Loveland Police Department

2015 Patrol Workload Study

Results Analysis & Presentation

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Introduction

The purpose of this patrol workload study is to conduct an organizational and staffing analysis of Loveland Police Department Patrol Division. The goal is to collect and analyze data to understand the demand of Patrol officers, and how to assess staffing levels and scheduling while ideally increasing efficiency of the division and police department while also improving the quality of life of the community. Most workload assessments include: reviewing shift times and assessing whether they can be rearranged to be more in line with calls for service (CFS), how many officers are needed at one time to maintain minimal staffing, determine how many citizen-generated CFS occur and how many CFS officers' initiate, what types of CFS are occurring, where current resources can be allocated to be more effective and what officers spend their time on. This study will include all of these areas and more.

Police administrators consider more than just workload demand, how many officers are needed and where to staff officers- even though that is all still very important and essential. A department can have an abundance of officers and have low efficiency. Effective organizations today who have a desire to improve efficiency seek to find workplace stressors because productivity and stress are strongly correlated (Vila, Morrison, Kenney, 2002). Decreasing stressors can increase productivity and decrease burnout, improve the work environment, decrease sick and leave time for officers and save money in the long run.

A workload study can be a tool to assist, and unfortunately, because there are many approaches to a work-load study, there is no accepted standard methodology. It would be easier to have one standard approach to a work-load assessment, and each city and organization is unique in their own respect and there are numerous variables to consider when predicting staffing levels, allocating resources, and understanding their own officers' stress. Over time there have been various attempts to design an effective methodology for staffing and some methods are better than others.

This study includes the workload-based approach. An array of variables were considered and analyzed to provide a bigger picture for administrators and the objectives are outlined below. To take the workload-based approach a step further, both quantitative data and qualitative data were included. This methodology may be a greater assistance to administrators in finding ways to increase the efficiency of the department, alleviate officer stress, and address the concerns of the public.

The Loveland Police Department Patrol Division workload assessment for the year 2015 will meet these objectives:

1) To understand the **amount of calls for service** and how they are dispersed temporally (year, seasonal, months, days, hours) and within individual patrol shifts and districts. It is rare to have CFS occur equally across all hours, days, shifts, and districts. The temporal and geographic distribution in CFS data can reveal when and where to staff officers and alter shifts or districts. In the long run this can increase efficiency, save the department money and relieve officer stress.

2) Review the **type of CFS** that occur within the city. There may be shifts that have a higher volume of calls but are comprised of lower-priority call types requiring just one officer. Taking it a step further, there may be some districts that have an extremely low amount of CFS but the district's CFS are comprised of calls with a multi-officer response. Understanding the types of CFS is essential to the adequate staffing and placement of officers.

3) To understand the amount of **time spent on CFS**. Each CFS goes through a process of having a citizen concern, reporting it to dispatch, having it assigned to an officer, responding to the scene, handling the call and potential follow-up or report writing. Analyzing the breakdown of working time by officers can help determine shift minimums and understand the amount of time officers spend on CFS (both citizen initiated and officer initiated).

4) To evaluate the amount of **benefitted leave time** (vacation, medical, holiday, etc.) and **Special Duty time** (Court, Training, etc.) that affect officer availability and staffing requirements. This serves as part of the **Shift Relief Factor (SRF)** calculation. Also how **overtime** is utilized and needed to meet staffing requirements. These factors may

influence future shift schedules to decrease the potential for over-time and allow more time for training. The department can also consider the payout of over-time for officers versus just hiring more personnel. Lastly, officer sick-time may provide a glimpse into possible improvements for overall officer well-being (Ramey, et al., 2012).

5) To evaluate how the department utilizes the CSOs and the front desk report taker (both are **non-sworn personnel**). When there are duties non-sworn personnel can handle it provides more time for officers to focus on other police responsibilities and situations that require skills and training that only sworn police are equipped to handle. It would also allow officers time to conduct proactive policing, aggressively targeting offenders within the community, and increase the quality of life for citizens.

Analyzing these areas may improve the overall quality of life for officers and positively affect the organization and community in return.

Data was collected for January 1st, 2015 through December 31st, 2015. Included in this workload assessment are two separate analysis: CFS without non officer-initiated activities and CFS with officer-initiated activities. The reason for this approach is it allows a department to accurately assess CFS produced by the community/citizens as compared to what officers themselves are generating.

CFS without officer-initiated activities will first be examined in this study. Officer-initiated call type that were specifically excluded for this first analysis are: Z CAD Test Entry, Follow Up, Traffic Stop, Bar Check, Extra Patrol, Transport, Traffic-Misc, Officer Initiated, Sex Offender Registration, Community Policing, Foot Patrol, and Parking, Pedestrian Contacts, Home Visit, Downtown Parking, Traffic Patrol, Registration, and POP call types.

Certain Call Dispositions were also excluded for both CFS with and without officer-initiated activities. The excluded dispositions include: Entry Error, All Cancelled by dispositions*, and All Handled by Communications dispositions. Lastly, only calls with a unit designation as listed were included: A, B, C, D (excluding SRO), K, S, T, and CSO units. These counts are distinct incident counts regardless of how many officers responded to the call.

*See data limitations/issues on page 25

Loveland Police Department – Patrol Division Organizational Structure

Loveland Police Department included these staffing numbers for the Patrol Division for the year 2015:

Rank	Amount
Captain	1
Lieutenants	3
Sergeants (includes 1 Traffic Sgt)	10
Police Officers (includes the K9 units)	47
Community Service Officers	4
Traffic Officers	5
Street Crimes Unit Officers	2
Administrative Specialist	1

Figure 1

Patrol consists of Day, Swings, and Night Watch with a 10-hour shift rotation. Patrol is responsible for patrolling five districts within the city and each district is represented in Figure 2.

Patrol District Map

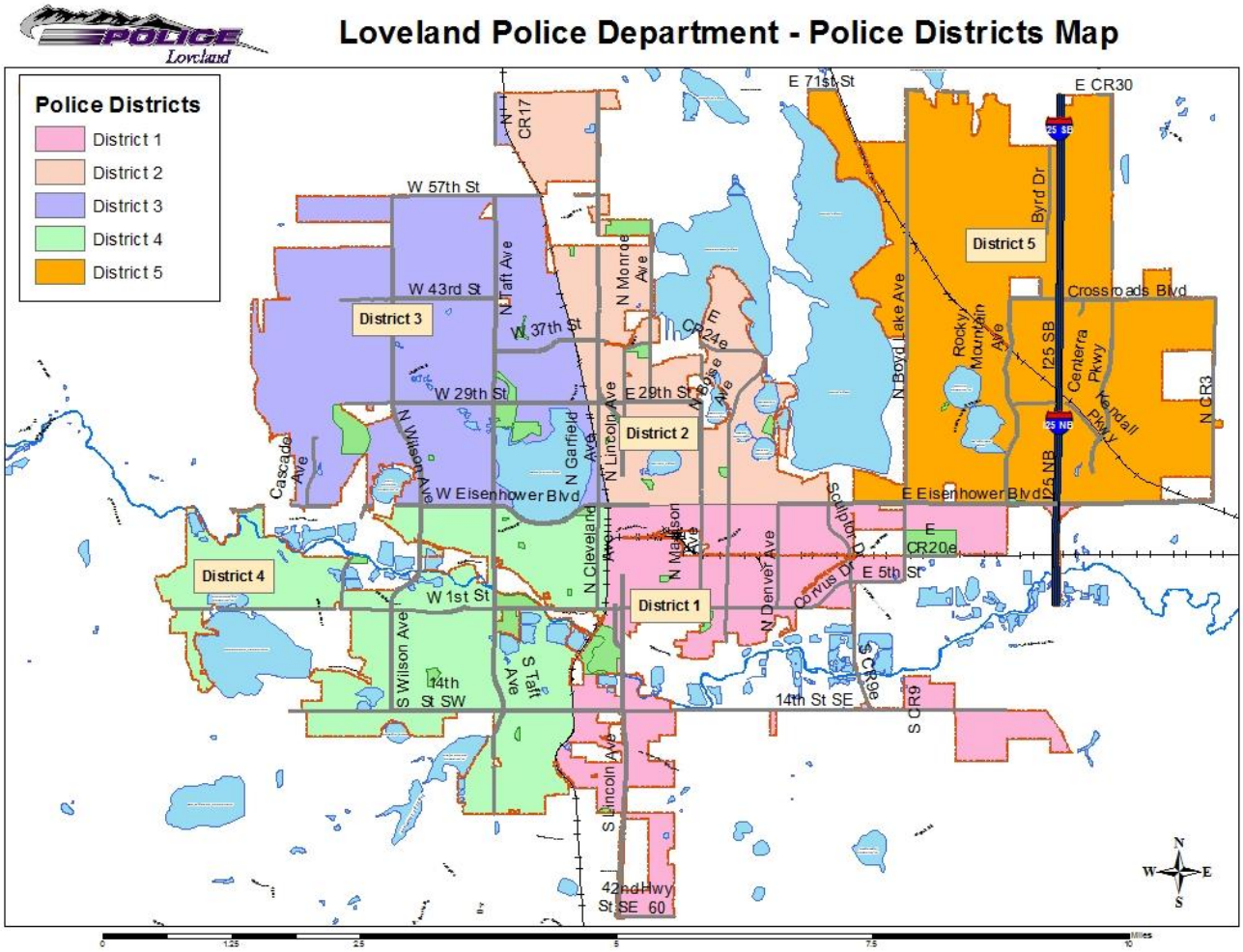

Figure 2

CFS Analysis

CFS by Hour (City-wide)

