



2017 Patrol Staffing Report

In 2007, the Madison Police Department contracted with Etico Solutions, Inc., for the completion of a patrol staffing study. The Etico study was completed in mid-2008. Along with the final report, Etico provided the department with spreadsheets that captured the methodology used in the study, so that the department can replicate the process using updated data to analyze patrol workload and staffing needs. This process was repeated for a number of years (2009, 2010, 2011 and 2012); the results were used to estimate overall MPD patrol staffing needs and to allocate existing MPD patrol resources.

In 2012, MPD transitioned to a new records management system (LERMS). The following year the Dane County 911 Center transitioned to a new CAD (computer aided dispatch) system (Tri Tech). These transitions created some significant obstacles to performing this analysis, and the process was not completed for the years 2013 or 2014. The annual analysis resumed in 2016 (examining 2015 data), and this report examines 2017 data.

Executive Summary

A summary of the 2017 patrol staffing report:

- Reactive patrol workload increased to **145,673** hours in 2017. This reflects an increase of about 5% over 2016.
- The shift relief factor (SRF) for MPD's patrol officer function was **1.95** in 2017. This means, generally, that MPD needs to have 1.95 officers assigned to patrol for each position to be staffed daily. This is a reduction from 2016, when the shift relief factor was 2.0.
- In 2017, the MPD patrol function spent an average of more than **36** minutes per hour on reactive (or obligated) work.

- The City and MPD have taken steps to improve patrol staffing. An additional eight (8) police officer positions were authorized in MPD's 2018 budget. These officers have been hired and are in training, but will not benefit patrol until 2019. Also, MPD eliminated seven (7) non-patrol police officer positions in 2017 and re-allocated the positions to the patrol function.
- 2017 patrol workload and leave time data demonstrate that MPD patrol staffing should be 226 officers. Meeting this standard would require the addition of sixteen (16) officer positions to patrol.

Methodology

As a review, the Etico methodology seeks to accurately estimate appropriate patrol staffing needs based on actual patrol workload and leave information. This provides a much more accurate reflection of patrol staffing needs than other methodologies, such as officer-to-population ratios, benchmarking, crime rates, etc. This methodology is consistent with the Police Personnel Allocation Manual, developed by the Northwestern University Center for Public Safety. It is also consistent with police staffing formulas recommended by the International Association of Chiefs of Police (IACP). In fact, the Etico methodology is more accurate (though also more labor-intensive) than the IACP process. The process does not directly address staffing for positions other than patrol officers. However, some positions – particularly patrol sergeant – have a direct relation to patrol staffing levels.

The first portion of the Etico analysis entails determining total patrol workload. Most of this data is obtained from the Dane County Public Safety Communications Center's Computer Aided Dispatch (CAD) records. This data is supplemented by dictated and field report data, so that an average total officer time required for each CAD incident type can be calculated. Then, once the total number of incidents is determined (also from CAD data), the total officer workload is calculated. Time spent on administrative functions is also factored in to this calculation. The 2017 analysis also incorporates officer time spent completing Tracs crash reports (these are the electronic State of Wisconsin accident reports; prior years have not included this data).

The second portion of the process is an analysis of officer leave time. Officers assigned to patrol do not work 365 days a year (they have regular days off as well as leave time days, such as vacation), and not all work days are assigned to the patrol function (training, special assignment, etc.). An analysis of leave time will determine the shift relief factor (SRF), a number indicating how many total officers in patrol are required to field one officer daily.

The final component to determining patrol staffing needs is finding the proper balance between reactive and proactive work (also referred to as obligated and unobligated time). Most of the officer workload data captured through the CAD reflects reactive work (generally, officers responding to calls for police service). However, the community expects a certain amount of proactive work from officers. This proactive work can focus on problem solving, community engagement and building relationships. If too little time is allocated to proactive work, an adverse impact on reactive work will also be observed (reduced visibility, increased response times, etc.).

Analysis of 2017 MPD Patrol Workload

The changes to MPD's RMS and Dane County's CAD have created some challenges to performing this analysis. For example, MPD has historically utilized slightly more than 100 incident types to categorize the calls that officers respond to. The Tri Tech CAD has almost 800 law enforcement incident types. Converting these fields requires additional processing, and creates some limitations when comparing current data to historical data.

Analysis of MPD's 2017 patrol workload began with a data output from the CAD. The file contains more than **20 million** data fields. This database was then filtered to remove records not related to MPD patrol workload. This is done primarily by unit ID (radio call number). The 2017 analysis included **only** CAD records assigned to MPD patrol officers (as well as officers assigned to the Downtown and Southwest Safety Initiatives).

The 2017 analysis (like that of prior years) did not include any incidents handled through the self-reporting process. The self-reporting system was established to reduce patrol workload, by having citizens self-report certain types of minor incidents. Many of these incidents reflect events that MPD – and, certainly, the community – would like to have a patrol officer respond to. However, due to patrol workload officers are not able to respond to these incidents, and the self-reporting unit was created to provide some level of MPD service. Future consideration should be given to including at least a portion of incidents handled through the self-reporting system in the workload analysis. The purpose of inclusion would be to consider work currently handled through self-reporting when determining patrol staffing levels, as most citizens would likely prefer that this work be handled by an officer in person rather than through self-reporting.

In addition to CAD patrol workload data, a few additional sources are relevant. Time needed for report completion has a significant impact on patrol workload, and is often not captured in CAD workload. A combination of actual report data (from the system server), and survey results are used to determine average report times (for field reports, dictated reports and Tracs crash reports). The original Etico methodology added report times (based on field report and dictated report data) to the per-incident reactive workload. This did not account for the fact that some reports are completed while an officer is still assigned to the incident on the CAD. A survey was completed to obtain estimates of how often officers complete reports (both field and dictated) while still assigned to the incident on the CAD. This was then accounted for in the calculations to avoid double counting any officer time in the reactive workload.

Also, officers spend time each day on a variety of administrative tasks. These include squad fueling, equipment maintenance, etc. These activities are generally not tracked on the CAD. During the initial Etico report, a sample of patrol officers completed daily logs to estimate daily administrative time. This survey process has been repeated since then, and a multi-year weighted average was used in the calculations. Because administrative time is not captured on the CAD and is estimated using surveys, and due to how the Etico formulas are set up, administrative time is not reflected in reactive time per hour. It is reflected in the overall needed patrol staffing calculation, but administrative time actually reflects additional required workload beyond reactive time.

