



## Nags Head Fire Rescue

Fire Chief Randy C. Wells  
Deputy Chief Shane Hite  
5314 S. Croatan Hwy.  
P.O. Box 99  
Nags Head, NC 27959



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### Introduction

During the Nags Head Board of Commissioners retreat in 2022, a conversation was initiated regarding staffing levels of the Nags Head Fire Department. No action was taken during the 2023-2024 budget preparation cycle. At the September 2023 Board of Commissioners meeting, a request to establish a staffing committee was presented to the Board of Commissioners. The request was granted, and a committee was established consisting of the following individuals:

Kevin Brinkley- Representing the Nags Head Board of Commissioners

Bob Muller- Past Mayor, Town of Nags Head

Meade Gwinn- Resident of Nags Head

Andy Garman- Town Manager

Amy Miller- Deputy Town Manager

Jan Mielke- Human Resources Director

Randy Wells- Fire Chief

Shane Hite- Deputy Fire Chief

Staffing for the Nags Head Fire Department is important to effectively mitigate hazards within the Town. Staffing recommendations are generated using guidance from the National Fire Protection Association Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (NFPA 1710). Other considerations included the current daily staffing, leave amounts, minimum staffing, response areas, and call volumes.

### Current staffing

The current staffing utilized by Nags Head Fire Rescue has not changed since Station 21 in South Nags Head was brought online in 2006. A need was previously established to add a fire station and staff fire engines to provide a more efficient response to the citizens of the southern parts of Nags Head and to provide additional resources for responses throughout the Town. Staffing for each station was established as three shifts of four firefighters working 24 hours on duty/48 hours off schedule. The total



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number of staff assigned per day includes eight firefighters plus a fire chief and deputy chief who work Monday through Friday and are on call during the night and weekends to provide additional staffing and incident management for fires and other emergencies. Each station is staffed daily with a captain, lieutenant, driver operator/engineer and a firefighter. The current staffing model allows for two positions to utilize leave on any given day, reducing the minimum staffing to three on a fire engine or quint. If there are callouts due to sick leave staff members are held over or recalled to ensure the minimum staffing levels are maintained. During fiscal year 21/22, staff worked 878.4 overtime hours and in fiscal year 22/23 1323.75 overtime hours to ensure minimum staffing levels were maintained.

In consideration of the NFPA 1710 staffing recommendation, incident type and volume are considered when determining a staffing need. During 2023, Nags Head Fire Department responded to 34 fire calls, 626 rescue or emergency medical calls, and 51 hazardous condition calls for service. These numbers represent 60.9% of the annual call volume. These call types represent those that relate to the NFPA 1710 standard.



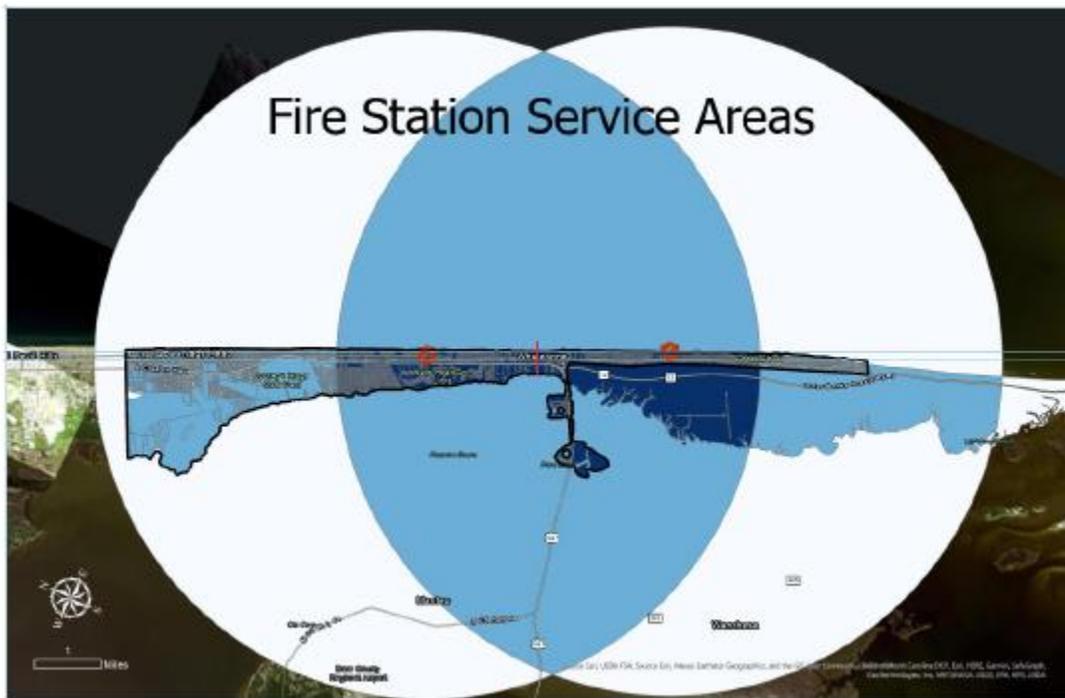
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### Illustration 1-

