Charlottesville Fire Department
City Council Update

September 20, 2021
Dr. Hezedean A. Smith, Fire Chief
Dr. George Lindbeck, Medical Director
Mike Rogers, Deputy Chief

FAMILY INTEGRITY RESPECT EXCELLENCE

- Military Veteran
- Certified Public Manager
- Doctorate in Management (Organizational Leadership)
- Emergency Services & Public Safety (33 years)
- Retired from Orlando Fire Department (24 ½ years)
- Adjunct Professor, Embry-Riddle Aeronautical University
- Adjunct Professor, Columbia Southern University
- Fire Chief Charlottesville Fire Department - 12/1/2020

CHARLOTTESVILLE

- 10 sq. miles, 7,000 calls/year
- 3 fire stations, 2 ambulances
- 4 fire engines, 2 tower trucks
- 108 members
- Peer Support Group
- Fire Prevention (CRR)
- Deputy Chiefs, Battalion Chiefs
- Captains, Firefighters

ORLANDO

- 113 sq. miles, 70,000 calls/year
- 17 fire stations, 17 ambulances
- 18 engines, 8 tower trucks
- 500+ members
- Peer Support Group
- Arson Bomb Team/CRR
- Deputy Chiefs, District Chiefs
- Lieutenants, Engineers
- Firefighters

The mission of the Charlottesville Fire Department is to improve the quality of life in our community by consistently striving to provide superior fire and emergency services focused on prevention, preparedness, response, and recovery.

Core Values

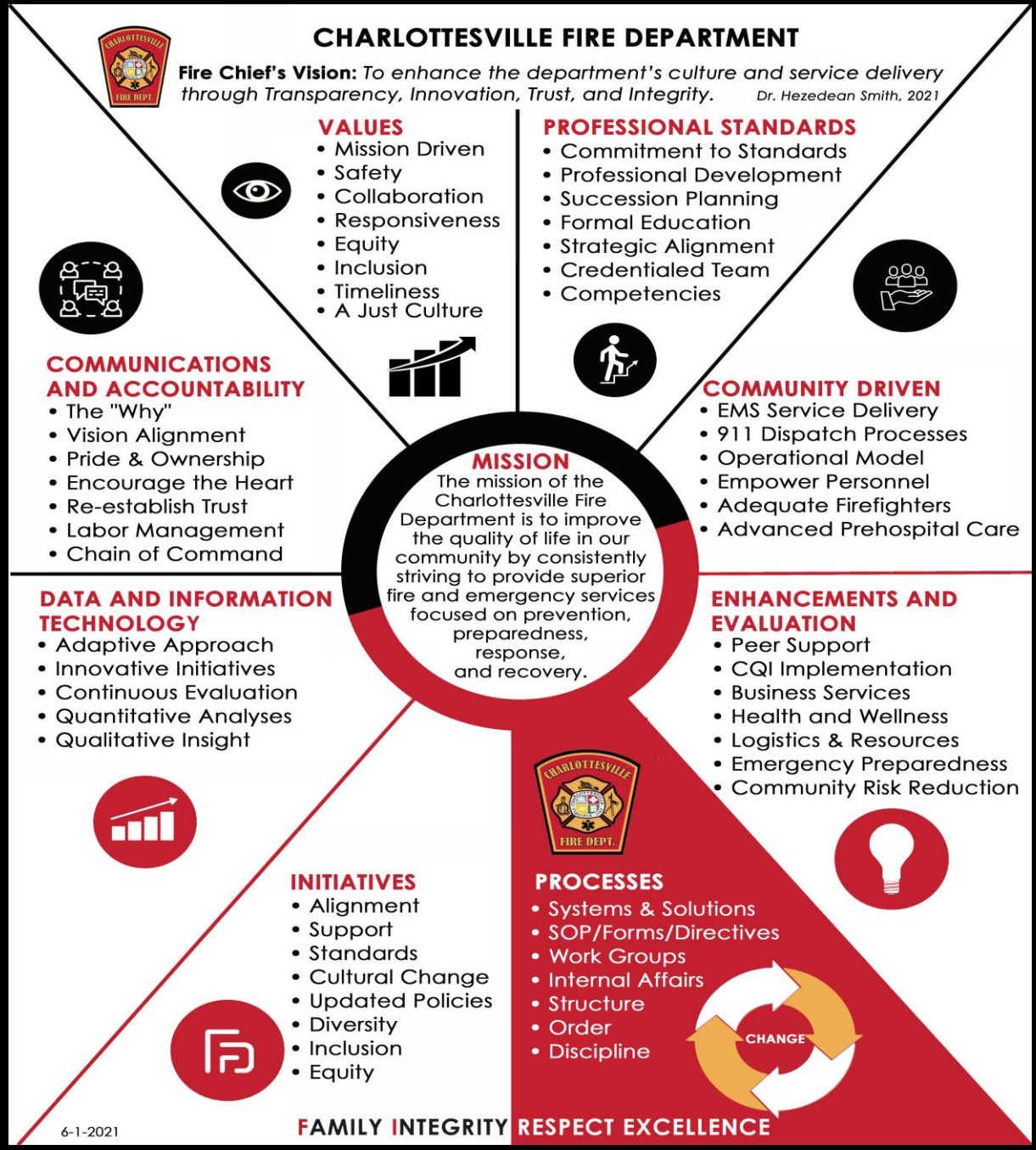
Family **I**ntegrity **R**espect **E**xcellence

