

FIRE/EMS DEPARTMENT COMPREHENSIVE OPERATIONS ASSESSMENT

PROJECT BRIEFING

CITY OF VALDEZ, AK

JUNE 21, 2022

Today's Briefing

- How the study was conducted
- Risk Assessment summary
- Operational workload review
- Staffing system abilities
- Findings and recommendations
- Questions and discussion



Scope of Work Performed

- Electronic incident data and City/Department documentation reviewed
- Internal and external stakeholder interviews
- Comprehensive Community Risk Assessment
- Incident Response Statistical Analysis
 - Service demand and response performance
 - Staffing capacity and response time review



Scope of Work Performed (cont.)

- Station area coverage and mutual aid analysis
- Headquarters support staffing and organizational assessment
- Multiple progress briefings
- 85-page Final Report evaluating deployment and headquarters services
- 27-page Community Risk Assessment Appendix



Strengths

- *Very* committed career and volunteer staff
- The Department is the center of their lives
- Technically competent
- *Excellent* safety and training programs
- *Excellent* facility, apparatus, tools, and equipment
- Staff feels the pressure of being isolated without deep mutual aid support



Risk Assessment

Risk Assessment Methodology

- Use of geographic **planning sub-zones**
- Identify/quantify **values at risk** to be protected
- Identify **hazards** likely to impact City
- Determine **probability** of a hazard occurrence
 - Based on prior years' service demand by hazard type
- Identify probable **impact severity** of a hazard occurrence
- Determine **overall risk** by hazard and planning zone



Values at Risk

- **People**
 - **3,729** residents
 - **≈15,000** more during peak fishing and tourism season
- **Buildings**
 - **1,800** dwelling units
 - **300** businesses
- **Economic Resources**
 - Port of Valdez
 - Valdez Marine Terminal
 - Commercial/sport fishing industry



Values at Risk (cont.)

- **64 high/maximum risk building occupancies**
- **61 Critical facilities/infrastructure**
- **Numerous natural resources**
 - Port Valdez
 - Valdez Glacier Lake
 - Lowe River
 - Robe Lake
 - Solomon Lake
 - Jack Bay
 - Jack Bay State Marine Park



Hazards Evaluated

- 1. Building Fire**
- 2. Vegetation/Wildfire**
- 3. Medical Emergency**
- 4. Hazardous Material Release/Spill**
- 5. Technical Rescue**
- 6. Marine Incident**
- 7. Aviation Incident**



Impact Severity Factors

- Population density
- Building density
- Critical facilities
- Service capacity
- Vehicle traffic
- Hazard mitigation
- Demographics
- High-risk occupancies
- Economic resources
- Natural resources
- Cultural resources
- Water supply
- Historic service demand
- Response performance



Overall Risk Assessment

Hazard		Risk Rating
1	Building Fire	<i>Moderate</i>
2	Vegetation/Wildfire	<i>Low</i>
3	Medical Emergency	<i>High</i>
4	Hazardous Materials	<i>Moderate</i>
5	Technical Rescue	<i>Moderate</i>
6	Marine Incident	<i>Moderate</i>
7	Aviation Incident	<i>Moderate</i>

