# Fire Rescue Department Organizational and Staffing Study

### CITY OF SUFFOLK, VIRGINIA

### **FINAL REPORT**



March 2015

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#### 1. INTRODUCTION AND EXECUTIVE SUMMARY

The City of Suffolk retained the Matrix Consulting Group to conduct an assessment of organization and staffing of the Police and Fire Rescue Departments. This report focuses on the findings and recommendations of the Fire Rescue Department (SFR) portion of the study. The project team conducted this assignment during the summer and fall of 2014. The scope of work for the study included the following elements:

- A thorough review of the use of overtime and staffing of the Fire Rescue Department as it relates to emergency operations.
- Evaluation of staffing needs to provide support to emergency operations and the impact on overtime use.
- Analytical determination of the most appropriate levels of service and service delivery for the Fire Rescue Department in Suffolk.

In order to conduct this study, the Matrix Consulting Group project team engaged in the following activities:

- Interviewed senior executive City staff to understand financial and human resources issues facing the City – particularly as they related to the Fire Rescue Department and this assignment.
- Interviewed Fire Rescue Department management including Battalion Chiefs and above, as well as a number of other personnel with unique responsibilities in the organization.
- Collected detailed data describing operations, workload, deployment, scheduling, overtime, use of leave, apparatus, station location, etc.
- Developed a descriptive profile of the Fire Rescue Department describing current operations, service levels, staffing, deployment, overtime, stations, etc. This was reviewed by SFR staff and by City administration to ensure its accuracy.

Collectively, these steps were intended to provide the project team with a full understanding of the current methods of service delivery by SFR, its operations and the

environment within which services are provided. This approach is further intended to ensure that all participants have had opportunities for input into the study process.

#### **Executive Summary**

The City of Suffolk presents a unique environment for providing fire and EMS services to the community. The areas near Station 1 (downtown), the Kings Fork Station and the North Public Safety Station are urban in nature and have the highest call volume. The City quickly becomes rural as you leave these areas and also has areas that are considered wilderness. Due to the varying characteristics, it is not possible for the City to adopt a single performance standard for providing fire and EMS services, but instead must look at the unique service areas independently to determine the most effective and efficient manner for providing services.

The analysis presented in this report is extensive and keeps the above factors in mind when making recommendations. This section highlights the most significant findings and recommendations contained within this report in the order in which they are found by Chapter Section and Sub-Section.

Section	Finding	Recommendation	Fiscal Impact
3.1.1	Suffolk Fire Rescue has not conducted and documented a risk hazard analysis to determine the fire and non-fire risks present in each response area.	Conduct a full risk assessment of the community to identify the risks faced along with an assessment of the likelihood of an emergency to occur.	N/A
3.1.2	The City of Suffolk has not formally adopted service level objectives related to the response targets for emergency fire and EMS response.	The City should formally adopt service level objectives. While targets should be locally determined, the project team believes the City should adopt a one-minute dispatch processing time and one minute thirty second reflex time for 90% of emergency calls. Travel time standards should be based on population density of the coverage area of the station.	N/A

Section	Finding	Recommendation	Fiscal Impact
3.2.1	Dispatch call processing times are higher than the best practices recommendation of one-minute 90% of the time.	The City SFR should ensure that dispatch- processing time is less than one minute for 90% of calls for service. Dispatch data should also be monitored to ensure they accurately reflect the time a call is dispatched.	N/A
3.2.1	Times currently captured in CAD do not allow the tracking and recording of turnout times for Fire and EMS personnel.	SFR should begin tracking "turnout" or "reflex" time to ensure it 90 seconds for 90% of emergency calls for service. RMS data should also be monitored to ensure they accurately reflect en-route time and on-scene time.	N/A
3.2.2	The City would benefit from adopting response travel time targets based on the population density of the response area.	The City of Suffolk should evaluate the costs and benefits of adopting varied travel time targets for the Fire Rescue Department that align with the population density of the response areas.	N/A
3.3.1	Turnover further contributes to staffing shortages and the need to use overtime to fill minimum staffing requirements.	In order to limit the amount of overtime utilized by the Fire Department, the City should ensure that position vacancies needed to meet minimum staffing targets in operations are fully funded. This will result in significant cost savings due to the higher cost of using overtime as opposed to filling vacant positions	N/A
3.4	The current staffing level of operations results in an average of five overtime shifts each day based on leave usage in SFR.	Return the FIT positions to staff emergency apparatus, Unfreeze the six (6) frozen Firefighter/Firefighter Paramedic positions and authorize an additional three (3) Firefighter/Firefighter Paramedic positions to ensure proper daily staffing of emergency apparatus.	\$502,383 in annual salary and benefit costs  \$764,100 in estimated overtime savings.  Total estimated annual
			savings \$261,717

Section	Finding	Recommendation	Fiscal Impact
3.5	The SFR utilizes a multi-faceted approach to minimize the usage of overtime on shift personnel, but are not full utilizing technology owned by the Department which can assist in this process.	SFR should continue with the current approach used to manage daily overtime needs for operational positions. This should be done by fully implementing and utilizing the Telestaff software already owned by SFR. All Battalion Chiefs should receive training in the use of Telestaff and be required to begin using the program. In addition the Deputy Chief of Operations should be trained to function as the lead administrator of Telestaff and update the program when transfers occur and/or personnel obtain certifications to fill vacancies so this is input of data is not delayed to reliance on personnel assigned to shift duties.	N/A
4.1	One Inspector currently conducts the life safety plan reviews for SFR. This person is self-taught and there is no plan on how to perform these functions in the absence of this inspector.	The City should consider creating and assigning a Fire Protection Engineer position, moving the plan review process for life safety into the Planning Department, with the Fire Protection Engineer reporting to the Fire Rescue Department.	N/A
4.2	There is currently no formal on call policy for Fire Investigators.	Develop an on call policy for Fire Investigators that clearly states what activities are allowed and restricted when on call and establishes a required response time upon notification.	N/A
	Fire Investigators are often called out to conduct investigations on fires that are not determined to be of suspicious nature.	Consider training shift personnel in cause and origin and assigning the duty of initial fire cause and origin to the company level.	Cost savings from reduced call out of on call Investigators

#### CITY OF SUFFOLK, VIRGINIA Operational and Staffing Study of the Fire Rescue Department

Section	Finding	Recommendation	Fiscal Impact
5.1	The current Lieutenant of Fire Training is not used effectively and has several duties which can be performed by civilian personnel.	Authorize a civilian Fire Education Specialist position to oversee the Project Lifesaver Program, Car Seat Program and assist with the coordination and delivery of the public education efforts of SFR.	\$40,000 approximate annual salary cost.
		Return the building maintenance duties to the Support Services Deputy Chief.	N/A
		Return the Training Lieutenant back to a role that focuses on the oversight of continuing education and training to existing Suffolk Fire Rescue Personnel.	N/A
6	The City of Suffolk is not adjusting leave balances when fire personnel transfer from 24-hour shift work to an 8-hour position.	The City of Suffolk should implement a policy outlining how leave hours will be adjusted for personnel moving from a 24-hour shift schedule to an 8-hour shift.	40% less payout cost for transferring employees.

#### 2. PROFILE OF THE FIRE RESCUE DEPARTMENT

This chapter provides summary information regarding the current organization and operation of the Suffolk Fire Rescue Department, which serves as the context for the organization and staffing study. The various types of data were developed through interviews with SFR management and personnel, tours of stations and the Fire Rescue response area, review of available documents and records, and access to computerized records and data sets. This profile provides information that will be used by the project team to analyze workloads, organization, management, and service levels provided by SFR. The organization of this profile is as follows:

- Organization and Staffing
- Department Budget
- Emergency Operations Daily Staffing
- Personnel Costs and Overtime Utilization
- Fire Rescue Roles and Responsibilities
- Fire Rescue Workloads and Response Times

The following section provides the general overview of Suffolk Fire Rescue, including its organization and authorized staffing.

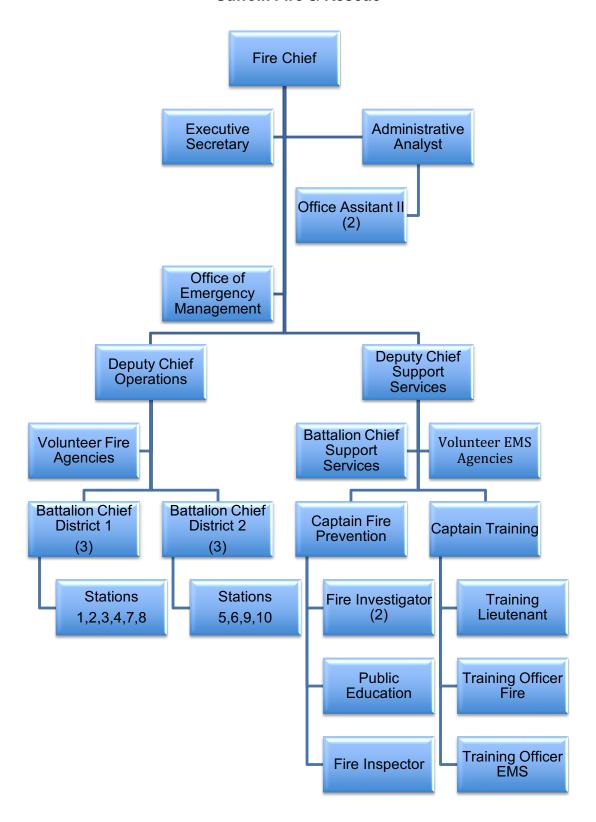
#### 1. ORGANIZATION OF SUFFOLK FIRE RESCUE

Suffolk Fire Rescue provides response to fires, medical emergencies, hazardous materials incidents, natural and man-made disasters, mutual aid assistance to neighboring departments, and related emergencies in an effort to reduce life and property loss. The SFR provides emergency management, specialized rescue operations, and supports a regional communications team. In addition, the SFR

inspects businesses and properties, assists with code enforcement, and conducts public education programs. There are three functional areas in Suffolk Fire Rescue: Fire Administration, Operations (Fire and EMS), and Support Services (Fire Prevention, Training, FOIA, Building Maintenance and Part-time EMS staffing).

The organization chart on the next page shows the current organizational structure of Suffolk Fire Rescue when all 252 authorized positions are filled:

### Organizational Chart Suffolk Fire & Rescue



The following table shows the number of authorized positions over the past three fiscal years, as well as the current number of vacancies within Suffolk Fire Rescue:

Suffolk Fire Rescue
Authorized Positions FY 13-15

Position	FY 2013	FY 2014	FY 2015	Current	Vacant
Fire Chief	1	1	1	1	0
Executive Secretary	1	1	1	1	0
Captain Emergency Management	1	1	1	1	0
Administrative Analyst	0	1	1	1	0
Office Assistant II	2	2	2	1	1
Staff Coordinator	1	1	0	0	0
Deputy Chief/Operations	1	1	1	1	0
Battalion Chief/Shift	6	6	6	6	0
Captain/Shift	15	15	16	14	2
Lieutenant/Shift	29	29	29	30	0
Firefighter/Firefighter Medic	184	184	182	166	16
Deputy Chief/Support Services	1	1	1	1	0
Battalion Chief/Support Services	1	1	1	1	0
Captain/Fire Marshal	1	1	1	0	1
Fire Inspector/Investigator	2	2	2	2	0
Fire Inspector	1	1	1	1	0
Public Education	1	1	1	1	0
Captain/Training	1	1	1	1	0
Training Lieutenant	1	1	1	1	0
Training Officer	2	2	2	2	0
Total	253	253	252	230	20

<sup>\*</sup>Includes six (6) frozen Firefighter I Positions

The following points highlight the information presented above:

- The current number of authorized positions is 252 and includes 20 vacancies including the positions of office assistant, captain, and firefighter. A Fire Investigator is currently filling the Fire Prevention Captain position on an acting basis. Additionally, a firefighter is currently acting as a lieutenant, and a lieutenant is acting a captain. There are currently six (6) frozen Firefighter I positions.
- Total staffing has reduced by one over the past three fiscal years.

The next section provides information on SFR's current budgeted and projected expenditures.