The final portion of the workload analysis is distinguishing between reactive and proactive work. This is done primarily by incident type. Some call types (like foot patrol and traffic stops) are

designed to capture proactive work and are excluded from reactive workload. Other call types are likely to capture both reactive and proactive work. These include traffic incidents, traffic arrests, check person and check property incidents. An estimated split between reactive and proactive incidents for these call types was determined (based on CAD data) and a portion was excluded from reactive workload:

Incident Type	Reactive/Proactive split
Traffic Arrest	50/50
Traffic incident	25/75
Check Person	90/10
Check Property	90/10

Note that the CAD workload analysis certainly understates the actual workload demands on the MPD patrol function. Two factors demonstrate this:

- Patrol officers engage in some work – both reactive and proactive – that they do not call out to dispatch (and is therefore not captured on the CAD). Most commonly, this occurs because officers want to be in service, and available for incoming calls. It can also be a result of radio traffic volume, and an inability to get on the air to notify dispatch.
- More significantly, some patrol work is unquestionably handled by non-patrol personnel on a regular basis. This includes operational personnel (CPT, neighborhood, etc.) but can include any unit types (command, detectives, etc.). However, CAD data provides no way to differentiate between patrol-related and non-patrol related activity engaged in by these units. Limiting the workload analysis to patrol officer workload only is an extremely conservative approach to assessing MPD patrol staffing needs.

Results of Workload Analysis

The data showed **127,193** patrol incidents in 2017 (meaning 127,193 CAD incidents that had a patrol officer assigned, or an officer assigned to the Downtown or Southwest Safety Initiative), and **145,673** hours of reactive patrol workload.

It is important to recognize that this data is based on incidents as tracked in the CAD, and not on IBR data. When a Public Safety Communications Center employee takes an initial call from a citizen on an incident, a CAD incident – with an incident type – is created. Often, investigation will show that a crime other than that initial incident type was committed. Sometimes the CAD is not changed to reflect this. So, the incident totals analyzed in this report will not match MPD's IBR data in all instances.

Patrol CAD incidents declined from 132,368 in 2016 to 127,193 in 2017. However, reactive patrol workload increased from 138,862 hours to 145,673 hours. This pattern is consistent with that seen from 2015 to 2016 (fewer patrol incidents but more overall workload). When looking at these figures, it is important to recognize that patrol incidents include all CAD incidents (proactive and reactive) that had a patrol officer assigned, while reactive workload excludes proactive work.

This demonstrates that officers have less time to engage in proactive work. Much of the reduction from 2016 to 2017 can also be attributed to a change in 911 Center policy about dispatching 911 disconnect incidents. This change led to a reduction in 911 disconnect incidents (from 2016 to 2017) of more than 3,700 (73% of the total reduction in patrol incidents).

Instances where MPD limits officer response to emergency/priority calls also impacts the overall number of patrol incidents. Regularly, the MPD Officer in Charge (OIC) will notify the 911 Center that MPD patrol officers will only respond to emergency or priority calls. This is typically a result of significant call volume or a single major incident. During these time periods, routine calls for police officers are not serviced, impacting the overall number of MPD patrol incidents. In 2018, a new procedure is being implemented in an attempt to better track the times when this occurs.

As indicated above, CAD data certainly understates the actual amount of MPD patrol workload. It is very common for other operational MPD units (CPT, neighborhood officers, patrol sergeants, etc.) to assist with patrol work, and this workload is excluded from this analysis. However, if only 10% of the CAD workload of these unit types was considered to be patrol-related and included in this analysis, that would increase reactive workload by almost 3,000 hours.

Shift Relief Factor

The second component of the Etico methodology is to determine the shift relief factor (SRF). Officers do not work every day of the year, and on some days they work, they work in a non-patrol capacity (training, special assignments, etc.). Once calculated, the shift relief factor reflects the number of total officers required to staff one shift position every day of the year.

There are several components to the shift relief factor: regular days off; leave time; non-patrol time; and net-compensatory time. Leave time includes regular work days that an employee does not work (vacation, sick time, etc.). Non-patrol time includes work days where the employee works in a non-patrol capacity (training, special assignment, etc.). Net compensatory time is the net gain or loss in patrol work due to the amount of overtime worked (in patrol) and compensatory time off taken (by patrol staff).

The shift relief factor calculation also factors in the impact of the staffing contingency plan on patrol staffing. The staffing contingency plan has been utilized for a number of years, and requires sergeants and officers assigned to non-patrol positions to work multiple patrol shifts a year. The objective is twofold: to reduce overtime costs by filling patrol staffing shortages with non-patrol personnel, and to ensure the readiness of all MPD personnel to perform the patrol function if needed. For simplicity, staffing contingency was figured into the net comp time calculation. Only those staffing contingency shifts assigned to account for staffing shortages were included in the 2017 calculation.

Leave time in 2017 was analyzed for the pool of patrol personnel who were in patrol positions for the entire year. This was a pool of 158 officers. Leave time was then calculated as an average number of days per year per officer:

Leave/Benefit/Non-patrol Time:

Category	Days
Administrative Leave	.22
Bereavement Leave	.44
Family Leave	4.29
Holiday Leave	1.75
Sick Leave	3.74
Jury Duty	
MPPOA Earned Time Off	.99

Category	Days
Vacation Leave	15.27
Workers Comp Time Off	1.15
Light Duty	7.89
Special Event	.24
Special Assignment	4.26
Training	8.12
Military Leave	4.17

Net Compensatory Time:

Comp Time Used	Days
Comp Time Off	13.9

Overtime Worked	Days
Patrol Overtime	9.50

[Net compensatory time also includes staffing contingency days worked and shift change RDO adjustments]

These figures compare with prior years as follows:

Time Off Category	2008	2009	2010	2011	2012	2014	2015	2016	2017
Regularly Scheduled Days Off	121.67	121.67	121.67	121.67	121.67	121.67	121.67	122	121.67
Admin & Benefit Time	29.91	29.77	27.5	26.94	26.91	28.319	27.346	32.78	30.65
Non-Patrol Time	19.07	21.97	22.88	24.5	20.47	25.30	21.40	24.04	21.13
Net Comp Time Off	9.47	6.40	9.92	7.42	8.24	6.73	7.76	4.43	4.4
Totals	180.12	179.81	181.54	180.25	177.29	182.02	178.17	183.25	177.85

Most leave time is non-discretionary, being either contractual (vacation, compensatory time, etc.) or legally required (military leave, family leave, etc.). Some categories of non-patrol time are also non-discretionary (light duty, required training, etc.).

