

Wake County Fire Services

Long Range Planning



Standard of Fire Service response for the unincorporated areas of Wake County

Wake County Fire Commission

Administrative Sub-Committee

1/21/2021

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Administration Committee Members

Position	Representative	
Chairman	Bob Stagg (Citizen)	
Citizen	David Handy	
North Region	Ron Early (Wake Forest FD) Tim Pope (Northern Wake FD)	David McNulty (Durham Hwy FD) Darron Holt (Northern Wake FD)
South Region	LeRoy Smith (Holly Springs FD) Tim Herman (Garner FD)	Matt Poole (Garner FD) Jim Jones (Fuquay Varina FD)
West Region	Keith McGee (Apex FD) Mike Cooper (Cary FD)	Garland Johnston (Western Wake FD) Scott Criddle (Morrisville FD)
East Region	Brian Staples (Wendell FD) Lee Price (Wake New Hope FD)	Loren Cone (Knightdale FD)
County Staff	Darrell Alford (Wake County Fire Service)	

Executive Summary

The Wake County Board of Commissioners requested the Wake County Fire Commission to establish a county-wide “standard for fire service” in the unincorporated areas of Wake County and to develop a plan to achieve and sustain agreed upon service levels. This task was passed from the Wake County Fire Commission to the administrative sub-committee of the fire commission. The administrative sub-committee is a group of fire service representatives for each region of Wake County, Wake County Fire and Emergency Services staff, and Wake County citizens representation. All fire departments that serve the unincorporated areas of Wake County have contracts that include many aspects of providing fire service, however a detailed standard of response capabilities that measure response times, on scene performance objectives, and number of firefighters that respond to incidents does not exist. The creation of this standard of service will create the Wake County fire service “measuring stick”, which will allow leaders to make informed decisions about the future of fire service in Wake County.

The administrative sub-committee adopted a 5-step process for developing the Wake County fire service standard of response:

Step 1: Conduct a general risk assessment in the areas of fire, EMS, hazmat, and technical rescue. Identify and calculate the risk using a methodology that measures Probability of the risk occurring, Consequence if the risk occurs, and the impact to fire service resources during the risk event.

Step 2: Perform a critical task analysis for each Category of each risk Classification, showing the resources needed to handle the risk. This will help create a minimum response plan for the rural areas county-wide.

Step 3: Evaluate baseline response times (travel only) for all Structure Fires and Medical calls. Baselines will include travel times for first due fire suppression apparatus and total effective response force (ERF).

Step 4: Community and Departmental input via survey focused on response times services provided.

Step 5: Adopt response time (travel only) and performance objectives goals for all call types for first arriving apparatus responding emergency traffic, and **ERF for Structure Fires only.**

In final, the administrative sub-committee was able to provide fire service performance goals for all call types and risk levels that outlined travel time goals for the first arriving unit and the effective response force. The performance goals also included on-scene operational duties to be accomplished for each risk level. The performance goals were driven from national performance standards and best practices using critical tasking for each risk identified in the risk assessment that was conducted for Wake County’s unincorporated areas.

Risk Assessment (Step 1)

Step 1 in the process of determining the standard of response for the unincorporated areas of Wake County was to identify the risk and measure it. There are many types of risks and ways to evaluate it, however for this assessment the committee chose to only evaluate risks that the fire departments respond to in the rural districts by the way of emergency incidents such as fires calls, medical calls, technical rescue calls, and hazardous material calls.