#### 2. FIRE RESCUE BUDGET

The table below shows the SFR budgets for FY 2012 - FY 2015:

Suffolk Fire Rescue FY 2012 - FY 2015 Budget Comparison

SUFFOLK FIRE AND RESCUE BUDGET						
	FY 11-12	FY 12-13				
	Actual	Actual	FY 13-14	FY 14-15		
PERSONNEL						
Salaries & Wages	\$10,405,320	\$11,157,569	\$11,781,290	\$11,929,295		
Overtime	\$1,501,453	\$1,660,599	\$987,449	\$987,449		
Part-Time	\$579,317	\$593,919	\$-	\$-		
Personnel Total	\$11,906,773	\$12,818,168	\$12,768,739	\$12,916,744		
BENEFITS						
FICA	\$916,443	\$965,827	\$976,809	\$988,131		
VRS Retirement	\$1,680,963	\$1,859,724	\$1,934,541	\$1,764,291		
Group Life	\$29,320	\$132,055	\$140,197	\$157,467		
Benefits Total	\$2,626,726	\$2,957,606	\$3,051,547	\$2,909,889		
OPERATING EXPENSES						
Refuse Collection	\$-	\$-		\$5,320.00		
Professional Services	\$129,659.00	\$112,791.00	\$183,500.00	\$189,745.00		
Medical Services	\$32,079.00	\$30,358.00	\$35,900.00	\$35,900.00		
Repair & Maintenance	\$13,852.00	\$13,215.00	\$14,000.00	\$12,300.00		
Maintenance Service Contracts	\$41,382.00	\$47,992.00	\$46,600.00	\$49,350.00		
Printing & Binding	\$746.00	\$705.00	\$790.00	\$950.00		
Info. Technology	\$744,719.00	\$635,781.00	\$859,305.00	\$833,070.00		
Fleet	\$1,281,905.00	\$1,231,063.00	\$1,343,527.00	\$1,397,650.00		
Risk Management	\$2,895,029.00	\$3,047,561.00	\$3,099,343.00	\$3,014,485.00		
Utilities	\$44,066.00	\$183,778.00	\$214,200.00	\$214,200.00		
Postal Services	\$625.00	\$615.00	\$850.00	\$850.00		
Telecommunications	\$68,317.00	\$36,287.00	\$74,339.00	\$79,714.00		
Equipment Lease/Rent	\$-	\$174,117.00	\$136,477.00	\$175,000.00		
Fire Hydrant Rental	\$122,000.00	\$117,000.00	\$117,000.00	\$117,000.00		
Travel & Training	\$28,606.00	\$20,787.00	\$21,450.00	\$26,650.00		
EMS Support	\$121,022.00	\$113,882.00	\$73,000.00	\$73,000.00		
VFD Operations	\$110,000.00	\$94,000.00	\$104,000.00	\$104,000.00		
Memberships & Dues	\$17,341.00	\$17,371.00	\$16,549.00	\$19,269.00		
Fire Programs Fund	\$444,096.00	\$179,389.00	\$203,000.00	\$213,000.00		
Project Life Saver	\$-	\$157.00	\$-	\$-		
Office Supplies	\$5,124.00	\$3,877.00	\$4,600.00	\$4,600.00		
Repair & Maintenance Supplies	\$8,596.00	\$9,188.00	\$15,000.00	\$15,000.00		
Educational Supplies	\$2,881.00	\$2,978.00	\$3,000.00	\$3,000.00		
Uniforms & Apparel	\$98,156.00	\$81,040.00	\$105,000.00	\$105,000.00		
Books & Subscriptions	\$1,384.00	\$853.00	\$1,200.00	\$1,639.00		
Other Operating Supplies	\$54,592.00	\$29,732.00	\$33,000.00	\$41,000.00		
Copier Costs	\$5,809.00	\$6,132.00	\$6,042.00	\$10,726.00		
Operating Expenses Total	\$6,271,986	\$6,190,649	\$6,711,672	\$6,742,418		
Capital Outlay Additions	\$18,277.00	\$2,303.00	\$-	\$-		
Capital Outlay Total	\$18,277.00	\$2,303.00	<b>\$</b> -	\$-		
TOTAL BUDGET	\$20,823,762	\$21,968,726	\$22,531,958	\$22,569,051		

As shown above, the FY 2015 adopted budget is \$22.57 million. This is a slight increase from the FY 2014 actual figures and a 2.7% increase over FY 2013 actual expenditures. It is important to note that the overtime line item also includes part-time employee salaries, holiday pay, inclement weather pay and FLSA overtime, which is part of the scheduled work time for the shift personnel as well as overtime to fill minimum staffing requirements.

#### 3. OPERATIONS DAILY STAFFING

Suffolk Fire Rescue currently operates from eight (8) fire stations, each located within city limits. There is also a station operated by the Nansemond Suffolk Volunteer Rescue Squad (station 2) and another which fire operations are handled by the Chuckatuck Volunteer Fire Department (station 9), which are in the city limits, but not operated by the City of Suffolk Fire Rescue. Suffolk Fire and Rescue does provide EMS response from station 9. Fire and EMS response is limited to the city limits except when mutual aid is requested:

	SUFFOLK STATION AND APPARATUS LISTING							
Station No.	Address	Zip	Phone	Battalion	Apparatus			
1	400 Market St.	23434	757-514-7550	1	Engine 1, Engine 2, Rescue 1, Tanker 1, Brush 1, Medic 1, EMS 1, B-1			
*2	428 Market St.	23434	757-539-6870	1	Medic 2			
3	1001 White Marsh Rd.	23434	757-514-7592	1	Engine 3, Ladder 3, Medic 3			
4	837 Lake Kilby Rd.	23434	757-514-7595	1	Engine 4			
5	3901 Bridge Rd.	23435	757-514-7570	2	Engine 5, Engine 25, Ladder 5, Medic 5, B-2			
6	300 Kings Fork Rd.	23434	757-514-4562	2	Engine 6, Ladder 6, Medic 6			
7	6666 O'Kelly Dr.	23437	757-514-7598	1	Engine 7, Engine 27, Tanker 7, Brush 7, Medic 7			
8	6235 Whaleyville Blvd.	23438	757-514-7599	1	Engine 8, Engine 28, Tanker 8, Brush 8, Medic 8			

	SUFFOLK STATION AND APPARATUS LISTING						
Station No.	Address	Zip	Phone	Battalion	Apparatus		
**9	300 Kings Hwy.	23432	757-514-7596	2	Engine 9, Engine 29, Tanker 9, Brush 9, Medic 9		
10	4869 Bennet's Pasture Rd.	23435	757-514-7597	2	Engine 10, Medic 10, Engine 210		

<sup>\*</sup> Operated by the Nansemond Suffolk Volunteer Rescue Squad
\*\* Operated by the Chuckatuck Volunteer Fire Department

The current daily minimum staffing and assignment of each unit is shown in the following table:

Suffolk Fire & Rescue - Shift Unit Assignments by Station and Minimum Staffing

		Full Staffing	Minimum
Station	Units		Staffing
	Battalion 1	2	2
	Engine 1	4	3
	Engine 2	4	4
Station 1	Rescue 1	4	3
Station	Medic 1	2	2
	EMS 1	1	1
	Tanker 1	0	0
	Brush 1	0	0
Station 2	Medic 2	NSVRS	NSVRS
	Engine 3	4	3
Station 3	Ladder 3	4	3
	Medic 3	2	2
Station 4	Engine 4	4	3
	Battalion 2	2	2
	Engine 5	4	3
Station 5	Engine 25	4	3
	Ladder 5	4	3 2
	Medic 5	2	
Station 6	Engine 6	4	3
	Ladder 6	4	3
	Medic 6	2	2
Station 7	Engine 7	4	4
	Medic 7*	2	2
Station 8	Engine 8	4	4
	Medic 8*	2	2
Station 9	Medic 9*	CVFD	2
	Engine 9	CVFD 4	CVFD
Station 10	Engine 10 Medic 10	2	3
Total	iviedic 10	77	66
	1 '41 4 DT 1 1	11	00

<sup>\*</sup> Medics staffed with 1 PT and 1 FT. SFR may staff with 2 FT as needed.

As shown above, a total of 77 line personnel are scheduled each day to staff units with minimum staffing being 66. It is important to note that certain positions such as officers and paramedics require personnel with appropriate training to staff these positions, which may require overtime even if minimum staffing levels are adequate.

Personnel work 24-hour shifts on a rotating basis with a varying number of days off between shifts, ranging from 24 hours off to five days off. Shifts are scheduled to begin and end at 8:00 a.m. The rotation results in a 56-hour average FLSA workweek for shift personnel. The following table illustrates a one month rotation of the shift schedule for each of the three shifts.

	September 2014						
SUN	MON	TUE	WED	THU	FRI	SAT	
	Α	В	С	В	Α	В	
Α	В	С	Α	С	В	С	
В	С	Α	В	Α	С	Α	
С	Α	В	С	В	Α	В	
Α	В	С					

The next section provides information on personnel costs, overtime, and turnover.

#### 4. PERSONNEL COSTS, OVERTIME UTILIZATION AND TURNOVER

The project team collected salary data for SFR. The table below shows the salary range by position as provided by the Human Resources Department:

Position	Starting Salary	Midpoint Salary	Top Salary
Fire Chief	\$89,313	\$118,339	\$158,430
Deputy Fire Chief	\$68,998	\$89,698	\$118,687
Battalion Chief	\$64,915	\$84,390	\$111,662
Fire Captain	\$55,892	\$71,263	\$93,138
Fire Lieutenant	\$51,566	\$65,237	\$85,262
Administrative Analyst	\$47,306	\$60,315	\$78,830
Public Education			
Specialist/Investigator	\$39,897	\$50,868	\$66,483
Firefighter I	\$35,083	\$43,855	\$56,577

Firefighter II	\$36,722	\$45,903	\$59,219
Senior Firefighter	\$38,364	\$47,954	\$61,866
Master Firefighter	\$45,487	\$57,995	\$75,798
Fire Medic I	\$41,657	\$53,112	\$69,417
Fire Medic II	\$45,487	\$57,995	\$75,798
Fire Inspector	\$38,364	\$47,954	\$61,866
Fire Investigator/Inspector	\$39,897	\$50,868	\$66,483
Training Officer	\$38,364	\$47,954	\$61,866
Executive Secretary	\$31,899	\$39,873	\$51,540
Office Assistant	\$26,826	\$33,536	\$43,265

The following table shows the average daily overtime usage to staff the shifts from July 1, 2013 – June 30, 2014 due to minimum staffing requirements not being met. It does not include overtime required due to snow events or SFR being in Emergency Preparedness Level 1:

Suffolk Fire Rescue Shift Overtime Hours July 1, 2013 – June 30, 2014

Shift	Battalion 1	Battalion 2	Total
Α	2,946	551	3,497
В	3,859	1,317	5,176
С	5,453	2,344	7,797
Total	12,258	4,212	16,470
Daily Average	33.6	11.5	45.1

As shown above, the representative shifts required an average of 33.6 hours of overtime for Battalion 1 and 11.5 hours of overtime for Battalion 2 each shift to fill minimum staffing requirements. This equates to 16,470 hours of overtime to fill minimum staffing levels due to leave usage and training.

#### 5. CALLS FOR SERVICE INFORMATION

The following table shows the calls from July 1, 2013 – June 30, 2014 for Suffolk Fire Rescue by hour of day and day of week as recorded in the dispatch CAD system:

Suffolk Fire Rescue
Calls for Service 07/01/2013 – 06/30/2014

Hour/Day	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
0	53	38	54	38	37	31	49	300
1	54	33	38	28	25	30	35	243
2	48	39	31	33	25	38	49	263
3	25	27	26	36	28	42	36	220
4	31	23	28	22	26	30	43	203
5	33	45	33	37	28	27	31	234
6	31	45	53	36	35	36	43	279
7	46	51	49	56	57	36	59	354
8	51	70	62	61	89	76	58	467
9	67	98	77	94	81	96	91	604
10	81	103	88	117	100	83	95	667
11	73	116	93	111	92	80	69	634
12	84	97	88	92	88	86	62	597
13	77	87	90	116	93	110	73	646
14	65	95	93	82	94	102	76	607
15	61	80	103	88	105	103	88	628
16	82	87	79	91	94	91	70	594
17	78	89	69	93	93	74	83	579
18	82	84	62	70	75	80	62	515
19	82	95	74	71	69	79	83	553
20	71	78	57	62	70	69	83	490
21	65	64	76	76	64	68	61	474
22	51	60	52	47	61	50	66	387
23	47	39	48	52	63	58	57	364
Total	1,438	1,643	1,523	1,609	1,592	1,575	1,522	10,902

As shown in the table above, during the one-year period, Suffolk Fire Rescue responded to 10,902 unique incidents. The busiest hour of the day was between 10:00 a.m. and 11:00 a.m., and the slowest hour was between 4:00 a.m. and 5:00 a.m. Monday was the busiest day for call volume with 1,643 calls and Sunday was the slowest with 1,438 calls.

The following table shows the number of calls per station during the same time period:

Suffolk Fire Rescue
Calls by Station July 1, 2013 – June 30, 2014

Station	Count
ST1	1,942
ST10	475
ST1B	781
ST3	2,496
ST4	742
ST5	1,369
ST5B	452
ST6	1,443
ST7	504
ST8	314
ST9	330
ST90	26
Unknown	28
Total	10,902

As shown above, Station 3's response area was the busiest during the period with 2,496 calls for service, while Station 8's area was the slowest with 314 responses.

Several calls require more than one apparatus to respond to the call to effectively handle the emergency situation. The following table illustrates the calls by unit for the time period of July 1, 2013 through June 30, 2014:

Unit ID	Count
M1A	2,452
M3A	2,277
E3	1,690
E1	1,624
M6A	1,520
M5A	1,330
E6	1,032
E25	1,030
E2	1,018
EMS1	984
R1	888
E4	798
B1	790
L3	741
M10A	662
E5	623
L5	550
L6	548
E10	514
B2	484

Unit ID	Count
M7A	481
M9A	422
M8A	417
E7	407
M2A	364
E29	280
E8	266
R6	152
EMS2	100
T1	97
M2	58
T7	53
FM4	42
T9	36
FM5	32
E9	31
FM6	29
CR109	28
BR1	25
CR209	23
T8	23
BR7	19
FM1	18
CR107	17
E27	17
REHAB6	13
Z2A	9
BR8	8
BR9	8
TRN3	6
P1	5
TRN1	5
E210	4
UT3	4
CR310	3
E28	3
SW6	3
TRN2	3
TRN2 UT1 UT4 CR1	3
014	3
CR1	2
CR3	2
M22A	3 3 3 3 3 2 2 2 2 2 2 2
M9	2
MCT5	2
TRN4	2
CR202	
CR202 CR302 CR502	1
CR502	1
CR6	1

Unit ID	Count
FM3	1
HZ1	1
M1	1
M10	1
M22	1
M6	1
REHAB1	1
UT10	1
UT2	1
UT5	1
Z1A	1
Total	25,099

As shown above, there were a total of 25,099 unit responses to the 10,902 calls for service during the one-year period. This equates to average of 2.3 units responding per call. Medic 1A was the busiest ambulance, responding to 2,452 calls, while Engine 3 was the busiest engine company, responding to 1,690 calls.