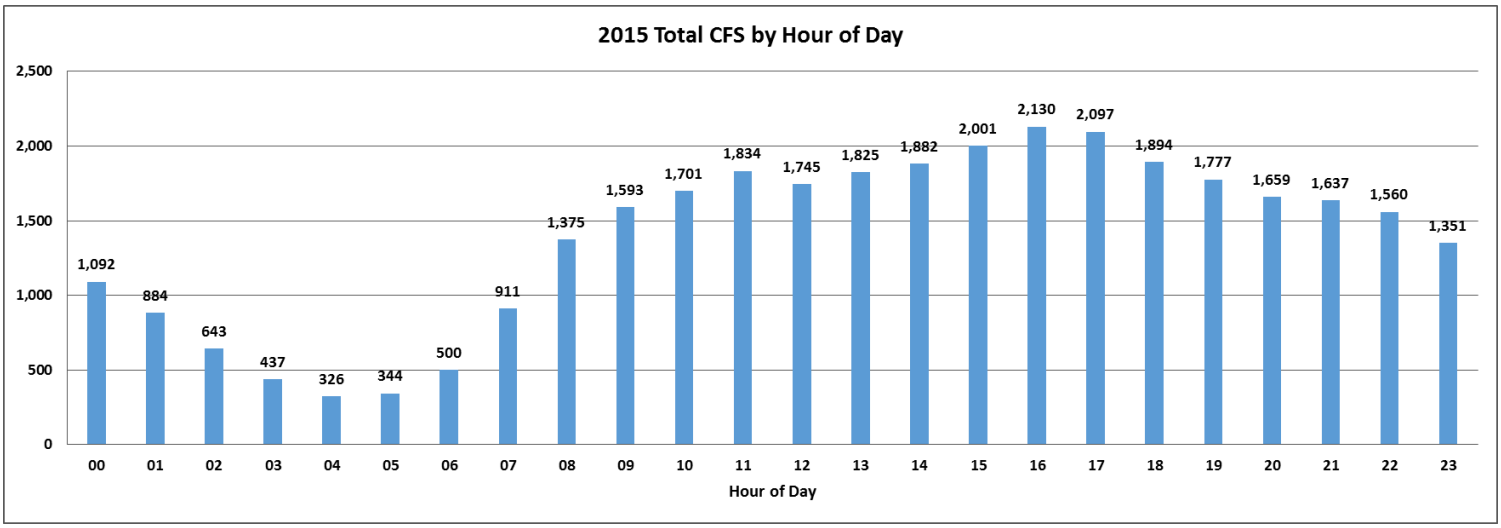

Figure 3

As Illustrated in Figure 3, the highest amount of CFS is during the 1600 hour (2,130), and the lowest amount of CFS at 0400 hours (326). The greatest significant surge in CFS for the city occurred in the morning starting at the 0800 hour. The CFS stay at a high level, above 1,000, throughout the day.

CFS by Day of Week (city-wide)

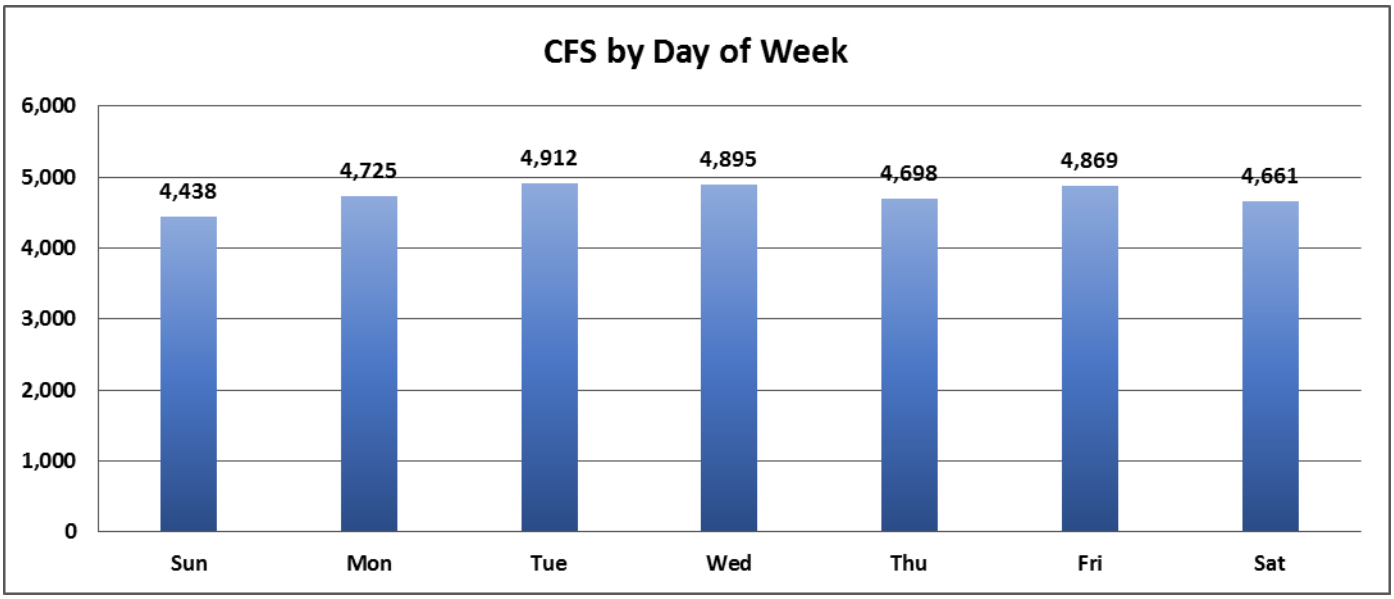

Figure 4

Tuesday, Wednesday, and Friday received the highest amount of CFS. The heaviest public-generated CFS occur on Tuesday (4,912) and during the 1500-1700 hours. It should be noted that when comparing to all other weekdays, Thursday receives the lowest amount (4,698). The weekend days Saturday and Sunday receive a significant amount of calls but still receive the lowest amount of CFS compared to all other days (4,661, 4,438).

Day of Week, Hour of Day Heat Map

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
Sun	225	168	130	85	50	50	61	86	161	206	211	244	209	234	249	243	247	250	268	235	217	235	197	177	4,438
Mon	139	110	78	48	31	47	82	165	220	262	221	284	261	299	280	310	317	298	260	249	240	189	175	160	4,725
Tue	135	112	79	48	51	56	75	168	218	238	275	282	255	267	267	343	316	311	263	264	255	231	213	190	4,912
Wed	126	101	67	59	50	60	72	168	241	286	281	279	283	270	298	320	317	311	262	254	233	215	201	141	4,895
Thu	128	123	94	53	48	47	68	107	198	220	270	270	254	251	277	280	332	334	283	245	219	235	213	149	4,698
Fri	149	106	91	56	49	37	76	126	194	208	232	247	254	252	301	274	343	338	294	279	231	249	247	236	4,869
Sat	190	164	104	88	47	47	66	91	143	173	211	228	229	252	210	231	258	255	264	251	264	283	314	298	4,661
Total	1,092	884	643	437	326	344	500	911	1,375	1,593	1,701	1,834	1,745	1,825	1,882	2,001	2,130	2,097	1,894	1,777	1,659	1,637	1,560	1,351	33,198

Figure 5

Day Shift
Days+Swings
Swings Only
Swings+Nights
Nights Only

During the year 2015 approximately 33,198 CFS were generated by the public. To put this information into perspective, on average officers handle 91 citizen-generated CFS a day. Figure 5 provides a detailed illustration of the amount of CFS and the hours, days and the shifts they occur.

Overall, CFS were at their highest during the late afternoon between 1500-1700 hours on Monday through Friday. This block of time/days represented in the red bordered section of Figure 5 accounted for 4744 or 14.3% of all CFS. The data reveals a unique situation for Saturday. It seems to be an outlier compared to all other days of the week because it has an impressive volume of CFS during the 2100-0200 hours- only then to level out again. Upon closer inspection of the weekend days, Sunday receives its lowest amount of CFS during the 0400-0500 hour.

The chart also tells us how many CFS each shift receives. One must be aware that Day shift and Swing shift do overlap in the 1600 hour. For statistical purposes the CFS shared in the overlap period will be considered into Day shift. The results reveal Day shift received the most CFS (Days=16,997, Swings=7,427, Nights=2,250). Even if those CFS were accounted into Swing shift, Day shift would still dominate handling citizen-generated CFS.

