent more time on their desk than outside with their phones. Further detailed analysis is needed to confirm these assumptions.

Source	2018	2019	2020	2021 (till August)
Agent Desktop	45,458	54,884	56,561	43,970
Mobile	76,883	83,297	39,202	17,528
Web	41,838	50,785	89,164	95,736
Total	164,179	188,966	184,927	157,234

Table 13



CAPTCHA implementation in June 2020 caused a decline in the number of Service Requests created by a bot. Figure 17

Customer satisfaction as measured through City's My San José (now San José 311) app shows (Figure 18) a huge improvement in 2021 (captured until August) compared to 2019 and 2020 which indicates that the platform changes made in 2020 including captcha, chatbot, bug fixes and the addition of new Recycling and Garbage Services have had a positive experience on the end-user.

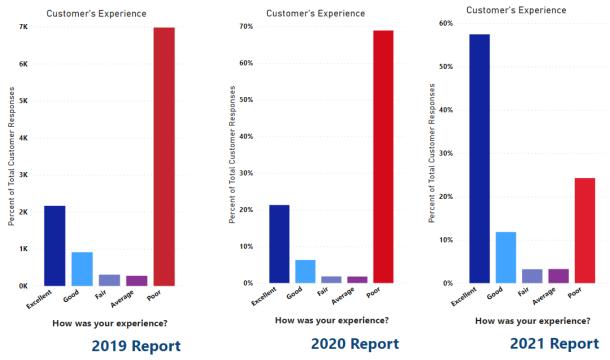


Figure 18

Closing

Data informed decisions is at the forefront for the City and the 3-1-1 team, and the Service Owners are actively monitoring the Key Performance Indicators for the 3-1-1 platform to measure customer satisfaction, Turnaround time for service delivery and Active Users. The teams are also actively trying to bring equity measures into its analysis to help understand the needs of different communities. At the same time City is also working on adding new services to the 3-1-1 platform and make it a having a one-stop point for addressing all service-related needs for the residents. City's Public Safety Answering Point (PSAP) and the Customer Contact Center continue to work together to support each other and provide better services to the residents in the right place and meet them where they are.