#### 6. FIRE PREVENTION WORKLOAD

Fire prevention activities occur as a partnership between the Operations personnel and the Fire Prevention personnel. Each year the Fire Prevention Bureau generates a master inspection list for the companies to inspect the business in their response district. In 2013, this totaled 692 company inspections.

The Fire Prevention Inspector conducts inspection on high risk occupancies and those requiring an annual licensing inspection in accordance with the Code of Virginia. These inspections totaled 77 in the year 2013. There were also an additional 45 reinspections completed in 2013 for businesses that were not found fully compliant on the initial inspection.

The Fire Investigators completed 122 cause and origin investigations in 2013 for fires where the cause was not immediately known. There were 37 suspicious fires

during 2013, which resulted in 35 convictions and one case closed due to the death of the suspect.

The Fire Prevention Bureau also conducts a number of fire safety courses during the year. There were 26 classes conducted for over 300 participants in 2013 in cooperation with the Suffolk Redevelopment Housing Authority to teach fire safety to residents. There were an additional four classes with 19 students for juvenile fire setters.

The SFR also teaches Fire and Life Safety Camps for children focusing on safety and injury prevention. This one-week class, taught in the summer, hosted a total of 82 campers in 2013 during the three separate camps.

The Fire Inspector also conducts site plan reviews, hood and suppression system inspections, occupancy change inspections and issues burn permits to residents. The following table illustrates this workload in 2013 as provided by Suffolk Fire Rescue:

Fire Prevention Activity - 2013

Activity	Count
Burn Permits	275
Site Plan Reviews	84
Fire Alarm Systems	35
Hood Systems	7
Sprinkler Systems	31
Change of Occupancy	40

#### 7. TRAINING WORKLOADS

As shown earlier, the Training Division has a Captain and two Training Officers directly involved in the coordination and development of training for SFR. The Training Lieutenant spends the majority of his time engaged in public outreach efforts.

The following table illustrates the annual fire training provided to SFR personnel:

**Suffolk Fire Rescue – Annual Fire Training** 

Topic	Hours
Fire Fighter Safety and Health	2
Fire Behavior	2
Hazardous Materials	2
Building Construction	2
Rescue and Extrication	2
Forcible Entry	2
Ventilation	2
Fire Hose	2
Hazardous Materials Decontamination	2
Fire Streams	2
Loss Control	2
Protecting Evidence	2
SCBA	4
Total	28

The next table illustrates the annual EMS training provided to SFR personnel:

**Suffolk Fire Rescue – Annual EMS Training** 

Topic	Hours
Airway Management/Infection Control	2
Jump START Triage/STEMI	2
Motorcycle Crash Response	2
Allergic Reactions/OB Complications	2
Chemical and Mechanical Bleeding Control/	2
Traumatic Chest Injury	
Cross Cultural Communication/Pregnancy Trauma	2
Intraosseous Infusion/Taser, Pepper Spray	2
Ventilatory Support (CPAP)/SIDS	2
Trauma/Stroke Awareness	2
Fractures/Ingested Toxins	2
Kidney Failure/Respiratory Distress	2
Geriatric Trauma/Pediatric Shock	2
Mass Casualty	12
Mass Casualty Drill	3
Mass Casualty Large Scale Incident	6
Pediatric Advanced Life Support	8
Advanced Cardiac Life Support	8
Cardio Pulmonary Resuscitation	3
Total	52

As shown above, SFR personnel are scheduled to receive 28 hours of fire training and 52 hours of EMS training for a total of 80 hours of formal training per year.

#### 8. FIRE RESCUE ROLES AND RESPONSIBILITIES

The table beginning on the following page describes the key roles and responsibilities of personnel within Suffolk Fire Rescue.

Position	Authorized	Current	Key Roles and Responsibilities
Fire Chief	1	1	<ul> <li>Supervises all administrative matters in the Fire Department, including budget preparation, general ledger monitoring, scheduling, and personnel matters.</li> <li>Plans, organizes, directs, and evaluates City emergency response operations including fire suppression, emergency rescue, medical emergencies, and hazardous material response, and fire prevention programs; develops and/or approves and implements policies, procedures, and regulations.</li> <li>Directs and evaluates emergency response operations.</li> <li>As the Emergency Services Manager; oversee planning activities for natural and man-made disasters.</li> <li>Prepares and analyze incident reports.</li> <li>Prepares state and federal grant applications.</li> <li>Evaluates the performance of specific Fire Department units.</li> <li>Prepares the department's annual operating and CIP budgets and exercises purchasing and budgetary control; approves budgets of five volunteer organizations; evaluates the need for and recommends the purchase of new apparatus and supplies.</li> <li>Oversees personnel hiring, assignment, promotion, discipline, dismissal, etc.; evaluates overall and specific unit operations and personnel performance; ensures that subordinates receive orientation and training required for assigned positions; receives, investigates, and resolves complaints against department personnel from the public, other public officials or agencies, etc.; oversees career and volunteer personnel.</li> <li>Confers with City Manager, City Council, State officials and others to develop, propose and establish new laws, ordinances or codes, or to amend existing laws, ordinances or codes, pertaining to fire prevention and safety.</li> <li>Directs the preparation and ultimate analyses of fire records and reports to secure efficient operations, to meet service demands and to comply with authorized requests for information regarding departmental activity and personnel.</li> <li>Appears before public and news media, as appropriate, to explain emergency response</li></ul>

Position	Authorized	Current	Key Roles and Responsibilities
Executive Secretary	1	1	<ul> <li>Serves as the Executive Secretary to the Fire Chief and Deputy Chiefs.</li> <li>Assists command staff as needed by providing administrative support.</li> <li>Manages the Fire Chief's calendar.</li> <li>Coordinates meetings for the Chief.</li> <li>Answers telephone inquiries as needed.</li> <li>Receives general emails directed to the Fire Department and routes accordingly.</li> <li>Maintains records related to departmental administrative issues.</li> <li>Attends and takes minutes at monthly staff meetings.</li> <li>Handles all financial related components related to the New World System.</li> <li>Reconciles general records in New World.</li> <li>Ensures all account balances remain current.</li> <li>Generates purchase orders as needed.</li> <li>Assists with travel arrangements as needed.</li> <li>Prepares reimbursement reports for volunteers and mileage reimbursement for personnel due to station transfers.</li> <li>Coordinates printing of required forms.</li> <li>Assists with the coordination of various City and Department awards.</li> <li>Serves as the Notary for the Department.</li> <li>Process all UPS returns.</li> </ul>
Deputy Fire Chief – Operations	1	1	<ul> <li>Supervises operational matters in the Fire Department including scheduling, personnel matters; assists with planning, developing, coordinating, and/or conducting emergency response training programs for fire personnel at basic and advanced levels, including firefighting, emergency rescue, emergency management, hazardous material response, etc.; attends and participates in such programs as appropriate. Provides direct supervision to the six shift Battalion Chiefs.</li> <li>Organizes and directs emergency response operations including firefighting, rescue, hazmat response, and emergency management as needed; determines the necessity for additional apparatus and personnel.</li> <li>Oversees personnel, discipline, etc.; evaluates specific unit operations; prepares employee performance evaluations.</li> <li>Ensures that subordinates receive orientation and training required for assigned positions.</li> <li>Receives and investigates complaints against department personnel.</li> <li>Assists Fire Chief in development and implementation of policies, procedures, and methods to be employed in emergency response operations.</li> <li>May assume duties of the Fire Chief in his/her absence.</li> <li>Appears before civic, community, school and other interested groups and makes presentations on topics of fire safety and prevention.</li> </ul>

Position	Authorized	Current	Key Roles and Responsibilities
Deputy Fire Chief – Support Services	1	1	<ul> <li>Provides direct supervision to the Support Services Battalion Chief, Training Captain and Fire Prevention Captain.</li> <li>Responsible for assisting with the implementation of the Kronos timekeeping system.</li> <li>Oversees the upkeep on Department buildings, grounds and capital management.</li> <li>Responsible for overall management of the EMS system, including protocol revisions and serving as a liaison with the Medical Director.</li> <li>Prepares and maintains records and reports of training, transfers of personnel, and general operations of the department including preparing fire reports; prepares technical studies, as necessary.</li> <li>Assists Fire Chief in development and implementation of policies, procedures, and methods to be employed in support services operations.</li> <li>May assume the duties of the Fire Chief in his/her absence.</li> </ul>

Position	Authorized	Current	Key Roles and Responsibilities
Battalion Chief – Operations	6	6	<ul> <li>Responds to emergency response incidents during the assigned shift; directs all firefighting, hazardous material response, and rescue activities throughout the City during an assigned shift; determines the necessity for additional apparatus and personnel; and directs firefighting and other emergency response operations until relieved by the Deputy Fire Chief and/or Fire Chief.</li> <li>Performs periodic inspections of all fire stations, apparatus and personnel on the assigned shift and prepares written inspection reports for administrative review; requisitions or coordinates purchase of necessary equipment, supplies and materials, and ensures proper distribution among fire stations.</li> <li>Supervises assigned shift staff; oversees and ensures proper staffing of fire stations; establishes day-to-day operating policies and procedures, and plans daily station activities; handles disciplinary matters and solves employee problems.</li> <li>Each Battalion Chief has ancillary duties including purchasing firefighting equipment, safety gear, supplies, and EMS equipment, facility maintenance, serving on various committees, etc.</li> <li>Plans, develops, coordinates, and/or conducts emergency response training programs for fire personnel at basic and advanced levels, including firefighting, emergency rescue, hazardous material response, etc.; attends and participates in such programs as appropriate.</li> <li>Prepares and maintains various records and reports of activities and emergency response operations.</li> <li>Assists Deputy Fire Chiefs in development and implementation of policies, procedures and methods to be employed in emergency response operations; may assume duties of Deputy Fire Chief in his absence.</li> <li>May perform any or all firefighting duties at the scene.</li> </ul>

Position	Authorized	Current	Key Roles and Responsibilities
Battalion Chief – Support Services	1	1	<ul> <li>Responsible for the 30 authorized part-time EMS personnel to include hiring, timesheets, evaluations, scheduling, and uniforms.</li> <li>Oversees the EMS quality assurance program. Reviews the Performance Improvement (PI) reports completed by the EMS supervisors.</li> <li>Ensures adequate stock of EMS supplies and equipment is maintained.</li> <li>Coordinates random drug testing and ensures drug tests requested by Risk Management occur.</li> <li>Serves as Department liaison with Fleet Maintenance.</li> <li>Maintains the WEB EOC.</li> <li>Develops specifications for and coordinates the purchasing of new ambulances.</li> <li>Serves on the accident review board for City vehicle and equipment accidents.</li> <li>Reviews priority dispatch protocols and meets quarterly with dispatch supervisors regarding priority dispatch.</li> <li>Serves on the City sick bank committee.</li> </ul>
Fire Captain – Operations	16	16*	<ul> <li>Responds to all emergency response incidents during the assigned shift; directs all firefighting, hazardous material response, and rescue activities throughout the City during an assigned shift; determines the necessity for additional apparatus and personnel; and directs firefighting and other emergency response operations until relieved by the Deputy Fire Chief and/or Fire Chief.</li> <li>Performs periodic inspections of all fire stations, apparatus and personnel on the assigned shift and prepares written inspection reports for administrative review; requisitions or coordinates purchase of necessary equipment, supplies and materials, and ensures proper distribution among fire stations.</li> <li>Supervises assigned shift staff; oversees and ensures proper staffing of fire stations; establishes day-to-day operating policies and procedures, and plans daily station activities; handles disciplinary matters and solves employee problems.</li> <li>Plans, develops, coordinates, and/or conducts emergency response training programs for fire personnel at basic and advanced levels, including firefighting, emergency rescue, hazardous material response, etc.; attends and participates in such programs as appropriate.</li> <li>Prepares and maintains various records and reports of activities and emergency response operations.</li> <li>May perform any or all firefighting duties at the scene.</li> </ul>

Position	Authorized	Current	Key Roles and Responsibilities
Fire Captain – Training	1	1	<ul> <li>Develops training plans.</li> <li>Supervises the Training Lieutenant and Training Officers.</li> <li>Works with company officers to deliver training.</li> <li>Oversees the Child Safety Seat Program.</li> <li>Develops monthly training plan for the Department, which covers one year.</li> <li>Coordinates annual physicals for Departmental personnel with the local hospital.</li> <li>Trains new recruits in the basic fire academy.</li> </ul>
Fire Captain – Fire Prevention	1	0	<ul> <li>An Investigator is currently filling this position in an acting capacity.</li> <li>Supervises the Fire Inspector and Investigators.</li> <li>Assists with public education efforts.</li> <li>Assists with the investigation of suspicious fires.</li> <li>Develops the inspection schedule for the Bureau and fire companies.</li> </ul>