*VISION *ALIGNMENT EXECUTION

Vision: To enhance the department's culture and service delivery through Transparency, Innovation, Trust, and Integrity.

Values

Mission Driven
Safety
Collaboration
Responsiveness
Equity
Inclusion
Timeliness
A Just Culture

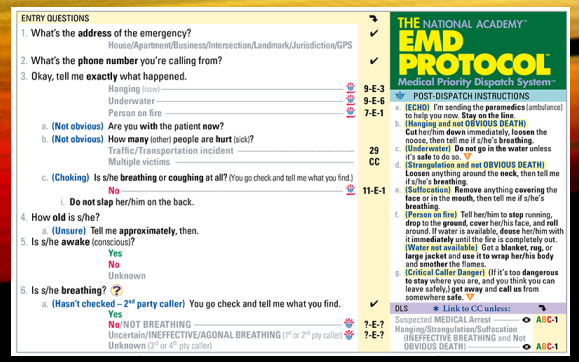


FAMILY INTEGRITY RESPECT EXCELLENCE

1. Workforce
2. Health & Safety
3. Communication
4. Training
5. Services
6. Support

View the CFD Strategic Plan

FAMILY INTEGRITY RESPECT EXCELLENCE



ProQA PARAMOUNT

COMING SOON

- The Medical Priority Dispatch System (MPDS) is an emergency medical dispatch (EMD) system that is widely used to prioritize 9-1-1 calls and optimize resource allocation. MPDS is a computer-based EMD system that uses callers' responses to scripted questions to categorize cases into groups and subgroups, based on complaint and perceived acuity (Sporer & Wilson, 2012)

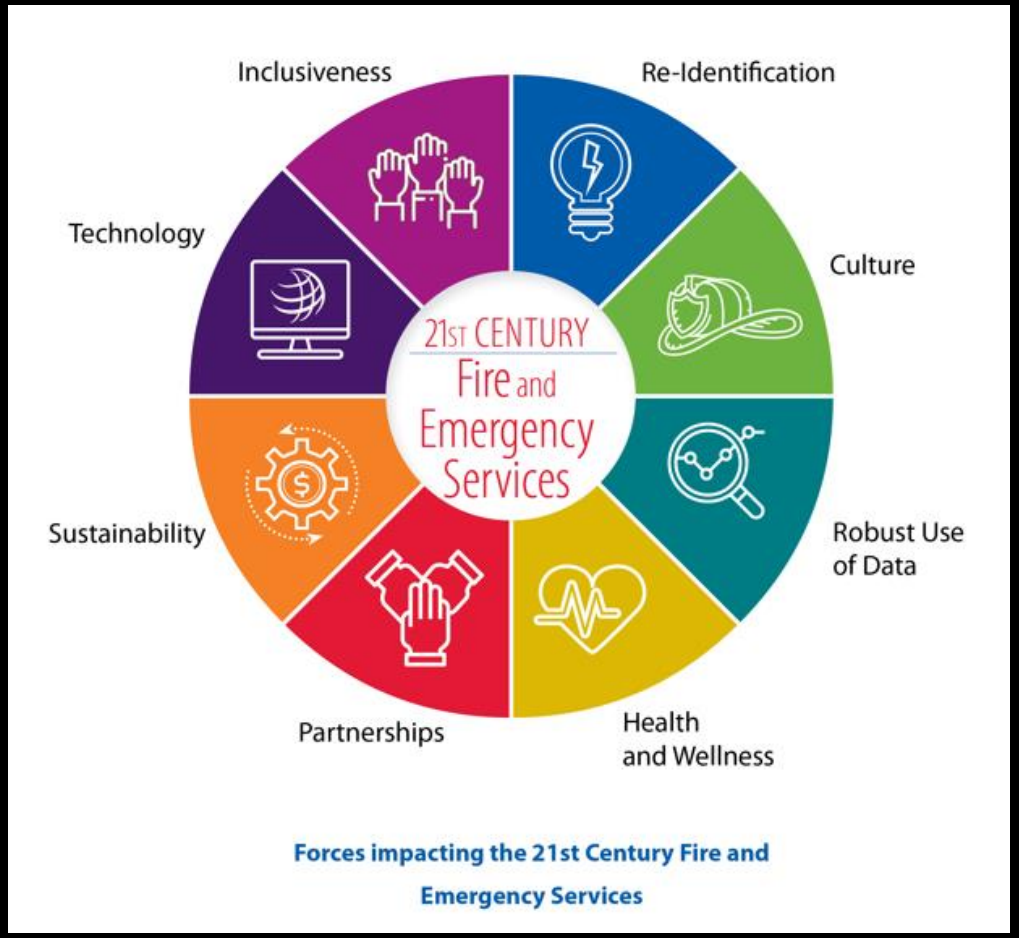
- Higher rates of Advanced Life Support (ALS) interventions in higher-acuity categories (e.g., Alpha, Bravo, Charlie) were seen in several EMD categories, including unconscious/fainting, breathing problems, and abdominal pain; but this was not observed in many other categories, including seizure, sick person, traumatic injury, and hemorrhage/lacerations (Sporer & Wilson, 2012)

