



Preliminary Results of the Call for Service Analysis

ITHACA, NEW YORK

matrix 
consulting group

Introduction

- ◆ Matrix Consulting Group was contracted by CPE to conduct analysis of field services and staffing.
- ◆ Our scope includes:
 - 911 call and workload analysis
 - Patrol staffing analysis
 - Call diversion and alternative service delivery analysis
- ◆ This analysis focuses on patrol officers – the call responders of the department.

CAD Analysis Objectives

- ◆ Filter data to identify community-generated calls for service.
- ◆ **Measure patrol workload** – how much time patrol officers spend handling calls for service.
- ◆ **Availability analysis:** Determine how many hours officers are on duty for, a measure of capacity.
- ◆ **Proactive time analysis:** Compare workload against staffing's capacity to handle it.
- ◆ **Staffing analysis:** Based a certain target for proactive time, calculate how many officers need to be budgeted for.

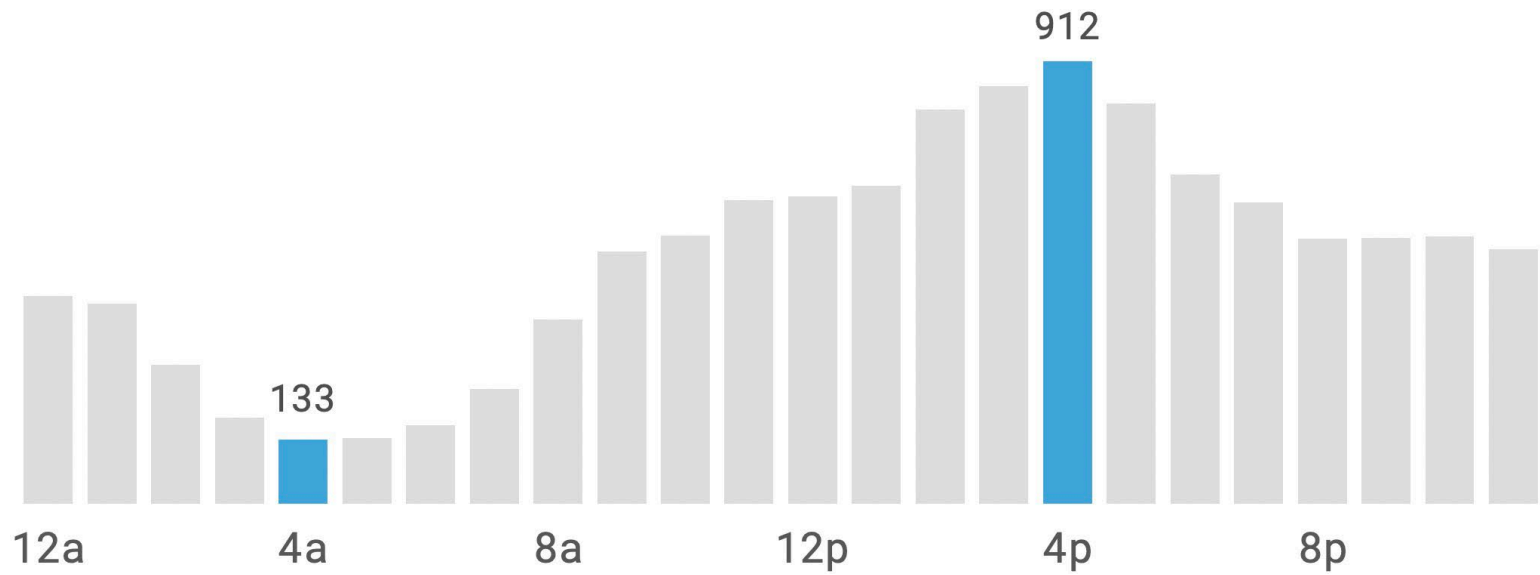
Identifying Calls for Service

- ◆ Computer-aided dispatch data provides all events that IPD is involved in.
- ◆ Our goal is to isolate the events that that were generated by the community that patrol officers respond to.
- ◆ To be considered a community-generated calls for service, an incident must meet the following criteria:
 - Source of the call must have been community-generated (i.e., not officer-initiated)
 - Incident type cannot correspond solely to self-initiated events (e.g., "Special Detail")
 - Unit type must have been patrol (whether car patrol or foot beat)
 - 2019 is used for the single-year analysis