CFS by month (city-wide)

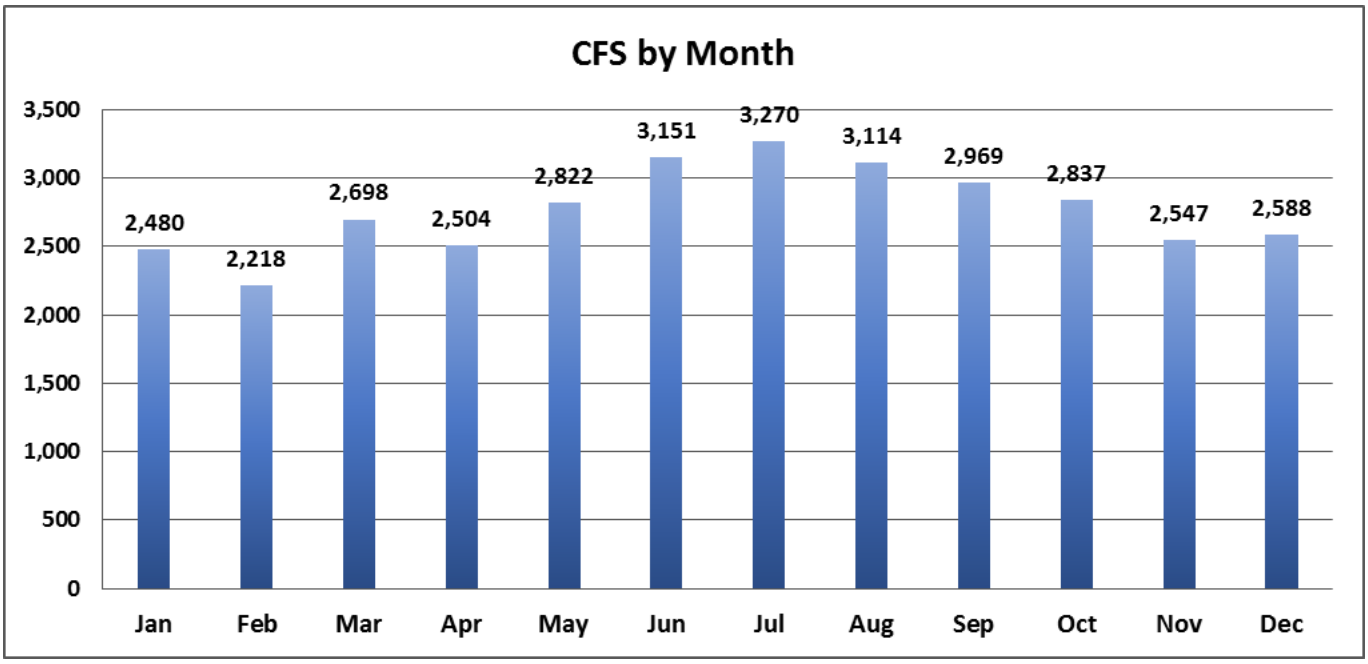

Figure 6

The distribution of calls were divided into months. The peak of CFS occurs for the month of July (3,270) and the lowest during February (2,218). If each month was grouped into seasons we would be able to see the high and low seasons for CFS for the entire year.

CFS by Quarter (city-wide)

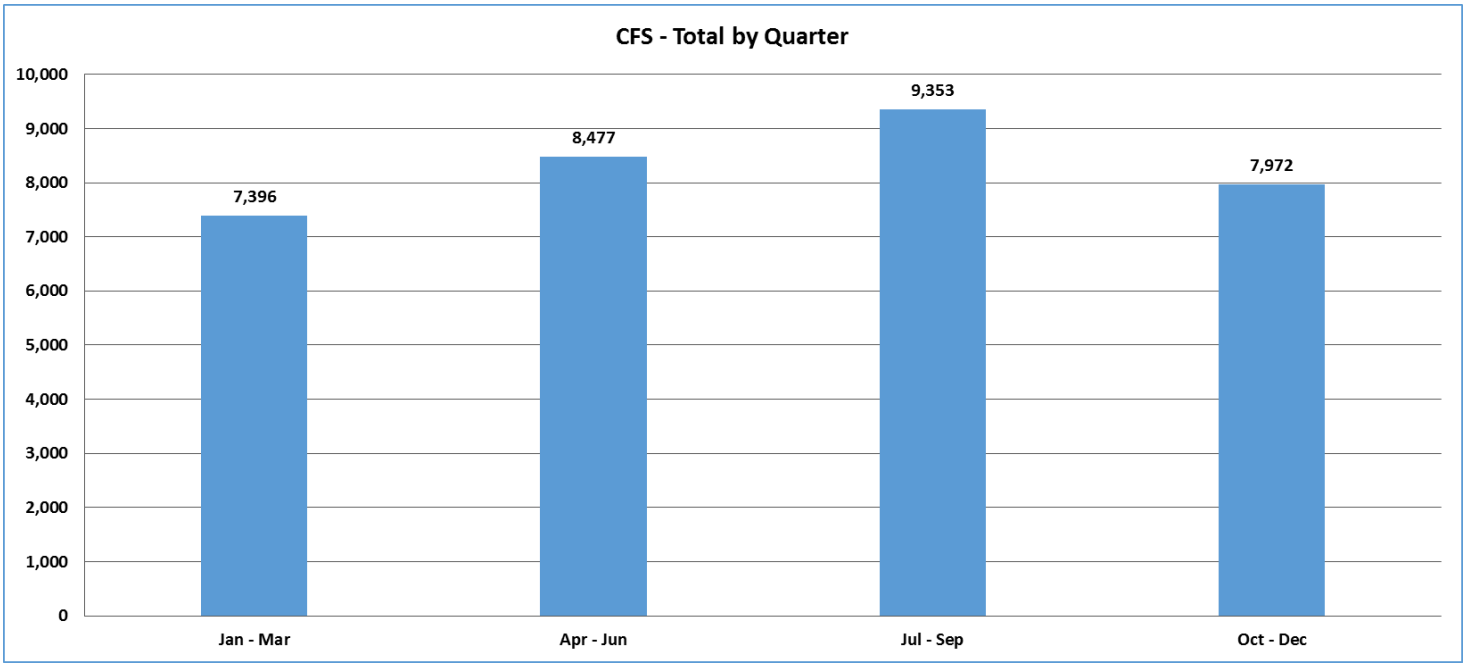

Figure 7

The monthly data provided was categorized by winter (January through March), spring (April through June), summer (July through September), and fall (October through December). To no amazement summer receives the majority of CFS (9,353) and winter the lowest amount (7,396).

CFS by District

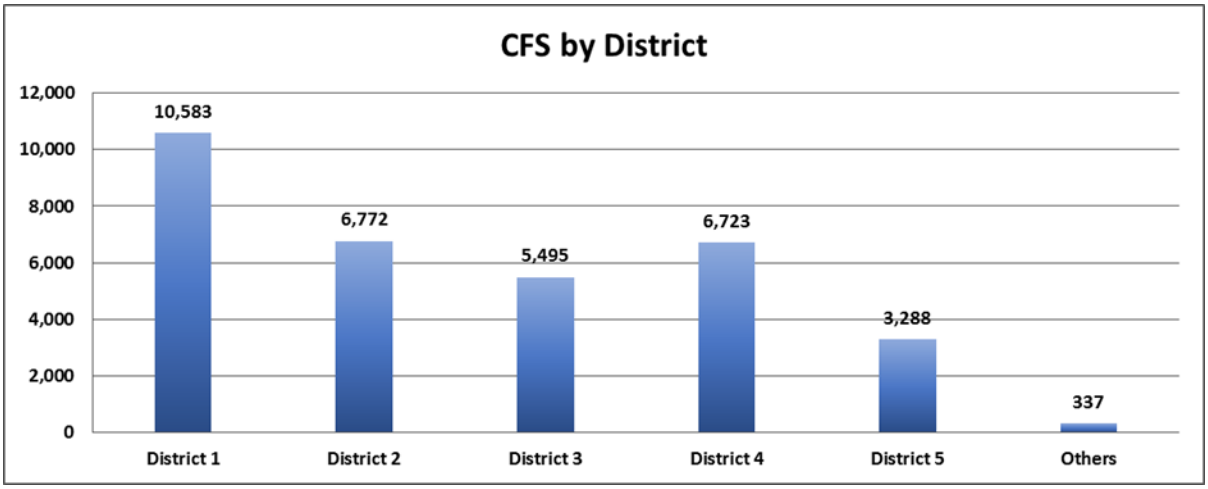

Figure 8

Above in Figure 8 District 1 sees significantly more demand-calls (10,583). District 1 has nearly 3.2 times more CFS than the lowest district, District 5 (3,288). District 1 has approximately 1.6 more CFS than both District 2 and 4 (6,772, 6,723). District 1 has twice the amount of CFS as District 3 (5,495).