Sporer KA, Wilson KG. How well do emergency medical dispatch codes predict prehospital medication administration in a diverse urban community? J Emerg Med. 2013 Feb;44(2):413-422.e3. doi: 10.1016/j.jemermed.2012.02.086. Epub 2012 Oct 22. PMID: 23089206.

CHARLOTTESVILLE FIRE DEPT.

FAMILY INTEGRITY RESPECT EXCELLENCE

The Charlottesville Fire Department must be prepared to embrace the forces impacting the 21st Century Fire and Emergency Services



Forces impacting the 21st Century Fire and Emergency Services

FAMILY INTEGRITY RESPECT EXCELLENCE

EMS AGENDA 2050

A PEOPLE-CENTERED VISION FOR THE FUTURE OF EMERGENCY MEDICAL SERVICES

THE GUIDING PRINCIPLES

A people-centered approach to a safe and effective EMS system will focus on interventions that have demonstrated benefit and prevent further injury and illness, while avoiding those that are ineffective or harmful.

WHAT 2050 LOOKS LIKE

EMS personnel have immediate access to any resources they need for their patients, including other healthcare providers, social services and community resources.

> "As EMS becomes more integrated into the broader healthcare delivery model, the need for collaboration and stakeholder engagement is going to be vital."
>
> — EMS Professional

EMS and its partners coordinate to provide the most appropriate care to the patient, with transport to a healthcare facility being just one option.