This is an illustration of the two response areas in Nags Head based on a five-mile radius from Stations 16 and 21. The illustration shows a higher number of built upon properties in the Station 16 response area.



**2,820** parcels are within a 5-mile radius of both fire stations (dark blue parcels above)

**161** vacant parcels are within the 5-mile radius of both fire stations.

**2,659** improved parcels are within the 5-mile radius of both fire stations.

### Needs analysis

Station response areas are defined with Gull Street being the divide between Station 16 and 21. Station 16, located at 5314 S. Croatan Highway responds first to all calls to the North of Gull and below the address number 7100. Station 21, located at 8806 S. Old Oregon Inlet Rd. responds first due to all calls starting at 7100 to the South and West. During a three-year average, Station 16 responded first due to



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74% of the calls in the Town. This area is the highest populated based on residential housing density, commercial property, and population. Station 16 has approximately 4558 developed properties in their response area, whereas Station 21 includes 3179 developed properties. According to Google Maps, Station 21 has a driving time of 12 minutes from their station to the 2500 block of Nags Head. Station 16 has a normal driving time of seven minutes to this same area. In considering these times it is important to note that a unit from Station 16 may be operating for over five minutes before the arrival of a unit from Station 21. There is also a substantial number of temporary visitors staying in vacation homes which increases the risk of a substantial rescue effort during a fire. Shoulder seasons in the fall and spring are showing higher call volumes and population counts than previous years.

The National Fire Protection Association Standard on Fire Department Staffing recommends that four personnel be assigned to each fire apparatus to complete the required fireground tasks efficiently and safely. They also recommend that a minimum of 17 personnel be on the scene within an eight-minute travel time on residential structure fires of up to 2000 square feet.



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### Illustration II

Illustration of the Fire Station 16 response area.





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### Illustration III

Illustration of the Fire Station 21 response area.



### Mutual aid assistance

Mutual aid departments are documented in reporting data as arriving 20 minutes or more after the initial dispatch to structure fire calls in Nags Head. The assistance received from mutual aid departments can be unpredictable due to circumstances beyond these departments' control. These circumstances include availability due to their own responses, staffing availability due to volunteer and off-duty career staffing, response time to their station, and travel times to Nags Head. This places our fire staff of six in a difficult situation as they attempt to extinguish a fire, prevent it from damaging other structures, and possibly conduct a search with a minimum number of staff.



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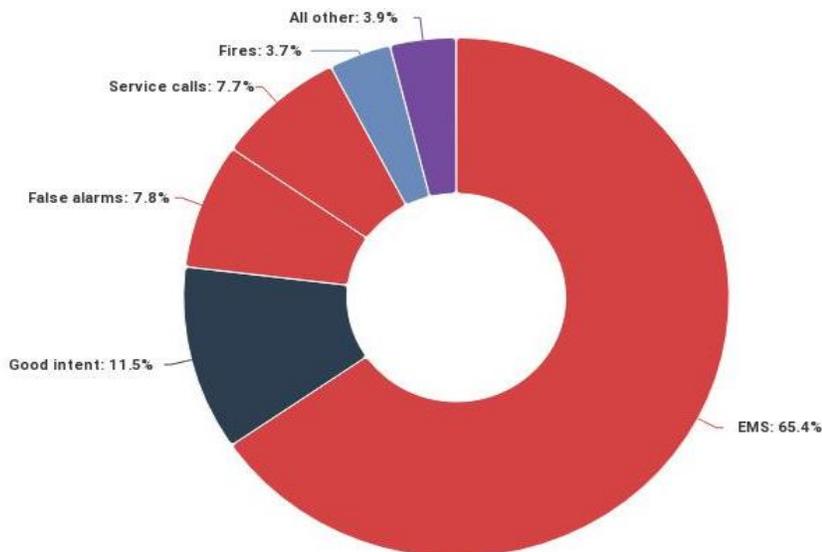