The average time away from patrol per officer in 2017 was lower than in 2016, and was very close to the average (for the years that the calculation has been done). However, net comp time off continued to decline in 2017. This reflects difficulty in getting time off and additional patrol shifts/work being covered by non-patrol personnel.

Utilizing the Etico shift relief formula, this data results in a shift relief factor of **1.95**. This means, generally, that MPD needs to have 1.95 officers assigned to patrol for each position to be staffed every day of the year. This figure has remained fairly consistent (generally in the 1.95 – 1.98 range) since 2008. The 2017 shift relief factor reflects a reduction from 2016, when the SRF was 2.0.

Note that the shift relief factor reflects the actual level of non-patrol and leave time, which is not necessarily the desired level of non-patrol and leave time. The Etico process does not include any mechanism to work any subjective variable into the shift relief factor calculation. So, any consideration of desired non-patrol/leave time must be factored into the desired proactive/reactive time breakdown.

Workload Balance

The final component of the Etico methodology is to determine the proper balance between officers' reactive work time and proactive work time. The analysis of patrol workload is used to determine officers' reactive time. Once the balance between reactive and proactive time is determined, total patrol staffing needs can be calculated. The Etico report articulated the reasons for balancing reactive and proactive time:

Including an appropriate amount of proactive time provides benefits for the agency, the officer, and the citizens of the jurisdiction. In fact, a lack of sufficient proactive time can negatively impact the ability of an agency to provide optimal police services to the community.

Among the arguments for including proactive time is the need to avoid having officers running from call to call. Agencies that operate in such an environment report several drawbacks. The most obvious is the inevitable officer burn-out that can occur. Less obvious is the loss of information that may help to solve a crime. It is conventional wisdom for police investigations that the solvability of a case begins to deteriorate from the moment the incident occurs. If the initial responding officer is rushed to move on to the next call, there is a greater chance that important follow-up opportunities and information will not be collected, diminishing the solvability of the case.

Another drawback is the loss of time for on-the-job training...when corrective action is needed by (a) supervisor, proactive time must be available. If officers are clearing calls and going directly to the next call throughout the shift, the supervisor will not have the training opportunities needed to help officers avoid future mistakes.

A lower level of reactive time per hour improves police service, professionalism, and responsiveness to the community. Ensuring adequate proactive time also has a direct effect on a number of patrol performance measures (such as visibility and response time), impacting the quality of police service delivered to the community. A fundamental component of providing police patrol services is that officers are available when calls are received. This is reflected in the goal of having a balance between proactive and reactive time.

The original Etico report recommended that MPD strive have officers spend 28 to 30 minutes of each hour on reactive activity. Since then, the Mayor, Common Council members and MPD have generally recognized a 30/30 split between proactive and reactive time as being a reasonable goal for MPD patrol staffing. We believe this staffing is required to provide the level of service that the community expects. In 2017, the MPD patrol function spent an average of 36.51 minutes per hour on reactive (or obligated) work. This reflects the highest annual average since this analysis has been performed.

While the difference between 30 and 32 minutes (as an example) of reactive time per hour seems minor, it is important to recognize that these figures are all based averages, across all hours of the day and all days of the year. Having a lower reactive time per hour improves the ability of officers to engage in community policing. Officers have more time to engage in proactive activity and be responsive to community issues and concerns. In fact, if MPD patrol was staffed to allow that 30 minutes per hour be spent on reactive work (compared to 32 minutes per hour), almost twenty-five (25) officer hours each day would be freed to engage in proactive activity. Visibility, efficiency and response time would also improve. A lower reactive time per hour also improves officer availability, resulting in better response times.

Effective in 2019, 210 MPD positions will be assigned to patrol (as officers; this figure excludes sergeants). However, actual patrol staffing at any given time will vary and will typically be far less than this (for example, in 2017 the actual number of officers assigned to patrol averaged 187 over the course of the year). This number reflects an increase over prior years, as both the City and MPD have taken steps to address patrol staffing shortages. Eight (8) additional police officer positions were approved in MPD's 2018 budget. These officers have been hired and are in training, but will not benefit patrol until early 2019. Also, MPD eliminated seven (7) non-patrol police officer positions in 2018, re-assigning the positions to patrol.

Utilizing the Etico methodology, 2017 patrol workload and leave time data demonstrate that MPD patrol staffing should be **226 officers**. This is based on an even split of proactive and reactive time. Meeting this standard would require the addition of **sixteen** officer positions to patrol. This increase would also require the addition of three sergeant position to patrol (based on span of control).

Additional Staffing Metrics

In 2016, MPD and City Finance jointly prepared a report on police staffing. The report looked at several measures (other than the Etico workload process) to provide context for police staffing. These metrics included:

- FBI personnel-to-population ratios
- Comparison with peer jurisdictions
- Comparison with other Wisconsin agencies

These data points are intended to provide context when evaluating MPD staffing, not to dictate a particular result or staffing level. The 2016 report was based on MPD having 1.9 sworn officers per 1,000 residents. This figure was based on MPD's authorized staffing in 2016 and Madison's 2015 estimated population per the U.S. Census (the 2016 estimate was not available at the time the report was completed). MPD's current staffing ratio remains **1.9** sworn officers per 1,000 residents (based on current authorized strength of 477 and Madison's 2016 estimated population of 252,551).

FBI – The FBI’s annual crime reporting data includes information on full-time law enforcement employees. The data is broken down by region, with employee-to-population ratios provided for several categories of municipality size. The Group I category of agencies includes those serving populations of more than 250,000; the Group II category of agencies includes those serving populations between 100,000 and 249,999. Group I is broken down into further population subsets, and regional data is available for all groups.

The 2016 report included data points for both Group I and Group II, as Madison’s 2015 population estimate was just under 250,000. Madison’s 2016 population estimate (the most current available) was 252,551, so only Group I data will be included moving forward.

As indicated, FBI law enforcement employee data is also broken down by region and sub-region. Wisconsin is in the East/North/Central portion of the Midwest region.

So, the most applicable comparison points from FBI staffing data are the Midwest region (East/North/Central subsection) from Group I, and the national Group I 250,000 – 499,999 population subset (the Group I population subsets are not broken down by geographic region). However, other data points will be included for comparison. Two notes about FBI police employee data:

- Staffing levels reflect actual personnel at the time the agency reports to the FBI, not authorized strength. Many agencies are not able to fill vacancies with qualified personnel, so the FBI employee data will not reflect those agencies’ authorized strength.
- The FBI data will typically be calculated before the US Census population estimates have been released. The FBI does a population estimate for the purposes of reporting police employee data, but the population figures used will typically vary from the US Census estimates.