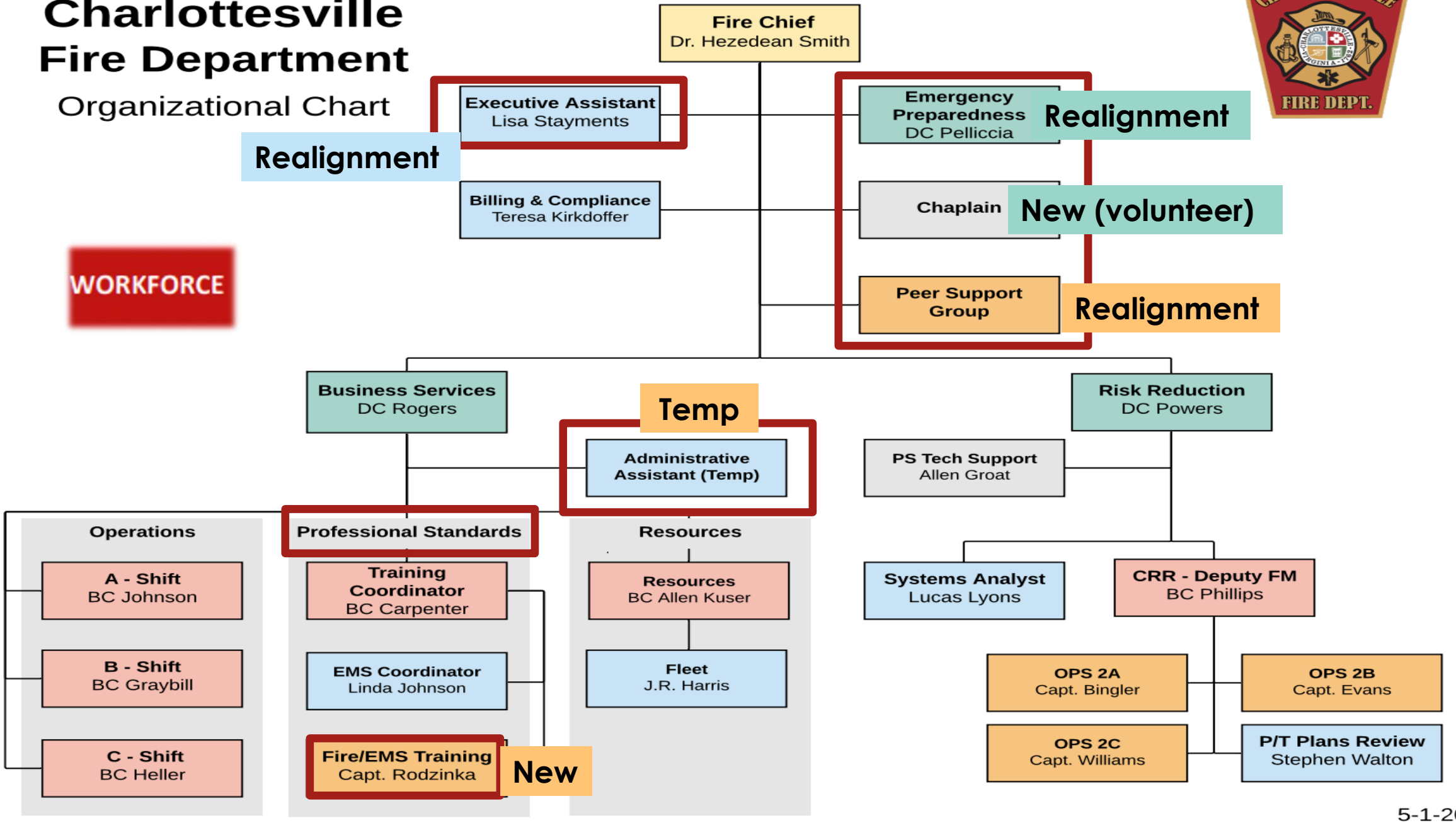
View the EMS 2050 Agenda

FAMILY INTEGRITY RESPECT EXCELLENCE

Charlottesville Fire Department

Organizational Chart

WORKFORCE



5-1-2021

100-day Plan

Dr. Hezedean A. Smith, Fire Chief

100-Day Report

December 1, 2020 (end date March 12, 2021)

Mission: As the new fire chief of the Charlottesville Fire Rescue (CFD), my mission is to ensure alignment with the vision of city stakeholders and effective execution of duties in serving the firefighters, citizens, and visitors of Charlottesville, Virginia.

VISION * ALIGNMENT * EXECUTION

Core Focus Areas: Strategic Planning, Operational Planning, and Results Management

Initiative 1: Establish labor, management and inter-personal relationships

Item #	Key Action Steps	Priority	Timeline	Expected Outcome	POC, data and resources	Focus Areas	Comments
1.	Implement transitional plan with updates from Interim Fire Chief	High	30 days - **completed**	Get an update on initiatives, outstanding issues, hot topics, and immediate commitments to be met/delegated.	Strategic plan Executive Assistant	▪ Identify any community needs ▪ Strategic needs ▪ Operational ▪ Grants	Ongoing DC Pelliccia – maintain COVID IMT Command and CFD OPs DC Powers – Strategic plan update lead and CRR DC Rogers – Budget, Admin, and Grant oversight
2.	Meet with Executive Assistant (Lisa Stayments)	High	30 days - **completed**	Identify priorities, vulnerabilities, and ongoing initiatives from an executive level.	Roles and responsibilities (alignment)		Inconsistent work-competency alignment; has been reassigned to three different persons in <1 year. Request more alignment with core competencies. **Action:** will report only to FC; reassigned more

Areas Examined

- Organizational Dynamics
- Labor management (Staffing)
- Mental Health (Morale)
- Capital Improvement
- Service Level
- Policies
- Technology
- Competencies
- Hiring and promotion
- Emergency Management

FAMILY INTEGRITY RESPECT EXCELLENCE

9-MONTHS OF PROGRESS

- 22 new recruits – largest class in history
- Professional Standards Division
- Employee recognition
- Emergency Preparedness Bureau
- "Just Culture" philosophy
- Fire Department Chaplain Program
- Secured $26,000 grant (Firehouse)
- ASHER training with CPD
- NAEMT Training Center
- Implicit Bias, Diversity, Equity, and Inclusion Training
- Solidified Peer Support Program
- "Just Culture" philosophy
- Internship program with Virginia State University
- Scholarship program (Columbia Southern University)
- Framework for Drone and Water Rescue programs

View CFD's FY21 Annual Report

FAMILY INTEGRITY RESPECT EXCELLENCE

HEALTH & SAFETY

Ridge Street Station(1959) 62 years old

Bypass Station (1961) 60 years old

Capital Improvement Program Final Project Request Form	5- YEAR PROGRAM SPAN:	Fiscal Year 18-22
Project Title:	Bypass Fire Station - Redevelopment	
Estimated Start Date:	FY18 - Design	
Estimated Completion Date:	FY19 - Construction	
Project Description:		

A Fire Station Location Study and Facilities Needs Assessment was recently completed (September 2016). The consultant team consists of Moseley Architects (Richmond, VA) and Matrix Consulting Group (Keller, TX). The scope of this study was designed to determine the following:

CHARLOTTESVILLE FIRE DEPT.