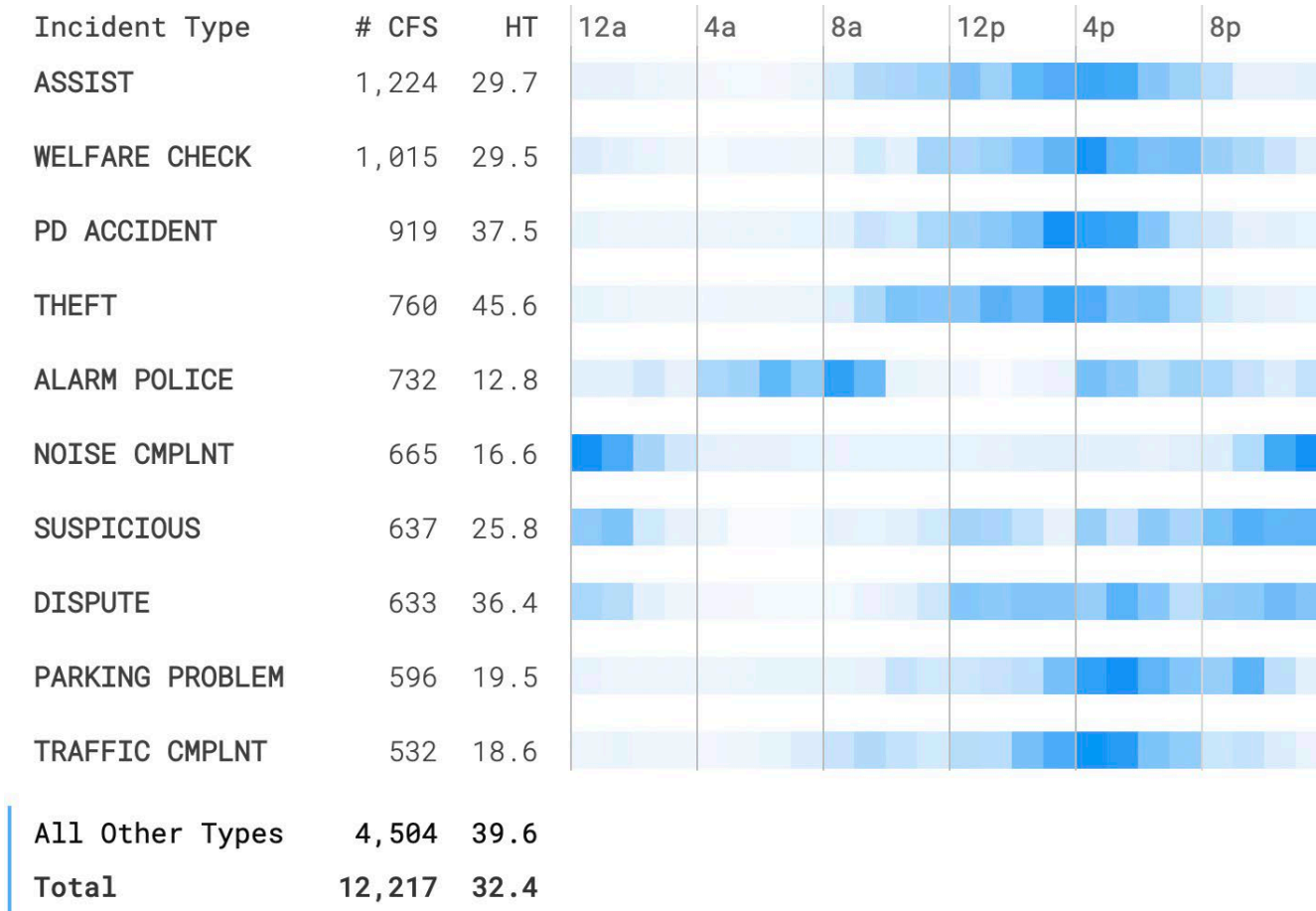
Identifying Calls for Service

- ◆ In total, IPD patrol officers responded to 12,217 calls for service in 2019 that were community-generated.
- ◆ This workload can be visualized a number of ways:

Calls for Service by Hour

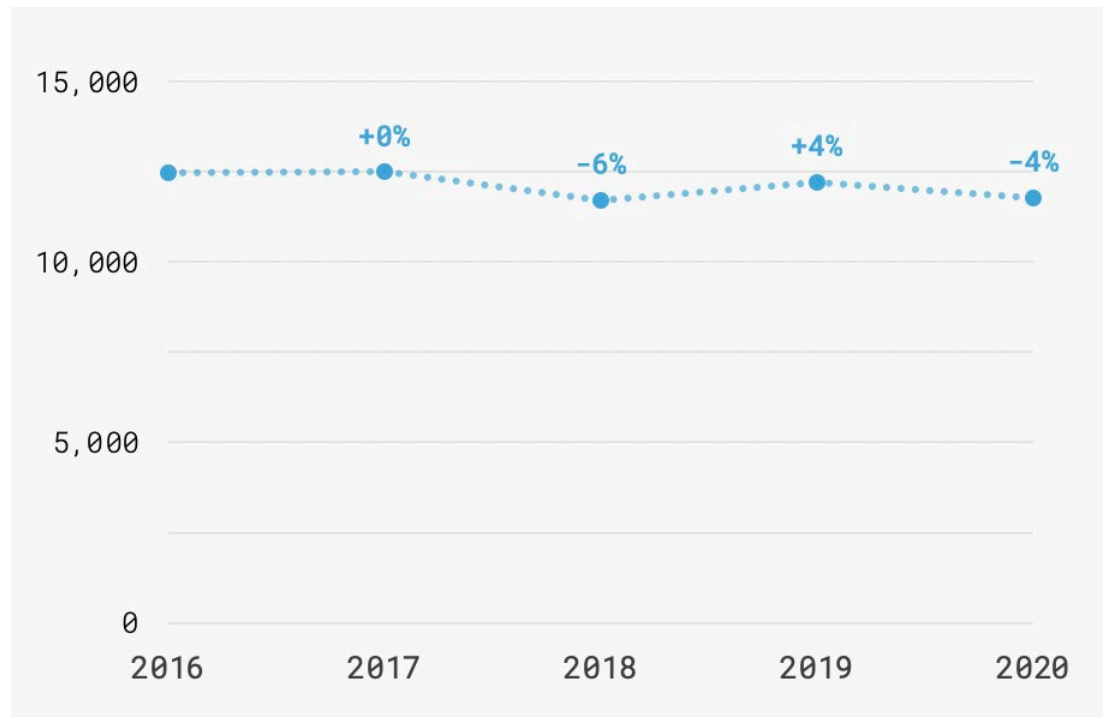


Common Types of CFS

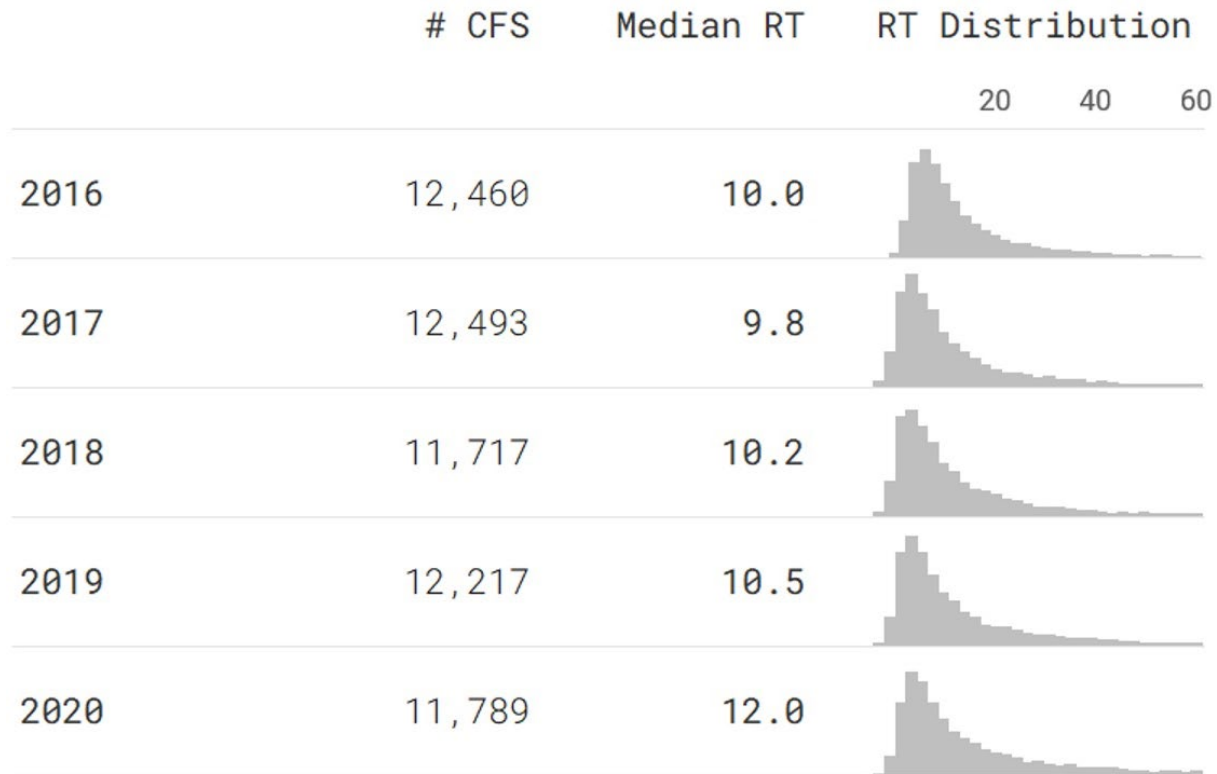


5YR CFS Trends

- ◆ There is no indication of a consistent increase in calls for service over the past five years:



Response Time Performance



Measuring Patrol Workload

Total Calls for Service

Backup Units Per CFS

Reports Written Per CFS

Avg. Workload Per Call

Measuring Patrol Workload

Total Calls for Service

Avg. Primary Unit Handling Time

Backup Units Per CFS

Avg. Backup Unit Handling Time

Reports Written Per CFS

Time Per Report

Avg. Workload Per Call

Measuring Patrol Workload

Total Calls for Service	12,017
Avg. Primary Unit Handling Time	31.7 min.