Updated 2016 FBI police employee data:

Category	Officer to Population Ratio	Adjustment to MPD Sworn Staffing to Meet Average
Group I (East North Central section of Midwest Region)	3.5	Add 395 officers
Group I (Midwest Region)	3.1	Add 294 officers
Group I (National)	2.6	Add 168 officers
Group I (250,000 – 499,999 national subset)	2.0	Add 16 officers

Peer Jurisdictions – the 2016 report identified five peer cities for comparison: St. Paul, MN; Greensboro, NC; Baton Rouge, LA; Boise, ID; and Des Moines, IA. In 2016, these agencies had an average of 2.2 sworn officers per 1,000 residents.

Wisconsin agencies – the five largest cities in Wisconsin (excluding Madison) are Milwaukee, Green Bay, Kenosha, Racine and Appleton. In 2016, these jurisdictions had an average of 2.7 sworn officers per 1,000 residents.

Updated 2016 figures for peer jurisdictions and other Wisconsin agencies (from FBI data):

	Population	Sworn Officers	Ratio
Milwaukee	600,193	1,889	3.1
Appleton	74,439	110	1.5
Green Bay	105,452	189	1.8
Racine	77,536	191	2.5
Kenosha	99,954	199	2.0
Average	191,515	516	2.7
Adjustment to MPD Sworn Staffing to Meet Average			Add 193 officers
St. Paul	303,920	627	2.1
Greensboro	288,618	681	2.4
Baton Rouge	228,389	641	2.8
Boise	220,749	272	1.2
Des Moines	211,501	343	1.6
Average	250,635	513	2.0
Adjustment to MPD Sworn Staffing to Meet Average			Add 16 officers

Patrol Incidents by Incident Type by Year

	2014	2015	2016	2017
911 Abandoned Call	2957	3599	3534	2747
911 Disconnect	7114	11012	8773	6529
Accident Hit and Run	1475	1563	1645	1650
Accident Private Property	377	704	778	804
Accident Property Damage	5882	5558	5596	5105
Accident Unknown Injury	565	557	554	469
Accident w/Injuries	864	960	916	710
Accident-Mv/Deer	31	58	44	61
Adult Arrested Person	331	521	487	447
Aggravated Battery	6	8	2	2
Alarm	3170	3402	3379	3281
Animal Complaint-Bite	31	14	16	10
Animal Complaint-Disturbance	656	718	659	724
Animal Complaint-Stray	289	320	433	358
Annoying/Obscene Phone Call	108	123	95	56
Arrested Juvenile	50	31	42	30
Arson	11	5	9	5
Assist Citizen	4856	4566	5057	5002
Assist Fire/Police	4339	3165	3320	3105
Assist Follow Up	2452	3752	3982	4299
Assist K9	17	12	18	16
Assist/Community Policing	13	0	3	3
Assist-Court	57	146	138	186
Assist-Translate	12	12	6	9
Attempt to Locate Person	861	1254	1257	1264
Attempted Homicide	1	0	2	4
Attempted Suicide	454	77	34	20
Battery	613	610	559	574
Bicycle Accident	6	10	7	9
Bomb Threat	32	7	4	4
Burglary-Residential	1251	1210	912	747
Check Parking Postings	1	2	1	1
Check Person	7873	10547	11239	11926
Check Property	4525	5726	7292	7022
Child Abuse	162	184	134	189
Child Neglect	97	79	57	34
Civil Dispute	660	863	770	944
Conveyance Alcohol (Detox)	123	150	104	54
Conveyance Mental Health				31
Damage to Property	1033	1046	968	1125
Death Investigation	142	130	200	227
Disturbance	6434	5826	5949	5603
Domestic Disturbance	3171	3358	3096	2903
Drug Investigation	1163	1266	1280	1304

Emergency	4	0	1	0
EMS Assist	2375	3587	3747	3670
Enticement/Kidnapping	39	20	16	21
Escort Conveyance	350	720	650	656
Exposure	83	47	40	38
Extortion	0	8	8	13
Fight Call	258	541	444	410
Fire Investigation	5	4	0	1
Foot Patrol	504	773	1097	970
Forgery	425	6	5	1
Found Person	129	124	118	136
Found Property	1266	1367	1411	1493
Fraud	490	983	910	923
Graffiti Complaint	103	121	125	137
Homicide	1	4	10	7
Information	4124	2645	3502	3524
Injured Person	23	38	23	12
Intoxicated Person	343	556	395	372
Juvenile Complaint	341	510	523	738
Landlord Tenant Trouble	103	157	123	137
Liquor Law Violation	152	217	157	91
Liquor Law/Bar Check	89	73	66	64
Lost Property	34	54	90	82
Misc Sex Offense	58	103	103	119
Misdialed 911 Call	2123	2383	1726	1569
Missing Adult	468	309	267	243
Missing Juvenile	460	681	664	610
Multiple/Nuisance 911 Calls	12	10	17	20
Neighbor Trouble	313	429	460	407
Noise Complaint	2701	3331	3228	3133
Non-Residential Burglary	218	257	212	231
Non-Urgent Notifications	49	15	32	13
Odor/Smoke Complaint	6	3	3	3
OMVWI Arrest/Intoxicated Driver	155	165	236	291
On Duty Training	48	145	179	190
On St Parking Complaint	391	454	510	343
Overdose	46	83	154	155
Person Down	9	14	30	12
Phone	6566	5369	4812	4647
Playing w/Telephone 911 Call	506	602	454	450
PNB/AED Response	168	179	184	138
Preserve the Peace	1384	1229	1269	1400
Problem Solving-Person	12	5	5	5
Problem-Solving - Property	11	15	12	32
Prostitution/Soliciting	15	29	31	44
Prowler	15	20	26	15