FAMILY INTEGRITY RESPECT EXCELLENCE

Ethnicity (before Ch. Smith)	Count	Percentage
Black or African American	10	12%
Hispanic	1	1%
White/Not Hispanic origin	74	87%

WORKFORCE

Equity

Ethnicity (Since Ch. Smith)	Count	Percentage
Black or African American	17	16%
Hispanic	1	1%
White/Not Hispanic origin	90	83%

Gender (before Chief Smith)	Count	Percentage
Female	3	4%
Male	82	96%

15 new firefighter positions (SAFER Grant)
7 new firefighters (attrition)

Gender (Since Ch. Smith)	Count	Percentage
Female	10	9%
Male	98	91%

Inclusion

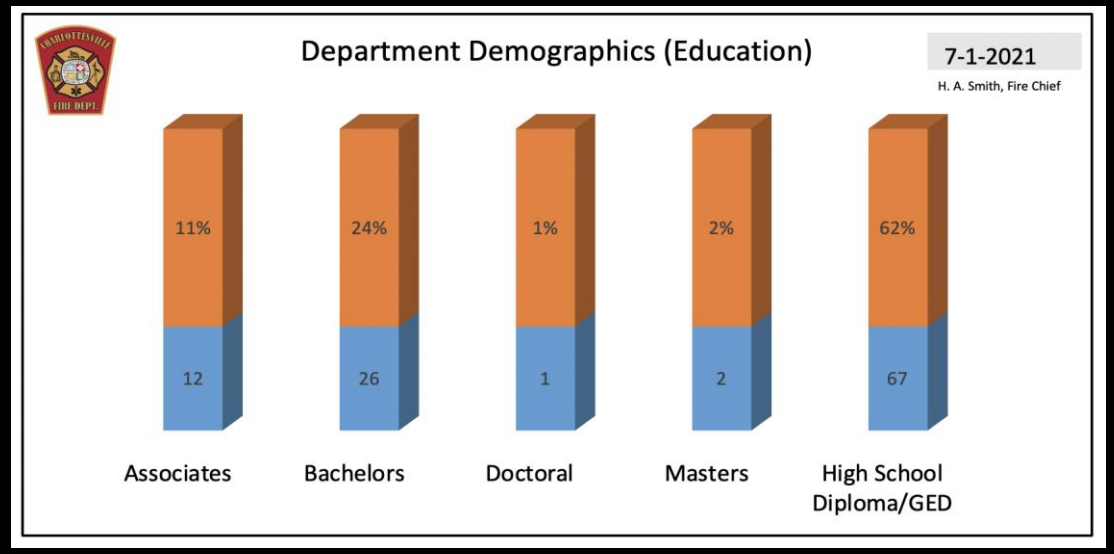
FAMILY INTEGRITY RESPECT EXCELLENCE

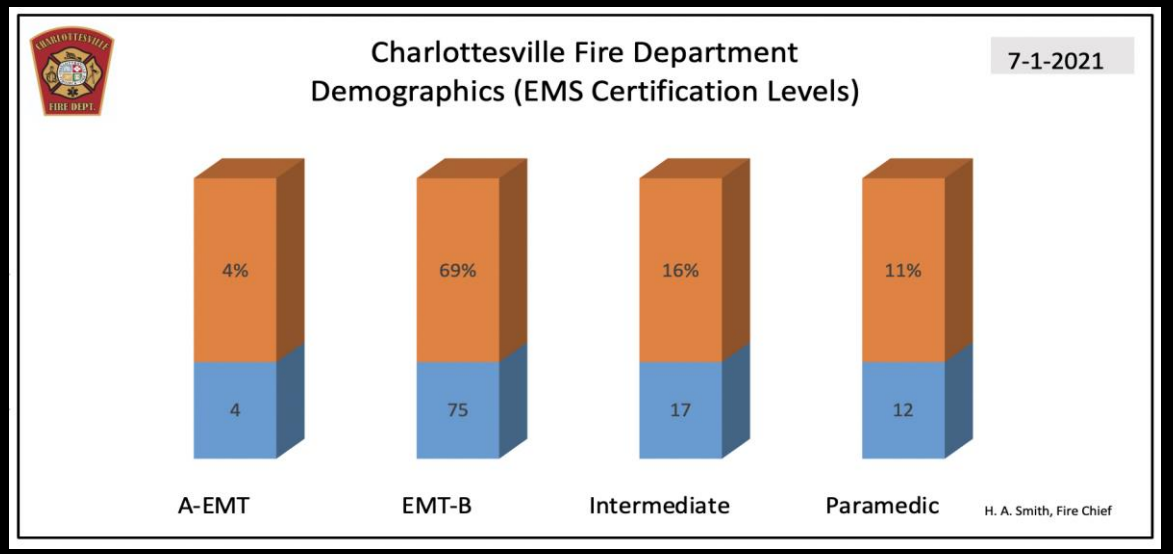
WORKFORCE

Diversity

FOCUS

PROFESSIONAL STANDARDS





PROFESSIONAL STANDARDS

COMMUNICATIONS & ACCOUNTABILITY

CULTURAL CHANGE

JUST CULTURE - THE CFD WAY

The mission of the **Charlottesville Fire Departmen**t is to improve the quality of life in our community by consistently striving to provide superior fire and emergency services focused on prevention, preparedness, response, and recovery.