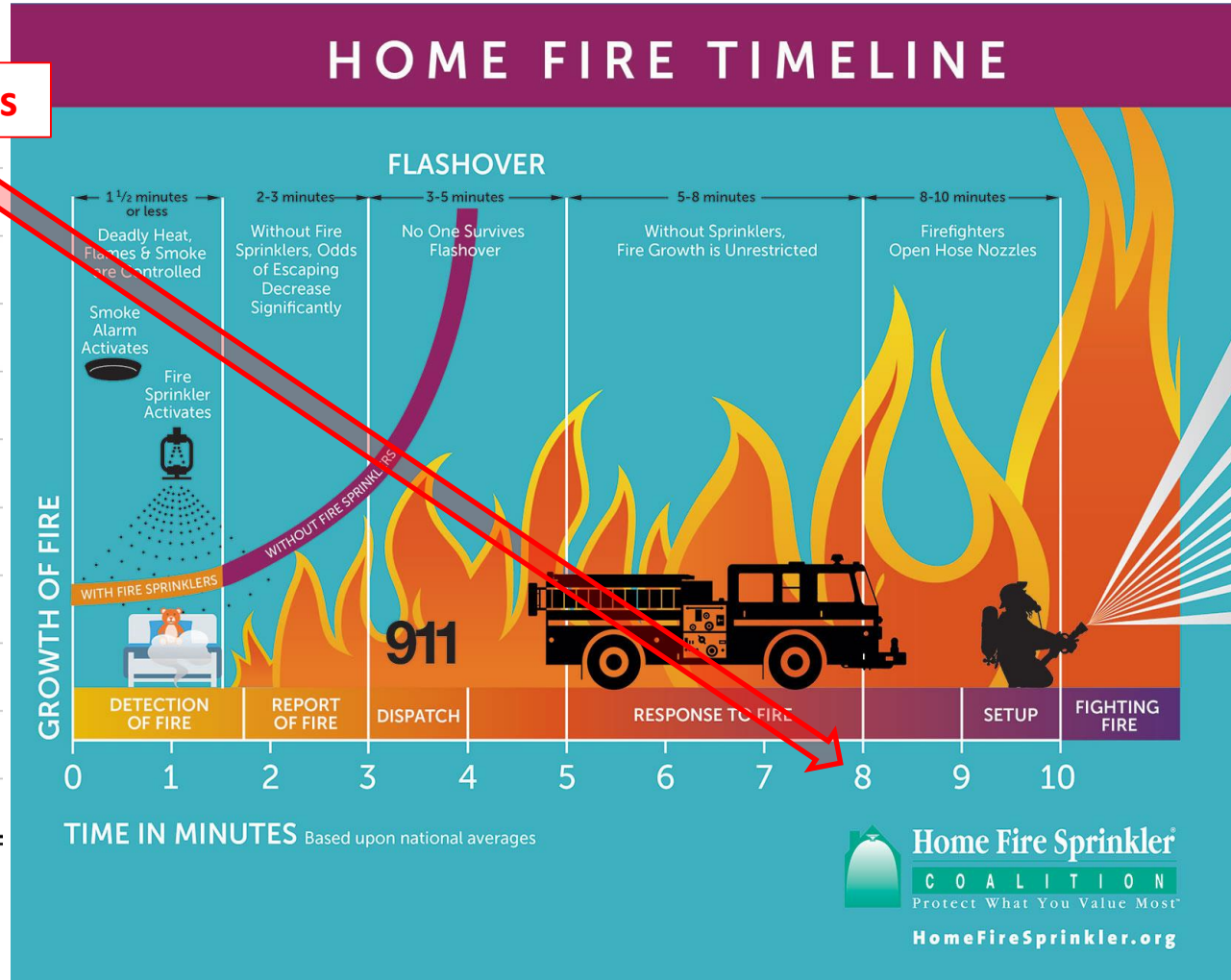
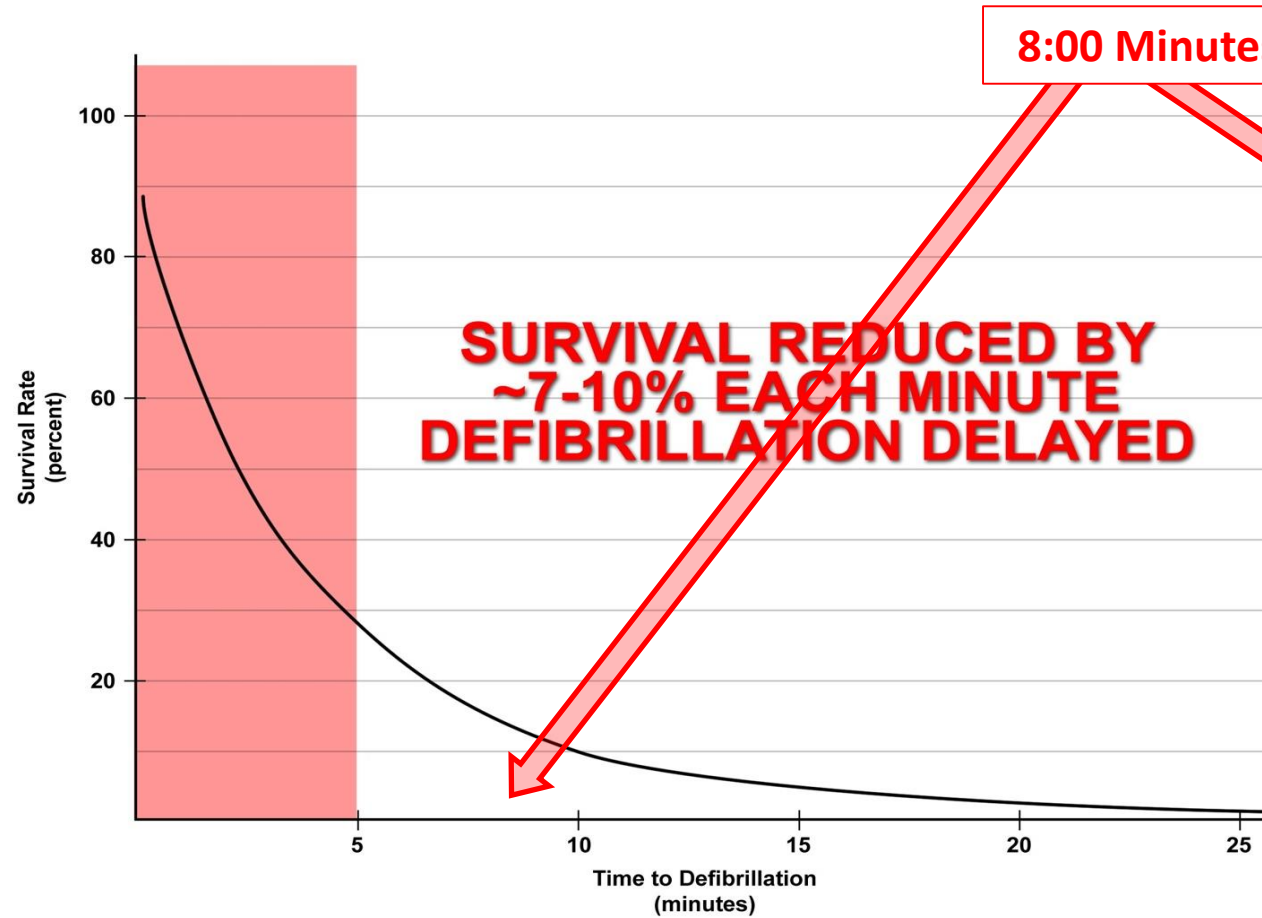


Overall Risk Assessment (cont.)

- In addition to previous hazard assessment, Valdez is at **significant risk** of a **catastrophic** event resulting from an earthquake, oil spill, or tsunami due to its:
 - Remoteness
 - Topography
 - Geology
 - Climate
 - Crude oil industry