### Call Volume

The call volume within The Town is approximately 1100 responses per year. There has been an increase over the past year of 8.7%. This is attributed to additional medical calls, lift assists, motor vehicle crashes and alarm activations. The three-year average percentage of fire calls in Nags Head is approximately 3.85%, like North Carolina at 5.1% and the National average of 3.7%. It is unknown if the call volume will continue to increase, decrease, or remain the same. We do know that the hazards that we respond to continue to evolve increasing the need for a highly trained firefighting force in Nags Head. Some of these hazards include lightweight building construction, residential homes with higher populations, density of homes, and lithium-ion batteries. Station 16 responds to a higher number of calls for service of all call types. This number includes approximately 74% of all responses in Nags Head.

### Illustration IV

Appendix D illustrates call type percentages based on national data.





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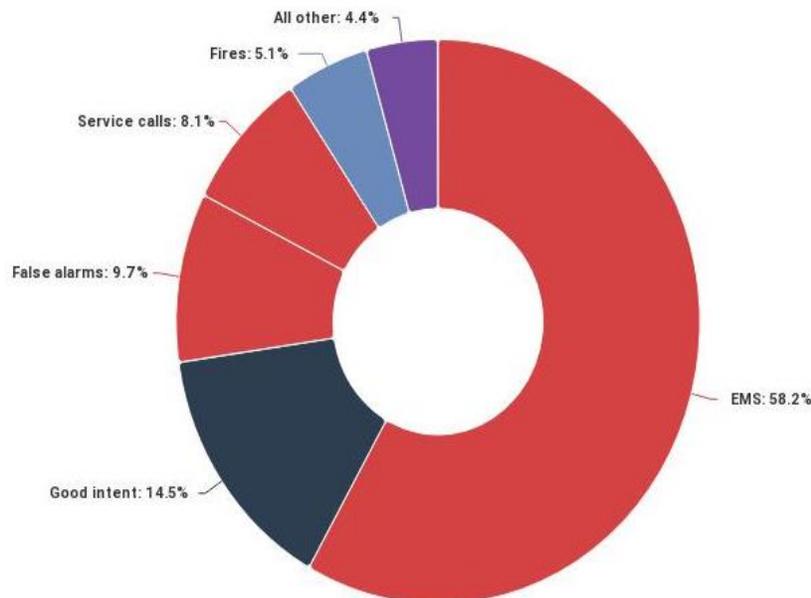


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### Illustration V

Illustrates the call type percentages based on North Carolina data.



### Leave analysis

Annual leave is approximately 10% of the total scheduled hours. This number is from 2021 as it is considered an average year whereas 2022 and 2023 reflected high leave amounts due to numerous sick leave outages. The higher years were the result of several long-term sick leave situations from different employees. The Annual leave includes vacation, sick leave, bereavement leave, and leave related to school functions. The current staffing model allows for two personnel to use leave each day, reducing the daily staffing to six firefighters. Currently, the daily staffing average is 6.7 firefighters per day when considered on an annual basis. As a result of this process, leave policies are being evaluated and updated. Additional considerations for the shift trade policy are also being considered which will allow shift trades on an annual cycle rather than a 28-day pay cycle.



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### National Standards

The National Fire Protection Association (NFPA) is a U.S.-based international nonprofit organization devoted to eliminating death, injury, property, and economic loss due to fire, electrical, and related hazards.

NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments includes recommendations for response times for structure fires and medical calls, the number of firefighters needed to staff fire apparatus, and the total recommended staffing for structure fire and other emergency incidents. Currently, NFPA 1710 recommends that a fire pumper or ladder truck always be staffed with a minimum of four personnel and a quint always be staffed with five firefighters.

OSHA 1910.134 requires that fire departments have a minimum of four personnel on scene prior to making entry into a structure fire or other situation that is immediately dangerous to life and health (IDLH). This is called the two in two out rule. With minimum staffing of three personnel, crews must always wait until a second fire apparatus arrives on scene to enter a structure. If there is an immediate or known rescue, crews can make entry without meeting the two in two out rule.

The National Institute of Standards and Technology (NIST) conducted a study on the tasks associated with residential fireground tasks. This study evaluated the 22 essential tasks that must be completed during a structure fire to operate safely and effectively. These tasks were conducted in real time with firefighters completing tasks to determine what staffing numbers were needed to perform efficiently.

- Studies show that a room can become fully involved in fire in as little as 200 sec or 3.3 minutes.
- Time to water on fire- Four-person crews were 6% (8:41) faster than three-person crews (9:15).
- Ground ladders and ventilation- Four-person crews 25% (7:31) faster than three-person crews (9:35).
- Initiate primary search of a structure-Four person crews 6% (8:47) faster than three-person crews (9:10).



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- On average, four-person crews completed the 22 essential tasks 5.1 minutes faster (25%) than three-person crews.

The number of fire personnel on any scene directly affects the efficiency and safety of the operation. Additional staffing during any incident will provide for safer and more effective operations. Additional staffing may also provide for an adjusted response to calls for service. Minor medical responses could be handled with a smaller more efficient vehicle while still providing effective staffing on the larger fire apparatus.

### **Other duties**

Firefighters in Nags Head have additional duties beyond emergency response. Some of these duties include maintenance of items such as vehicles, stations, and equipment. Items such as fire hose testing are completed annually testing approximately 10,000 feet of fire hose. Other items include fire hydrant testing where our staff flow tests approximately 150-200 hydrants per year, and fire inspections through our fire prevention program. This program includes fire and life safety inspections of nearly 300 businesses per year based on the requirements of the North Carolina Fire Prevention Code. Inspectors are certified as Code Enforcement Officials through the North Carolina Building Council as a Level I, II or III inspector. Training and continuing education requirements are also a substantial commitment for the department with members completing an average of 5000 hours per year.

### **Part-time staffing**

Part-time firefighters are an option and some benefits can be recognized. These benefits include firefighters who may work in other departments and are already trained, and a part-time position can be more economical as there are no benefits that are paid. A part-time position is limited to 1000 hours per year which means that 2.6 part-time personnel would be needed to equal one full-time position if the part-time personnel are always available when needed. There has been a national trend of a reduction in volunteer firefighters. This is due to numerous reasons including time limitations, priorities, generational changes, and others. Nags Head will continue to recruit volunteer firefighters and retain them to the best



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of our abilities. Part-time staffing can also be challenging as the part-time personnel have other commitments including their career, family and maintaining the required training for the position.

### **Grant opportunities**

A federal grant opportunity exists that may be available for funding. The grant cycle normally begins in February and includes funding for three years if awarded. To date, there has been no notice of funding opportunities or match percentages announced. We would not recommend this funding for these positions. This is based on the unknowns including match amounts, funding announcement, and continuation of funding. This grant will no longer be available if it is not authorized in the upcoming federal budget process.

### **Staffing recommendation**

The staffing group recommends that Station 16 be staffed with a minimum of four firefighters each day. Station 16 responds to the highest percentage of calls for service in the most populated areas of the Town. Establishing a minimum staffing of four firefighters would increase the daily staffing averages to approximately 7.6 firefighters per day. Total daily staffing will vary based on leave amounts and training. It is recommended to leave the Station 21 staffing at four per day with a minimum of three per day. The most practical solution to achieving a minimum staffing of four personnel at Station 16 is to add three firefighters with one new position assigned to each shift. This would bring the daily total staffing to nine firefighters with a minimum of seven on duty. Station 16 staffing will always be maintained at a minimum of four personnel.