The vision of the Fire Chief is to improve the culture and service delivery of the Charlottesville Fire Department through **Transparency, Innovation, Trust, and Integrity**.

The values of the Charlottesville Fire Department focus on **F**amily, **I**ntegrity, **R**espect, and **E**xcellence.

As leaders within the department, we are expected to provide an environment that supports the organization's mission, vision, and values. In doing so, we must ensure that every employee has a sense of belonging, is safe, and experiences the opportunity to maximize their potential as an employee through education, mentorship, and support.

The adoption of a **"Just Culture"** within the Charlottesville Fire Department demonstrates our commitment to every employee that you will be treated with dignity, respect, and without judgment. We are committed to improving the Charlottesville Fire Department. As stakeholders (firefighters, civilians, captains, and chief officers), we will support an encouraging environment and are committed to continuous improvement.

We understand that in our profession, there are opportunities to improve and change. Still, we recognize that errors, omissions, and personal influences can influence compliance with Standard Operations Procedures, EMS Protocols, Policies, Directives, Memorandums, etc. The **"Just Culture"** commitment supports an open learning culture. CFD employees will be accountable to the community we serve and to the responsibility we have as sworn public servants representing the City of Charlottesville.

Deviation and reckless acts will be examined based on the principles of **"Just Culture".** System improvements and personnel accountability through mentoring, professional development and coaching will be the cornerstone of the processes related to EMS/FIRE Continuous Quality Improvement activities, Field Operations interactions, and Internal Affairs investigations.

The goal is to ensure that the mission, vision, and values set the stage for our success as a family. Commitment from all stakeholders is required, and all employees will be treated equally based on the algorithm presented within this document.

Dr. Hezedean A. Smith, Fire Chief
Charlottesville Fire Department

Just Culture | OVERVIEW FOR CHARLOTTESVILLE FIRE DEPARTMENT

CQI (EMS/FIRE)

Field Operations

TRAINING

AT-RISK BEHAVIOR: behavioral choice that increases risk where risk is not recognized, or is mistakenly believed to be justified.

COACHING: a values-supportive discussion with the employee on the need to engage in better behavioral choices.

COUNSELING: a first step in disciplinary action; putting the employee on notice that performance is unacceptable

DISCIPLINARY ACTION: action beyond remedial, up to and including punitive action or termination.

HUMAN ERROR: inadvertently doing other than what was intended: a slip, lapse, or mistake.

IMPOSSIBILITY: condition outside of employee control that prevents duty from being fulfilled.

KNOWINGLY CAUSE HARM: having knowledge that harm is practically certain to occur.

PERFORMANCE SHAPING FACTORS: attributes that impact the likelihood of human errors or behavioral drift.

PUNITIVE ACTION: punitive deterrent to encourage an individual or group to refrain undesired behavioral choices.

PURPOSE TO CAUSE HARM: conscious objective to cause harm.

RECKLESS BEHAVIOR: behavioral choice to consciously disregard a substantial and unjustifiable risk.

REMEDIAL ACTION: actions taken to aid employee including education, training, and/or reassignment to task appropriate to knowledge and skill.

SUBSTANTIAL AND UNJUSTIFIABLE RISK: a behavioral choice where the risk of harm out weighs the social benefit attached to the behavior.

CREDIT: Adapted from David Marx
Pioneering safety and improvement programs for NASA, nuclear power, patient safety, and beyond, David Marx is widely seen as the father of Just Culture. David and his firm Outcome Engenuity, LLC. administer the Just Culture Company, a resource for organizations across industries who strive to create accountable, safety supportive cultures using his internationally recognized model of Just Culture and The Just Culture Algorithm™.

CHARLOTTESVILLE FIRE DEPT.

FAMILY INTEGRITY RESPECT EXCELLENCE

DATA & DASHBOARDS

- Neighborhood Risk Reduction
- Response time analysis
- Resource Use Factor
- Unit Hour Utilization
- Overtime Dashboard
- Drive-time analysis

- Call Volume Analysis
- Personnel Workload
- Incident Heat Mapping
- Patient Disposition Analysis
- Turn Out Time Tracking

DATA & TECHNOLOGY

SERVICES

Neighborhood Risk Assessment

The Charlottesville Fire Dept.'s Neighborhood Risk Assessment provides the framework for community-matched service and program delivery.