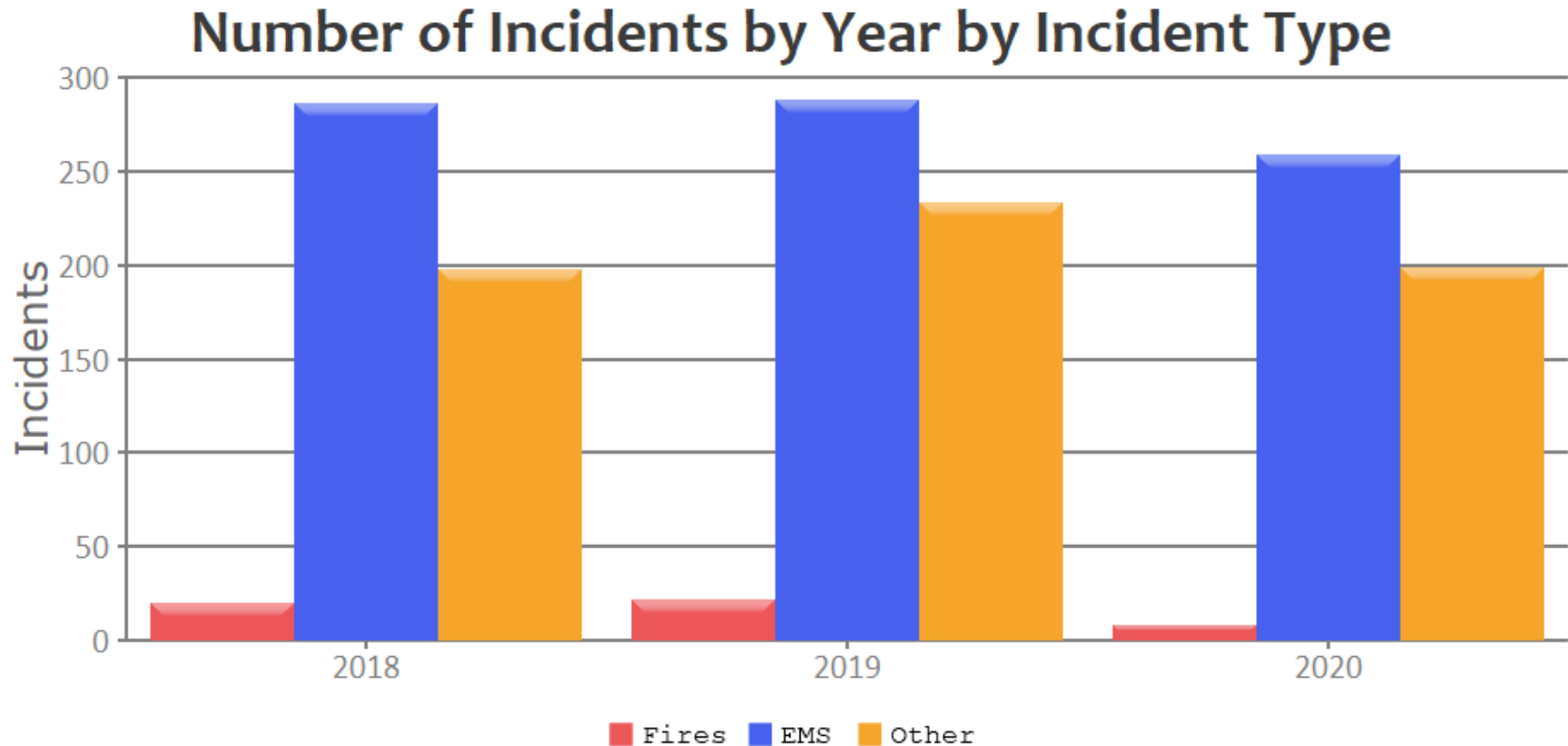


Emergency Timeline Targets



Service Demand

Service Demand by Incident Type



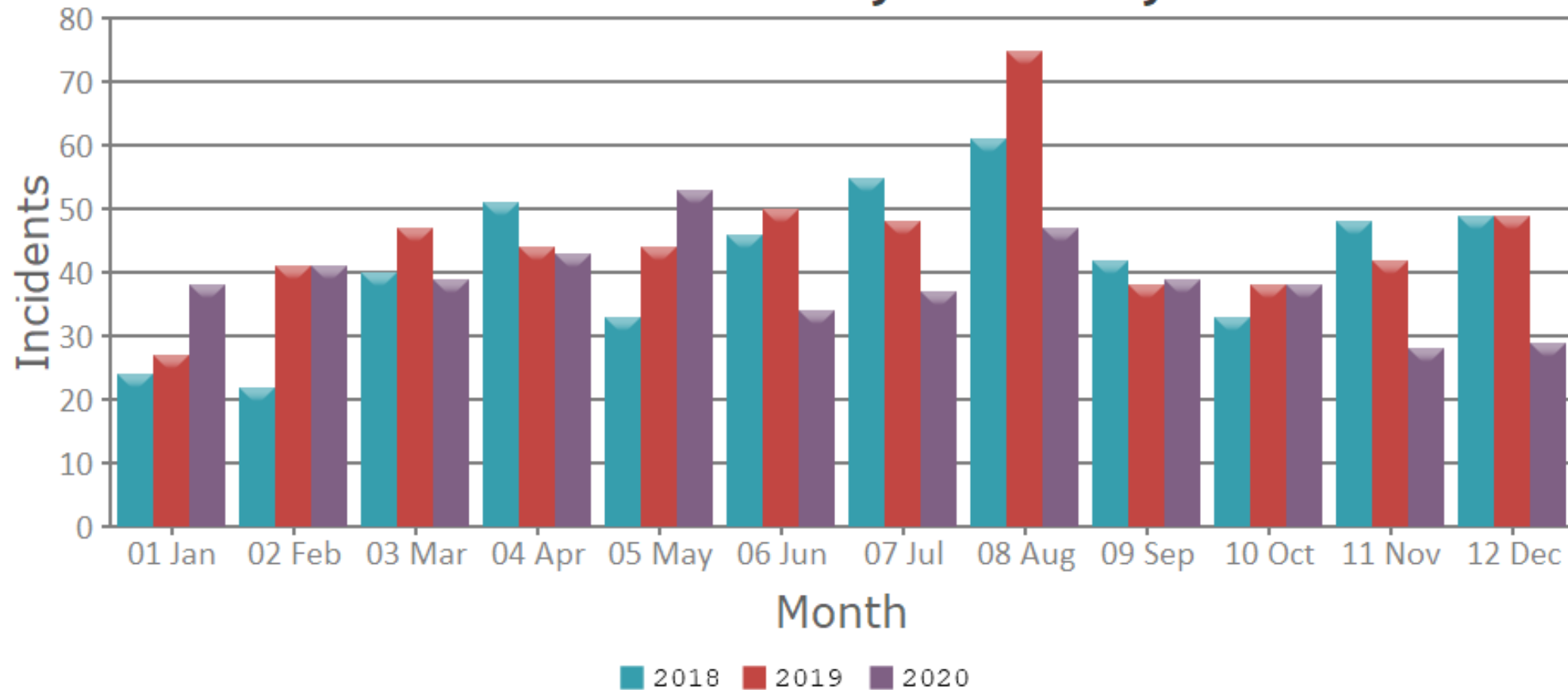
Types of Incidents and Properties

- **466** total incidents in 2020
- Daily demand of **1.27** incidents
 - 1.72% were fire
 - 55.58% were EMS
 - 42.7% were other incident types
- 48% of all incidents occurred in residential dwellings
- Three building fires each in 2018 and 2019; one in 2020
- 3.65% of the incidents occurred while another was underway