Position	Authorized	Current	Key Roles and Responsibilities
Fire Lieutenant - Operations	29	30**	<ul> <li>Responds to emergency response alarms, determines equipment and personnel to be deployed, and provides input into determining the route to be taken by the fire company; directs work of firefighters pending arrival of a superior officer, supervising laying of hose lines, placement of ladders, direction of streams of water, ventilation of buildings, rescue of persons and salvage operations.</li> <li>Supervises company of firefighters in daily station routine; ensures that the routine schedule for the day is followed by all assigned personnel; defines priorities and makes work assignments; maintains timesheets.</li> <li>Supervises cleaning, inspection and return of equipment to station after emergency response operations; supervises and participates in the cleaning and minor maintenance of department buildings and fire station grounds; assists in requisition and distribution of personal equipment, tools, clothing, etc.</li> <li>Participates in training subordinate firefighters in various facets of emergency response, including firefighting, emergency rescue, and hazardous material response methods and techniques.</li> <li>Evaluates firefighters' performances during emergency response operations; evaluates performance of equipment during emergency response operations; prepares and maintains associated reports for superiors.</li> <li>Supervises and participates in testing of apparatus and equipment to ensure proper operational capacity; tests hydrants and water systems in City for proper water pressure and flow; prepares and maintains associated reports for superiors.</li> <li>Prepares and maintains various activity logs and reports; performs duties of Fire Captain in his absence.</li> <li>Conducts investigations into causes of fires; secures and preserves scene in cases of suspicious fire origin, awaiting arrival of arson investigators.</li> <li>One Lieutenant on each shift is assigned as the EMS supervisor.</li> </ul>
Fire Lieutenant – Training	2	1	<ul> <li>Oversees building maintenance to ensure repairs are competed according to timelines.</li> <li>Serves on Regional Critical Incident Stress Management Team.</li> <li>Coordinates the Project Lifesaver Program.</li> <li>Oversees training of the Search and Rescue Team.</li> <li>Serves as the Mass Casualty Incident Management Instructor.</li> <li>Conducts annual water rescue training for the Department.</li> </ul>

Position	Authorized	Current	Key Roles and Responsibilities
Firefighter	182	166	<ul> <li>Responds to incidents requiring firefighting, emergency rescue, or hazardous material response; may make initial determination of necessary personnel, equipment and suppression, or containment tactics until relieved by superior officer.</li> <li>Advances hose lines into fire area; selects hose nozzle, depending on type of fire; lays and connects hoses; holds nozzle and directs stream of water onto fire; raises and climbs ladders; creates openings in buildings for ventilation or entrance using various hand and power tools; enters premises for firefighting, rescue, and salvage operations; uses chemical extinguishers, bars, hooks, lines and other equipment.</li> <li>Performs necessary emergency rescue work in accordance with established protocols for Basic Life Support; administers necessary emergency medical care requiring the use of suction units, immobilization equipment, and oxygen delivery systems.</li> <li>Identifies hazardous materials and type of container or carrier at spill scene; uses various booms and barriers to contain spills and mitigate runoff; performs fire suppression activities, as necessary.</li> <li>Performs salvage operations such as placing salvage covers, sweeping water, removing debris, and placing smoke ejectors.</li> <li>Inspects assigned emergency response apparatus and equipment daily to ensure efficient operating condition and readiness; cleans and maintains equipment, as necessary, after completion of emergency response operations; performs minor repairs and assists in major repair of apparatus and equipment, as appropriate.</li> <li>Attends and participates in training sessions on such topics as fire suppression techniques, equipment techniques, emergency medical care, hazardous material containment, street layout and building and hydrant location, etc.</li> <li>Prepares and maintains activity records, providing pertinent information to department personnel on following shift; reviews activity reports from previous shift and confers with personnel, as necessary.</li> <li>Ma</li></ul>

Position	Authorized	Current	Key Roles and Responsibilities
Training Officer	2	2	<ul> <li>Reports to the Training Captain.</li> <li>One training officer oversees EMS training and the other fire training.</li> <li>Ensures all personnel remain up to date on training.</li> <li>Maintains training records for personnel in the Department.</li> <li>Serves as safety officers on emergency scenes.</li> <li>Provides training records to the State, as required.</li> <li>Tracks annual physicals and workman's compensation physicals.</li> <li>Updates training records and rosters monthly.</li> <li>Trains personnel on new equipment purchased by the Department.</li> <li>Acquires structures to conduct live burn training.</li> <li>Conducts and coordinate in-house training courses for paid and volunteer personnel.</li> </ul>
Fire Investigator	2	2	<ul> <li>Conducts investigations using accepted guidelines to determine the origin and cause of a fire; completes scene documentation; collects scene evidence.</li> <li>Evaluates findings to determine if the fire was accidental or incendiary; schedules and conducts related interviews.</li> <li>Initiates a criminal investigation as warranted.</li> <li>Completes routine administrative tasks; answers incoming calls; provides routine information to citizens; files and archives reports, plans, photos, documents, and related information.</li> <li>Conducts vehicles inspections and performs routine maintenance as needed.</li> <li>Inspects commercial establishments and multi-family residences to determine the existence of fire hazards, the efficiency of fire protection equipment and general compliance with appropriate codes and fire prevention standards.</li> <li>Maintains investigation equipment.</li> <li>Utilizes and operates various related equipment including training aids, communication equipment, and related equipment and vehicles.</li> </ul>
Fire Inspector	1	1	<ul> <li>Responsible for the inspection of all nursing homes, daycares, group homes, schools, jails, and high hazard occupancies.</li> <li>Conducts plan reviews for engineering and site plans, sprinkler systems and fire protection systems.</li> <li>Conducts plan reviews for the installation of above and below ground storage tanks.</li> <li>Issues burn permits, special event permits and tent permits.</li> <li>Collaborates with engineers and architects related to the interpretation of Fire Codes.</li> <li>Enters reports for third party inspections, company inspections, and fire prevention inspections.</li> </ul>

#### CITY OF SUFFOLK, VIRGINIA Operational and Staffing Study of the Fire Rescue Department

Position	Authorized	Current	Key Roles and Responsibilities
Administrative Analyst	1	1	<ul> <li>Administers the Department's budget.</li> <li>Performs work as a Grant Writer and Administrator.</li> <li>Supervises the maintenance and reporting of personnel records, EMS billing, compliance with State reimbursement programs, accounts payable/receivable processing, inventory control, records management system, bureau payroll system, and distribution.</li> <li>Manages capital improvement project expenditures.</li> <li>Performs trend analysis.</li> <li>Assists in the completion of monthly reports.</li> <li>Supervises office staff as assigned.</li> <li>Performs other related work as assigned.</li> </ul>

Position	Authorized	Current	Key Roles and Responsibilities
Office	2	1	
Office Assistant	2	1	<ul> <li>Vacant position primary duties</li> <li>Provide administrative support to the Deputy Chief of Operations.</li> <li>Provide administrative support to Training</li> <li>Receive and respond to Freedom of Information Act requests for fire and medical reports.</li> <li>Schedules events on the appropriate Departmental calendar.</li> <li>Serves as the receptionist for the front lobby in Fire Headquarters.</li> <li>Picks up and sorts Departmental mail.</li> <li>Picks up, sorts and distributes Departmental paychecks.</li> <li>Opens and closes the front desk for lobby patrons.</li> <li>Ensures EMS billing codes are accurate prior to sending to the third party billing agency.</li> <li>Serves as a liaison with the billing companies.</li> <li>Process deposits from EMS payments from the former EMS billing agency.</li> </ul>
			<ul> <li>EMS billing company as they are received.</li> <li>Maintains the birthday list and creates monthly flier for distribution to stations.</li> <li>Second position primary duties</li> <li>Provides administrative support to the Deputy Chief of Support Services.</li> <li>Provides administrative support to Fire Prevention.</li> <li>Transcribes interviews of suspects and witnesses.</li> <li>Assists with the Summer Fire &amp; Life Safety Youth Camps.</li> </ul>
			<ul> <li>Assists with the Public Safety Youth Academy.</li> <li>Takes photographs and maintains paperwork for Departmental public education efforts.</li> <li>Assists with the Partners in Education program.</li> <li>Ensures data is appropriately entered in Image Trend, creates and prints reports.</li> <li>Serves as initial point of contact for IT problems and assists with troubleshooting.</li> </ul>
			<ul> <li>Submits help desk tickets for computers, telephone and copier issues.</li> <li>Receives and responds to requests for fire and medical reports.</li> <li>Takes minutes at LEPC and SEPAC Emergency Management meetings.</li> <li>Picks up and sorts mail.</li> <li>Maintains office supply closet to ensure appropriate stock of office supplies and orders now supplies as proceed.</li> </ul>
			of office supplies and orders new supplies as needed.  Creates graphics as needed for Departmental literature.  Opens and closes the front desk for lobby patrons.

<sup>\*</sup>Includes one acting Captain in the current count \*\*Includes two acting Lieutenants in the current count

## 3. ANALYSIS OF FIRE RESCUE DEPARTMENT STAFFING

This chapter presents the project team's analysis of current service levels provided by Suffolk Fire Rescue, operations and support position staffing, and management and utilization of overtime.

### 1. THE CITY OF SUFFOLK HAS NOT YET ADOPTED SERVICE LEVEL STANDARDS

The adoption of performance standards for fire and EMS response is a critical first step in the evaluation of service levels and staffing needs. While there are national standards that can be used to evaluate fire and EMS service delivery, each community must identify the key risks and necessary level of protection it needs based on its own unique circumstances. This is especially true in a City such as Suffolk, where some response areas are densely populated and others very rural in nature. Once these performance standards are established, a community can assess its performance and determine if current resources support the desired level of service.

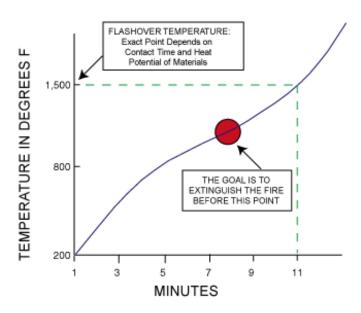
### (1) Efforts to "Standardize" Service Level Objectives Are Based on Fire Growth Behavior and Research on Cardiac Arrest.

Nationwide, a great deal of effort and research has been put into developing performance objectives for the delivery of fire and EMS services. This effort is critical for agencies making decisions about deployment and location of emergency resources. The objectives promoted for fire/rescue and EMS have their basis in research that has been conducted into two critical issues:

- What is the critical point in a fire's "life" for gaining control of the blaze while minimizing the impact on the structure of origin and on those structures around it?
- What is the impact of the passage of time on survivability for victims of cardiac arrest?

The following chart shows a typical "flashover" curve for interior structure fires. The point in time represented by the occurrence of "flashover" is critical because it defines when all of the contents of a room become involved in the fire. This is also the point at which a fire typically shifts from "room and contents" to a "structure" fire – involving a wider area of the building and posing a potential risk to the structures surrounding the original location of the fire:

#### Generalized Flashover Curve



Note that this exhibit depicts a fire from the moment of inception – not from the moment that a fire is detected or reported. This demonstrates the critical nature of early detection and fast reporting as well as rapid dispatch of responding units. This also shows the critical need for a rapid (and sufficiently staffed) initial response – by quickly

initiating the attack on a fire, "flashover" can be averted. The points below describe the major changes that occur at a fire when "flashover" occurs:

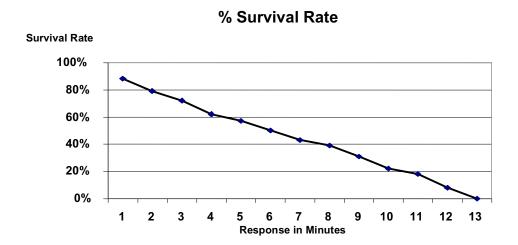
- It is the end of time for effective search and rescue in a room involved in the fire.
   It means that likely death of any person trapped in the room either civilian or firefighter.
- After this point in a fire is reached, portable extinguishers can no longer have a successful impact on controlling the blaze. Only larger hand-lines will have enough water supply to affect a fire after this point.
- The fire has reached the end of the "growth" phase and has entered the fully developed phase. During this phase, every combustible object is subject to the full impact of the fire.
- This also signals the changeover from "contents" to "structure" fire. This is also the beginning of collapse danger for the structure. Structural collapse begins to become a major risk at this point and reaches the highest point during the decay stage of the fire (after the fire has been extinguished).

It should be noted that not every fire will reach flashover – and that not every fire will "wait" for the eight-minute mark to reach flashover. A quickly responding fire crew can do things to prevent or delay the occurrence of flashover. These options include:

- Application of portable extinguisher or other "fast attack" methodology.
- Venting the room to allow hot gases to escape before they can cause the ignition of other materials in the room.
- Not venting a room under some circumstances this will actually stifle a fire and prevent flashover from occurring.