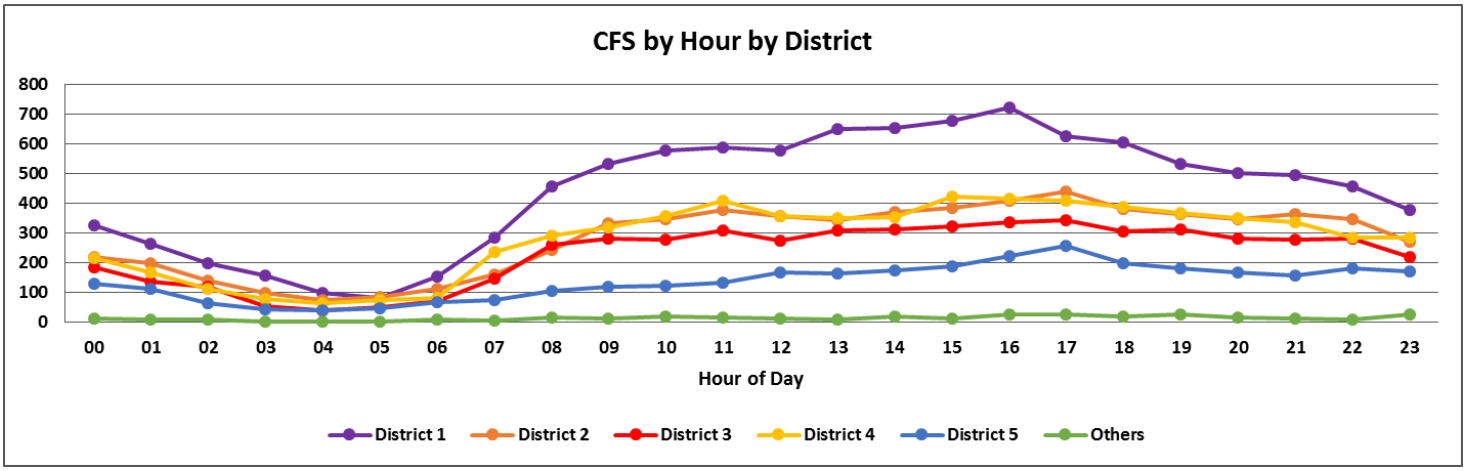

Figure 9

It appears District 1 officers handle more CFS each hour of the day when compared to all other Districts. However, when one compares all districts with each other there is a consistent hourly pattern.

District CFS by Priority Type

	District 1	District 2	District 3	District 4	District 5	Others	Total
P1 Emergency	126	98	67	73	58	17	**439**
P2 Urgent	1,813	1,252	944	1,198	519	54	**5780**
P3 Non-Emergency	5,818	4,103	3,165	3,912	2,187	231	**19416**
P4 Investigation	2	1	0	0	0	0	**3**
P6 Lobby	670	123	154	175	31	1	**1154**
P8 Phone	1,928	1,059	1,079	1,256	439	12	**5773**
P9 Call on Hold	4	1	2	3	0	0	**10**
P10 Traffic Stop	196	129	72	96	43	21	**557**
P11 Dispatch	26	6	12	10	11	1	**66**
Total	**10,583**	**6,772**	**5,495**	**6,723**	**3,288**	**337**	**33,198**

Figure 10

Figure 10 represents each CFS for each district by priority. As would be expected District 1 experiences the most P6 Lobby CFS (670). Data was also computed for each district to understand what percentage of the total CFS was Priority 1 and Priority 2. District 1: 18.3%, District 2: 19.9%, District 3: 18.4% District 4: 18.9%, and District 4: 17.5%. Districts experienced an equal amount of high-priority CFS in proportion to their total CFS.

District 1 Types of CFS

	Hour of Day																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
Citizen Assist	10	10	10	6	3	2	11	12	53	71	85	78	59	80	85	58	84	59	58	41	46	22	19	16	978
Suspicous Circumstances (ALL)	49	54	29	23	12	10	9	11	15	22	28	33	28	28	31	34	37	45	38	47	47	61	64	68	823
Welfare Check	17	10	11	10	3	7	4	11	13	29	38	43	48	40	37	63	67	42	44	37	39	35	25	21	694
Disturbance Related (ALL)	33	22	15	9	6	4	8	13	16	30	21	28	31	31	29	47	33	32	46	45	57	44	44	30	674
Traffic Related (ALL)	18	12	5	8	1	7	9	16	18	17	15	26	25	26	24	32	41	40	43	30	35	33	34	14	529
MVA Related (ALL)	2	2	0	1	2	2	15	17	19	19	15	32	27	40	34	45	53	53	32	28	6	18	4	5	471
Business Assist	22	17	30	22	19	3	9	6	26	17	27	19	15	29	30	17	20	26	10	17	16	13	18	14	442
Other Assist	14	14	13	7	5	0	6	10	20	37	31	23	18	29	28	36	26	12	15	17	12	18	20	24	435
Abandoned Vehicle	8	9	3	0	1	1	4	46	39	22	20	19	25	18	29	22	19	3	5	3	7	2	4	2	311
Alarm-Burglar	16	16	9	19	17	12	14	12	15	8	8	10	11	14	9	7	10	17	15	10	7	8	12	17	293

Figure 11

Since District 1 receives majority of CFS we sought to uncover what types of CFS occur and what time they occur. *Citizen Assists* and *Suspicious Circumstances* are the most prevalent call type. There is a tremendous jump in Citizen Assist CFS starting at the 0800 hour and maintain a high frequency until the 2000 hour. Suspicious Circumstances CFS have a steady increase throughout the day and reach their peak during the night hours. District 1 also experiences high rates of traffic related CFS. Included in this data are Motorist Assists, Traffic Road Rage, Traffic-REDDI, Traffic Road Hazard, and Traffic Careless. Again this data does not include officer-initiated activity.

District 1 CFS by Day of Week/Hour of Day

	Hour of Day																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
Sun	72	55	47	32	13	10	17	27	36	50	53	73	66	72	76	70	94	67	72	70	72	65	56	49	**1,314**
Mon	45	18	23	16	7	15	28	47	70	101	84	89	89	117	108	117	106	93	83	73	83	61	49	40	**1,562**
Tue	39	30	23	16	18	13	28	51	76	86	105	105	80	98	91	116	101	98	88	80	72	73	58	51	**1,596**
Wed	34	33	13	24	15	14	21	49	67	100	86	91	94	98	108	108	107	93	77	77	67	62	60	45	**1,543**
Thu	37	40	35	16	16	13	23	37	85	69	114	92	85	92	96	89	112	102	91	74	60	70	74	37	**1,559**
Fri	39	35	33	20	14	5	20	49	83	68	68	79	89	99	103	93	127	101	97	81	70	76	81	77	**1,607**
Sat	59	52	24	32	17	13	18	26	40	57	66	59	74	74	71	82	74	70	96	77	76	86	79	80	**1,402**
Total	**325**	**263**	**198**	**156**	**100**	**83**	**155**	**286**	**457**	**531**	**576**	**588**	**577**	**650**	**653**	**675**	**721**	**624**	**604**	**532**	**500**	**493**	**457**	**379**	10,583

Figure 12

Friday and Tuesday are the most demanding days for District 1 (1,607, 1,596) and the other week days are not far behind. Additionally, the most demanding time is 1300 through 1800 hours and the weekend experiences the least amount of CFS.

Priority Level and Hour city-wide

CFS by Priority Level and Hour of Day

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
P1 Emergency	3	4	2	3	1	6	15	16	19	8	16	24	33	29	30	52	40	59	26	24	7	12	4	6	**439**
P2 Urgent	324	254	170	116	76	79	67	101	129	184	165	216	234	228	268	287	278	315	348	388	338	444	382	390	**5781**
P3 Non-Emergency	1,010	845	654	406	319	293	396	839	1,259	1,298	1,381	1,344	1,256	1,335	1,381	1,441	1,481	1,436	1,319	1,214	1,207	1,180	1,285	1,156	**25735**
P4 Investigation	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	**3**
P6 Lobby	7	3	1	2	3	0	3	21	44	93	119	123	109	107	111	93	112	76	44	26	32	22	19	4	**1174**
P8 Phone	49	41	37	20	10	20	63	140	295	365	413	433	393	442	424	419	489	428	374	335	278	181	140	98	**5887**
P9 Call on Hold	0	0	0	0	0	0	0	0	1	2	1	0	2	2	1	0	1	0	1	1	0	0	0	0	**12**
P10 Traffic Stop	308	163	64	44	27	24	93	80	277	340	403	281	230	239	269	273	214	335	304	288	359	356	464	427	**5862**
P11 Dispatch	4	2	1	0	1	1	1	3	2	7	6	8	2	5	7	2	6	7	7	4	3	4	6	3	**92**
Total	**1,705**	**1,312**	**929**	**591**	**437**	**423**	**638**	**1,200**	**2,026**	**2,297**	**2,504**	**2,430**	**2,259**	**2,387**	**2,491**	**2,567**	**2,621**	**2,656**	**2,423**	**2,280**	**2,224**	**2,199**	**2,302**	**2,084**	44,985

Figure 13

Next we observe each hour for priority CFS. The majority of P1 Emergency CFS occur from 1100 through the 1900 hour and there are two distinct peaks, one during the early morning hours when citizens travel to work and when people are driving home from work in the evening. The P2 Urgent CFS make a steady appearance from 1700 hours to midnight, and P3 Non-Emergency CFS occur the most frequently and peak during the 1500 through 1700 hours.

P1 Emergency Call Types by Hour of Day

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
MVAs/Code 77	1	1	2	2	1	6	13	14	18	5	12	22	32	28	29	49	35	55	21	23	4	10	4	4	**391**
Suicide Attempt	2	2	0	1	0	0	0	1	0	0	2	0	1	0	0	2	2	3	3	1	2	2	0	1	**25**
SWAT/Civil Disturbance	0	1	0	0	0	0	2	1	1	3	2	2	0	1	1	1	2	0	2	0	1	0	0	1	**21**
Flooding	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	**1**
Other Assist	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	**1**
Total	**3**	**4**	**2**	**3**	**1**	**6**	**15**	**16**	**19**	**8**	**16**	**24**	**33**	**29**	**30**	**52**	**40**	**59**	**26**	**24**	**7**	**12**	**4**	**6**	439

Figure 14

Data was then collected and analyzed to understand the specific type of P1 Emergency calls and the time of occurrence within the city. There is an extremely high frequency of Motor Vehicle Accidents including CODE 77. This also explains the high amount during the noon to 1900 hours. Motor Vehicle Accidents/ CODE 77s do peak at the 1700 hour and surpass all other P1 Emergency calls combined.