4 Classifications of General Fire Service Risk

FIRE	EMS
HAZMAT	TR

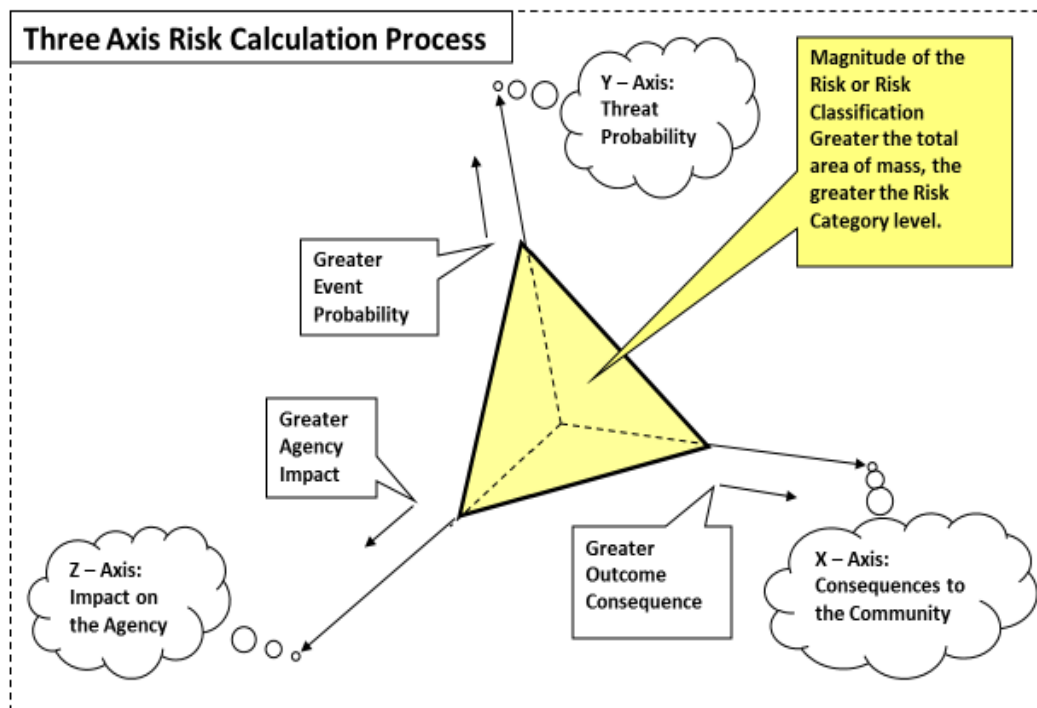
For each classification of risk, a sub-set of call types were created to evaluate. Below is an example of the call types that were included.

FIRE	EMS	HAZMAT	TR
<ul style="list-style-type: none">• Grass Fire• Woods Fire• Trash Fire• Vehicle Fire• Fire Alarm• Sm non-dwelling• Lg. non-dwelling• Cooking Fire• Chimney Fire• Single Family• Multi Family• Comm. Fire• Target Haz.	<ul style="list-style-type: none">• Walk-in• Lift Asst.• Medical Call < 6• MVA < 6• Any medical call with 6 or more patients	<ul style="list-style-type: none">• Investigations• CO Incident• Small Fuel Spill• Lg. Fuel Spill• LP or Natural gas leak• Hazmat release requiring tech response or large evacuations	<ul style="list-style-type: none">• Person locked in vehicle/building• Elevator entrapment• Vehicle/machinery extrication• Swift water• Trench• Confined Space• High/low angle

Once the call types were determined, a methodology of measuring risk was determined, which would categorize the risk into 4 categories: Low, Moderate, High, and Maximum Risk. A 3-axis risk calculation was adopted measuring probability, consequence, and impact.

Categories of Risk for each Classification

Maximum Risk
High Risk
Moderate Risk
Low Risk



Probability – how often the risk occurs based on annual reporting from each fire department of the type of situation found once units arrived on the scene.

Probability of Occurrence Annually
2 = Quarterly/Yearly (0-4)
4 = Monthly (5-31)
6 = Weekly (32-364)
8 = Daily (365 or more)

Consequence – the impact to the customer as it relates to life, emotions, and finance.

Ranking	Life (50%)	Emotional (25%)	Financial (25%)
2	No Hazard	No Emotional Impact	\$0 - \$49,999
4	Less than 6 life loss potential	Single real property/single person	\$50,000 - \$499,999
6	6 or more life loss potential	Multi real property/multiple people	\$500,000-\$999,999
8	Life loss potential for civilian and firefighters	Community/Historic/Tax base loss	\$1,000,000 and greater

Impact – measuring the strain on the fire service system based on resources needed per risk.