Each of these techniques requires the rapid response of appropriately trained fire suppression resources that can safely initiate these actions. In the absence of automatic fire suppression systems, access to interior fires can again limited by a safety requirement related to staffing levels. OSHA and related industry standards require the presence of at least two firefighters on the exterior of a building before entry can be made to a structure in which the environment has been contaminated by a fire. In the

absence of a threat to life demanding immediate rescue, interior fire suppression operations are limited to the extent a fire service delivery system can staff to assure a minimum of four people actively involved in firefighting operations. The second issue to consider is the delivery emergency medical services. One of the primary factors in the design of emergency medical systems is the ability to deliver basic CPR and defibrillation to the victims of cardiac arrest. The exhibit below demonstrates the survivability of cardiac patients as related to time from onset:



This graph illustrates that the chances of survival of cardiac arrest diminish approximately 10% for each minute that passes before the initiation of CPR and/or defibrillation. These dynamics are the result of extensive studies of the survivability of patients suffering from cardiac arrest. While the demand for services in EMS is wide ranging, the survival rates for full-arrests are often utilized as benchmarks for response time standards as they are more readily evaluated because of the ease in defining patient outcomes (a patient either survives or does not). This research results in the recommended objective of provision of basic life support within four minutes of notification and the provision of advanced life support within eight minutes of

notification. The goal is to provide BLS within six minutes of the onset of the incident (including detection, dispatch and travel time) and ALS within ten minutes. This is often used as the foundation for a two-tier system where fire resources function as first responders with additional (ALS) assistance provided by responding ambulance units and personnel.

Additional recent research is beginning to show the impact and efficacy of rapid deployment of automatic defibrillators to cardiac arrests. This research – conducted in King County (WA), Houston (TX) and as part of the OPALS study in Ontario, Canada – shows that the AED can be the largest single contributor to the successful outcome of a cardiac arrest – particularly when accompanied by early delivery of CPR. It is also important to note that these medical research efforts have been focused on a small fraction of the emergency responses handled by typical EMS systems – non-cardiac events make up the large majority of EMS and total system responses, and this research does not attempt to address the need for such rapid (and expensive) intervention on these events.

The results of these research efforts have been used by communities and first responders, often on their own with no single reference, to develop local response time and other performance objectives. However, there are now three major sources of information to which responders and local policy makers can refer when determining the most appropriate response objectives for their community:

 The Insurance Services Office (ISO) provides basic information regarding distances between fire stations. However, this "objective" does little to recognize the unique nature of every community's road network, population, calls for service, call density, etc.

- The National Fire Protection Association (NFPA) promulgated a documented entitled: "NFPA 1710: Objective for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments." This document (NFPA 1710) was published in 2001 and generated a great deal of dialogue and debate which is still on-going.
- The Commission on Fire Accreditation International (CFAI) in its "Objectives of Coverage" manual places the responsibility for identifying "appropriate" response objectives on the locality. These objectives should be developed following a comprehensive exercise in which the risks and hazards in the community are compared to the likelihood of their occurrence.

While each of these efforts provides a reference point for communities to follow, only NFPA 1710 offers any specificity. It is important to note that the performance objectives (in terms of response times) provided in the NFPA 1710 document are derived from the basic research previously described. These include the following (all are taken from section 4.1.2.1.1 of NFPA 1710 (2010 ed.)):

- One minute (60 seconds) for the processing of an incoming emergency phone call, including the completion of the dispatching of fire response units.
- 80 seconds for turnout time for fire response. This is also called reflex time, reaction time, "out-the-chute" time, etc. This is the time that elapses between dispatch and when the units are actively responding.
- Four minutes (240 seconds) or less for the arrival of the first arriving engine company at a fire suppression incident and / or 8 minutes (480 seconds) or less for the deployment of a full first-alarm assignment at a fire suppression incident.
- Four minutes (240 seconds) or less for the arrival of a unit with first responder or higher level capability at an emergency medical incident.
- Eight minutes (480 seconds) or less for the arrival of an advanced life support unit at an emergency medical incident, where this service is provided by the fire department.
- In section 4.1.2.1.2, NFPA 1710 goes on to state: "The fire department shall establish a performance objective of not less than 90 percent for the achievement of each response time objective specified in 4.1.2.1.1"

It is important to note the "and/or" found in the initial response objective statement. This indicates that a system would meet the intent of the standard if it can reasonably plan to deliver either the single unit, four minute travel time standard, the first alarm, eight minute travel time standard, or both. It should also be noted that it is implied that the total time allotted is additive with each successive event. For example, a system which arrived on-scene in six minutes or less 90% of the time (from time of dispatch) would be in compliance – even if the turnout time was longer than a minute (though that should clearly be improved).

It is also critical to note that these time objectives apply to emergency calls for service – there is nothing in NFPA 1710 (nor in any other objective) that suggests that communities cannot establish a differential response to calls for service determined to be non-emergency in nature. A second element of the NFPA 1710 performance objectives addresses unit and total response staffing. These objectives are described in NFPA 1710 as follows:

- Engine and truck companies should be staffed with a minimum of four personnel (sections 5.2.2.1.1 and 5.2.2.2).
- Section A.3.3.8 defines a company as either a single unit or multiple units, which operate together once they arrive on the fire ground.
- A total initial response is defined (in section 5.2.3.2.2) as having a total of 15 people (if an aerial is utilized) for 90% of calls. This is broken down as follows:
  - One (1) incident commander.
  - One (1) on the primary supply line and hydrant.
  - Four (4) to handle the primary and backup attack lines.
  - Two (2) operating in support of the attack lines, performing forcible entry.
  - Two (2) assigned to victim search and rescue.

- Two (2) assigned to ventilation.
- One (1) assigned to operate the aerial device.
- Two (2) to establish an initial rapid intervention team.
- If an incident is determined to require additional resources, the fire department should have as an objective the ability to respond with:
  - Additional units as needed (through its own resources or via automatic and mutual aid).
  - Assignment of two (2) additional personnel to the rapid intervention team.
  - Assignment of one (1) as an incident safety officer.

It is important to note that the four person companies discussed in some areas of NFPA 1710 are not maintained in the description of primary tasks to be accomplished on the fire ground – recognition that the requirements of the response in the field are dynamic and do not fit neatly into size and shape of any particular response configuration. These objectives apply to the initial and follow-up response for reported structure fires. The document does not suggest that this response be mounted for all incidents.

The Commission on Fire Accreditation uses a population and density component to determine what the performance of the fire department should be to meet best practices and does not require a set number of personnel per piece of apparatus, but rather that an effective response force can be delivered to an emergency scene. For the purposes of CFAI, Suffolk would be considered an urban fire department in some areas, suburban in areas and rural in other areas. The definitions for the criteria of each service area are defined in the table on the following page. CFAI also gives a community a range of acceptable performance standards from "Baseline", minimally

accepted performance to "Benchmark", fully compliant with best practices. CFAI sets the following performance standards for urban, suburban and rural areas:

Service Area/Population Density Response Travel Time Standards

Urban: Population density of over 2,000 per square mile								
	1 <sup>st</sup> Unit	2 <sup>nd</sup> Unit	1 <sup>st</sup> Alarm Balance	Performance				
Benchmark	4 minutes	8 minutes	8 minutes	90%				
Baseline	5 minutes/12	10 minutes 24	10 minutes/24					
Daseille	seconds	seconds	seconds	90%				
Suburban: Populat	Suburban: Population density between 1,000 and 2,000 per square mile							
Benchmark	5 minutes	8 minutes	10 minutes	90%				
Baseline	6 minutes/30	10 minutes/24						
	seconds	seconds	13 minutes	90%				
Rural: Population of	Rural: Population density of less than 1,000 per square mile							
Benchmark	10 minutes	14 minutes	14 minutes	90%				
Baseline		18 minutes/12	18 minutes/12					
Daseille	13 minutes	seconds	seconds	90%				

As shown above, the use of performance measures based on population density will allow Suffolk to evaluate when standards need to change as rural areas of the City develop and move into suburban or urban categories.

CFAI also recognizes the importance of deploying an effective response force. They base this on the types of risk to which the agency is responding, as well as the number of personnel required to perform the critical fire ground tasks. The following table shows the effective response force by risk type:

Cuitinal Tank	Maximum	Himb Diele	Moderate	Law Diak
Critical Task	Risk	High Risk	Risk	Low Risk
Attack Line	4	4	4	2
Search and Rescue	4	2	2	0
Ventilation	4	2	2	0
Backup Line	2	2	2	2
Rapid Intervention	2	2	0	0
Pump Operator	1	1	1	1
Water Supply	1*	1*	1*	1*
Support (Utilities)	1*	1*	1*	1*
Command	1	1	1	1
Safety Officer	1	1	1	1
Salvage/Overhaul	2	0	0	0
Command Aid	1	1	0	0
Operations Chief	1	1	0	0
Logistics	1	0	0	0
Planning	1	0	0	0
Staging Officer	1	1	0	0
Rehabilitation	1	1	0	0
Division Supervisors	2	1	0	0
High-rise Evacuation	10	0	0	0
Stairwell Support	10	0	0	0
Total Personnel	50-51	21-22	14-15	8-9

It is essential that Suffolk implement a response plan in order that it may deliver a sufficient number of personnel to the scene to accomplish the critical tasks. Structure fires are the most labor-intensive incidents and, depending on weather conditions, can require additional personnel to maintain an effective operation. The majority of risks in Suffolk will fall into the moderate categories, but there are several commercial occupancies that will rate as high or special risks. The following table illustrates risk categories by occupancy type:

### Moderate

- Detached, single family dwellings
- Older multi-family dwellings easily reached with pre-connected attack lines
- Railroad facilities
- Mobile homes
- Industrial or commercial occupancies under 10,000 sq. ft. without high fire load
- Aircraft on airport property
- Loss of life or property limited to occupancy

### High

- Concentrations of older, multi-family dwellings
- Multi-family dwellings that are more than two stories tall and require major hose deployment
- Buildings with low occupant load, but with high concentrations of fuel load or hazardous materials
- · Aircraft off airport property
- Mercantile facilities
- Built-up areas with high concentrations of property with substantial risk of life loss, severe financial impact upon the community or the potential for unusual damage to the property or the environment

### Low

- Automobile fires
- Carbon monoxide calls
- Grass and low fuel type fires
- Single patient EMS calls
- Automobile accidents or industrial accidents
- Tractor trailer fires
- Storage sheds
- Out buildings
- Detached garages

### Special Risk

- Apartment complexes over 25,000 sq. ft.
- · Government or infrastructure risks
- Hospitals
- Nursing Homes
- Industrial complexes with fire flows of more than 3,500 gpm
- · Refineries and warehouses
- Vacant/abandoned structures
- All building where available water supply is less than projected fire flow

As the size of structure, complexity of the incident, or life safety risks increase, so does the risk category. For this reason high occupancy and unprotected structures fall into the high-risk category.

At current minimum daily staffing levels, SFR has 66 personnel available for immediate response to all emergencies. If fully staffed the daily workforce can be as high as a maximum of 77 personnel, currently there are 72 personnel assigned to shifts due to vacancies and frozen positions. As shown above this is an effective response force for the typical risks found in Suffolk, including high-risk occupancies. Analysis of the typically daily staffing of SFR showed the department is staffed on average with only the minimum staffing level of 66 emergency response personnel daily.

It is not fiscally possible or responsible to staff a fire department for the worst-case scenarios, which is why Suffolk, like most communities, has mutual aid agreements in place with surrounding jurisdictions to handle the larger, less common incidents.

The fire rescue department should conduct a full risk assessment of the community to identify the risks faced along with an assessment of the likelihood of an emergency to occur. This practical assessment of the community will allow SFR to work with the City of Suffolk to determine what the most appropriate staffing levels should be for the fire rescue department on a daily basis and when additional resources or facilities will be required as the City continues to grow, particularly in the northwest portion of the community.

Recommendation: Conduct a full risk assessment of the community to identify the risks faced along with an assessment of the likelihood of an emergency to occur to ensure an effective response force can be deployed for key community risks.

# (2) The City of Suffolk Should Formally Adopt Locally Defined Service Level Objectives.

While Suffolk Fire Rescue monitors response times and generally uses an average seven minute total response time target, the City has not formally adopted any service level objectives.

The City and the SFR should identify appropriate service levels targets and formally adopt these objectives. While the project team believes that, due to the varied population densities and risks in the City, there should be varied performance standards based on population density, service level targets should be adopted only after careful consideration of local risks and the financial implications of maintaining those levels.

Recommendation: The City should formally adopt service level objectives. While targets should be locally determined, the project team believes the City should adopt a one-minute dispatch processing time and a one minute thirty second reflex time for 90% of emergency calls. Travel time standards should be based on population density of the coverage area of the station.

### 2. ANALYSIS OF RESPONSE TIMES INDICATES THERE ARE GAPS IN CURRENT RESPONSE COVERAGE.

The project team employed two methods to assess the Department's performance against response time objectives. The first uses actual call for service data to calculate the percentage of incidents responded to within the stated objectives. The second uses a GIS model to evaluate the potential response capabilities given current station locations and unit deployment. The two approaches are used to compare potential and actual response capabilities and to identify potential response impediments, such as concurrent calls for service, poor reflex times, extended drive times, traffic, etc.

# (1) Fire Rescue Department Response Time Data Indicate There Are Opportunities for Improvement.

The project team collected data from the Dispatch Center CAD records to evaluate current response time capabilities. As previously discussed, response time is comprised of several elements including: the time between awareness of an emergency incident and calling 9-1-1, the time between receipt of the call within emergency communications and dispatch of the first fire rescue unit, time between dispatch of the first unit and a unit stating they are "en-route" to the scene, the time between going "enroute" and arrival on scene by the first unit.