CFS by Shift by 8 Hour Segments (city-wide)

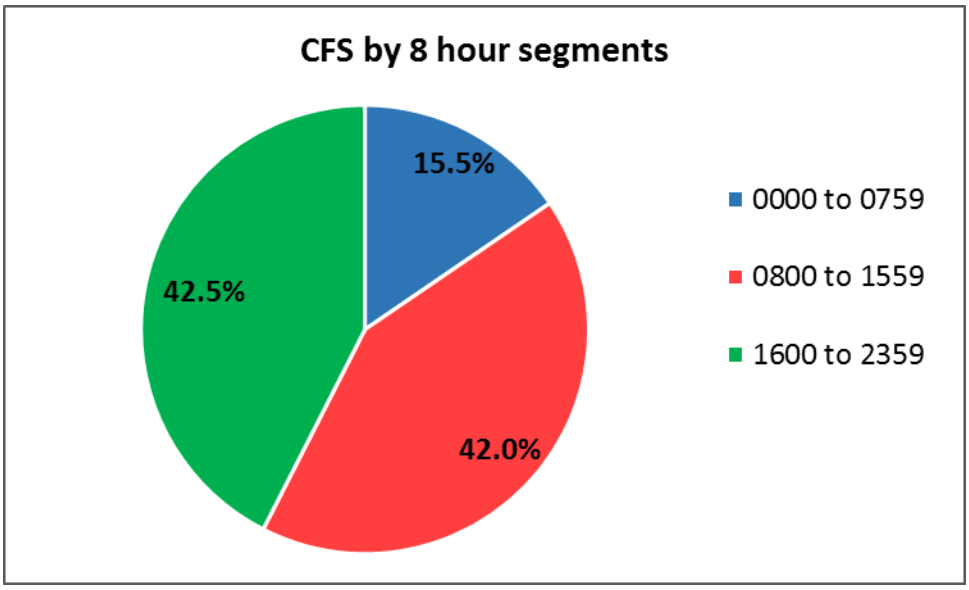

Figure 15

Figure 15 is the percentage of CFS by 8 hours segments. Since there are 24 hours in a day there are three segments. The lowest amount of CFS occurs from midnight to 0759 hours. The other two segments were comparable in percentages: 42.5% and 42%.

List of Call Types and Frequency

Suspicious Circ In Progress	**2,288**
Citizen Assist	**2,195**
Welfare Check	**2,154**
Disturbance Verbal	**1,452**
Business Assist	**1,353**
MVA Non Injury	**1,166**
Abandoned Vehicle	**1,133**
Alarm-Burglar	**1,082**
Other Assist	**1,039**
Civil	**854**
Theft Cold	**771**
Code Enforcement	**685**
Suspicious Circumstance Cold	**643**
Motorist Assist	**615**
Found Property	**606**
Fraud	**565**
Harassment	**560**
Disturbance Physical	**549**
Traffic-Reddi	**525**
Traffic-Careless	**521**

Figure 16

In Figure 16, we observe the top 20 listing of CFS for the city and *Suspicious Circumstances* type of calls topped the list (2,288). These types of calls are situations where the public calls for police assistance for potential criminal activity or if something appears abnormal. The suspicious circumstances in this data includes all cold and in progress suspicious circumstances.

Shift Relief Factor Calculation

Leave Type	Hours			Maximum Possible Hours/Year (47 officers x 10 hour shift x 365 days)	minus	Total Time Off/Year (Hours)	=	Time Working (Hours)	SRF = Max possible / Time Working		
Sick/Medical	5,088.39			**171,550**	-	95,687.02	=	**75,862.98**	**2.26**		
Vacation	4,976.77										
Regular Days off	73,320.00			**SRF = Shift Relief Factor = This is the number of officers (FTEs) we would need to**							
Holiday	3,853.76			**assign to a shift in order to assure that a sufficient number of officers were working**							
Training	3,905.00			**while accounting for various non-post working hours (vacation, sick, regular days off,**							
Other	4,543.10			**holiday, training, etc)**							
Total	**95,687.02**										
				Example:							
2015 Patrol Officer Count = 47				Minimum Officer Staffing Level Per Shift					5		
				Shift Relief Factor (SRF)					2.26		
				# of officers needed to be assigned to the shift					**11.31**		

Figure 17

Data was collected on the amount of benefitted leave time and non-available working time for LPD Patrol officers for 2015 including their training hours. This information was collected from payroll records and the Personnel/Training Sergeant. The **Shift Relief Factor (SRF)** is a calculation that determines the actual number of officers that need to be assigned to a shift in order to assure that an actual sufficient number of officers would be working, while accounting for and accommodating all the various types of benefitted leave and non-available working time.

The **maximum possible hours** (cumulative total for all officers) is the total amount of time available if no leave were taken at all. This is calculated by taking the 47 (# of patrol officers) and multiplying it by 10 (the # of hours in a shift) and then multiplying that by 365 (days in a year). The total time off is the actual total cumulative hours off for the officers. Subtracting the total time off hours from the maximum possible hours gives us the actual working hours (cumulative total). Then dividing the total maximum possible hours available to work (171,550) by the total actual time working (75,862.98) yields a ratio or **Shift Relief Factor (SRF)** of **2.26**.

LPD's current minimum staffing level per shift is 5 officers. Applying the SRF factor of 2.26 to this means if administrators wanted to ensure that a shift minimum of 5 officers actually working on duty for a shift is always met, they would need to assign **11 officers** (11.31 is the actual but was rounded down) to meet the daily demands.

Currently the Patrol assignment schedule assigns 8 officers per day/per shift. Our calculated Shift Relief factor shows that we are deficient by 3 assigned officers per daily shift assignment to meet this on a regular basis. Also since officers work a 4/10 schedule (some work Sun-Wed, Mon-Thurs., Tues-Fri, Wed-Sat, Thurs.-Sun, Fri-Mon, and Sat-Tues) and don't work every day, currently it takes 14 officers assigned to the various over-lapping 4 day assignments mentioned above to have a schedule that actually assigns 8 officers per day/per shift. Under our current scheduling, if we were to meet the Shift Relief Factor calculation of needing 11 officers assigned per day/per shift, it would require 19.25 officers per shift to staff this. This represents a shortage of roughly 5 officers per shift or 15 total officers for staffing purposes.

We currently have 10 officers in the hiring/FTO process, once these officers are assigned to the schedule (likely 4 to Day Shift, 4 to Swing Shift and 2 to Night shift), Days/Swings would have 18 officers staffed which is just short of the 19 total needed to meet the staffing requirements the Shift Relief Factor shows is needed. Night shift would be at 16 and would be 3 short of the 19 needed for staffing the shift (assuming equal staffing amongst all three shifts).

CFS Resulting in a Case Report

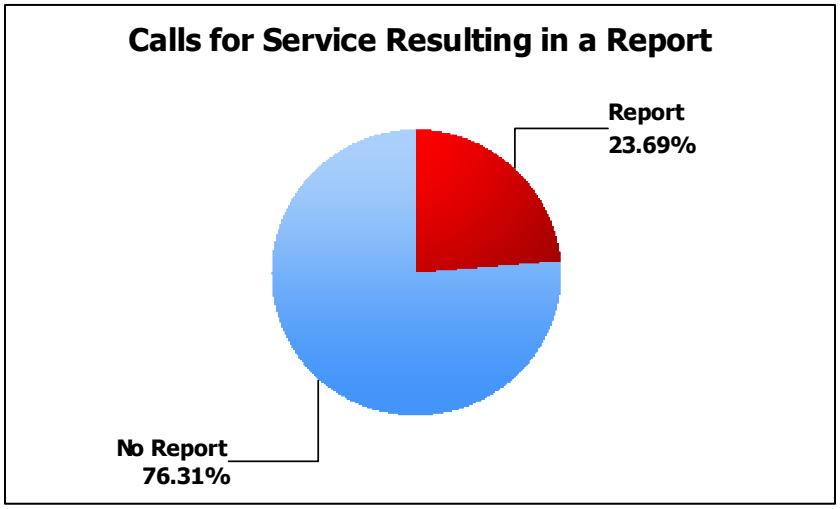

Figure 18

Patrol work frequently requires report writing. Report writing should be taken into account because it can take away officers from other police duties. Additionally, if there is noticeable increase in reports with the same amount of officers over the years it could support the need for more officers. Calls for service resulting in a report was collected for this past year and compared to 2013 and 2014, and the data revealed CFS resulting in reports has had a steady increase over the years. This last year, 2015, 7863 reports were taken by officers. The two prior years had less: 2013 = 7352 reports, 2014 = 7594 reports.

Officer Initiated

Data was collected to understand officer-initiated activities. Included in the data are these types of CFS: Follow Up, Traffic Stop, Bar Check, Extra Patrol, Traffic-Misc., Officer Initiated, Sex Offender Registration, Community Policing, Foot Patrol, Pedestrian Contacts, etc. Officers were fairly proactive during the year 2015.