Pvt Prop Parking Complaint	464	462	388	436
Question 911 Call	44	23	23	18
Rec/Stolen/Outside Agency	79	78	155	201
Repo	3	4	5	1
Retail Theft	1244	1683	1649	1676
Robbery - Armed	118	101	105	118
Robbery-Strong Armed	125	130	108	101
Safety Hazard	4224	4396	5029	4749
Serving Legal Papers	308	462	406	313
Sexual Assault	182	199	183	206
Sexual Assault of a Child	134	155	162	173
Significant Exposure (Officer)	3	1	2	1
Silent Case Number	50	75	45	77
Solicitors Complaint	23	123	94	36
Special Event	59	114	142	174
Stalking Complaint	126	110	103	114
Stolen Auto	528	533	664	703
Stolen Bicycle	20	33	19	15
Suspicious Person	2727	1892	1606	1687
Suspicious Vehicle	1924	2131	2117	2145
Test 911 Call	12	11	11	10
Theft	2486	2048	1797	1876
Theft from Auto	320	398	476	515
Threats Complaint	1846	1791	1654	1582
Towed Vehicle/Abandonment	38	20	25	21
Traffic Arrest	17	15	17	5
Traffic Complaint/Investigation	391	697	761	689
Traffic Incident	507	283	304	366
Traffic Incident/Road Rage	86	5	0	
Traffic Stop	7177	6043	3640	3218
Trespass	2031	775	802	871
Unintentional 911 Call	4685	6159	5296	4720
Unknown	299	38	32	7
Unwanted Person	1232	2421	2109	2071
Violation of Court Order	280	511	464	552
Weapons Offense	343	522	433	468
Weapons Offense Person w/Gun	234	102	109	117
Worthless Checks	6	12	7	2
Alarm (Broadcast & File)	2	0	0	0
911 Call Silent	2485	0	0	0
Explosives Investigation	9	0	0	0
Escapee/Info	2	0	0	0
Conveyance	299	0	0	0
Total	128412	136092	132368	127193

Detailed Leave Time Information – 2017 Patrol

Leave/Benefit/Non-Patrol Time:

Category	Days
Admin Leave - No Pay	0.096416
Admin Leave - With Pay	0.128494
Bereavement Leave	0.443038
Exigent Leave MPPOA	0.039557
Exigent Leave Vacation	0.212025
Family Leave: AWOP	
Family Leave: Sick Used	1.793473
Family Leave: Vacation	1.001796
Family Leave: MPPOA	
FTO	0.087421
Holiday: Request Off	0.843157
Holiday: Order Off	0.911392
Injured	0.025475
Jury Duty	
MPPOA Earned Time Off	0.960045
Military Leave	0.031646
Military Paid	3.64557
Military Leave AWOP	0.487342

Category	Days
Sick Leave	3.740316
Vacation: 1st Pick	5.829114
Vacation: 2nd Pick	3.132911
Vacation: 3rd Pick	0.859573
Vacation: SP#1	0.139241
Vacation: SP#2	0.044304
Vacation: Standard	5.049646
Workers Comp Time Off	1.151951
Light Duty: (LD-WC)	3.845332
Light Duty:(LD-ND)	4.043513
Light Duty: Admin	0.607595
Event	0.240506
Spec. Assignment	4.188884
Spec. Assignment Partial	0.075752
Training	8.047073
Training Partial	0.077136

Net Compensatory Time:

Comp Time Used	Days
COA+30 Days	2.267476
Comp Time: Off	7.610013
Comp Time: SP#1	0.034019
CU/W-VU	1.40981
Exigent Leave Comp	0.672468
Shift Change RDO	0.417722
Comp Time: SP#2	0.006329
Family Leave: Comp	1.495277

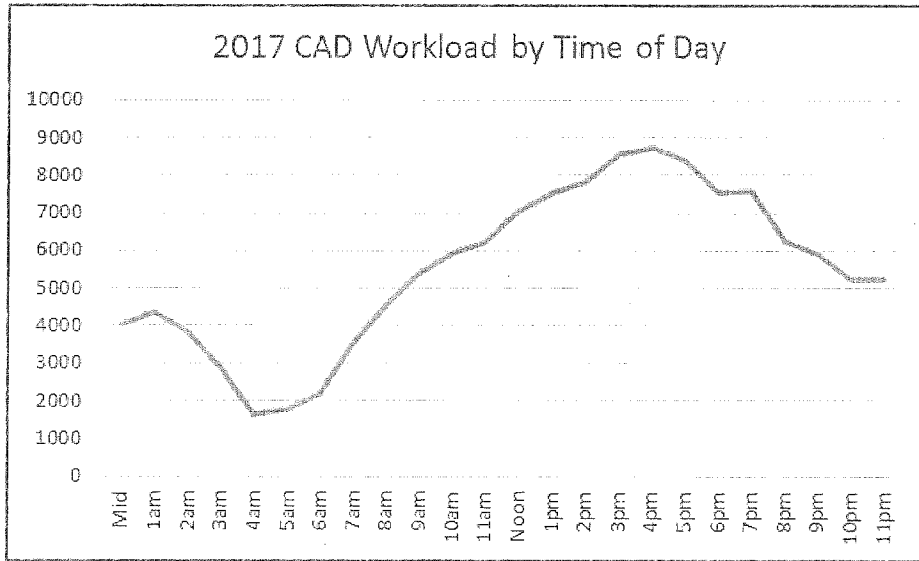
Overtime Worked	Days
General	3.9909797
Call in Voluntary	0.4132516
Call in Order	0.0264372
Holdover Voluntary	0.4710575
Holdover Order	0.2611155
Extraordinary	1.3002727
Misc OT	0.0419427
Shift Change RDO Worked	0.3987342

Non-patrol Personnel Patrol Work:

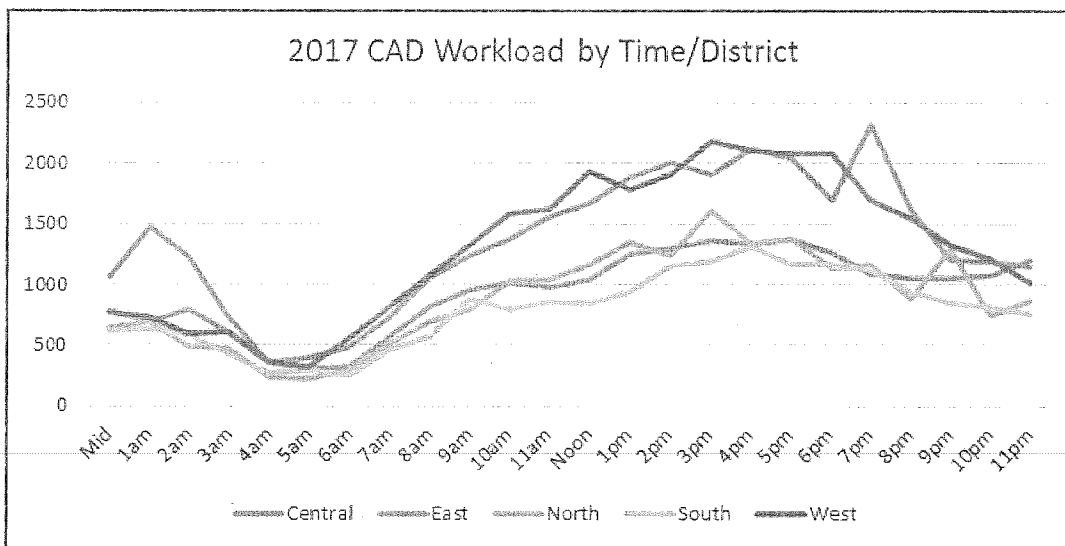
Overtime Worked	Days
Call in Voluntary	0.1230353
Call in Order	0.0037184
Holdover Voluntary	0.1329905
Holdover Order	0.0732727
Staffing Contingency	2.2721519