Backup Units Per CFS	0.54
Avg. Backup Unit Handling Time	23.3 min.

Reports Written Per CFS	0.33
Time Per Report	45.0 min.

Avg. Workload Per Call

Measuring Patrol Workload

Total Calls for Service	12,017
Avg. Primary Unit Handling Time	31.7 min.
Backup Units Per CFS	0.54
Avg. Backup Unit Handling Time	23.3 min.
Reports Written Per CFS	0.33
Time Per Report	45.0 min.
<hr/>	
Avg. Workload Per Call	59.2 min.

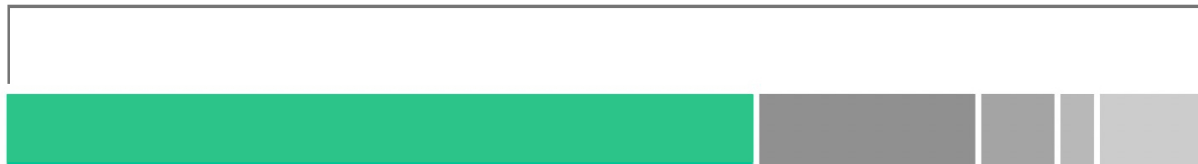
Measuring Patrol Workload

Total Calls for Service	12,017
Avg. Primary Unit Handling Time	31.7 min.
Backup Units Per CFS	0.54
Avg. Backup Unit Handling Time	23.3 min.
Reports Written Per CFS	0.33
Time Per Report	45.0 min.
<hr/>	
Avg. Workload Per Call	59.2 min.
Total Workload	11,853 hrs.

Staff Availability and Capacity

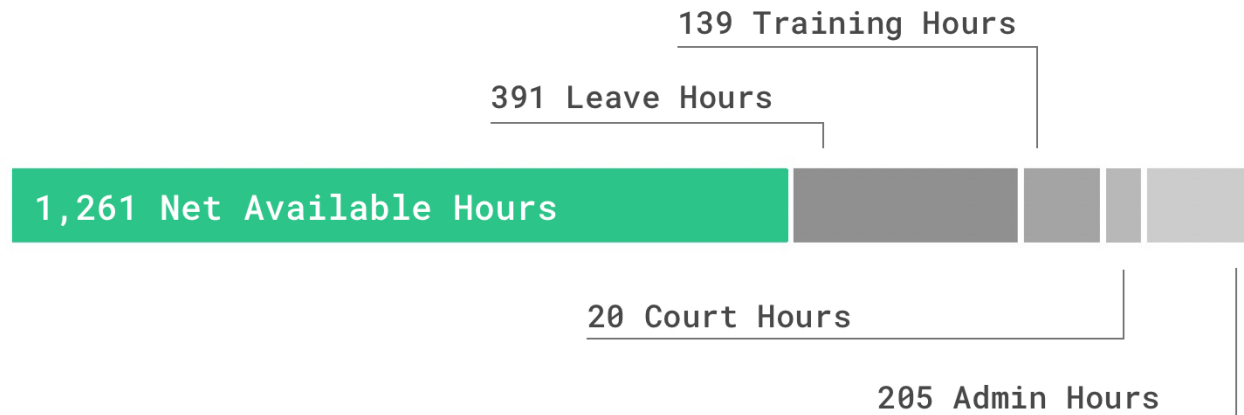
- ◆ Patrol capacity to handle workload is built up from the time that individual staff are on-duty, referred to as **net available hours**.
- ◆ Out of the total scheduled work hours in a year (2,008), employees may not be on duty for a variety of reasons, including leave, training, etc.

2,008 Work Hours Per Year



Staff Availability and Capacity

- ◆ To calculate net availability, everything that takes officers away from being on duty is deducted, including leave, training, and estimates for court and administrative time:



Patrol Officer Availability

- ◆ The average for individual staff is multiplied by the number of filled positions, representing the total capacity of staff to handle workload:

Base Annual Work Hours		2,008
Total Leave Hours	-	391
On-Duty Training Hours	-	139
On-Duty Court Time Hours	-	20
Administrative Hours	-	196
<hr/>		
Net Available Hours Per Officer	=	1,261
<i>Number of Officer Positions</i>	<i>×</i>	<i>24</i>
Total Net Available Hours	=	30,274

Proactive Time

- ◆ Proactive (uncommitted) time serves as a barometer for whether staffing levels are adequate.
- ◆ It compares workload against staff's availability to handle it, showing how much time is left over to be proactive.
- ◆ If workload is too high relative to staffing, then proactive time will be low:
 - Calls will begin to queue, leading to longer response times.
 - Limited ability to proactively address issues.
- ◆ In general, departments should target proactive time to be at least 40% of officer time as a minimum effective level of patrol service.