Impact to Resources (Personnel)					
2	Low (2-3 personnel with staffed crew)				
4	Moderate (6-12 personnel using staffed and volunteer crews)				
6	High (13-15 personnel using staffed, volunteers, and auto-aid)				
8	Maximum (16 or more personnel staffed, volunteers, auto-aid, mut-aid, coverage needed)				

The study used 4 years of response data (2015-2018) (46,733 calls for service)(Appendix 1) in all 43 rural fire districts to analysis the risk in each area. Below is an example risk calculation for each risk classification:

Wake County Fire Risk Assessment					
Fire	Probability	Consequence	Impact	Risk Score	Risk Assessment
Electrical Problem	2	2	2	4.90	Low
Grass/Woods/Trash Fire	2	2	2	4.90	Low
Vehicle Fire	2	2	2	4.90	Low
Automatic Alarms	4	2	2	8.49	Low
Chimney Fire	2	4	6	19.80	Moderate
Cooking Fire, contained	2	4	6	19.80	Moderate
Structure Fire (Less than 5,000 sqft)	2	4	8	25.92	High
Structure Fire (5,001-10,000 sqft)	2	5	8	31.27	Maximum
Structure Fire (greater than 10,000 sqft)/Target Hazards	2	8	8	48.00	Maximum

Wake County Medical Risk Assessment					
Medical	Probability	Consequence	Impact	Risk Score	Risk Assessment
Walk in to Station	2	4	2	8.49	Low
Medical First Responder Response	6	4	2	19.80	Moderate
MVA < 6 patients	4	4	4	19.60	Moderate
Mass causality 6 or more patients	2	6	6	28.14	High

Wake County Hazardous Material Risk Assessment					
Incident	Probability	Consequence	Impact	Risk Score	Risk Assessment
Investigations of odors/alarms	2	2	2	4.90	Low
Small Fuel Spill	2	2	2	4.90	Low
Large Fuel Spills	2	4	4	13.86	Moderate
CO Incident	2	4	4	13.86	Moderate
LP or Natural gas leaks	2	4	4	13.86	Moderate
Hazardous material release requiring Haz-mat team and/or large scale evacuation	2	6	6	28.14	High

Wake County Technical Rescue Risk Assessment					
Incident	Probability	Consequence	Impact	Risk Score	Risk Assessment
Person locked in vehicle or building	2	2	2	4.90	Low
Elevator entrapment (non-injured)	2	2	2	4.90	Low
Type 3 (Vehicle/machinery extrication, non-swift water)	2	4	4	13.86	Moderate
Type 2 (in scope) outside agencies needed, Type 1 (out of scope)(confined space, trench, swift water)	2	6	6	28.14	High

Example of a 4-year risk study of rural fire district (Garner Station 4, rural area).

Garner Sta. 4	2015		2016		2017		2018		Total
Total number of calls for service	497		604		567		553		2221
Fire	2015	Risk	2016	Risk	2017	Risk	2018	Risk	Risk Average
Electrical/Odor Investigation	7	8.49	13	8.49	4	4.49	9	8.49	7.49
Woods/Trash/Grass	20	8.49	17	8.49	28	8.49	28	8.49	8.49
Vehicle Fires	5	8.49	12	8.49	7	8.49	7	8.49	8.49
Fire Alarms	28	8.49	27	8.49	19	8.49	20	8.49	8.49
Chimney	0	19.8	0	19.8	0	19.8	0	19.8	19.80
Cooking-Contained	1	19.8	0	19.8	0	19.8	2	19.8	19.80
Structure less 5000	7	33.94	2	25.92	5	33.94	5	33.94	31.94
Structure 5K-10K	0	31.27	0	31.27	0	31.27	0	31.27	31.27
Structure greater 10K	0	48	0	48	0	48	0	48	48.00
Haz Mat	2015	Risk	2016	Risk	2017	Risk	2018	Risk	Risk Average
Investigations/Odor	4	4.49	2	4.49	6	8.49	2	4.49	5.49
Small Fuel Spill	3	4.49	1	4.49	1	4.49	0	4.49	4.49
Large Fuel Spill	0	13.86	0	13.86	0	13.86	0	13.86	13.86
CO Incident	0	13.86	1	13.86	0	13.86	1	13.86	13.86
LP/Natural Gas Leak	0	13.86	3	13.86	1	13.86	1	13.86	13.86
Haz Mat Release	0	28.14	0	28.14	0	28.14	0	28.14	28.14
EMS	2015	Risk	2016	Risk	2017	Risk	2018	Risk	Risk Average
Walk In	0	8.49	0	8.49	0	8.49	0	8.49	8.49
Medical Call	189	19.8	210	19.8	195	19.8	191	19.8	19.8
MVA Less than 6	75	26.53	118	26.53	102	26.53	106	26.53	26.53
MVA Greater than 6	0	28.14	0	28.14	0	28.14	0	28.14	28.14
Tech Rescue	2015	Risk	2016	Risk	2017	Risk	2018	Risk	Average
Lock In	0	4.49	1	4.49	0	4.49	1	4.49	4.49
Elevator	0	4.49	0	4.49	0	4.49	0	4.49	4.49
VMR Extrication	1	13.86	2	13.86	1	13.86	1	13.86	13.86
Confined Space/Trench/Swift water/High angle	0	28.14	0	28.14	0	28.14	1	28.14	28.14