Neighborhood Risk Assessment

THE CITY | AREA CHARACTERISTICS | THE DEPARTMENT | DEPLOYMENT | THE HISTORY | CITY PROFILE | NEIGHBORHOOD RISK | INCIDENT RESPONSES | COMMUNITY FEEDBACK

View Charlottesville Neighborhood Risk Dashboard

COMMUNITY DRIVEN

FAMILY INTEGRITY RESPECT EXCELLENCE

EVALUATION OF SERVICES (2007)

2) Problem Definition

Over the past year, several responders have reported that during some emergency medical events, the ambulance dispatched to the scene often has a prolonged response. The delay in the ambulance response results in a delay in transporting the patient to the hospital. The concern is that the delay in transport could negatively affect patient outcome.

City Emergency Medical Services Committee

Report to City Council
December 17, 2007

The EMS Committee was formed at the request of City Council to provide recommendations for how to best provide EMS services for the City.

Members of the Committee

- Chair, The Honorable David J. Toscano
- Citizen Representative - Martin Burks III, J.F. Bell Funeral Home
- Business Representative – Mary Loose DeViney, Chamber of Commerce
- University of Virginia Representative – Leonard Sandridge, CFO/COO
- City Council Representative – Dave Norris, Councilor
- Former City Councilor – John Conover
- Emergency Communications Center Representative – Tom Hanson, Director
- Operating Medical Director (OMD) – Dr. George Lindbeck – OMD for CARS/CFD
- Albemarle County Representative – David Wyant – Albemarle Board of Supervisors
- Charlottesville Albemarle Rescue Squad Representative – Larry Claytor – President
- Charlottesville Albemarle Rescue Squad Representative – Dayton Haugh – Chief
- Albemarle County Fire Rescue Representative – Dan Eggleston – Fire Chief
- Charlottesville Professional Firefighters Association – Robert Bragg – Liaison
- Charlottesville Fire Department – Charles Werner – Fire Chief

**"Dan Eggleston stated, "I supported the subcommittee's recommendation for a peak activity unit because it would solve the problem in the most cost effective manner. However, I also noted that that implementing a 12 hour peak activity schedule in a traditional 24 hour work schedule can be problematic and the issue would need to be further quantified. I also noted that a 24 hour ambulance would solve the problem at a slightly higher annual cost (~100k as outlined by Charles), and that City Council would ultimately make the decision if the benefit of a 24 hour ambulance would outweigh the additional cost. In the end, the committee approved a 24 hour ambulance staffed by the Charlottesville Fire Department, and I fully support the committee's recommendation."

The following recommendation was passed with a 5 to 3 vote (updated by subsequent emails 10 to 2):

"That a 24 hour ambulance be staffed by the Charlottesville Fire Department 7 days per week with the goal to achieve a medic on every engine company as soon as possible. Also to strategically locate the ambulance in the southwest area of the City as soon as facilities are available."

A comparable cost between 24/7 ambulance and peak ambulance staffing by CFD was provided:
Peak - $500,000
24/7 - $600,000 (a new proposal updates this number to $503,460)

The vote was as follows:
Martin Burks – Citizen Representative - Yes
Tom Hanson – Charlottesville-Albemarle-UVA Emergency Communications Center - Yes
Leonard Sandridge – University of Virginia - Yes
Robby Bragg – Charlottesville Professional Fire Fighters - Yes
Charles Werner – Charlottesville Fire Department - Yes
Larry Claytor – Charlottesville Albemarle Rescue Squad - No
Dayton Haugh – Charlottesville Albemarle Rescue Squad - No
Dan Eggleston – Albemarle County Fire Rescue – No (**Dan's clarification - Yes by subsequent email)
Mary Loose DeViney – Business Leader - Did not vote – served as meeting facilitator in David Toscano's absence (Yes by subsequent email)
Dave Norris – Abstain (Yes by subsequent email)

Absent:
David Toscano - Facilitator
John Conover – Former City Councilor (Yes by subsequent email)
George Lindbeck – Operating Medical Director (Yes by subsequent email)
David Wyant – Albemarle BOS (has not participated)

COMMUNITY DRIVEN

DATA & TECHNOLOGY

SERVICES

EVALUATION OF SERVICES (2007)

City EMS Committee Recommendations

These three principles were adopted unanimously by those in attendance:

1. Adopt the Emergency Medical Service (EMS) response time performance measures as outlined in the report for priority 1 and 2 EMS incidents:

?

- A turnout time interval of 1 minute or less 90% of the time.
- A response time interval of 4 minutes or less for a Basic Life Support EMS unit 90% of the time.
- A response time interval of 8 minutes or less for an ALS EMS unit 90% of the time.
- Ambulance arrival time of 13 minutes 90% of the time.