Proactive Time

- ◆ Similarly, staffing needs can be determined by targeting for a certain level of proactive time.
- ◆ For instance, if a proactive time level of 40% is targeted for, then 60% of officer net available time would be spent on handling workload:

60% Workload

40% Proactive

Comparing Availability and Workload

Comparing Availability and Workload

Base Annual Work Hours		2,008
Total Leave Hours	-	391
On-Duty Training Hours	-	139
On-Duty Court Time Hours	-	20
Administrative Hours	-	196
<hr/>		
Net Available Hours Per Officer	=	1,261
<i>Number of Officer Positions</i>	×	24
Total Net Available Hours	=	30,274

Comparing Availability and Workload

Base Annual Work Hours		2,008
Total Leave Hours	-	391
On-Duty Training Hours	-	139
On-Duty Court Time Hours	-	20
Administrative Hours	-	196
Net Available Hours Per Officer	=	1,261

<i>Number of Officer Positions</i>	×	24
Total Net Available Hours	=	30,274

Total Calls for Service	12,017
Avg. Primary Unit Handling Time	31.7 min.

Backup Units Per CFS	0.54
Avg. Backup Unit Handling Time	23.3 min.

Reports Written Per CFS	0.33
Time Per Report	45.0 min.

Avg. Workload Per Call	59.2 min.
Total Workload	11,853 hrs.

Comparing Availability and Workload

Base Annual Work Hours		2,008
Total Leave Hours	-	391
On-Duty Training Hours	-	139
On-Duty Court Time Hours	-	20
Administrative Hours	-	196
Net Available Hours Per Officer	=	1,261

<i>Number of Officer Positions</i>	×	24
Total Net Available Hours	=	30,274

Total Calls for Service	12,017
Avg. Primary Unit Handling Time	31.7 min.

Backup Units Per CFS	0.54
Avg. Backup Unit Handling Time	23.3 min.

Reports Written Per CFS	0.33
Time Per Report	45.0 min.

Avg. Workload Per Call	59.2 min.
Total Workload	11,853 hrs.

Comparing Availability and Workload

Base Annual Work Hours		2,008
Total Leave Hours	-	391
On-Duty Training Hours	-	139
On-Duty Court Time Hours	-	20
Administrative Hours	-	196
Net Available Hours Per Officer	=	1,261

<i>Number of Officer Positions</i>	×	24
Total Net Available Hours	=	30,274

Total Calls for Service	12,017
Avg. Primary Unit Handling Time	31.7 min.

Backup Units Per CFS	0.54
Avg. Backup Unit Handling Time	23.3 min.

Reports Written Per CFS	0.33
Time Per Report	45.0 min.

Avg. Workload Per Call	59.2 min.
Total Workload	11,853 hrs.

- ◆ Subtracting workload hours from available hours equals proactive time.
- ◆ As a % of available hours, proactive time is at a level of 59% overall.

Patrol Proactive Time

- ◆ This can be calculated on a more detailed level by hour and day of week, with the results indicating that proactive time is consistently at high levels:

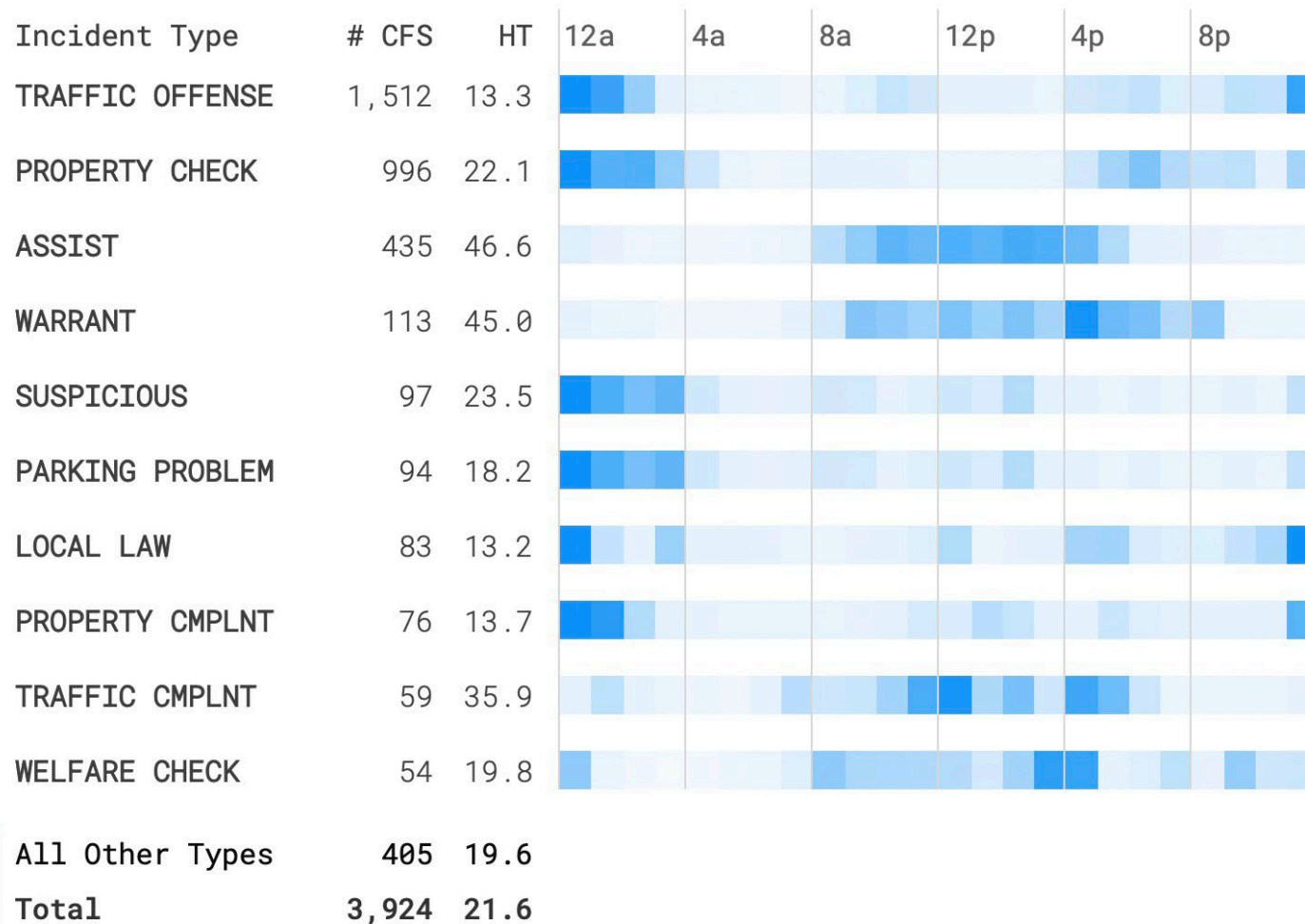
	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Overall
2am–6am	76%	78%	85%	74%	79%	81%	73%	78%
6am–10am	81%	75%	79%	73%	70%	73%	71%	75%
10am–2pm	49%	50%	48%	41%	52%	39%	51%	47%
2pm–6pm	55%	36%	38%	34%	35%	38%	44%	40%
6pm–10pm	60%	48%	57%	58%	56%	46%	47%	53%
10pm–2am	56%	60%	68%	68%	66%	60%	56%	62%
Overall	63%	57%	62%	58%	60%	56%	57%	59%

How Proactive Time Is Used

- ◆ In 2019, patrol officers self-initiated 3,924 incidents, the majority of which are traffic stops and property checks.
- ◆ This is a marked decrease compared to previous years:



Officer-Initiated Incidents



Patrol Officer Utilization

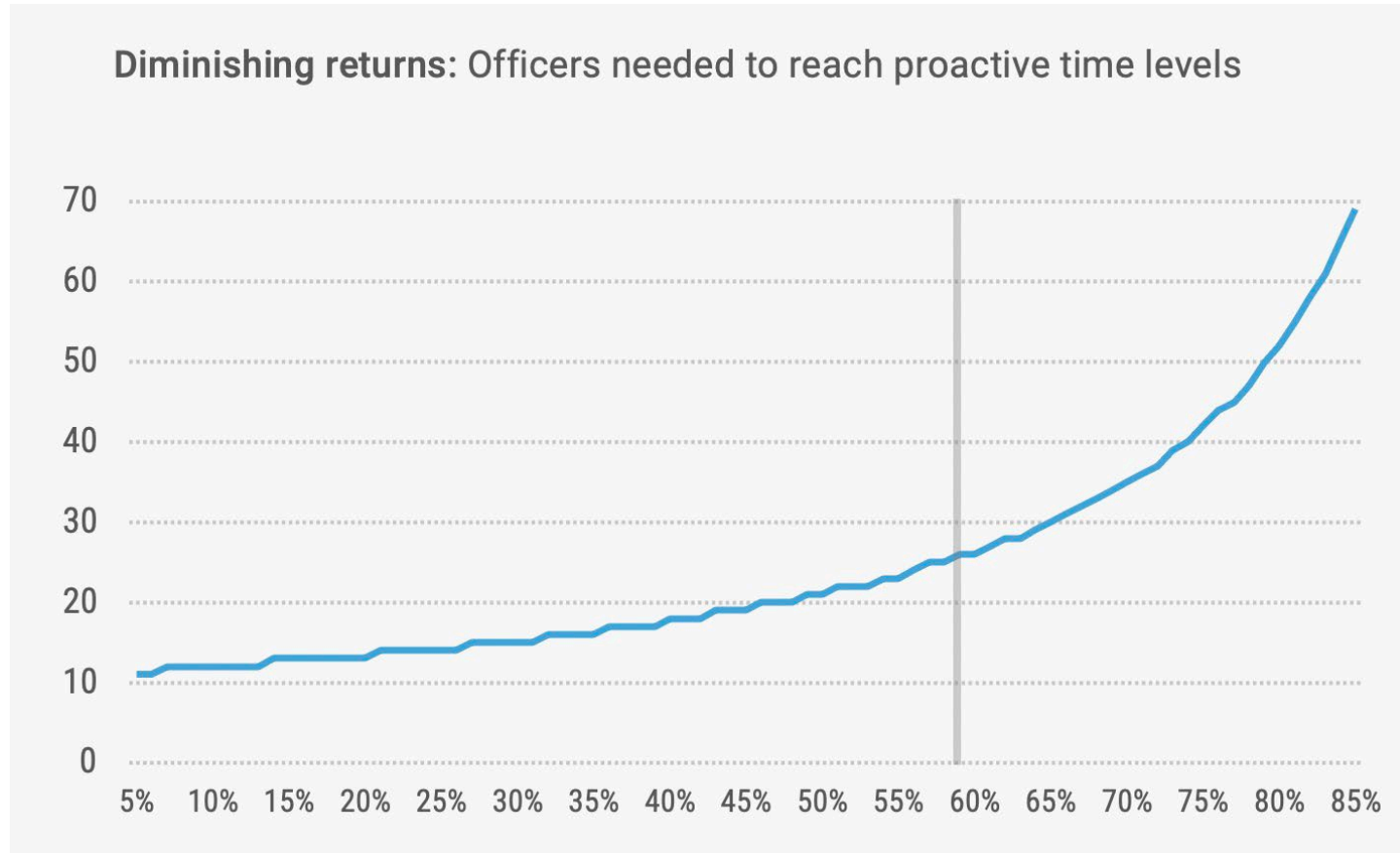
- Utilization of officers can be measured as the percentage of available time that is spent on *either* community-generated calls for service or self-initiated incidents:

	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Overall
2am–6am	32%	25%	21%	29%	25%	22%	38%	27%
6am–10am	24%	29%	22%	31%	33%	36%	33%	30%
10am–2pm	57%	55%	56%	64%	53%	67%	52%	58%
2pm–6pm	56%	71%	69%	73%	71%	69%	61%	66%
6pm–10pm	46%	55%	48%	46%	49%	60%	60%	52%
10pm–2am	31%	49%	43%	38%	42%	40%	42%	47%
Overall	44%	48%	43%	48%	46%	50%	50%	47%

Patrol Analysis Conclusions

- ◆ The findings demonstrate that current staffing is sufficient to handle current workloads and remain proactive at an extraordinarily high level.
- ◆ While proactive time has been consistently high over the past five years, its use has diminished significantly.
- ◆ To maintain a proactive time level of 59%, 26 officer positions should be budgeted for.
 - This incorporates an extra buffer to account for staff turnover.
 - At 40%, 18 officers are required.
 - At 50%, 21 officers are required.
 - At 70%, 35 officers are required.

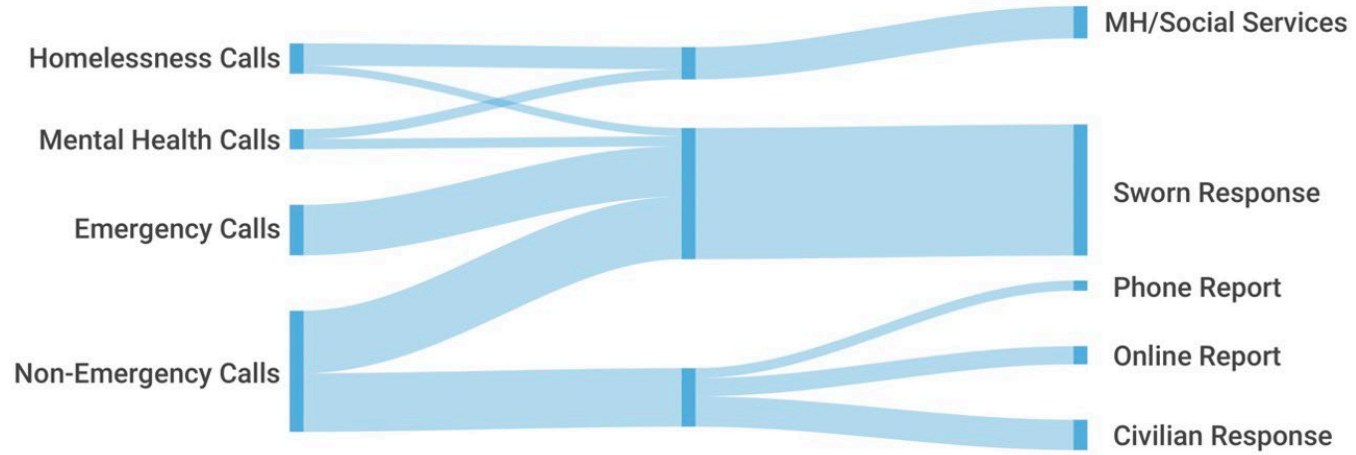
Officers Required by Proactive Time Level