All risk assessment data for all 43 rural fire districts is in appendix 1. The risk assessment data was obtained from data that each fire department reported to the National Fire Incident Reporting System (NFIRS) for the years of 2015-2018. During this time, the 18 fire departments that cover the unincorporated areas of Wake County responded to 46, 733 incidents in those rural areas.

This risk assessment studied types of incidents found after the fire departments arrived on the scene and how they reported the incident. All calls responded to are not captured in the risk assessment, only the ones within the risk classifications. An example of this looking at the data above for Garner Station 4 would be in 2015 they responded to 497 calls in the unincorporated area of the station 4 district, looking at the call classifications studied, it only accounts for 337 calls. The other 160 calls for that year were coded in a classification like cancelled enroute, service call, wrong location, etc. A district may have a 0 in a call type like structure fire, however could have been dispatched to 14 for the year, but all were other outcomes which may fall into other classifications studied or in a classification not studied.

Special notes:

- Northern Wake Fire Department only has data from 2018 due to the merger of Bay Leaf FD and Stony Hill FD.
- Eastern Wake FD data is still relevant however it is now the Town of Knightdale FD, who covers the same areas.
- Wendell FD data includes all their calls to include areas within the Wendell corporate limits due to their town being a part of the Wake County fire tax district.

Critical Task Analysis (Step 2)

Step 2 in the process was to conduct a critical task analysis for each call type within each risk classification identified during the risk assessment in step 1. This process identifies the needed resources on the initial dispatch to mitigate an emergency, known as the Effective Response Force (ERF). Some emergencies may escalate to a higher risk, requiring additional resources, likewise, some will downgrade to a lower ERF. The time the first arriving fire suppression apparatus and the ERF will be a part of the performance objectives moving forward. This answers the question of why you need the number of firefighters you say you need at a certain type of emergency call. This also starts to tie all the steps together and explain why they were important steps to get to a data driven recommendation. The risk assessment identifies that the need (risk) exists and categorizes it which provides information to determine the needed resources to respond (critical tasking).

FIRE

Low risk fire incidents may include grass fires, woods fires, trash fires, vehicle fires, fire alarms, odor/smoke/electric investigations, etc.

Low Fire Risk Critical Tasks	
Critical Task	Number of Personnel
Command/Safety	1
Fire Attack/Investigation	1
Pump Operator	1
Total ERF	3
1 Engine	

Moderate risk fire incidents may include chimney fires, cooking fires contained, extinguished fires, small non-dwellings, etc.

Moderate Fire Risk Critical Tasks	
Critical Task	Number of Personnel
Command/Safety/Accountability	1
Fire Attack/Investigation	2
RIT	2
Search/Rescue	2
Vent/Utilities	2
Pump Operator	1
Fire Suppression ERF	10
2 Engines, 1 Rescue/Ladder, 1 Chief	
Non-Hydrant Response	
Tanker Response (2 Tankers) *removed from ERF	2
Total ERF	10/12

High and Maximum risk fire incidents may include large non-dwelling, single family dwelling, multi-family dwelling, commercial building, etc.

High/Maximum Fire Risk Critical Tasks	
Critical Task	Number of Personnel
Command/Safety/Accountability	1
Fire Attack	4
RIT	2
Search/Rescue	2
Vent/Utilities/Ladder ops	3
Pump Operator	1
Fire Suppression ERF	13
3 Engines, 1 Rescue/Ladder, 1 Chief	
Non-Hydrant Response	
Tanker Response (3 Tankers) *removed from ERF	3
Water Supply Engine	3
Total ERF	16/19

The first arriving apparatus on ALL risk classifications will be capable of proving 500 gallons of water with a pumping capability of 1,250 gallons per minute; establishing incident command procedures, proving initial size-up report; requesting additional resources if needed; initiate fire attack; perform any needed rescues.