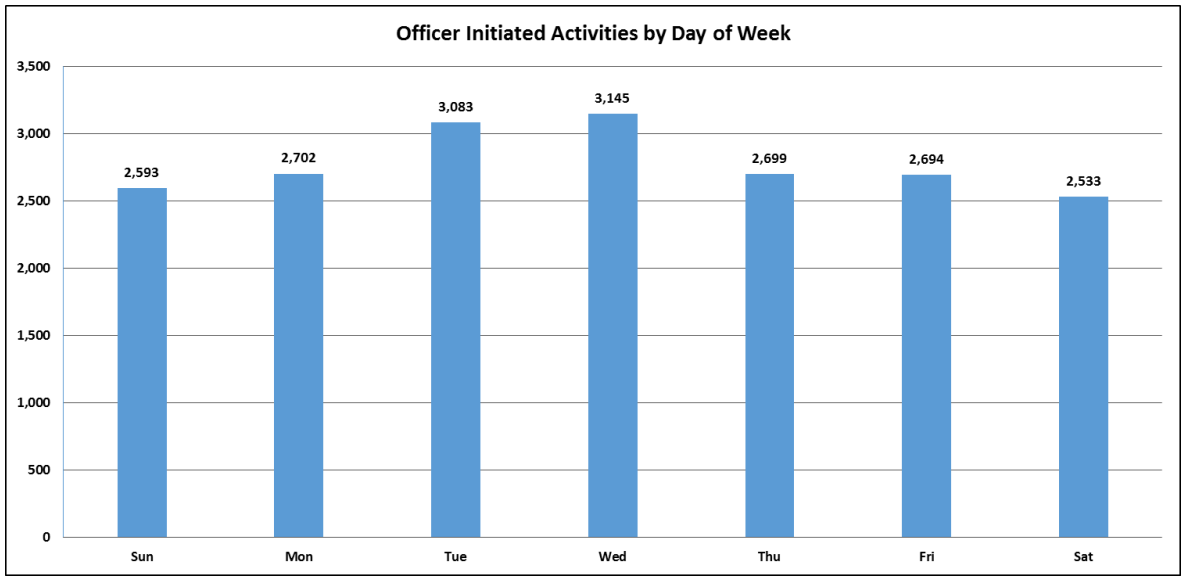

Figure 19

The total officer-initiated activities for the year 2015 was 19,449. Wednesday and Tuesday were the most proactive days for officers (3,145; 3,083). As revealed earlier in the study, Wednesday and Tuesday were also the days the city received the greatest amount of citizen-generated CFS. The total initiated CFS by officers and the days they occur are represented in Figure 19 above.

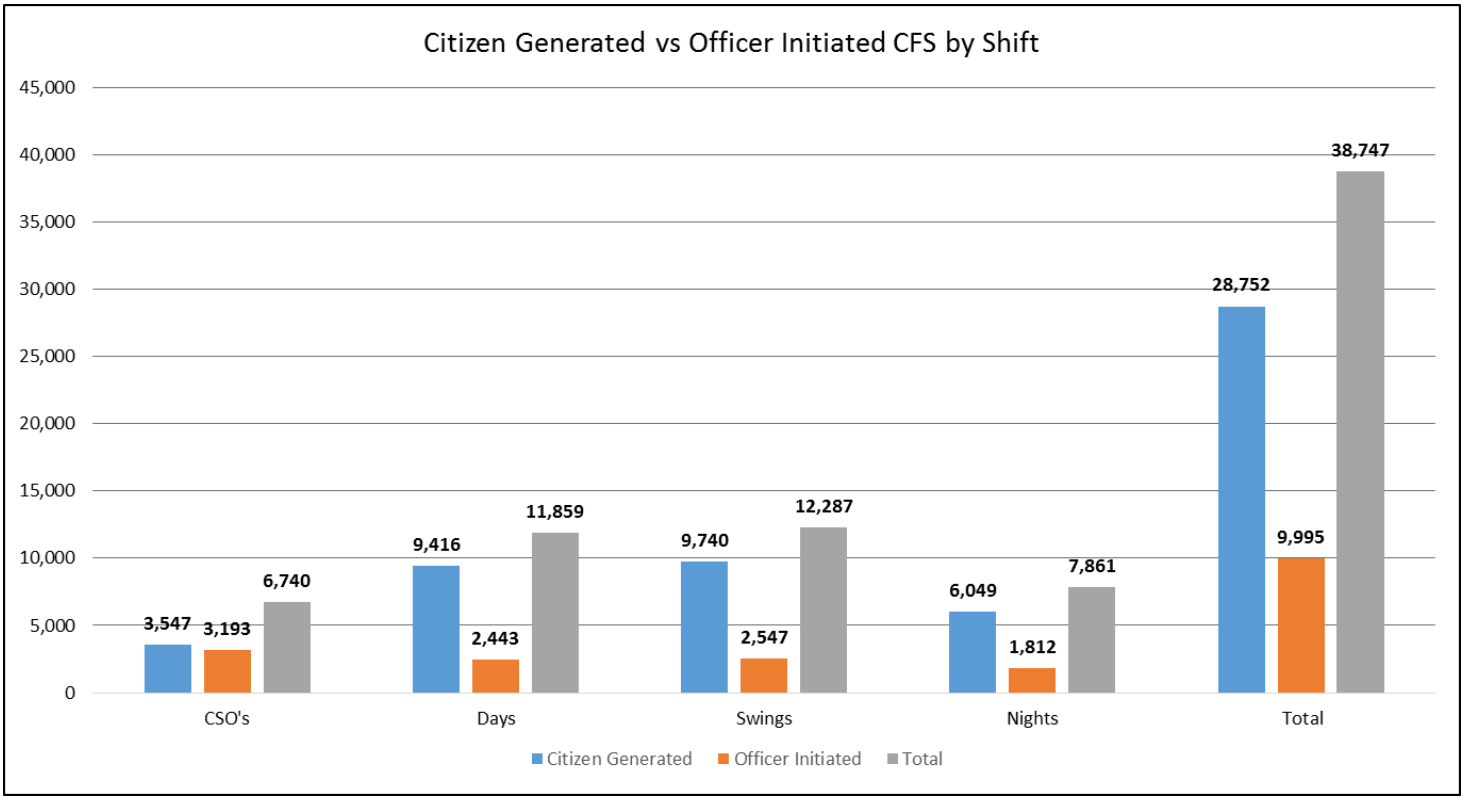

Figure 20

Figure 20 shows the breakdown by shift of citizen generated demand calls versus officer initiated calls. These numbers only count calls for the primary unit on the call and the shift is based on the Shift Designation for the primary unit on the call (Adam, Bravo, and Charlie units) with David and King units being lumped in with Bravo/Swing Shift and CSO's being grouped all together. The Officer initiated call types include: Follow Up, Traffic Stop, Bar Check, Follow Up, Extra Patrol, Traffic-Misc, Officer Initiated, Sex Offender Registration, Community Policing, Foot Patrol, Parking, Pedestrian Contacts, Home Visit, Downtown Parking, Traffic Patrol call types.

Work Schedule

In order to allow a department to work as efficiently as possible it is essential to assess the current work schedule. Questions to consider are: 1) Are resources being used and allocated in the right way? 2) Are officers' schedules aligned with CFS generated by the public? 3) Is the scheduling working for or against officers' productivity?

The current scheduling is a "4-10 plan" with a minimum shift strength of five officers assigned to each shift. The schedule entails three shifts and each officer working four days a week. The shift hours are as follows: Day shift from 0700-1700 hours, Swing shift from 1600-0200 hours, and Night shift from 2100-0700 hours. All shifts overlap except for Night and Day shifts. Uniquely, Swing shift has two patrol units arrive one hour early at 1500 hours and depart at 0100 hours.

If the department were to stay with the current schedule shift plan the shift hours should be altered to align with CFS generated by the public. There is a significant uptick in CFS during the morning starting at 0700 hour. This is the exact hour Day shift comes on duty. The department could consider moving Day shift to an earlier time before the surge to prepare for the high demand of CFS and to be a stronger presence to alleviate Night shift.

The highest peak of CFS for the city occurs at the 1600 hour (2,130), and this is the exact hour Swing shift starts (with the exception of 2 patrol units arriving at 1500 hours). Swing shift should consider working earlier to have a more

effective overlap and take control of the high demand of CFS and alleviate Day shift. We also know from the data that Day shift handles the majority of CFS across the city and even more so during the weekdays.

Platoon Schedule

Until recently, Patrol staffing numbers haven't been adequate to support a platoon scheduling system. A typical platoon schedule used by many agencies is to split the week with a Sunday-Wednesday (Platoon A) side of the week and a Wed-Sat (Platoon B) side of the week. Each side of the week would have the 3 shifts (Days, Swings, and Nights) with Wednesdays being an overlap day and would be utilized for training throughout the month while still providing for adequate street coverage and more efficient training scheduling and attendance.

With the pending increase of 10 officers being added to Patrol staffing, a platoon system would now have the numbers to be implemented. Days and Swings would have 18 total officers, 9 assigned to each day for side of the week. This would exceed our current number of 8 officers assigned per day per shift (but which has been shown is still understaffed according to the Shift Relief Factor). Night Shift would have 16 total officers, with 8 assigned to each side of the week. This would exactly meet the current level of 8 assigned officers per day per shift, which again we know is short of ideal assigned staffing based on the Shift Relief Factor. The purpose here is to show that even being under ideal staffing, we will have the numbers necessary to implement a Platoon Schedule should administration decide to do so.