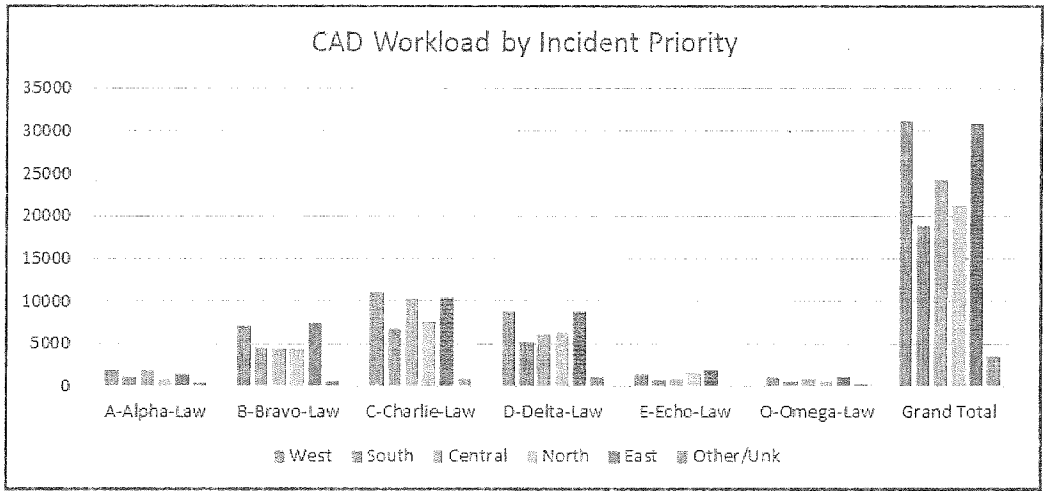
Workload Overview

The following charts are based on CAD data only, and generally include all patrol CAD workload (reactive and proactive), including DSI and SWI.

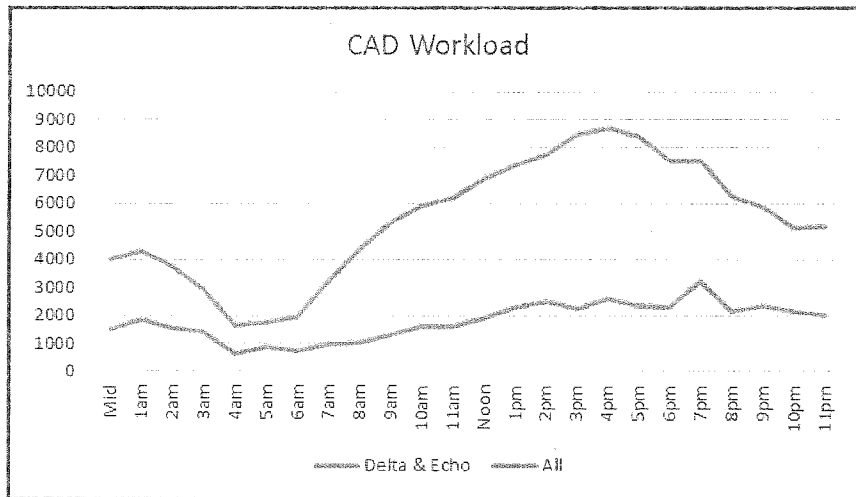


This daily workload curve (workload by hour of the day throughout the year) has remained very consistent. The daily workload curve was also fairly consistent across all districts:

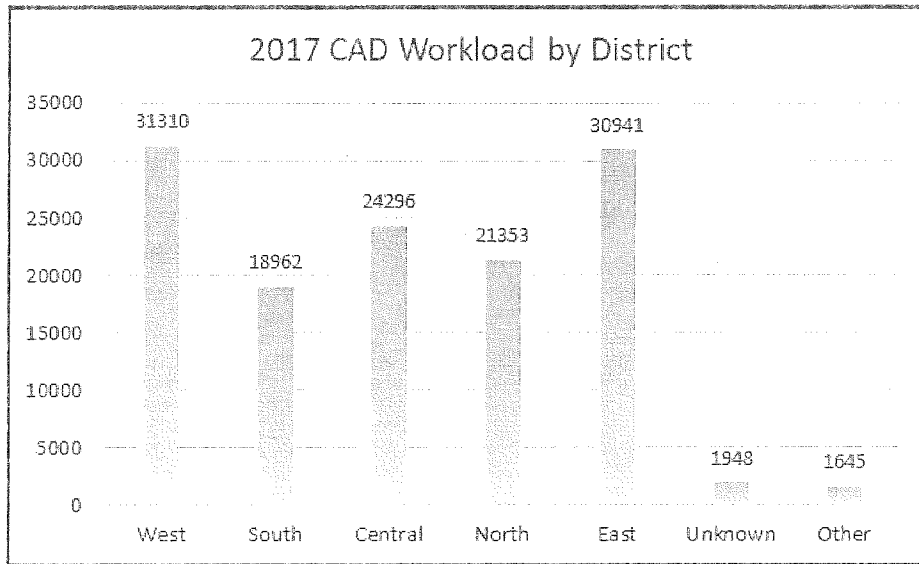




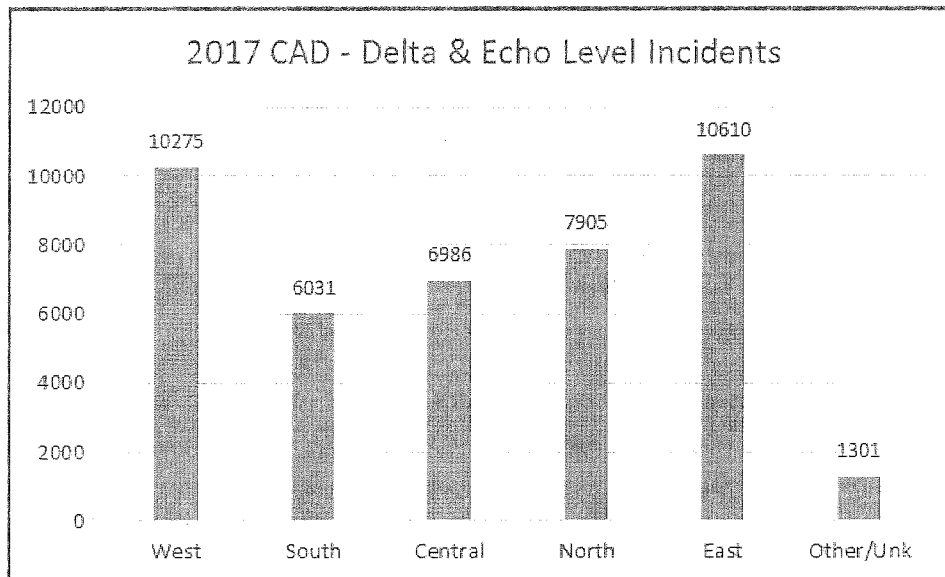
Incidents are categorized by priority in the CAD. "Echo" incidents are the highest priority; "Delta" incidents are also high-priority.



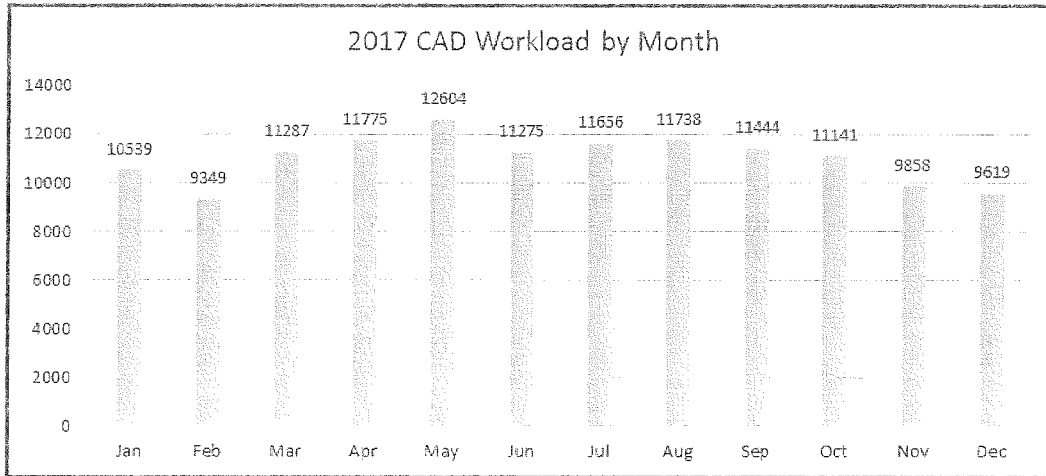
2017 hours of CAD patrol work by district:



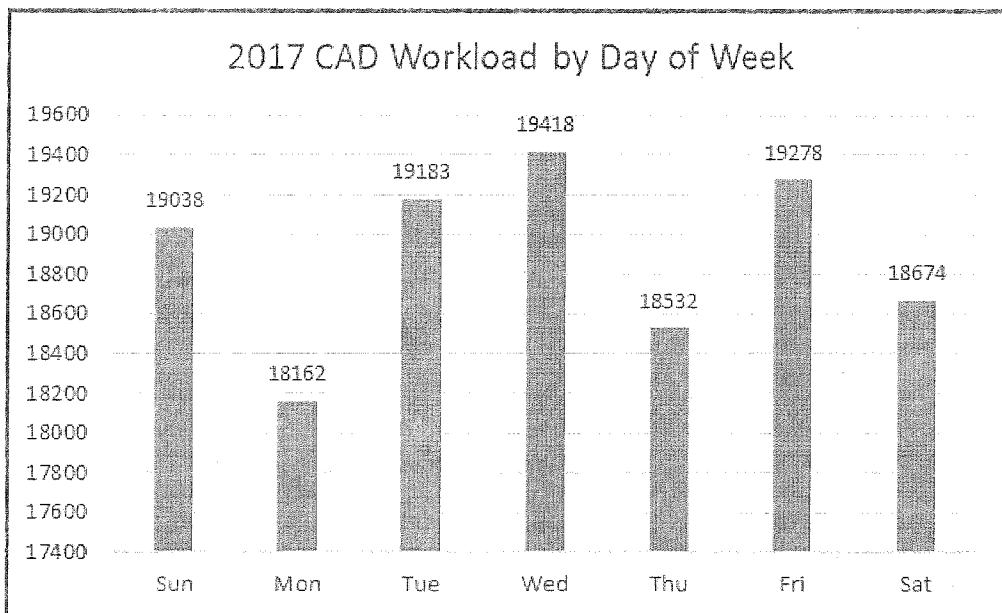
*excludes on duty court and training

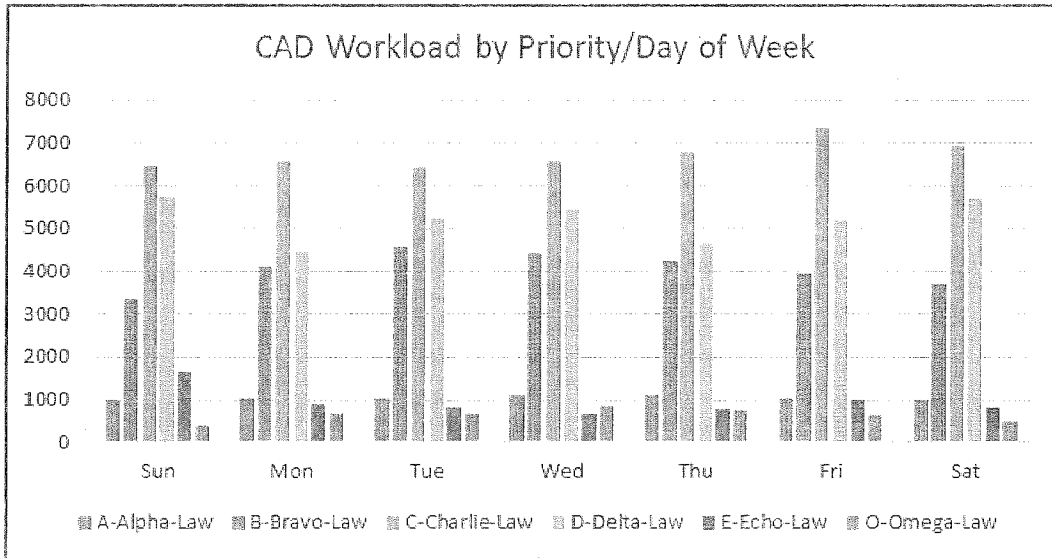


CAD workload by month:

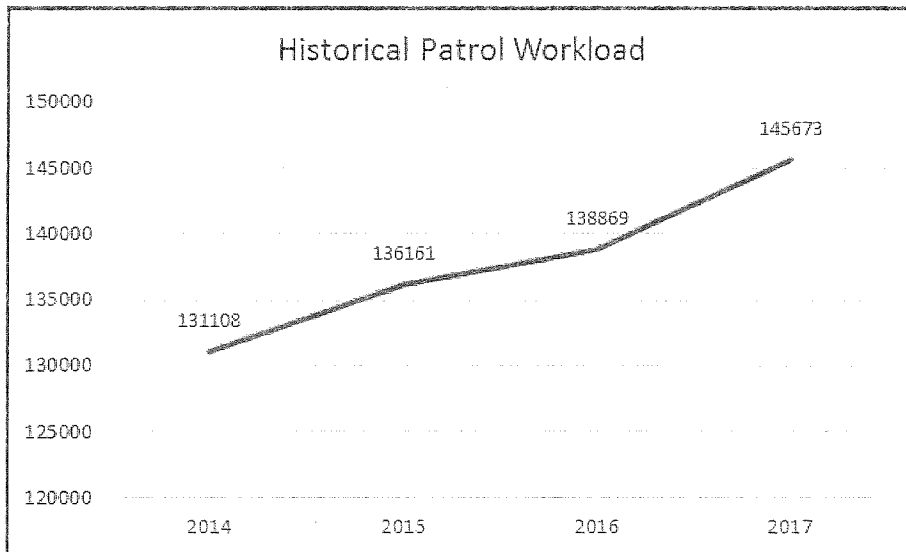


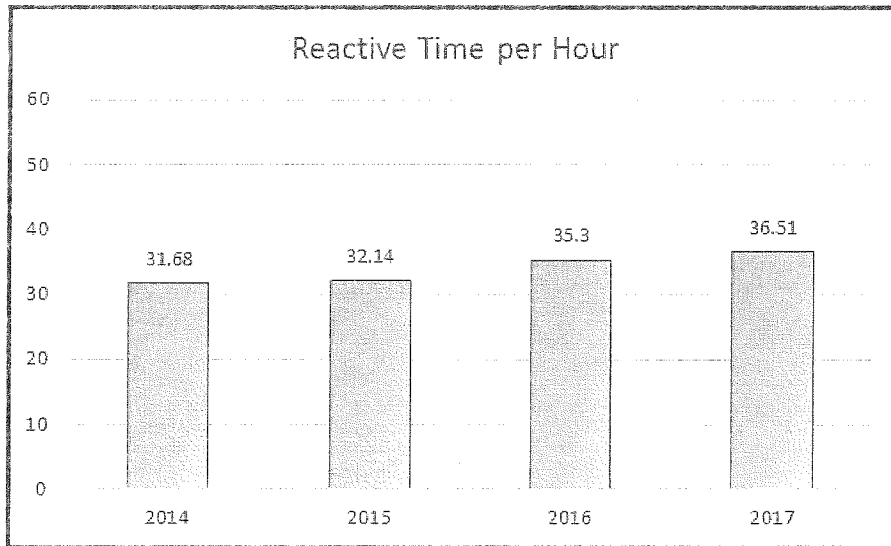
CAD workload by day of week:





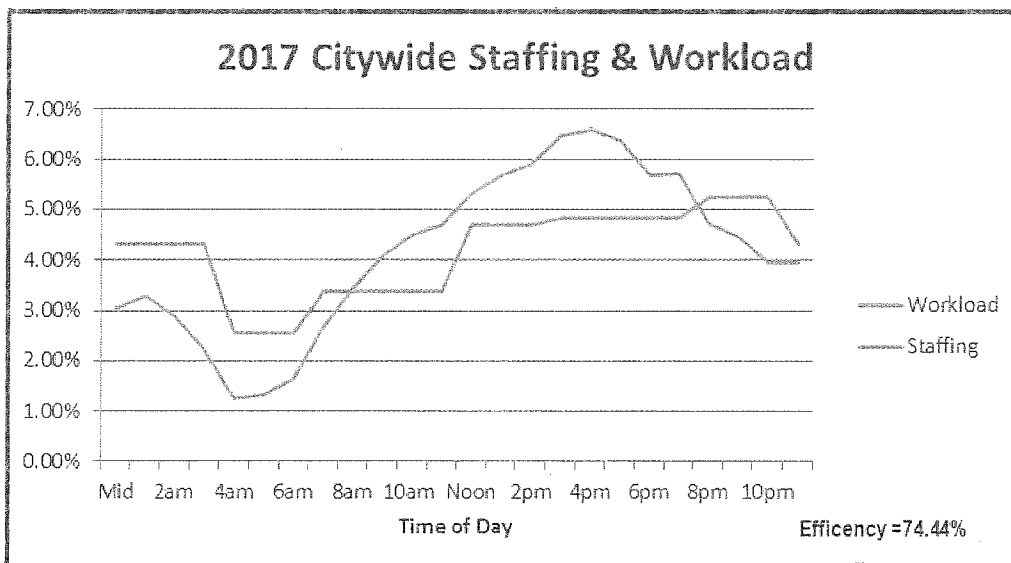
A historical overview of patrol incidents and workload:





Staffing Allocation Efficiency

With improved data collection and analysis, the department will seek to deploy patrol resources in a more efficient manner. Patrol staffing levels throughout the day can be matched to average patrol workload by time of day.



MPD instituted a five-shift patrol staffing model in early 2010, to increase efficiency. Staffing efficiency in 2012 was down slightly from 2011. However, analysis shows that efficiency under the five-shift model was better than would have been the case under the traditional three-shift model:

Year	Efficiency	Efficiency w/traditional staffing model
2009	76.11	76.11
2010	79.09	73.24
2011	77.88	73.35
2012	75.64	71.52
2015	74.23	70.68
2016	75.47	71.92
2017	74.44	71.27