The effective response force (ERF) for any structure fire will be capable of establishing a command post; establish personnel accountability; establish a safety officer; secure an initial water supply; operate multiple hose lines; establish a rapid intervention crew; perform search and rescue operations; complete forcible entry; provide ventilation and utility control; perform any needed salvage and overhaul operations.

EMS

Low risk medical incidents may include a well person check, walk-in to station medical call, lift assist, etc.

Low Medical Risk Critical Tasks	
Critical Task	Number of Personnel
Command/Safety/Documentation	1
Patient Care	1
Total ERF	2
1 Engine/Small Vehicle	

Moderate risk medical call may include a medical first responder call, Motor vehicle crash with < 6 patients, etc.

Moderate Medical Risk Critical Tasks	
Critical Task	Number of Personnel
Command/Safety/Documentation	1
Patient Care	2-3
Total ERF	2-3
1 Engine/Small Vehicle for non-MVA calls.	

High risk medical call may include a motor vehicle crash, mass causality call with 6 or more patients, etc.

High Medical Risk Critical Tasks	
Critical Task	Number of Personnel
Command/Safety/Documentation	1
Triage	2
Patient Care	3
Total ERF	6
1 Engine, 1 Rescue/Ladder	

The first arriving crew will be capable of providing Basic Life Support (BLS) care to include the use of an Automatic External Defibrillator (AED), establishing incident command, and document all needed information.

The ERF for high risk medical calls will be capable of establishing triage and providing additional patient care.

*Note that motor vehicle crashes with injuries is part of the medical risk when only dealing with injured patients. Motor vehicle crashes can involve technical rescue and hazmat risks and are evaluated in those sections.

Technical Rescue

Low risk technical rescue calls may include a person locked in a vehicle or building, elevator entrapment with no injury, etc.

Low Technical Rescue Risk Critical Tasks	
Critical Task	Number of Personnel
Command/Safety	1
Extrication	2
Total ERF	3
1 Engine/Rescue	

Moderate risk technical rescue calls may include a vehicle or machinery extrication, non-swift water rescue, etc.

Moderate Technical Rescue Risk Critical Tasks	
Critical Task	Number of Personnel
Command/Safety	1
Stabilization	2
Extrication	3
Total ERF	6
1 Engine, 1 Rescue/Ladder	

High risk technical rescue calls may include confined space, trench, high/low angle, swift water, etc.

High Technical Rescue Risk Critical Tasks	
Critical Task	Number of Personnel
Command/Safety	1
Rescue Ops Leader	1
Stabilization	3
Extrication/Rigging	5
Total ERF	10
2 Engine, 1 Rescue/Ladder, 1 Chief	

The first arriving apparatus will be capable of establishing incident command procedures, providing initial size-up report; requesting additional resources if needed; creating a safe area, providing basic stabilization and extrication.

The ERF of moderate and high-risk calls will establish rescue operation groups and/or assist technical rescue teams.

Hazmat

Low risk hazardous material calls may include investigations of odors, or alarms, small fuel spills, etc.

Low Hazmat Risk Critical Tasks	
Critical Task	Number of Personnel
Command/Safety	1
Investigation	2
Total ERF	3
1 Engine	

Moderate risk hazardous material calls may include large fuel spills, carbon monoxide calls, LP or natural gas leaks, etc.

Moderate Hazmat Risk Critical Tasks	
Critical Task	Number of Personnel
Command/Safety	1
Mitigation/containment	3
Perimeter control	2
Total ERF	6
1 Engine, 1 Rescue/Ladder	

High risk hazardous material calls may include a hazardous material release requiring a hazmat team and/or large-scale evacuation.

High Hazmat Risk Critical Tasks	
Critical Task	Number of Personnel
Command/Safety	1
Mitigation/containment	3
Perimeter control/ Evacuation	6
Total ERF	10
2 Engine, 1 Rescue/Ladder, 1 Chief	

The first arriving apparatus will be capable of proving 500 gallons of water with a pumping capability of 1,250 gallons per minute; establishing incident command procedures, proving initial size-up report; requesting additional resources if needed; mitigate situation if possible; start initial evacuations.