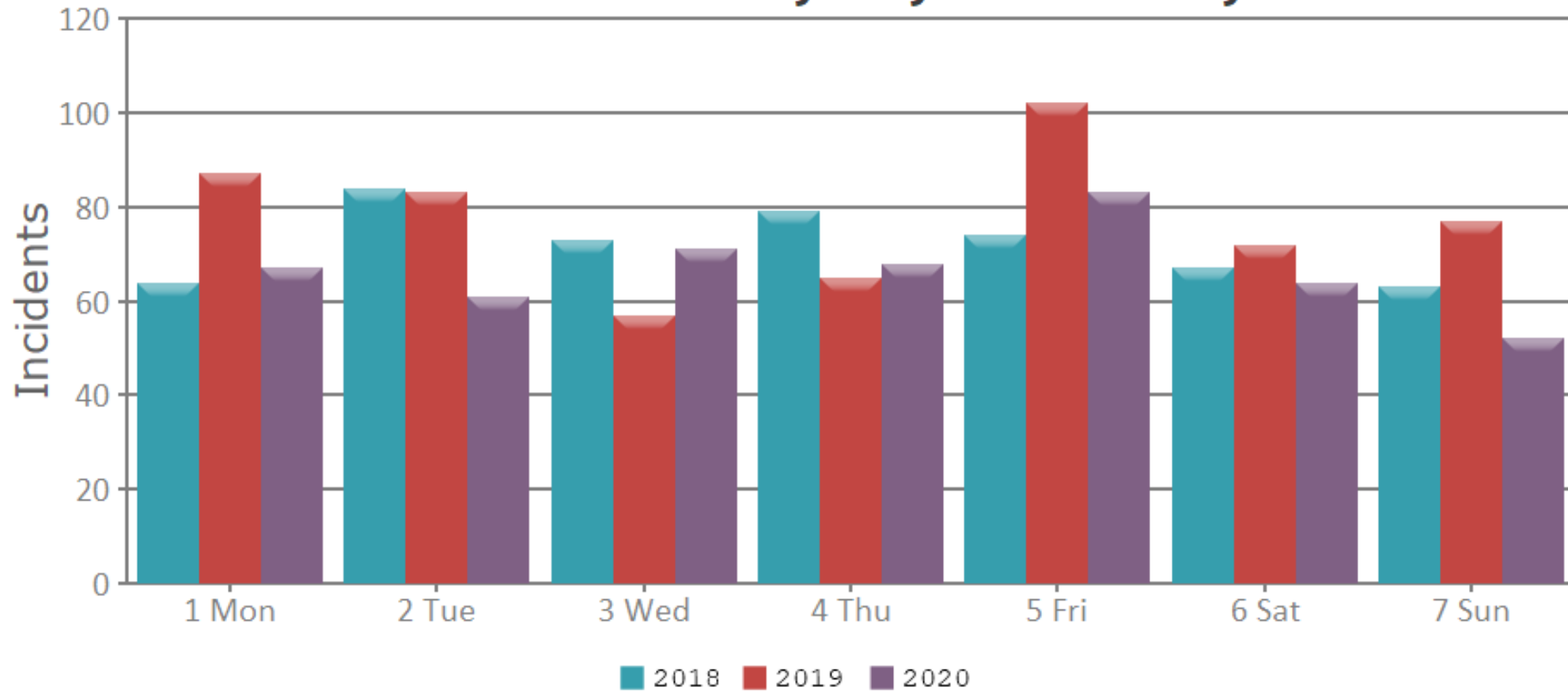
Service Demand by Month

Number of Incidents by Month by Year

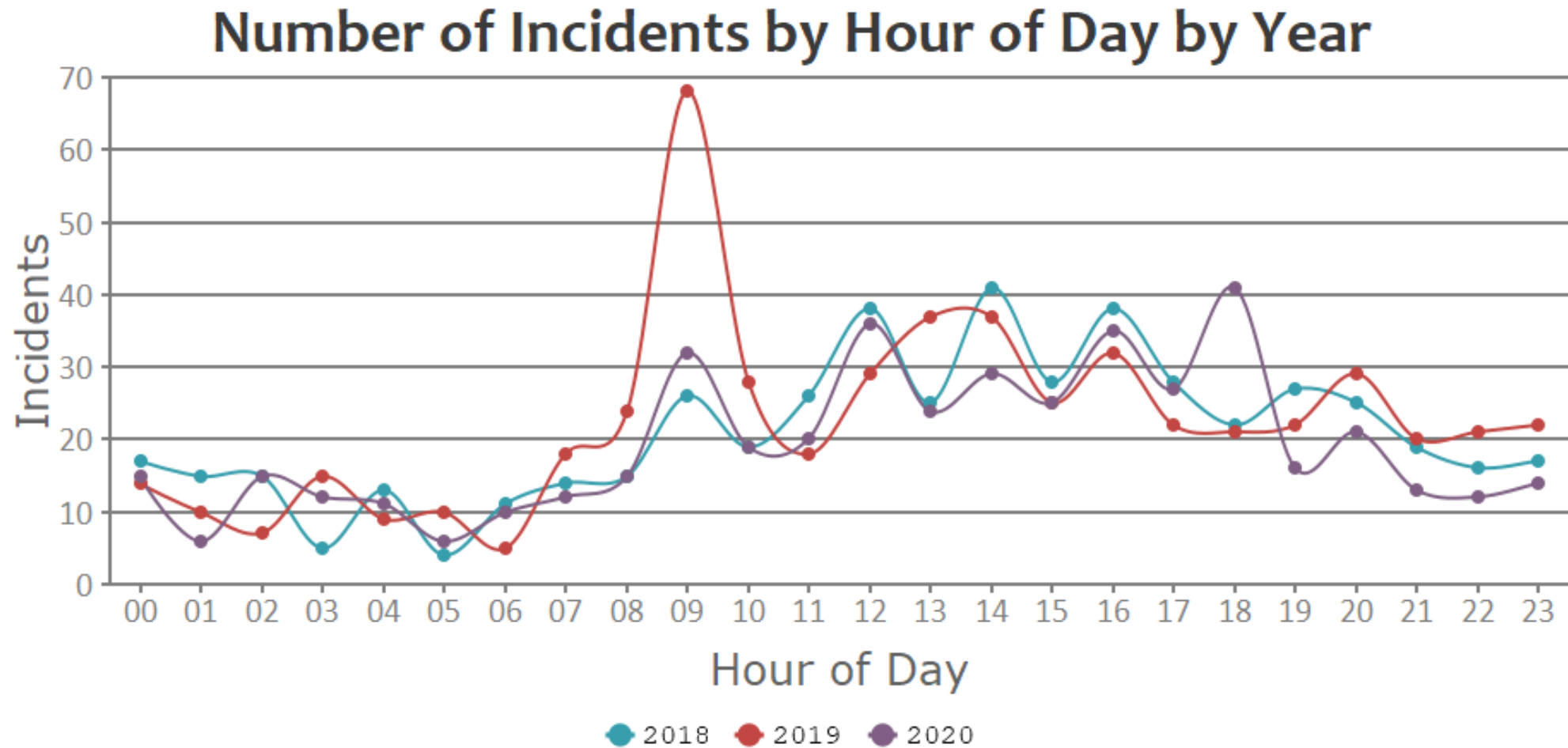


Service Demand by Day of Week

Number of Incidents by Day of Week by Year



Service Demand by Time of Day



Demand by Hour of Day (2020)

Hour	1 Mon	2 Tue	3 Wed	4 Thu	5 Fri	6 Sat	7 Sun	Total
00:00	1	2	1	3	2	1	5	15
01:00	3	1	2	0	0	0	0	6
02:00	3	3	4	0	1	2	2	15
03:00	0	1	4	3	3	0	1	12
04:00	1	2	3	0	1	1	3	11
05:00	0	1	0	2	2	0	1	6
06:00	1	0	1	1	1	4	2	10
07:00	5	2	0	3	2	0	0	12
08:00	0	4	3	2	3	1	2	15
09:00	7	3	7	4	6	4	1	32
10:00	5	5	2	1	5	1	0	19
11:00	3	3	2	1	5	4	2	20
12:00	5	4	7	6	3	6	5	36
13:00	0	1	1	8	7	5	2	24
14:00	3	6	4	5	8	2	1	29
15:00	6	1	4	3	6	2	3	25
16:00	2	4	3	8	6	6	6	35
17:00	5	2	4	1	3	9	3	27
18:00	9	4	5	5	10	4	4	41
19:00	2	2	6	1	3	1	1	16
20:00	3	5	2	4	0	4	3	21
21:00	0	3	2	3	1	3	1	13
22:00	1	1	1	2	2	3	2	12
23:00	2	1	3	2	3	1	2	14
Total	67	61	71	68	83	64	52	466