Supervision

Supervisors are one of the most critical elements within an organization. They have a tremendous amount of influence on subordinates and the quality of their leadership can be measured by the productivity, morale, commitment and emotional well-being of their subordinates (Liu, Diu, & Shi, 2010). Supervisors also serve as mediators between the organization and subordinates so open communication is essential.

At the patrol level subordinates need effective leadership and the opportunity to build relationships with their supervisors. Having inconsistent supervision may be hindering opportunities to have open communication. Designing a schedule with consistent supervision will enhance the relationship between supervisors and subordinate because they have more time together. They may be able to see the supervisor as a mentor and someone who can provide support. Officers who do receive that support are more likely to be committed to their organization (Jaramillo, Nixon, and Sams, 2005).

Continuity of leadership can be improved by moving to a platoon system because the consistent supervision results in more effective communication and relationship building. This in turn assists in improving officer retention.

LPD Overtime

Patrol Overtime				
	Day Shift	Night Shift	Swing Shift	**Total**
# of Hours	1,959.00	1,265.48	3,171.33	**6,395.81**
$	$103,299.39	$59,095.34	$164,277.42	**$326,672.15**

Figure 21

Represented in Figure 21 above is the amount of overtime hours for patrol during 2015. The total amount of money spent on overtime totaled $326,672.15. This amount can assist administrators determine whether it would be beneficial to hire more officers.

Patrol Overtime				
	Day Shift	Swing Shift	Night Shift	**Total**
# of Hours	1,959.00	3,171.33	1,265.48	**6,395.81**
$	$103,299.39	$164,277.42	$59,095.34	**$326,672.15**

Managing the Demand for Police Services

With the information provided thus far we can now start to think of ways to manage the specific needs of the community.

The data previously revealed that District 1 received a vast amount of CFS compared to all other districts (10,583). District 1 encompasses the downtown area which demands a lot of officer time. A call-load analysis was conducted for that area and CFS data was extracted from a north/south boundary set at 1st Street to 10th Street and an east/west boundary set from the railroad to Adams Avenue. The total CFS within that set boundary is approximately 2,773 for the downtown area making up 26% of all CFS for District 1.

Traffic

Managing the increase of traffic related CFS should be another focus for Loveland Police Department. District 1 has an impressive amount of MVA totaling 471 and District 5 had 308. The city's Priority 1 Motor Vehicle Accidents/Code 77s peak during the "rush-hour" at 1700 hours (55). Overall, three of the top twenty city-wide CFS are traffic-related. The highest ranking traffic-specific call on the city-wide list is MVA non-injury ranking #6 (1,166). Combining the top three traffic related CFS on the city's top 20 list would surpass the #1 CFS Suspicious Circumstances.

Top Intersections for Collisions	
	Total
5700 E Eisenhower Blvd - Dist 1/5	48
37th St & Garfield Ave - Dist 2	24
Eisenhower Blvd & Boyd Lake Ave - Dist 1/5	24
Eisenhower Blvd & Lincoln Ave - Dist 1	21
Eisenhower Blvd & Taft Ave - Dist 3	21
Eisenhower Blvd & Centerra Pkwy - Dist 1/5	19
Eisenhower Blvd & Cleveland Ave - Dist 1	18
Eisenhower Blvd & Wilson Ave - Dist 4	18
Eisenhower Blvd & Boise Ave - Dist 1	17
Eisenhower Blvd & Denver Ave - Dist 1	17
Lincoln Ave & 14th St SE - Dist 1	17
Others	1,888
Total	**2,132**

Figure 22

To assist in the management of traffic related issues we sought to understand the top intersections for vehicle collisions. According to the results in Figure 22, 5700 East Eisenhower Boulevard near Interstate 25 leads with 48. The next top intersections are 37th St. and Garfield Avenue, and Eisenhower Boulevard and Boyd Lake Avenue (24, 24). It should be noted there are no strict guidelines outlining which side of the street belongs to which district, so vehicle related CFS may be assigned to a bordering district officer.

ACCIDENTS **TRAFFIC STOPS**

Top Intersections for Collisions			Patrol Only (no traffic units)	
	Total			**Total**
5700 E Eisenhower Blvd - Dist 1/5	48		802-1399 W 1ST ST	**118**
37th St & Garfield Ave - Dist 2	24		2600-2799 S TAFT AVE	**91**
Eisenhower Blvd & Boyd Lake Ave - Dist 1/5	24		N Boise Ave & E Eisenhower Blvd	**40**
Eisenhower Blvd & Lincoln Ave - Dist 1	21		2100-2447 S LINCOLN AVE	**37**
Eisenhower Blvd & Taft Ave - Dist 3	21		888-959 E 29TH ST	**36**
Eisenhower Blvd & Centerra Pkwy - Dist 1/5	19		2100-2199 N WILSON AVE	**33**
Eisenhower Blvd & Cleveland Ave - Dist 1	18		1500-1899 S LINCOLN AVE	**31**
Eisenhower Blvd & Wilson Ave - Dist 4	18		N Denver Ave & E Eisenhower Blvd	**31**
Eisenhower Blvd & Boise Ave - Dist 1	17		N Madison Ave & E Eisenhower Blvd	**31**
Eisenhower Blvd & Denver Ave - Dist 1	17		3800-4199 ROCKY MOUNTAIN AVE	**29**
Lincoln Ave & 14th St SE - Dist 1	17		4100-4299 N TAFT AVE	**29**
Others	1,888		Others	**5,549**
Total	**2,132**		**Total**	**6,055**

Figure 33

We then obtained data on where patrol officers were conducting the majority of their traffic stops. Were officers initiating traffic stops in or near those problem intersections? Figure 23 shows three of the locations matched and are highlighted yellow. Officers are being proactive in three of the eleven top intersections for traffic collisions.

Top Hit and Run Locations	
	Total
1275 Eagle Dr	**12**
1325 N Denver Ave	**12**
253 E 29th St	**8**
920 W 29th St	**8**
1100 Nickel Dr	**6**
E 29th St & Buchanan Ave	**5**
N Boise Ave & E Eisenhower Blvd	**5**
1451 W Eisenhower Blvd	**4**
1725 Rocky Mountain Ave	**4**
2500 Rocky Mountain Ave	**4**
5700 E Eisenhower Blvd	**4**
Others	**486**
Total	**558**

Figure 24

Represented in Figure 24 are the top locations for Hit and Runs. They occur throughout the city and their frequency is not too concerning, however, we still included into the analysis. The top location for hit and runs is 1275 Eagle Drive, King Soopers. The results reveal the often occur in parking lots near grocery stores and shopping areas.

Support Unit Staffing

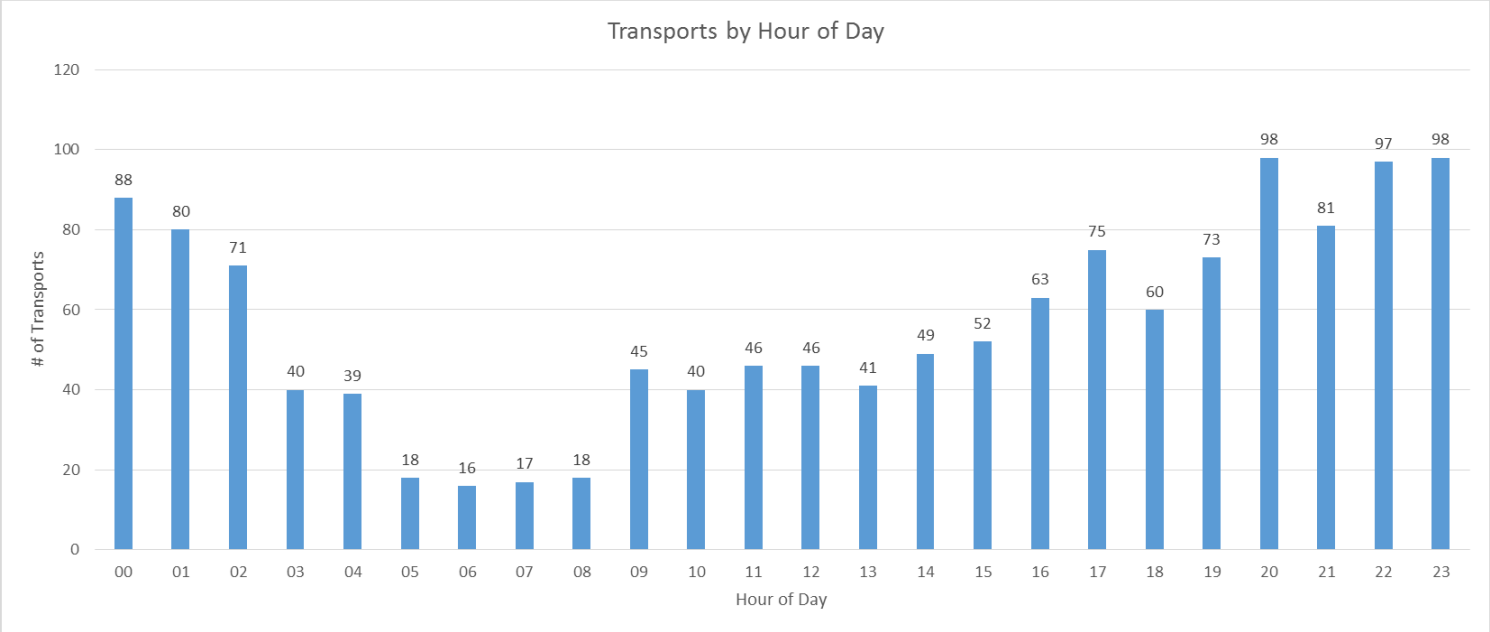

Figure 25

The Loveland Police Department staffs **Community Service Officers (CSO)** who are non-sworn personnel who handle an array of community and department needs. One of those needs is transporting those in custody to the county jail. When a CSO is not available patrol officers are then tasked to transport individuals. Figure 28 above represents the total amount of transports for both CSOs and patrol officers for each hour of the day. The majority of transports occur from 1600 hours to 0200 hours, Swing Shift (884).