The ERF for moderate and high-risk calls will establish mitigation/containment groups, provide additional evacuation groups, and/or assist hazmat teams.

Baseline Evaluation (Step 3)

Step 3 in the process involves the evaluation of current service delivery as it relates to **response times** to emergency calls (baselines). The seems like a simple task, however this is a challenging process. The Wake County unincorporated areas are protected by 18 fire departments using 43 fire stations. Many fire departments utilize different record management systems, different computer aided dispatch systems, and have different internal protocols that guide operations and reporting.

The goal of this step is to evaluate the distribution and concentration of fire service resources within Wake County's unincorporated areas. Distribution is basic fire station location, how long does it take to get 1 fire resource to an emergency. Concentration is evaluating how long it takes to get the effective response force to an emergency identified during critical tasking based on risk identified during the risk assessments. Concentration is multiple stations and/or multi-company stations.

This evaluation is only evaluating travel time, the time from when the apparatus starts to move towards the emergency to when it arrives at the scene of the incident. The evaluations will all be evaluated at the 90th percentile performance measure.

Due to the challenge of evaluating all call types for all risks for all 43 rural fire districts in Wake County, the committee decided to only evaluate 2 call types, medical first responder and all structure fires.

Thought process for this 2-call type evaluation:

- 1) When evaluating response time performance, the goal is to only evaluate calls that require an emergency (lights and siren) response, medical first responder and structure fires fit this model best.
- 2) Medical first responder calls account for most of the response, giving us the greatest number of responses to evaluate for a more accurate baseline for measuring distribution.
- 3) Structure fires require the largest effective response force identified and is the most crucial risk. If goals are met for the structure fire risks, all other categories and risk classification would be met as well.

Distribution study (first arriving units) looked at 2 ways, system wide and each department.

System wide

5,242 medical and structure fire call types evaluated between the date of 5/14/2019 – 5/1/2020.

First arriving unit responding emergency traffic = 7 minutes, 08 seconds of travel time, 90% of the time.

Breakdown by Department

Department	Number of calls	90% Travel Time
Apex*	110	8:30
Cary *	22	4:48
Durham Highway	184	5:57
Eastern Wake (Knightdale)	554	6:48
Fairview	499	5:31
Fuquay	727	7:37
Garner	1,178	7:41
Holly Springs	94	8:04
Hopkins	75	6:26
Morrisville *	130	7:52
Northern Wake	589	6:50
North West Wake Hook	60	13:12
Rolesville	130	6:17
Swift Creek	148	6:16
Wake Forest	282	5:59
Wake New Hope	246	6:43
Wendell	143	7:18
Western Wake	51	6:35
Zebulon	99	6:21

*Data provide by department due to different CAD system.

The effective response force (ERF) for structure fires is more challenging with many factors to consider. Fortunately, Wake County does not see many structure fires in the unincorporated areas that required the total ERF to arrive on scene. The time period evaluated produced 213 structure fires, out of those, 37 calls had 16 or more firefighters arrive to the scene. Due to the low data set, GIS mapping was utilized to predict response times. See actual and predicted times below:

Actual Response Data

Location	District	Call Type	ERF Travel (16)	ERF Travel (19)
324 Hunters Farm Dr	GFD RURAL GAR17	Structure Fire Residential	10:12	11:47
6208 Hirondele Ct	HSFD RURAL HSR17	Structure Fire Residential	9:33	11:10
8617 Bostian Dr	FFD RURAL FFR08	Structure Fire Residential	8:01	12:02
1219 S Spring Garden Cir	GFD RURAL GAR17	Structure Fire Mobile Home	8:03	8:06
107 QUAIL CROSSING DR	WFFD RURAL WFR20	Structure Fire Mobile Home	4:53	N/A
117 Belve Dr	GFD RURAL GAR17	Structure Fire Residential	10:42	12:40
1520 Consett Ct	NWFD RURAL NWR33	Structure Fire Residential	10:56	10:56
2729 BROOKWOOD DR	FFD RURAL FFR08	Structure Fire Residential	8:08	8:53
215 GIPSON DR	GFD RURAL GAR42	Structure Fire Residential	10:49	12:15
4926 Fayetteville Rd	GFD RURAL GAR17	Structure Fire High Life Hazar	13:37	N/A
7904 Mitchell Mill Rd	ROFD RURAL RVR06	Structure Fire Residential	10:47	N/A
8433 Greythorne Pl	EWFD RURAL EWR24	Structure Fire Residential	13:38	N/A
9924 Scottie Dr	DUTFD RURAL DVR01	Structure Fire Large Non Dwell	14:31	N/A
5949 Sunset Lake Rd	HSFD RURAL HSR05	Structure Fire Residential	7:40	N/A
3509 Misty River Dr	EWFD RURAL EWR24	Structure Fire Residential	12:17	N/A
3608 Lodge Dr	EWFD RURAL EWR24	Structure Fire Residential	14:29	16:35
6400 Johnson Pond Rd	FVFD RURAL FVR18	Structure Fire Commercial	8:50	N/A
1712 Old Crews Rd	NHFD RURAL NHR40	Structure Fire Mobile Home	7:50	N/A
3816 Benson Rd	GFD RURAL GAR17	Structure Fire Residential	13:08	N/A
5617 Treestand Ct	GFD RURAL GAR17	Structure Fire Residential	12:34	N/A
1504 Old Crews Rd	NHFD RURAL NHR40	Structure Fire Residential	10:25	10:25
3413 Horseshoe Bnd	NWFD RURAL NWR33	Structure Fire Small Non Dwell	7:44	11:30
1924 Rolesville Rd	ROFD RURAL RVR06	Structure Fire Large Non Dwell	4:57	N/A
4213 Bluewing Rd	NHFD RURAL NHR40	Structure Fire Residential	8:05	N/A
6109 Buffaloe Rd	NHFD RURAL NHR40	Structure Fire Mobile Home	13:23	N/A
13019 Creedmoor Rd	NWFD RURAL NWR33	Structure Fire Large Non Dwell	9:49	N/A
5429 Fayetteville Rd	GFD RURAL GAR17	Structure Fire Commercial	8:32	11:37
6805 Rex Rd	HSFD RURAL HSR17	Structure Fire Residential	12:48	N/A
8305 Riley Hill Rd	ZFD RURAL ZFR12	Structure Fire Mobile Home	9:24	N/A
3009 Villawood Cir	FFD RURAL FFR08	Structure Fire Residential	10:48	N/A
6317 People Rd	HSFD RURAL HSR17	Structure Fire Residential	10:20	N/A
126 Buffaloe Acres Ln	GFD RURAL GAR17	Structure Fire Commercial	14:04	N/A
5205 Tustin Ct	FVFD RURAL FVR18	Structure Fire Residential	9:48	N/A
101 Saunders Grove Ln	MFD Rural	Structure Fire Residential	4:42	4:42
7800 Hendricks Rd	MFD Rural	Structure Fire Residential	5:52	5:52
9832 Ten Ten Rd	GFD RURAL GAR17	Structure Fire Large Non Dwell	8:08	12:45
906 Sunny Ln	GFD RURAL GAR17	Structure Fire Residential	8:32	N/A

GIS mapping ERF predictions, see appendix 2

**WAKE COUNTY
COMMUNITY SURVEY
RESPONSES**





Fire Tax District Community Involvement Survey

What people are saying?



Includes: Strongly Agree, Somewhat Agree & Agree

Top 10 Words to Describe Fire Services



1,384

Survey Responses

74%

Watched Video

59%

% No Services

What about time standards?

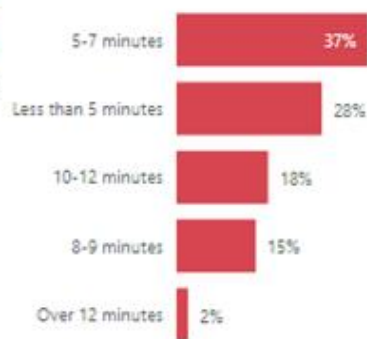
Time Standards



Fire Dept Response Times



911 Arrival Time



Wake County Standard of Response Performance Objectives

FIRE

The first arriving apparatus for all fire risk classifications responding emergency traffic with a minimum of three (3) qualified firefighters should be 7 minutes 0 seconds of travel time in the unincorporated districts of Wake County, 90 percent of the time.