The project team attempted to evaluate SFR on the following time intervals: dispatch processing time (call receipt to dispatch), "reflex" or "turnout" time (dispatch to

en-route), drive time (en-route to on-scene), and total fire rescue response time (dispatch to on-scene). The dispatch CAD did not capture data related to when the first unit went enroute, therefore only call processing and total response time could be calculated. The following tables show Department performance on these measures from July 1, 2013 to June 30, 2014 for emergency calls for service:

Suffolk Fire Rescue Calls for Service July 1, 2013 – June 30, 2014 Percentage of Calls by Dispatch Processing Time

Time Interval (Minutes)	% of Calls	Cumulative
0 to 1	17.2%	17.2%
1 to 2	45.7%	62.9%
2 to 3	26.8%	89.7%
3 to 4	7.5%	97.2%
Over 4 minutes	2.8%	100%
90 <sup>th</sup> Percentile		3:00

Suffolk Fire Rescue Calls for Service July 1, 2013 – June 30, 2014
Percentage of Calls by FD Turnout and Travel Time

Time Interval (Minutes)	% of Calls	Cumulative
0 to 4	12.4%	12.4%
4 to 6	30.1%	42.5%
6 to 8	23.7%	66.2%
8 to 10	14.8%	81.0%
10 to 12	8.1%	89.1%
12 to 15	6.0%	95.1%
Over 15 minutes	4.9%	100%
90 <sup>th</sup> Percentile		12:16

Suffolk Fire Rescue Calls for Service July 1, 2013 – June 30, 2014 Percentage of Calls by FD Total Response Time (Call Received to Arrival)

Time Interval (Minutes)	% of Calls	Cumulative
0 to 5	6.8%	6.8%
5 to 8	38.0%	44.8%
8 to 10	22.3%	67.1%
10 to 12	13.7%	80.8%
12 to 15	10.8%	91.6%
Over 15 minutes	8.4%	100%
90 <sup>th</sup> Percentile		14:19

The following points highlight the information in the preceding tables:

- As shown above, 17.2% of calls for service are dispatched in less than one minute from call receipt. In addition, 62.9% of calls are dispatched in less than two minutes from call receipt. The 90<sup>th</sup> percentile is three minutes for call processing. This performance is well below the target recommended by the project team and established national best practices as illustrated above.
- The percentage of calls where turnout and travel time for was less than four minutes is approximately 12.4%, less than six minutes is 42.5% and less than eight minutes 66.1%. The overall 90<sup>th</sup> percentile for turnout and travel time is 12 minutes 16 seconds.
- The percentage of calls where total response time is less than five minutes is approximately 6.8%, less than eight minutes 44.8% and less than ten minutes 67.1%. The overall 90<sup>th</sup> percentile for total response time is 14 minutes 19 seconds.

Overall, there are immediate opportunities to improve response times within the City of Suffolk, as the caller does not take into account the long call processing times when evaluating emergency response times. At a minimum, the Fire Rescue Department and the Police Department should work together to bring dispatch call processing time down to one minute for 90% of high priority emergency calls received (structure fires, motor vehicle accidents, trauma, life threating emergency medical, etc.). The Fire Rescue Department should also work with Dispatch to begin tracking first unit en-route, so reflex and travel times can be calculated independently. Working to keep call processing and turnout times as low as possible will have a major impact on reducing overall response times as travel times will be dictated by the road network, weather conditions, and distance to the call from the response location.

Recommendation: The City and SFR should ensure that dispatch-processing time is less than one minute for 90% of calls for service. Dispatch data should also be monitored to ensure they accurately reflect the time a call is dispatched.

Recommendation: SFR should begin tracking "turnout" or "reflex" time to ensure meets best practices of 90 seconds for 90% of emergency calls for service. RMS

data should also be monitored to ensure they accurately reflect en-route time and on-scene time.

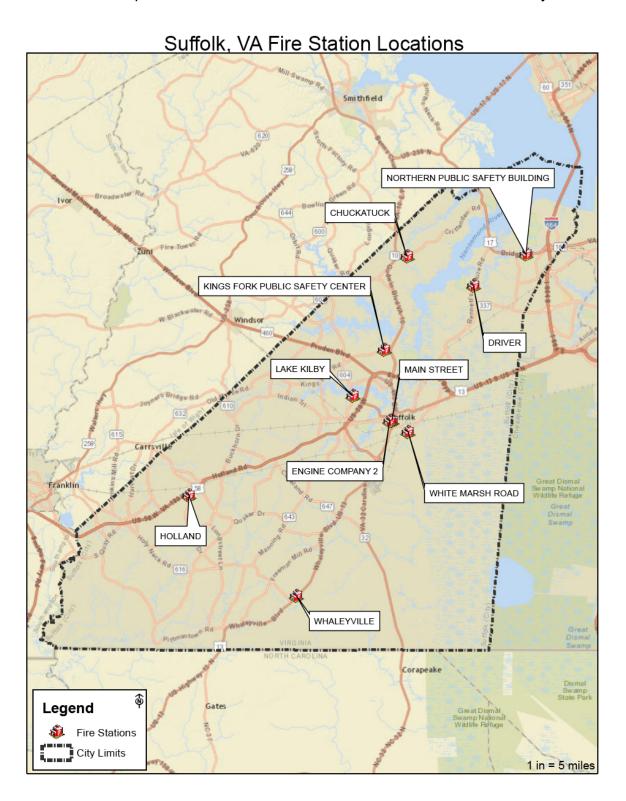
### (2) GIS Analysis Indicates There Are Gaps In Current Response Coverage.

The Matrix Consulting Group used GIS (geographic information systems) technology to evaluate unit deployment, station locations, and SFR's ability to meet the recommended response targets. The GIS analysis is based on a number of steps and assumptions including the following:

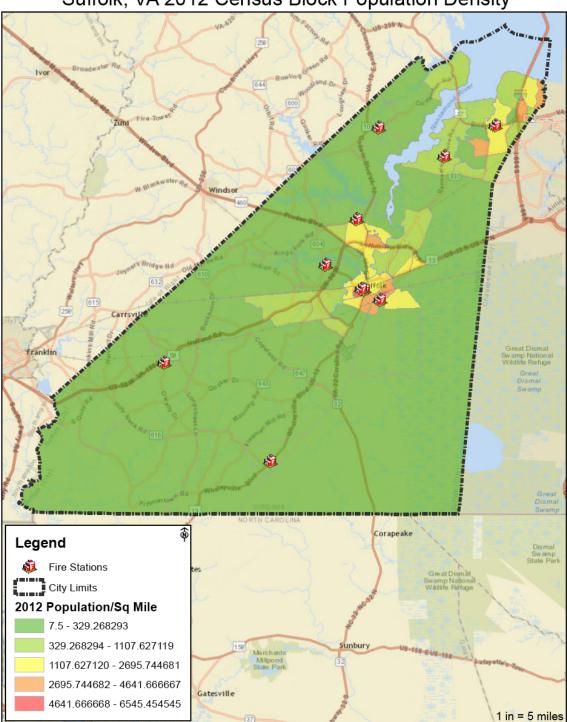
- An up-to-date street centerline file was obtained from the City which contains detailed information on local roads, arterials, restrict access roads, and address ranges. Actual speed limits for streets were assigned to predict response capabilities of the Department.
- It should be noted that there are areas of the City that pose significant response challenges for the Department, including the Dismal Swamp, and other areas where the road network is limited or non-existent.
- Twelve months' worth of call for service data were "geocoded," or matched digitally, to the street centerline file using address information provided by CAD. Approximately 90% of calls were matched and used in the analysis.
- Station locations were matched to the street file and verified. Unit and personnel deployment information was attached to each station location.
- Several response time targets were used to show travel distances from current station locations and the number of personnel/units capable of reaching calls for service from July 1, 2013 to June 30, 2014. This approach allows the City to evaluate the potential tradeoffs of adopting various response time targets.
- Maps were generated which demonstrate the projected response capabilities of the current station network.

The maps on the following pages show projected response capabilities under several response time targets for engine companies, truck companies and ambulances. These maps also compare the location of calls for service, by call density, compared to station locations.

The first map illustrates the current locations of the stations in the City of Suffolk:

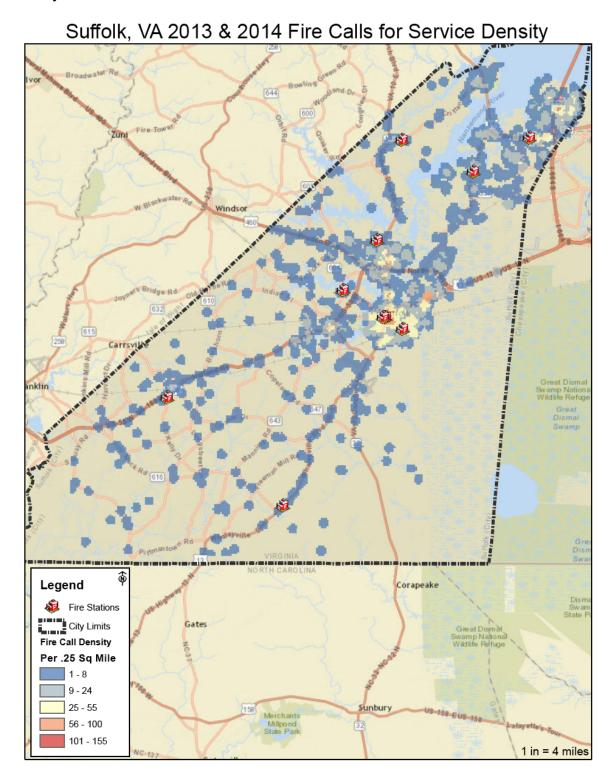


The following map illustrates the population density in relation to the current station locations:

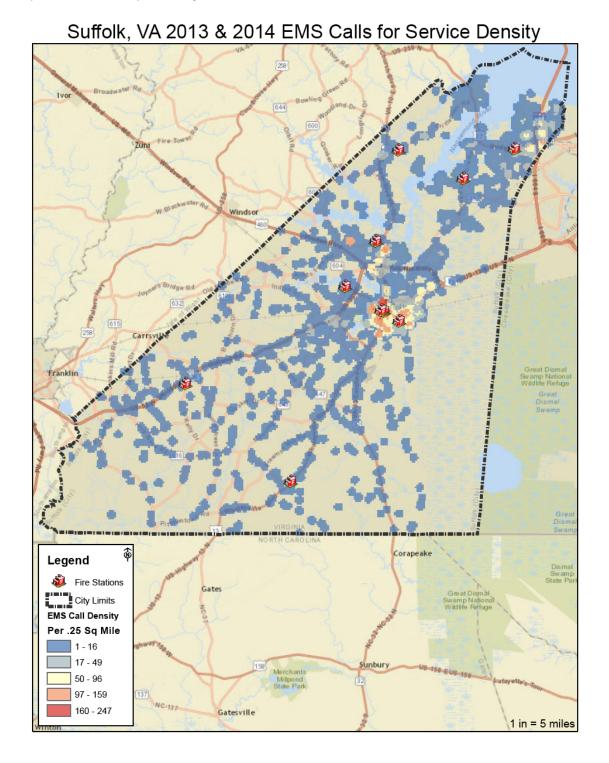


Suffolk, VA 2012 Census Block Population Density

The following map illustrates the location of fire calls for the one-year period and the proximity of those calls to a fire station:

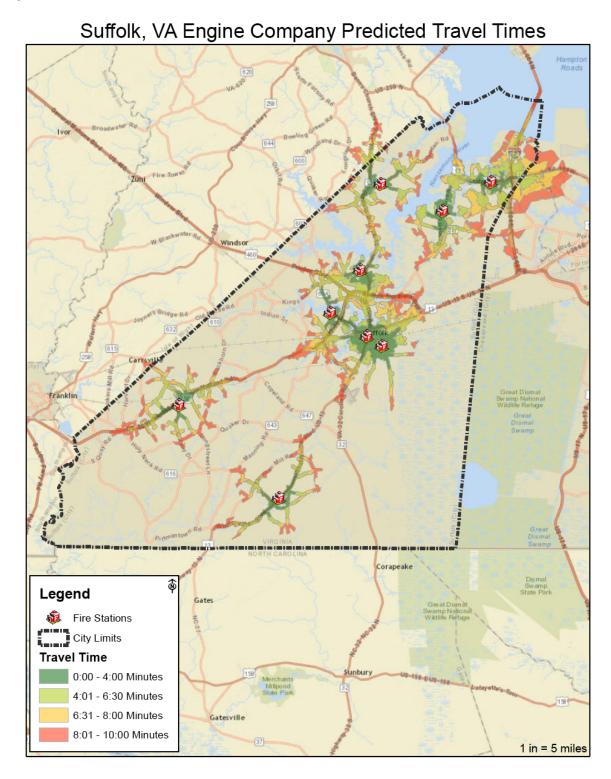


The following map illustrates the location of emergency medical calls for the oneyear period and the proximity of those calls to a fire station:

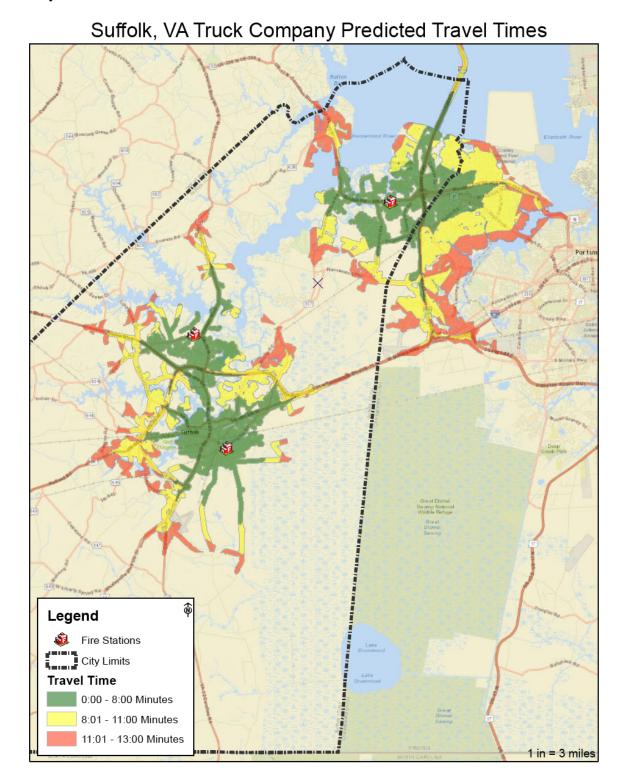


Matrix Consulting Group

The following map shows the predicted travel times for engine companies in the City:



The following map shows the predicted travel times for the truck companies in the City:



Matrix Consulting Group

The final map shows the predicted travel times for the ambulances in the City.