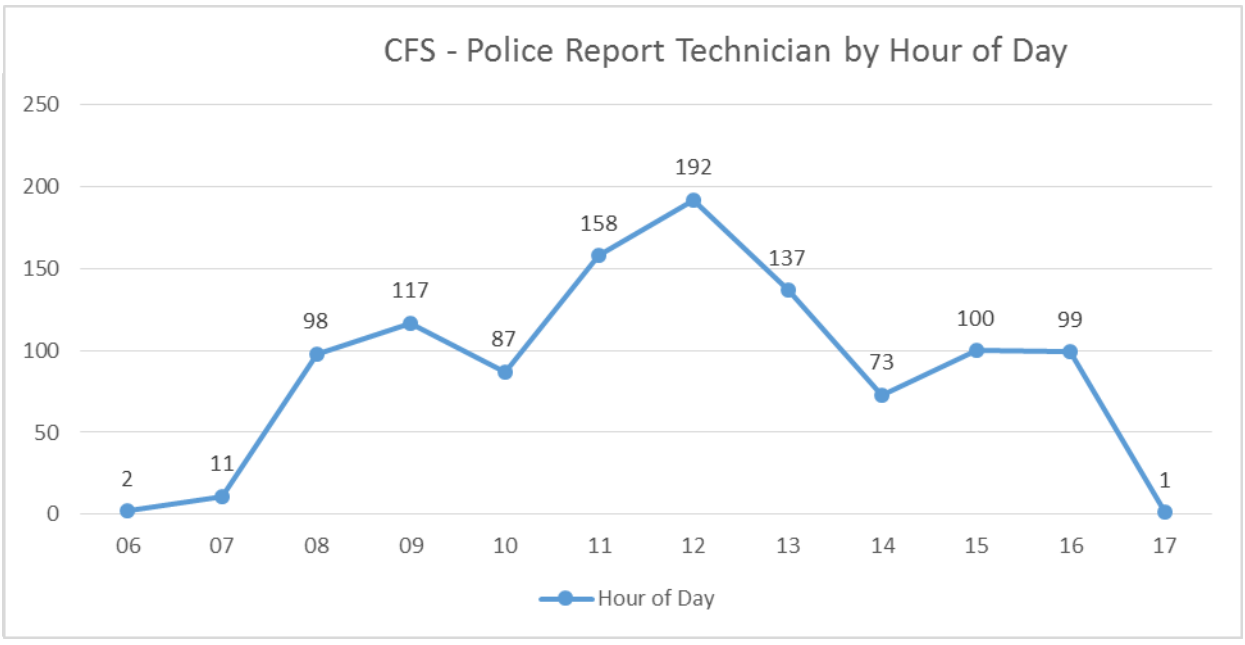

Figure 26

The department also staffs a Police Report Technician to handle a portion of the walk-in lobby CFS that resulting in case reports in order to decrease the demand of officer time. This service includes taking crime reports, such as: fraud, burglary cold, theft cold, harassment, abandoned vehicle, etc. The Police Report Technician handled a total of 1,075 service calls. During a work week the Police Report Technician handles an average of slightly more than 4 CFS a day, most often resulting in a report. The top three service calls are abandoned vehicle (299), theft cold (146) and fraud (125). There is also little variation for the amount of CFS between the days of the week. However, there is variation for each hour of the day. The majority of CFS occur during or around noon time.

LPD and Community Expectations

In June of 2015 Loveland Police Department conducted a city-wide Public Safety Survey with to assess the current attitudes and concerns of the community in relation to how safe they felt in their home, neighborhoods, and city in general. Understanding their concerns can provide insight into problem areas. There is a general positive attitude about the security of neighborhoods. Approximately 92% of the sample population surveyed stated they feel safe and secure in their neighborhoods. However, there are some strong concerns from residents and the top two being identity theft and road rage. Approximately 41.2% of respondents were “moderately” to “very concerned” about road rage. Respondents were also given the opportunity to add any additional comments to their survey. Without any leading statements in the comment section to prompt respondents, a vast majority remarked about traffic issues, a sampling is listed below:

Cars speeding in school zones when lights are flashing, cars speeding, loud noises when cars are speeding.

I would like to see some speed bumps put in on Birch Dr. I have reported speeders a number of times.

We do love living here and appreciate our police protection. The increased traffic is annoying trying to get out of Antero onto Taft as cars come too fast south on Taft - would appreciate more patrol cars to slow them down before we get killed.

We feel pretty safe on 5th Street. Some concern about speeding and with activities on weekends from downtown bleeding into area. Would like to see police drive thru more often, please.

Amazing the amount of people/cars that speed and run the "very red" light at Madison and Silverleaf!

I think more police presence city wide on our streets would help a lot. Also, enforce the speed limits and driving rules. Fines would help create more $ for the department.

Speeding cars are a very large problem on Madison and 6th street.

People cruise through Cheyenne Street often, whilst children in the area. There's too much traffic in this city. I feel safe.

About drivers; glide through stop signs, so many don't use turn signals, high school kids drive too fast in child play neighborhoods.

Speeding on Taft north of 37th street. Speeding on Duffield north of 37th Street. I'm very concerned about red light runners in the town as a whole. Speeding limit to high on Eisenhower east of Boise.

Conclusions and Recommendations

Traffic

It is recommended that the Traffic Unit adequately staff officers on Swing shift to meet the high volume of traffic-related CFS and high frequency during the 1700 hour. Also, a majority of collisions occur on Eisenhower Boulevard. Steps should be taken to suppress the high amount of vehicle-related incidents. Taking the steps to improve the traffic concerns will increase safety for citizens and also build a rapport with citizens because they know the department is listening to their concerns.

Staffing

As suggested in the beginning of the study, organizations that seek to improve productivity in the work environment find workplace stressors. Well simply being understaffed may be the biggest stressor for officers and supervisors. According to our analysis the department needs approximately 11 officers staffed each shift (SRF=2.26), and this is just to meet the workload demand. If the department wants to consider proactive policing they would require even more officers than the suggested SRF.

It is widely accepted that proactive policing is a successful form of policing. Proactive policing as compared to reactive policing can prevent future calls for service, improve the quality of life for citizens, save the city money, and build trust with citizens (which is invaluable during a time of crisis). If we look at the number one call for service generated by citizens in 2015 it is *Suspicious Circumstances in Progress* (2,288). This type of CFS requires a purely reactive response from police. However, one could assume that our #1 CFS would dramatically decrease if there were more officers deployed on the streets and given the opportunity to conduct proactive policing.

It is also recommended that Loveland Police Department seek a different shift schedule. A schedule with consistent supervision for officers and set days for training can be beneficial.

The data has shown a significant amount citizen-generated CFS during the week and decreasing on the weekend. If the week was split exactly in half, CFS would be near equal to each other. This of course would require splitting Wednesday CFS in half. The total CFS for Sunday, Monday, Tuesday, and half of Wednesday totals 16,522. The total CFS for half of Wednesday and Thursday, Friday, and Saturday totals 16,675.

Data Limitations/Issues

In conducting the workload study, some data issues/limitations were encountered. One of these concerns call dispositions. As indicated earlier in the study, all call dispositions with a “Canceled by” were excluded. This would be Cancelled by Complainant, Cancelled by Supervisor, etc. There are 17 variations of the Cancelled by Complainant dispo code in the CAD system. The issue that was discovered is that there are 1721 calls for 2015 that had a “Cancelled by” disposition and of these 1142 actually show officer time being spent on the call of 5 or more minutes. There doesn’t appear to be a clear/consistent method for the use of this disposition in a way that allowed us to easily filter these calls that didn’t have officer time spent and those that did. So the decision was made to exclude them all.

This issue is being brought to inform that the 1142 calls where 5 or more minutes of officer time was actually spent, represents 717.5 hours of total officer time that was not accounted for in this study due to being excluded. This issue needs further discussion with stakeholders, including Dispatch, in order to determine a better and more consistent application of this disposition code that doesn’t create data measurement issues.

Another data issue that was found is the categorization of “Lobby Calls” as well as the assignment of the District given to a call. There is a priority code (P6) that is categorized as Lobby calls (regardless of actual location of the incident). There are also present in the data, address locations that do not match with the district it actually is associated with. We found that many Follow Up call types were associated with District 1, only because the officer was at the station doing Follow Up, even

if the Follow Up was related to case/call originating in a different district. These and other data issues need to be looked at, not just for this study but when encountered as part of any performance or other measurement statistic. Establishing business rules for data entry and process flow and utilizing exception reporting to catch errors would significantly help to minimize these errors/anomalies and ensure more accurate/precise performance measures and statistical reporting.

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