Response Performance

Response Time to 90% of Fire & EMS Calls

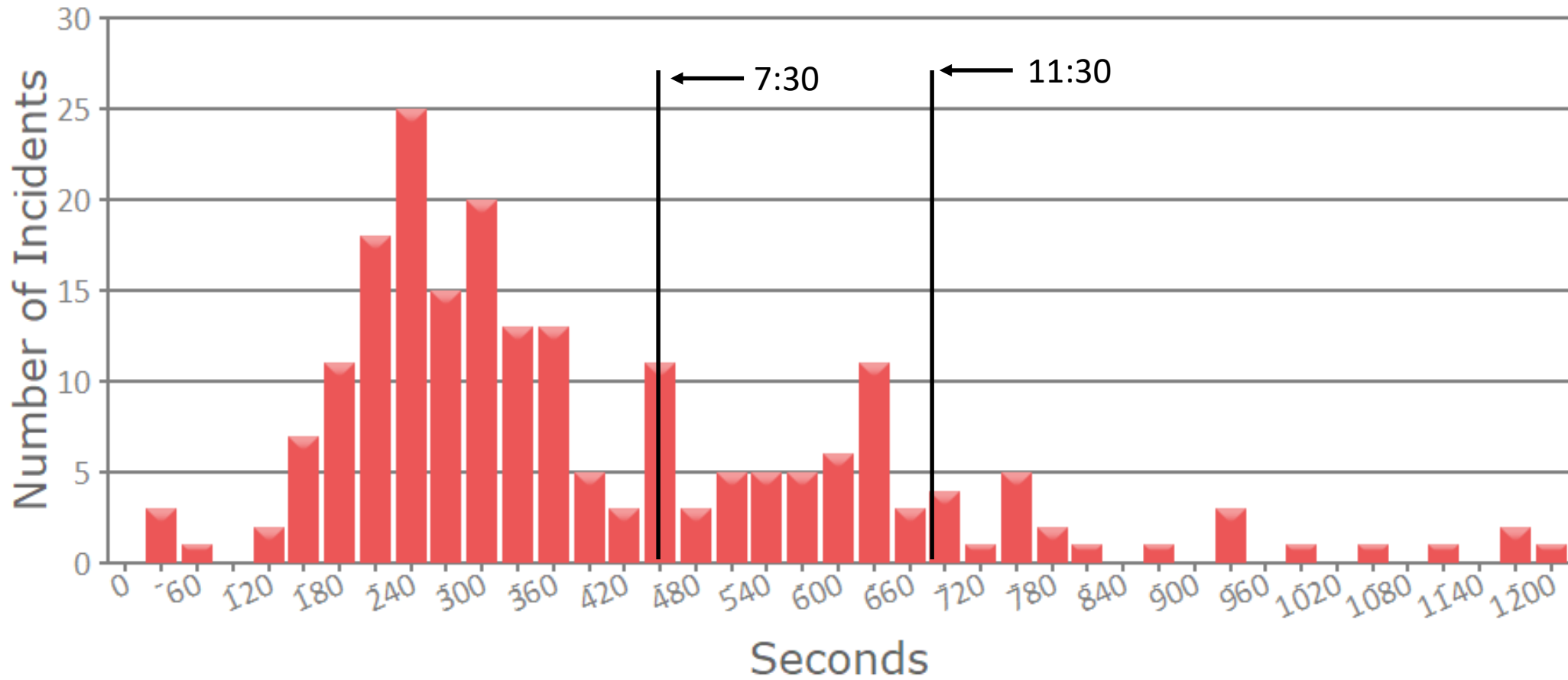
Station	2018	2019	2020	Best Practice Suburban
Call to Arrival	12:48	12:22	11:22	11:30
Dispatch Process	1:58	2:28	2:28	1:30
Crew Turnout	-	-	2:18	2:00
Travel Time	8:45	8:01	7:48	8:00

Best practice is based on NFPA 1720 for *combination* departments in suburban areas with a population of 500–1,000 per square mile



Call to Arrival by Minute

Fractile for Incidents Call to 1st Arrival



Staffing Capacity Review

Volunteer Summary Statistics

- 24 currently active
 - 11 are age 40 or under
 - 8 are age 40–50
 - 5 are age 50 or over
- 11 (46%) are structure fire-qualified
- 4 (17%) are Driver/Operator-qualified
- 11 (46%) are EMT-qualified