Suffolk, VA Ambulance Company Predicted Travel Times Corapeake Legend Fire Stations City Limits **Travel Time** 0:00 - 4:00 Minutes 4:01 - 6:30 Minutes 6:31 - 8:00 Minutes

Gatesville

1 in = 5 miles

The following points highlight the information presented in the maps on the preceding pages:

- The maps indicate that call for service density is closely aligned with population density. This illustrates how implementing response time performance goals based on population density can be an effective way for the City of Suffolk to determine when faster response times are needed in developing areas of the City and additional resources required.
- The map showing the coverage of engine companies illustrates that there are gaps in coverage at six minutes and 30 seconds of drive time. Currently call volumes in these areas do not meet the need for additional stations to be constructed at this time. As development continues in the County and areas transition from a rural to a suburban population density, the County should continually monitor the need for additional fire stations to meet established response time objectives.
- The EMS response time map indicates that ambulances are able to adequately cover the more densely populated areas to ensure ALS response can adequately arrive within eight minutes of receipt of an emergency call.
- The map showing truck company coverage indicates that truck companies are able to respond in a timely fashion to ensure an effective response force can be deployed to the high call density areas of the City.

Overall, the preceding analysis shows that the City would need to make significant capital and operations investments if it were to adopt a single response time standard, but by using a varied standard based on population density will only need to consider the need for an additional station in the next few years as development continues in the northern portions of the City between the Driver Station and the Northern Public Safety Station.

Recommendation: The City of Suffolk should evaluate the costs and benefits of adopting varied travel time targets for the Fire Rescue Department that align with the population density of the response areas.

# 3. BASED ON THE DEPARTMENT'S CURRENT APPROACH TO STAFFING AND DEPLOYMENT, THE FIRE RESCUE DEPARTMENT CURRENTLY HAS ADEQUATE MINIMUM STAFFING. HOWEVER, SEVERAL FACTORS IMPACT STAFF AVAILABILITY INCLUDING LEAVE USAGE, TURNOVER AND FROZEN POSITIONS.

This section provides the project team's analysis of staffing needs based on the Department's current minimum staffing requirements as well for meeting recommended service levels.

### (1) The Current Approach to Minimum Staffing Requires Additional Personnel.

As a starting point for the analysis of operations staffing and overtime utilization, the project team used the current minimum staffing plan required to meet daily operations needs within the Fire Rescue Department. For each emergency unit, the appropriate number of personnel by rank and certification was determined. The table below shows the number of positions required for each shift for operations staffing:

Suffolk Fire Rescue
Minimum Staffing Plan by Unit and Role

Units	Minimum Staffing	Battalion Chief	Capt./ Lt.	Firefighter / Driver	Firefighter / Medic	Part Time Medic
Engine 1	3		1	1	1	
Medic 1	2			1	1	
Engine 2	4		1	1	2	
Rescue 1	3		1	1	1	
EMS 1	1		1			
Engine 3	3		1	1	1	
Ladder 3	3		1	1	1	
Medic 3	2			1	1	
Engine 4	3		1	1	1	
Engine 5	3		1	1	1	
Engine 25	3		1	1	1	
Ladder 5	3		1	1	1	
Medic 5	2			1	1	
Engine 6	3		1	1	1	
Ladder 6	3		1	1	1	
Medic 6	2			1	1	
Engine 7	4		1	1	2	
Medic 7	2			1		1
Engine 8	4		1	1	2	
Medic 8	2			1		1

CITY OF SUFFOLK, VIRGINIA
Operational and Staffing Study of the Fire Rescue Department

Units	Minimum Staffing	Battalion Chief	Capt./ Lt.	Firefighter / Driver	Firefighter / Medic	Part Time Medic
Medic 9	2			1		1
Engine 10	3		1	1	1	
Medic 10	2			1	1	
Battalion 1	2	1		1		
Battalion 2	2	1		1		
Total Per Shift	66	2	15	23	23	3
Total All Shifts	198	6	45	69	69	9

As shown above, the Operations Division requires a total of 2 Battalion Chiefs, one Field EMS Lieutenant, 44 Officers (Captain or Lieutenant), 23 Firefighter Drivers, 23 Firefighter/Firefighter Paramedics, and three part-time Paramedics each shift. This results in a total of 66 positions per shift, or 198 positions across three shifts to meet the minimum staffing requirements of the apparatus deployed at SFR. With the 216 total personnel assigned to shift operations currently, SFR can have six personnel off per shift before overtime is required to fill staffing shortages.

The next step in our analysis was to identify the actual availability of personnel within operations. The table on the following page shows the total number of leave hours used by sworn personnel during Fiscal Year 2013. This information was compiled from the daily roll call sheets completed by each Battalion Chief on each shift:

Leave Type	Total Hours	Daily Average
Annual Leave	41,429.8	113.5
Personal Leave	3,117.5	8.5
Sick Leave	35,382.2	96.9
Military Leave	216.0	0.6
Injury With Pay	228.5	0.6
Family Medical Leave	5,571.0	15.3
Death in Family	421.5	1.2
Fire Department Training	2,269.5	6.2
Fire Department Business	626.0	1.7
Light Duty	3,762.0	10.3
Other	2,434.0	6.7
Total	95,458.0	261.5

As shown above, there were a total of 95,458 leave hours utilized by personnel assigned to cover shifts. This equates to an average of approximately 261.5 hours of leave utilized per shift or the equivalent of approximately 11 personnel off each day.

The next step in the staffing formula was to document the number hours staff was scheduled to work, and subtract the leave usage to determine an available rate for shift personnel after leave. Based on 216 total shift personnel or 72 available per shift the following availability rate was projected:

Availability Rate Calculation					
Total 2013 scheduled hours	630,720				
Total leave taken in 2013	95,458				
Total Available hours	535,262				
Available Rate (Total hours less leave)	84.9%				

As shown above, based on the ratio of regular hours to total hours, the estimated availability rate is 84.9%.

A final consideration in evaluating staffing needs is reviewing the agency turnover and voluntary separation rate. The project team collected data from the Human Resources Department regarding the number of personnel who left employment with

the Fire Rescue Department from FY 2012 - 2014. The table below depicts theses rates of departure:

Year	Retired	Fired	Resigned	Authorized	Turnover/Separation %
2012	1	0	9	253	4.0%
2013	4	0	4	253	3.2%
2014	2	1	3	253	2.4%
Average	2.33	0.33	5.33	253	2.5%

As shown above, the Department averaged eight separations per year during the three-year period, which results in an average turnover/voluntary separation rate of 2.5%. This is an excellent rate.

The project team calculated the number of operations positions needed after considering use of leave and turnover. The agency currently uses Firefighter positions that are qualified to drive the apparatus and "step up" to act as officers in the absence of the company officer. Similarly, the Captains will "step up" to act as a Battalion Chief in the absence of the Battalion Chief on a shift. For the purposes of the staffing model, each position is shown, but due to the "step up" provision the number of required added positions are at the Firefighter/Firefighter Paramedic level, but derived from the total shift staffing required by position. In this exercise, part-time paramedics are not included in the staffing requirements, as Paramedic positions are fixed. The table below compares the results of this calculation to the current number of positions:

Units	Battalion Chief	Capt./Lt.	Firefighter/Driver	Firefighter/Medic
Total Per Shift	2	15	23	23
Total All Shifts	6	45	69	69
Total With Leave	7	52	79	80
Current Number	6	42	75	75
Surplus / (Deficit)	(1)	(10)	(4)	(5)

Total Needed	218
Needed with turnover	225
Current Number	198

The following points highlight the information presented above:

As shown above, after adding in use of leave, the number of required total positions to staff operations is 218 or 20 more than the current staffing levels in operations. This is a total of two positions higher than the current authorized staffing for fire operations. With turnover factored SFR would need to increase authorized staffing in fire operations by a total of nine positions.

While the Department has roughly the total number of positions authorized to meet its daily operations staffing needs, the six current frozen positions and staff shortages result in high levels of overtime on each shift.

Recommendation: In order to limit the amount of overtime utilized by SFR, the City should ensure that position vacancies needed to meet minimum staffing targets in operations are fully funded. This will result in significant cost savings due to the higher cost of using overtime as opposed to filling vacant positions.

4. THE FIELD INCIDENT TECHNICIAN (FIT) POSITION HAS NEGATIVELY IMPACTED APPARTUS STAFFING AND INCRESED THE NEED FOR OVERTIME.

The position of Chief Aide or Driver is a very common position for metropolitan fire departments where the Battalion Chiefs respond to multiple critical incidents or working structure fires each shift. These positions allow the Battalion Chief to access building plans and develop response priorities while enroute to emergency scenes. Once at the emergency location, the Aide provides valuable assistance in operating the incident command system by updating status boards and ensuring safety timelines are adhered to. The position is not common in suburban and urban Departments due to the less frequent occurrence of critical calls requiring this additional person in the incident command system. In 2013, Suffolk Fire Rescue responded to a total of 236 structure fire calls. This is an average of one (1) structure fire every 1.6 days or every three shifts for each of the Battalion Chiefs as there are two (2) Battalion Chiefs on duty each day.

The primary duties of the FIT in Suffolk is to assist with administrative duties, such as developing the daily rosters and ensuring all minimum staffing requirements are

met. These personnel also drive the Battalion Chiefs to meetings and assist with other administrative duties while the Battalion Chiefs are in meetings such as payroll, filling out rosters and picking up required paperwork from the stations. The FIT's are also used to fill short-term gaps in staffing (1 hour or less) to allow off duty personnel to respond to fill the vacancy. When the Telestaff implementation is complete, much of the need for the FIT to assist with ensuring appropriate minimum staffing will be eliminated.

As shown earlier in the report, the Suffolk Fire Rescue has the current capacity to allow six (6) personnel off per shift before overtime is needed to fill minimum staffing requirements. Prior to the creation of the FIT position, this number was eight (8), as the FITs were previously assigned to staff apparatus and no additional positions were authorized upon the creation of these positions. The addition of these positions also increased the minimum staffing requirements each by two (2) additional positions. This is important as minimum staffing is currently 66 personnel per shift with the Chief Aide and staffing is 72. By moving the FITs back to staffing apparatus, minimum staffing becomes 64 with scheduled staffing still being 72. This builds in a buffer of two (2) positions for unanticipated leave occurrences in SFR each shift.

Using the 84.9% average availability of personnel in SFR as a guide, the following staffing recommendations result if the FIT position is eliminated and returned to staffing apparatus on a daily basis. With The FIT position eliminated there would still be 72 personnel assigned to each shift, however two (2) additional personnel would be scheduled to staff apparatus. With leave factored at 84.9% the result is an average of 61 personnel available each shift. The result is the need for three (3) additional personnel per shift (9 personnel total) to ensure minimum staffing levels are covered

and overtime expenditures minimized. This results in the need to unfreeze the six positions and authorize an additional three positions (1 per shift) for the Fire Department.

Recommendation: Return the FIT positions to staff emergency apparatus, Unfreeze the six (6) frozen Firefighter/Firefighter Paramedic positions and authorize an additional three (3) Firefighter/Firefighter Paramedic positions to ensure proper daily staffing of emergency apparatus.

5. THE FIRE RESCUE DEPARTMENT MANAGES THE USE OF OVERTIME FOR FIELD UNITS USING A MANUAL, MULTI-STEP PROCESS, WHICH IS TIME CONSUMING AND DESIGNED TO MINIMIZE BOTH OVERTIME AND THE MOVEMENT OF PERSONNEL.

The Suffolk Fire Rescue Department, as a complex organization, has developed a multi-faceted approach to addressing daily staffing issues. While sufficient staff are assigned to each unit and piece of fire apparatus, personnel are often unavailable due to schedule vacations, sick leave, and other short terms causes. Staff may also be unavailable due to longer term issues such as injury, position vacancy due to retirement/resignation, military leave, or assignment within the Fire Department.