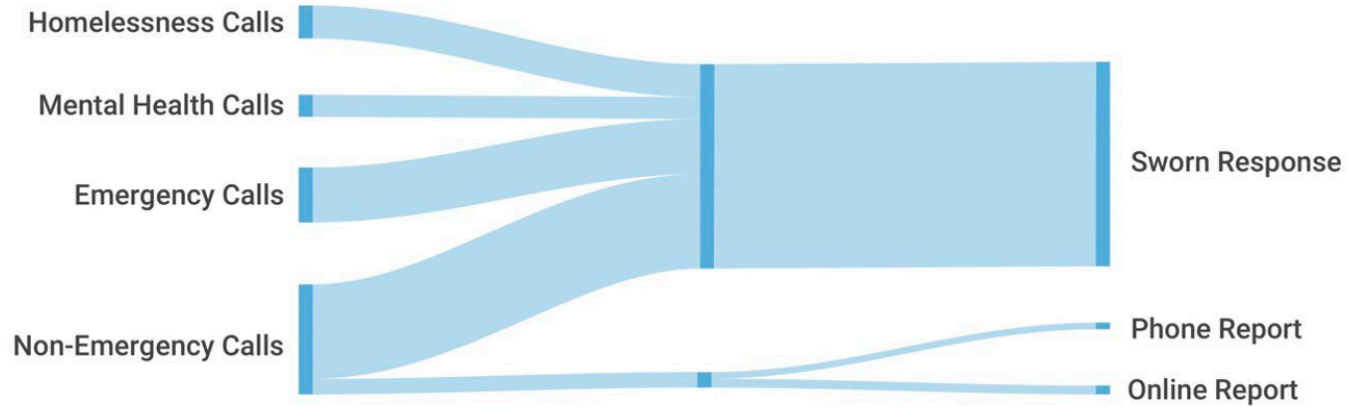
Call Diversion

- ◆ The study will examine opportunities to divert calls from sworn response to alternative ways of handling them.
- ◆ Call diversion should be thought of as an array of different approaches:

After Implementing Call Diversion Approaches



Before Implementing Call Diversion Approaches



Civilian Response

- ◆ Civilian response to lower-priority calls for service has been implemented in many jurisdictions.
- ◆ We can estimate how many calls can be diverted based on their experience with call diversion.

% of Calls Diverted to Civilians

Type	Fremont	Rancho Cordova	Roseville	Mountain View	West Sacramento
Traffic Hazard	50%	11%		50%	
Theft	25%	41%	39%	35%	53%
Accident (Non-Inj.)	20%	22%	14%	42%	
Theft From Vehicle	65%	41%	56%	46%	66%
Auto Theft	66%	45%	42%	55%	62%
Recovered Stolen	65%	44%	35%	58%	21%
Lost/Found Property	70%	18%	47%	67%	50%
Graffiti	56%		80%		50%
Vandalism	15%	20%	37%	47%	49%
Runaway/Missing	50%	25%	40%	48%	37%
Burglary-Residential	60%	38%	39%	52%	50%
Burglary-Comm.	74%	60%	39%	60%	50%
Fraud		15%	33%	49%	63%
Parking Complaint	82%		27%	70%	
Grand Theft		21%	31%	30%	59%
Accident (Min. Inj.)	16%	15%	12%	47%	
Pickup		12%		93%	

Comparing to Ithaca

- ◆ Incident codes do not match exactly.
- ◆ For instance, IPD does not have a separate designation for non-injury accidents versus minor or major injury accidents.
- ◆ Assumptions need to be made based on other jurisdictions that do have that separation between call types.

Estimating # of Calls in Ithaca

Type	# Ithaca
Traffic Hazard	N/A
Theft	456
Accident (Non-Inj.)	602
Theft From Vehicle	304
Auto Theft	N/A
Recovered Stolen	N/A
Lost/Found Property	N/A
Graffiti	N/A
Vandalism	116
Runaway/Missing	51
Burglary-Residential	44
Burglary-Comm.	36
Fraud	133
Parking Complaint	596
Grand Theft	76
Accident (Min. Inj.)	230
Pickup	N/A

Call Diversion Potential in Ithaca

- ◆ The feasibility of this approach will be explored further.
- ◆ 2,643, or 22% of all calls for service handled by IPD, would fit under these categories.