The first arriving apparatus will be capable of proving 500 gallons of water with a pumping capability of 1,250 gallons per minute; establishing incident command procedures, proving initial size-up report; requesting additional resources if needed; initiate fire attack; perform any needed rescues.

The Effective Response Force (ERF) for any reported structure fire responding emergency traffic with a minimum of 16 qualified firefighters should be 12 minutes 0 seconds of travel time, 90 percent of the time.

The ERF for any structure fire will be capable of establishing a command post; establish personnel accountability; establish a safety officer; secure an initial water supply; operate multiple hose lines; establish a rapid intervention crew; perform search and rescue operations; complete forcible entry; provide ventilation and utility control; perform any needed salvage and overhaul operations.

EMS

The first arriving apparatus for all EMS risk classifications responding emergency traffic with a minimum of two (2) firefighters should be 7 minutes 0 seconds of travel time in the unincorporated districts of Wake County, 90 percent of the time.

The first arriving crew will be capable of proving Basic Life Support (BLS) care to include the use of an Automatic External Defibrillator (AED), establishing incident command, and document all needed information.

The ERF for high risk medical calls will be capable of establishing triage and providing additional patient care.

*Note that motor vehicle crashes with injuries is part of the medical risk when only dealing with injured patients. Motor vehicle crashes can involve technical rescue and hazmat risks and are evaluated in those sections.

Technical Rescue

The first arriving apparatus for all Technical Rescue (TR) risk classifications responding emergency traffic with a minimum of three (3) firefighters should be 7 minutes 0 seconds of travel time in the unincorporated districts of Wake County, 90 percent of the time.

The first arriving apparatus will be capable of establishing incident command procedures, proving initial size-up report; requesting additional resources if needed; creating a safe area, providing basic stabilization and extrication.

The ERF for moderate and high-risk calls will establish rescue operation groups and/or assist technical rescue teams.

Hazmat

The first arriving apparatus for all Hazmat risk classifications responding emergency traffic with a minimum of three (3) firefighters should be 7 minutes 0 seconds of travel time in the unincorporated districts Wake County, 90 percent of the time.

The first arriving apparatus will be capable of proving 500 gallons of water with a pumping capability of 1,250 gallons per minute; establishing incident command procedures, proving initial size-up report; requesting additional resources if needed; mitigate situation if possible; start initial evacuations.

The ERF for moderate and high-risk calls will establish mitigation/containment groups, provide additional evacuation groups, and/or assist hazmat teams.

Plan and Recommendations

Plan

1. Monitor response times annually to determine any gaps for first arriving apparatus response time goals (Distribution of Fire Stations).
2. Monitor response times annually on all structure fires for all arriving apparatus to determine any gaps in response times for the effective response force time goals (Concentration of Fire Stations).
3. Conduct risk assessments every 5 years.
4. Conduct critical task analysis every 5 years.

Recommendations

- 1) Wake County Commissioners should adopt the standard of response performance objectives for Fire, EMS, Hazmat, and Technical Rescue outlined in this study for the unincorporated areas of Wake County.
- 2) Individual fire districts should meet the standard of response performance. If not, Wake County Fire Services staff will evaluate the individual district to determine where the gaps are and provide recommendations to close the gaps.
- 3) The recommended effective response force (ERF) for structure fires did not include tankers. Tankers are an important part of a structure fire response in the rural areas where hydrants are not available. Tankers were not included in the ERF because these apparatus are not staffed and most rely on volunteers to respond from home to get tankers enroute to a fire, which account for a longer than normal response time. It was not easy to determine through the travel time evaluation the effectiveness of tanker responses in Wake County. A tanker response evaluation is recommended to determine if the county has a problem with getting tankers to fires and if so, provide recommendation to solve it. Wake County Fire Services has agreed to study tanker responses moving forward and provide information for a recommendation.
- 4) Call Processing plays a part in total response time, however, this study and recommendation only focused on travel time (station locations). It is recommended that a call processing time is evaluated, and recommendations are provided.
- 5) Turn out time plays a part in total response time, however, this study and recommendation only focused on travel time (station location). It is recommended that turn out time is evaluated, and time recommendations are provided.