The Fire Rescue Department is facing several competing demands as they work to address this issue, including the following:

- Staffing front-line emergency medical and fire units with the appropriate staff –
  this can include the need to staff units with appropriate officers or personnel with
  specialty skills such as EMT-Paramedic. This requirement is made more
  complicated than it might be for other agencies, due to the 24-hour nature of the
  SFR's operations.
- Operating within the overtime budget provided by the City.
- Balancing the need for overtime with the objective of not over-working staff with key specialties or classifications (i.e., paramedics or officers – or those with both skill sets).
- Minimizing the movement of staff between fire stations and particularly between the City's two fire Battalions, for the following reasons:

- Personnel train with the people that they work with maintenance of work group integrity provides for improved service delivery.
- The time spent moving personnel around between stations can cause overtime to be incurred (the off-going individual must wait until their replacement arrives).

The current approach to ensuring adequate staffing is summarized below:

- The Deputy Chief of Operations oversees the daily staffing process. The on-duty Battalion Chief reviews the staffing for the next shift for their Battalion to review where planned vacancies will occur due to use of short or long term planned leave (Vacation, FMLA, Military, etc.).
- The Battalion Chiefs use staffing available within their Battalion to minimize the need to move personnel between the Battalions and to reduce the need to hold personnel over from the off-going shift to maintain appropriate staffing levels.
- Personnel with appropriate training are moved to "step-up" and fill vacancies, causing them to work out of class during their shift.
- Once the shift staffing has been organized the Battalion Chief updates the Roll Call (Green Sheet) to reflect the staffing plan for the upcoming shift. If either Battalion has a known vacancy that will require overtime, they contact the other Battalion to see if they have staffing that can be moved to fill the vacancy without overtime.
- Once the personnel moves have been completed, the Roll Call sheets are finalized then the information is entered into the Telestaff software program.
- If overtime is required, the Battalion Chief checks to see if anyone has volunteered for overtime on the shift. If so, that person is called in, and a shift member is held over until they arrive. If there are no volunteers, they will order mandatory overtime.

The current approach by SFR relies on several key components. These include the following:

 Each of the Battalion Chiefs is responsible for doing all that they can to address shift vacancies utilizing their own personnel. This maintains workgroup integrity, reduces travel time between fire stations and allows each of the Battalion Chiefs some flexibility in addressing their staffing needs within the specific skills sets available to them on a daily basis.  If the Battalion Chief cannot address the shift vacancies, the two Battalion Chiefs work together to determine if personnel can be transferred between the two Battalions prior to overtime being called in.

The Fire Rescue Department has purchased a software product called TeleStaff to help manage staffing issues. Staffing of a 24-hour operation such as SFR is a complex challenge. TeleStaff is designed to support the decision-making by the Battalion Chiefs. The process that TeleStaff is designed to use to hire for overtime is summarized below:

- TeleStaff is designed to initially perform two vital functions:
  - It will cross-check the staffing solution proposed by the Battalion Chiefs to ensure that there are no other possible uses of available personnel – it will not allow overtime to be hired for an officer vacancy, for example, if an officer (or officer qualified firefighter) is available and not assigned. It performs this check by looking across Battalions.
  - TeleStaff then makes then assigns the best-matched personnel who have made themselves available for overtime assignments (not all personnel make the decision to take overtime assignments – for a wide variety of reasons).
  - The system will then auto-dial the personnel who best matches the need for overtime. When reached, they acknowledge they are taking the overtime via the keypad on their phone.
- The Fire Rescue Department's staffing solutions are based on the use, wherever possible, of the most voluntary overtime that is available. This includes the use of two pools of potential overtime staff:
  - The first pool comprises those who have specifically volunteered to work a specific shift (or shifts) on an overtime basis.
  - The second pool comprises staff who have made themselves available to be "cold called" for overtime on any shift that they are not working, should it become available. They can accept or refuse the overtime offered to them.

The project team's review of this overtime management process shows that SFR has developed a management program that can successfully limit the overtime

expenditures for routine shift staffing, but that they are not effectively using the Telestaff system, and are instead using the Battalion Chiefs to manually figure out daily staffing. Another key issue is that currently there is only one Battalion Chief trained to configure Telestaff, and he is unable to update the system in a timely fashion to reflect actual deployment of personnel after transfers occur. This limits the functionality of the system and causes reliance on the paper-based system currently in place.

Recommendation: SFR should continue with the current approach used to manage daily overtime needs for operational positions. This should be done by fully implementing and utilizing the Telestaff software already owned by SFR. All Battalion Chiefs should receive training in the use of Telestaff and be required to begin using the program. In addition the Deputy Chief of Operations should be trained to function as the lead administrator of Telestaff and update the program when transfers occur and/or personnel obtain certifications to fill vacancies so this is input of data is not delayed to reliance on personnel assigned to shift duties.

# 4. ANALYSIS OF THE PREVENTION FUNCTION OF THE DEPARTMENT

This section of the study deals with the project team's assessment of Fire Prevention Function. To conduct this assessment, the project team obtained fire prevention records and reports and conducted interviews with various personnel.

Fire Prevention is lead by a Captain (Fire Marshal) and includes two Fire Investigator/Inspectors, one Fire Investigator (Public Education Specialist) and one Fire Inspector. The Investigators perform fire investigations of suspicious fire in addition to their regular duties, which include conducting inspections and coordinating and teaching public education activities for SFR.

## 1. SUFFOLK FIRE RESCUE USES A MULTI-FACITED APPROACH TO CONDUCTING BUSINESS INSPECTIONS.

Inspector/Investigators assigned to Fire Prevention conduct initial inspections of new commercial occupancies, review and approve special permit applications, and conduct annual inspections of commercial occupancies which require such inspections (assemblies, group homes, day cares, schools, medical facilities, and high hazard occupancies, etc.). General businesses and offices are inspected by fire companies in their assigned response area as assigned by Fire Prevention.

Plan reviews are primarily conducted by a single Fire Inspector, who is self-taught, but has no formal training in conducting site plan or life safety plan reviews. There is currently no back-up for plan reviews when this employee is off due to vacation or other leave. There is also concern related to projects which are "fast-tracked" and approved prior to SFR having an opportunity to review the site plans for life safety

issues (fire lanes, ingress, egress and adequate hydrants). These issues are not unique to Suffolk, and many agencies have found that moving the plan review process into the City Planning Department improves coordination and timeliness of plan reviews. Typically, a Fire Protection Engineer is hired to conduct these reviews and is assigned to work with the Planning Department staff, serving as the representative to ensure the needs of the Fire Rescue Department are met, as are applicable life safety codes. This process improvement will limit the number of plan sets being sent for review and improve coordination for projects designated as a priority for a fast turnaround. Fire Inspectors or City Plans Examiners are trained to function in a back-up capacity to review plans in the absence of the Fire Protection Engineer.

Another method, which does not require relocation of the fire personnel conducting plan reviews is to implement an online plan submittal process where plans are submitted and accepted online and reviews conducted electronically. This allows a single submittal from the contractors and plans to be electronically forwarded to the appropriate personnel for review and comment.

Recommendation: The City should consider creating and assigning a Fire Protection Engineer position, moving the plan review process for life safety into the Planning Department, with the Fire Protection Engineer reporting to the Fire Rescue Department.

# 2. THERE IS CURRENTLY NO POLICY REGARDING ON-CALL FIRE INVESTIGATORS.

SFR has a practice of having an investigator on call each evening to respond to fires determined to be suspicious in nature, or where there has been a serious injury of fatality. This practice includes an investigator being on call each Saturday and Sunday to ensure they are providing services seven days per week. The current practice has

the on call investigator respond and if they determine additional resources are required, they will call in other investigators to assist with the investigation of the fire scene. This rotation is shared with the investigators and the Fire Marshal, resulting in one weekend on call per month.

The investigators are compensated two hours straight pay for the weekend on call period, but do not receive standby pay for the evenings they are on call. Furthermore, without a formal on call policy, there are no set standards restricting the activity of investigators or setting a timeline required for response upon notification. It is also not a best practice to a single investigator respond to a potential crime scene to begin the investigation. There are currently no shift personnel serving, as cause and origin investigators as an ancillary duty to their firefighting responsibilities. By training shift personnel in cause and origin, SFR could have them conduct the initial investigation and only call out the investigators once it has been determined that the cause does not appear to be accidental. This would limit the amount of call outs for investigators, and reduce the overtime expended investigating accidental fires. The shift personnel could also serve as the additional investigators on the fire scene, which would eliminate the need to call in additional investigators on overtime.

Recommendation: Develop a city-wide on call policy, which includes Fire Investigators that clearly states what activities are allowed and restricted when on call, and establishes a required response time upon notification.

Recommendation: Consider training shift personnel in cause and origin, and assigning the duty of initial fire cause and origin to the company level.

### 5. ANALYSIS OF THE TRAINING FUNCTION

The Training Division has one Captain, one Lieutenant, one Fire Training Officer, and one EMS Training Officer. Sworn personnel in SFR are scheduled to receive 28 hours of fire training and 52 hours of EMS training annually. The training personnel work to coordinate training for personnel, which is largely carried out at the company level. Training officers also serve as Safety Officers on emergency scenes.

Currently, there is one Training Lieutenant that is responsible for overseeing building maintenance to ensure building repairs are completed according to timelines, coordinates the Project Lifesaver Program and Serves on the Regional Critical Incident Stress Management Team. The only training functions being provided by this position are training personnel on the Search and Rescue Team, Water Rescue Team, and serving as a mass casualty incident management instructor. The majority of time is spent on building maintenance and the Project Lifesaver Program, which do not require the skills of a sworn firefighter or a Lieutenant to perform. The Lieutenant does not have direct supervisory responsibilities over any personnel.

The City should hire a civilian Public Education Specialist to conduct the Project Lifesaver Program, coordinate car seat installations and inspections and assist with the public education efforts of SFR. The building maintenance duties performed by the Lieutenant should be assigned to the Support Services Deputy Chief, who is responsible for buildings, grounds and capital management.

The Lieutenant position should then be returned to perform the oversight functions related to the continuing fire training of existing Suffolk Fire Rescue personnel,

in addition to assisting in the instruction of Fire and EMS training courses in the Department.

### Recommendations:

Authorize a civilian Fire Education Specialist position to oversee the Project Lifesaver Program, Car Seat Program, and assist with the coordination and delivery of the public education efforts of SFR.

Return the building maintenance duties to the Support Services Deputy Chief.

Return the Training Lieutenant back to a role that focuses on the oversight of continuing education and training to existing Suffolk Fire Rescue Personnel.

### 6. ANALYSIS OF HUMAN RESOURCE PRACTICES

This chapter of the report focuses on current human resource practices related to payments received and how leave balances are calculated at the City of Suffolk. These topics arose during interviews where we were asked to provide guidance related to national practices and local comparison on four topics:

- Whether police and fire sworn personnel are typically considered essential employees.
- How holiday pay is calculated for police and fire personnel, including holidays that fall on back to back days.
- How inclement weather pay is handled for police and fire personnel that work during declared inclement weather days.
- How leave balances are handled when a firefighter moves from shift work to a 40-hour workweek and vice versa.

To obtain information from local agencies, the project team contacted Virginia Beach, Norfolk, Chesapeake, Hampton and Newport News. The cities of Virginia Beach, Newport News and Hampton replied to the request for this information. The following table provides a breakdown of the national practices and the replies from the above cities:

Question	Hampton	Newport News	Virginia Beach	National Standard
Are police and fire personnel considered essential employees?	Yes	Yes	Yes	Yes
How is Holiday Pay Calculated?	2.5 times regular pay working a holiday. Up to 8 hours  Choice of pay	8 hours of pay for each holiday whether worked or not.	2.5 times regular pay for working on a holiday. Up to 8 hours.	Varies by agency, but typically time and a half when working on a holiday.
	or time off if holiday is on day off. 8 hours for police and 12 hours for	treated independently.	holiday is on day off.  Each holiday is treated	Each holiday is treated independently.

	fire.		independently.	
	Each holiday is treated independently.			
Leave calculated on a Holiday	Handled the same as other leave days.	Handled the same as other leave days.	Not specified and unsure why someone would take leave on a holiday.	Leave according to established policy and employee not eligible for holiday pay.
Inclement weather pay?	2 times regular pay when working a declared inclement weather day.  Overtime in addition if in	Employees are credited with comp time equal to the hours worked.  Overtime in addition if in OT situation.	No additional pay for essential employees working.  Overtime in addition if in OT situation.	No additional pay for essential employees working.  Overtime paid if in OT situation.
Movement from shift to 40-hour	OT situation.  Leave hours are converted	Leave hours are converted	Leave hours are converted.	Leave hours are converted.
workweek and vice versa?				2,912 to 2,080 = .7143 hours for each hour of leave.
				2,080 to 2,912 = 1.4 hours for each hour of leave.

As illustrated above, the human resources practices in place in Suffolk are generally in line with what other communities in the Hampton Roads area are doing related to these issues with the exception of inclement weather pay, where Suffolk is pay a higher rate than the other regional cities and the conversion of leave hours for fire personnel transferring between the 24-hour shift schedule and 8-hour schedule.

Recommendation: The City of Suffolk should implement a policy outlining how leave hours will be adjusted for personnel moving from a 24-hour shift schedule to an 8-hour shift.