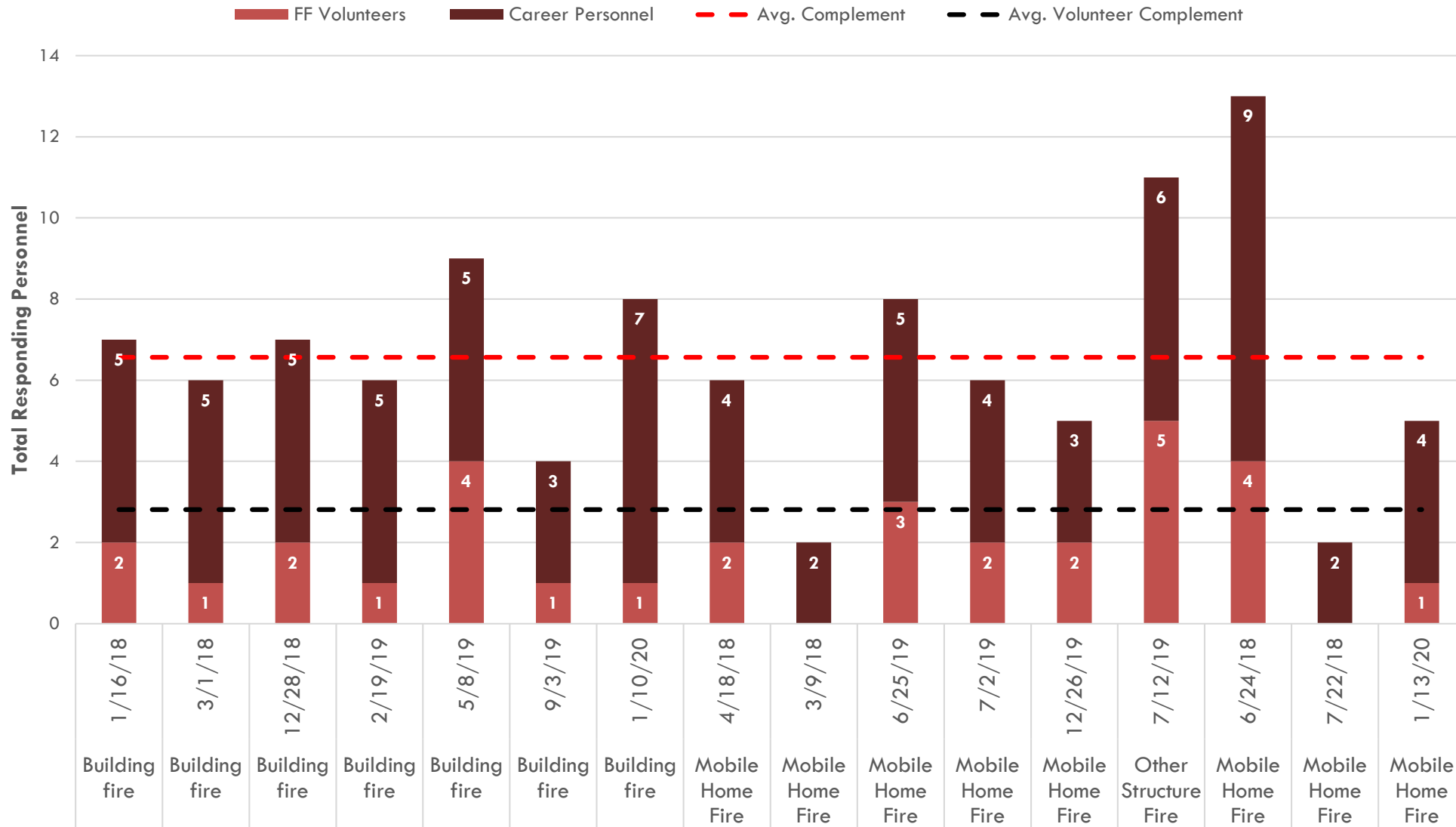


Structure Firefighting Personnel Needed – Residence

- 15 total personnel including a certified Incident Commander needed:
 - OSHA two-in/two-out fire attack (4)
 - Pump operator (1)
 - Water supply (1)
 - Rescue (2)
 - Utilities/safety/EMS treatment (2)
 - Ventilation (4)
 - Command (1)
- 2 Career + 1 chief + all 11 structure fire volunteers = 14



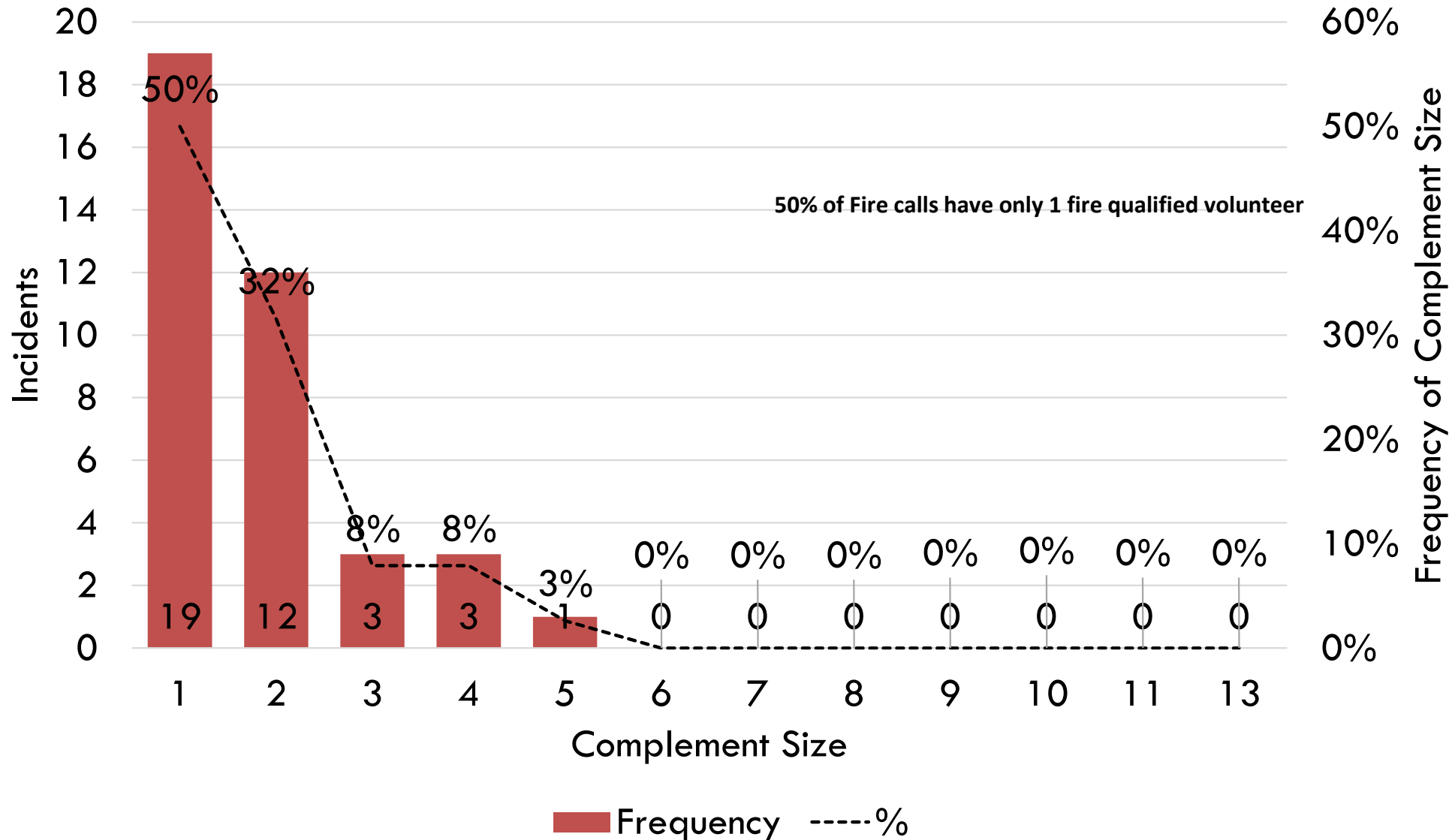
Career Plus Volunteers – Structure Fires



Across all 16 structure fires, total personnel only exceeded 10 during two incidents.



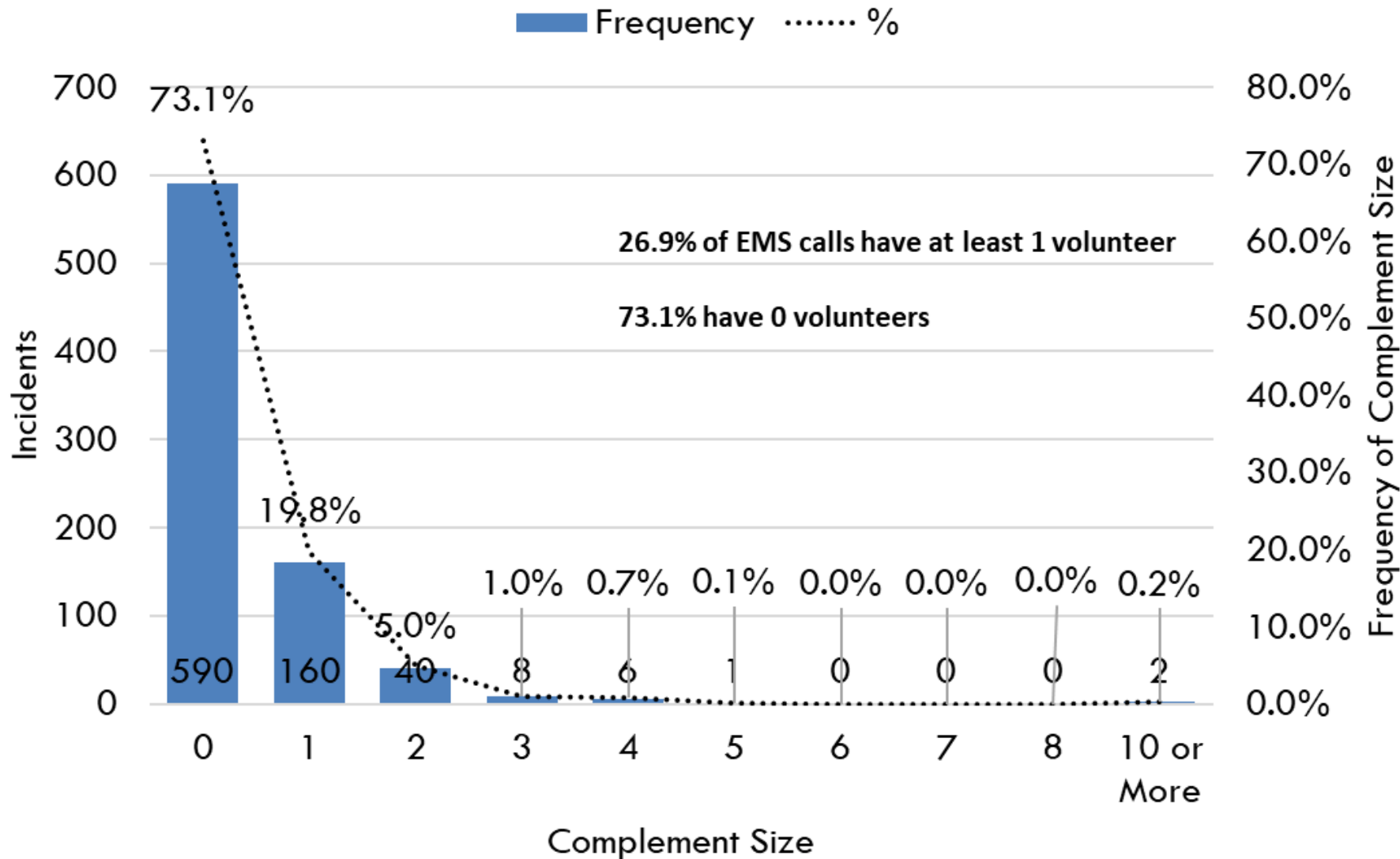
Structure Fire-Qualified Volunteers



90% of *any* type of fire incidents only receive three or fewer fire-qualified volunteers.



EMS-Qualified Volunteers

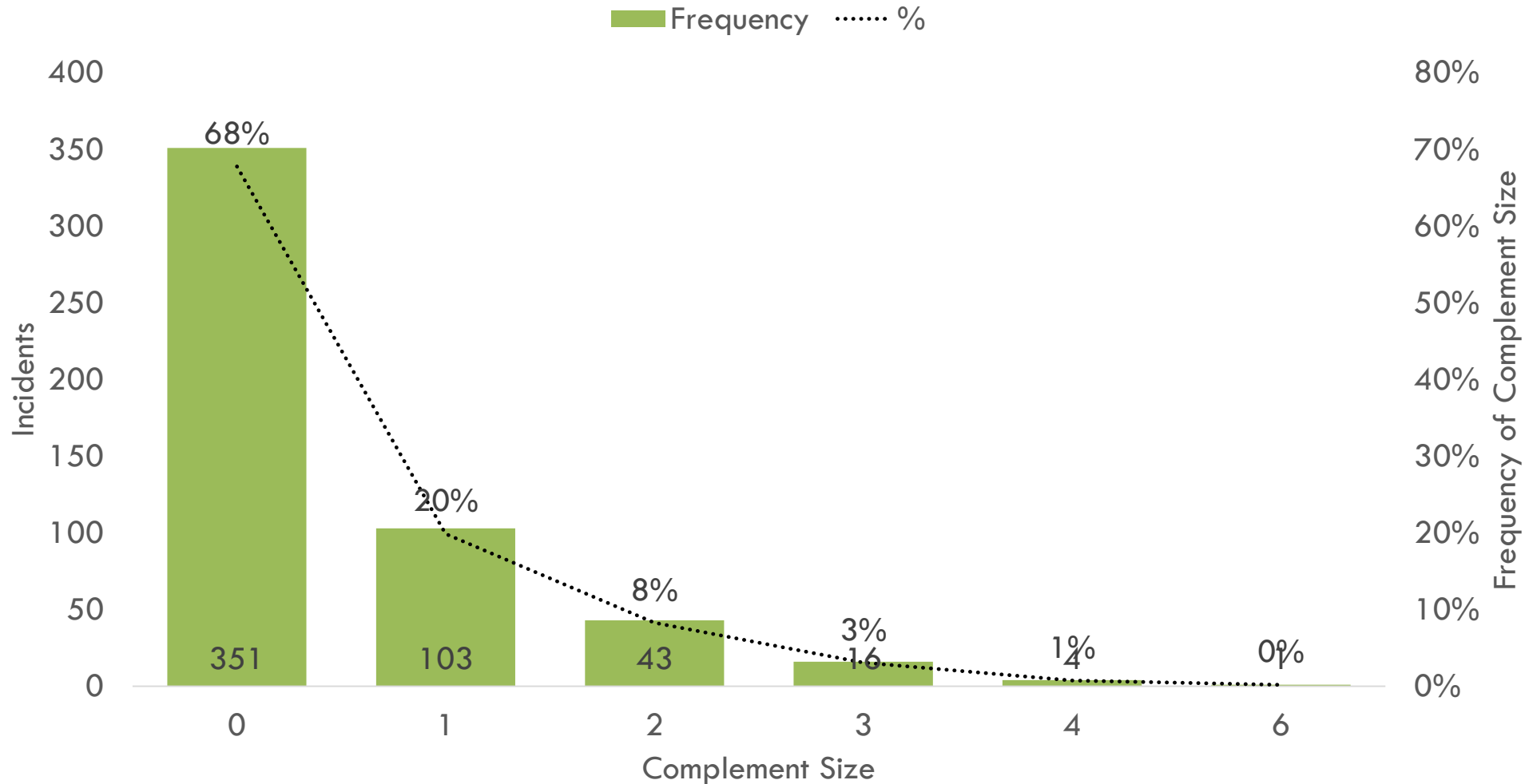


For nearly three quarters of EMS events, no volunteers will respond; less than 7% of incidents have two or more volunteers.



Volunteers on "Other" Incidents

Volunteer Frequency by Complement Size
Excludes Fire & EMS Calls



68% of other incidents receive **no** volunteer assistance; another 31% only receive one to three volunteers.



Volunteer Response by Time and Day

Hour	Mon	Tue	Wed	Thu	Fri	Sat	Sun
0		1.0			2.0		1.5
1		1.5		1.0	2.0	1.0	
2		1.0	3.0	2.0	1.0		
3			1.0	1.0			
4	1.0			1.5		1.0	2.0
5	1.0			1.0	3.0	1.0	
6	2.0				2.0		
7	1.5	1.0	1.0	2.0	1.0		2.0
8		1.0		0.8	1.8	1.3	1.0
9	0.5	1.0	1.4	0.7	0.7	1.1	1.0
10	1.0	1.0	1.3	1.5	1.3	1.5	1.0
11		1.6	1.0	0.5	1.0	1.7	1.8
12	0.5	1.0	1.1	2.3	1.0	0.7	0.8
13	1.0	1.0		0.9	1.8	1.4	1.8
14	1.0	1.5	1.5	1.0	0.8	1.5	1.6
15	1.0	1.4	1.5	3.0	1.3	1.0	2.5
16	0.6	1.0	1.7	1.3	1.2	2.0	1.1
17	1.5	1.8	1.3	1.5	1.0	1.0	1.2
18	2.0	2.5	1.7	1.0	0.8	1.3	1.5
19	0.9	0.6	2.8	1.7	1.2	1.7	1.5
20	1.3	1.1	1.4	0.7	1.3	1.5	1.3
21	1.5	2.5	1.5	1.0	1.0		1.3
22	4.0	1.5	1.0	1.3	1.5	1.5	
23	2.5	1.2	1.0	1.0	1.0		1.0

Quantities are highest between 7:00 PM and 12:00 AM, and there is need seven days per week.



Response by Person – Building Fire-Qualified

Four volunteers are responding to 60% of incidents.

Volunteer	2018	2019	2020	Grand Total
Volunteer 1	4	53	12	69
Volunteer 2	10	19	13	42
Volunteer 3	12	23	5	40
Volunteer 4	11	15	6	32
Volunteer 5	10	13	2	25
Volunteer 6	7	12	2	21
Volunteer 7	7	12	1	20
Volunteer 8	12	6	1	19
Volunteer 9	13	3	1	17
Volunteer 10	-	10	2	12
Volunteer 11	2	7	-	9



Response by Person – EMS-Qualified

Four volunteers are responding to 64% of the EMS incidents.

Volunteer	2018	2019	2020	Grand Total
Volunteer 1	39	53	11	103
Volunteer 2	8	10	23	41
Volunteer 3	12	23	5	40
Volunteer 4	11	15	6	32
Volunteer 5	10	13	2	25
Volunteer 6	7	12	2	21
Volunteer 7	7	12	1	20
Volunteer 8	12	6	1	19
Volunteer 9	13	3	1	17
Volunteer 10	6	4	-	10
Volunteer 11	-	7	-	7



Volunteer Training Commitment

- Minimum **370 hours** required for **new** volunteer firefighters
 - Firefighter 1, EMT, and basic hazmat operations
 - State requirement
 - Average of **31 hours** per month
 - Nearly **four eight-hour days** per month, or **eight half-days** per month
 - If there are enough students to schedule, otherwise longer
 - Ongoing monthly training as required by Department



Deployment Summary

- **Minimum** service level needed 24/7/365
 - Calls for service occur all hours of the day, every day of the week
- Dispatch time to serious incidents **needs improvement**
- Travel time varies by location; **only City core meeting suburban and volunteer agency goals**
- Serious incident staffing **too dependent** on career callback and *a few volunteers*



Risk to Outcome Exposure

- Even two on-duty personnel cannot handle all EMS events without help
- When the two on-duty staff are out of town with the ambulance, the next emergency is totally dependent on recall of off-duty and volunteers
- Two on-duty personnel cannot perform interior firefighting (two-in/two-out)



Risk to Outcome Exposure (cont.)

- Current staffing is six full-time career personnel (two per shift)
 - Even one lost-time injury drives up overtime costs, AND
 - Adds further strain when others need/want to take normal time off
- Off-duty career and volunteers are not always in town and available for a call
 - Not all volunteers work a traditional 40-hour schedule
 - **Too few volunteers** to support Department's needs



Deployment Recommendation

- **Goal: Four** immediately available firefighters for building fires or serious EMS emergencies
 - Meets OSHA *two-in/two-out* requirement
 - If the ambulance is committed, remaining two personnel could respond to a new incident without needing a volunteer driver
 - Minimum number of firefighters needed to initiate a search & rescue or suppression if enough volunteers are not available
 - Reduces backfill burden if an employee is injured or on extended leave



Deployment Recommendation (cont.)

- **Goal: Four** immediately available firefighters for building fires or serious EMS emergencies; options are:
 1. **Two additional full-time** firefighters per shift (**six total**)
 2. **One additional full-time** firefighter per shift (**three total**)
 - Or use structure fire-qualified volunteer firefighters on hourly non-benefitted stipend, which would require each volunteer firefighter to work 2.75 24-hour shifts per month, or 5.5 12-hour shifts per month
 3. **Continue to rely** on volunteer firefighter availability from home/work for the third or fourth firefighter position



Headquarters Programs Review

Current Staffing and Programs

- Current administrative staff to oversee and support all Department programs and responsibilities
 - Fire Chief
 - Administrative Assistant
- No backup or redundancy
- Fire Chief is on-call for incident command 24/7/365 with no backup when he is out of town
- Ambulance fees have not been updated in 15 years
- Very limited local fire prevention program



Fire Prevention Program

- State Fire Marshal's office telling applicants plan checks will take three weeks
 - State Fire Marshal must do complex on-site inspections
- State law mandates state program, with possible local agency exemptions
 - Deferment to local agency requires application and renewal every three years
 - Requires a full program, with Council-adopted ordinance and certified personnel; Council must also commit to enforcing codes



Headquarters Program Recommendation

- **Add** a **second-in-command Chief Officer**
 - Backfill for Fire Chief when absent
 - Manage either training/EMS quality assurance **or** be credentialed as a Fire Prevention Officer if the City elects to operate a full-service fire prevention program
 - Allows for succession plan training for the next Fire Chief
- **Update** **ambulance fees** pursuant to a required study



Next Steps

Deployment Next Steps

- **Adopt** response time goals tied to risk outcomes
- **Increase** daily minimum staffing to four firefighters
- **Continue** to support and maintain a volunteer force
- **Add** an aerial ladder truck
 - After staffing is increased
 - If City can provide maintenance
 - Appropriate apparatus type and size for the City's needs



Headquarters Next Steps

- **Add** a **second Chief Officer** for training/quality programs or fire prevention
- **Conduct** an **ambulance fee study** to update the City's 15-year-old fee
- **Monitor** **State Fire Marshal plan review and inspection timeliness**
 - If severely deficient, bring inspection in-house and contract for plan reviews



Discussion