2. Aggressively pursue and implement technologies identified in the report that can help to improve EMS response times.

3. That a "Peak" staffed ambulance would be beneficial.

Full Minutes EMS Committee Report (2007)

EFFICIENCY STUDY (2017)

City of Charlottesville

Efficiency Study

Report

January 2017

RECOMMENDATION 76: Ensure adopted EMS service level standard for the City of Charlottesville is met.

It is common for communities to establish service level standards for EMS operations, particularly when EMS services are not provided directly by the City organization. As this report was being written, the City and CARS developed and agreed upon a service level, the Emergency Medical Services Benchmark Service Delivery Level Objectives.

To ensure that City of Charlottesville residents are receiving adequate services, it is recommended that the City ensure that the EMS service level standard is met. If CARS is not able to provide the desired level of service, the City may consider directly providing EMS services. Based on call data provided by the Department, CARS responded to an estimated of 6,872 EMS calls[62] in 2015. It is estimated that the Department would require three units to handle this call volume in-house.

[61] Based on overtime data from 2013-2016.

[62] Includes calls outside of the City limits. Number of calls within CFD service are would need to be estimated.

The Novak Consulting Group

Strengthening organizations from the inside out.

Emergency Management

RECOMMENDATION 82: Clarify Emergency Management responsibilities.

Emergency management has taken on an increased level of importance in municipal government during the last decade as the scope of natural and manmade disasters, the expectation of preparedness for any contingency, and the need for coordinated interagency response at the local, state, and federal levels has become abundantly clear. Interagency coordination is not only an operational necessity; it is a federal mandate pursuant to the National Incident Management System (NIMS), which requires interoperability of

FAMILY INTEGRITY RESPECT EXCELLENCE

COMMUNITY DRIVEN

ENHANCEMENTS & EVALUATIONS

DATA & TECHNOLOGY

EVALUATION OF SERVICES (2021)

Standards – 90th Percentile

- The standard performance goal of the 90th percentile Total Response Time for ALS calls is 6 minutes or less, and BLS calls 10 minutes or less at the 90th percentile.
- *Travel Time – BLS 8 minutes and ALS 4 minutes
- Response times serve as key performance indicators of operational efficiency.
  - Total Response Time (time between the 9-1-1 call being received (incident created in CAD by the dispatch center and EMS unit arrival on scene).
  - “Travel Time”, the time between the unit dispatched and EMS arrival on scene.

DATA & TECHNOLOGY

EVALUATION OF SERVICES (2021)

ENHANCEMENTS & EVALUATIONS

SERVICES

DATA & TECHNOLOGY

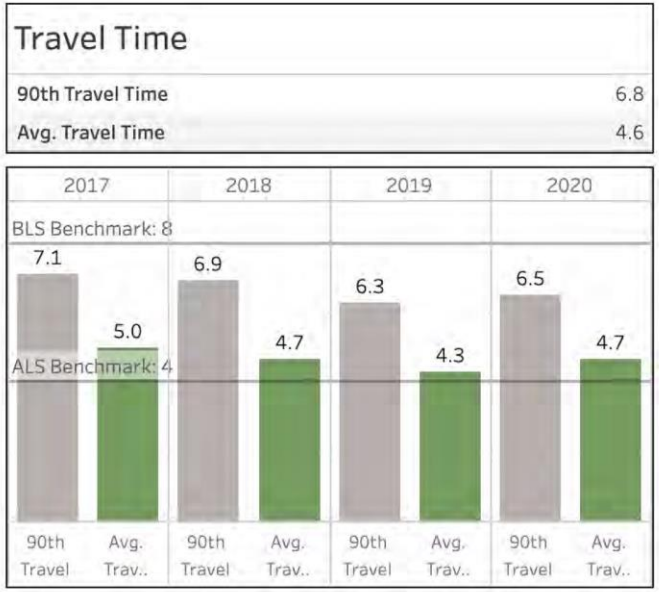
COMMUNITY DRIVEN

ALS RESPONSE PERFOMANCE

CARS

***CY2017 to CY2020 CARS (ALS) (90th %)**

- TT overall was 6.8 minutes
- CY2020 – 6.5 minutes (underperformance by 2.5 minutes)



February 22, 2021 (C)

CFD

***CY2017 to CY2020 CFD (ALS) (90th %)**

- TT overall was 6.3 minutes
- CY2020 TT – 6.4 minutes (underperformance by 2.4 minutes)

February 22, 2021 (C)

FAMILY INTEGRITY RESPECT EXCELLENCE

ENHANCEMENTS & EVALUATIONS

SERVICES

DATA & TECHNOLOGY

COMMUNITY DRIVEN

BLS RESPONSE PERFOMANCE

CARS

***CY2017 to CY2020 CARS (BLS) (90th %)**

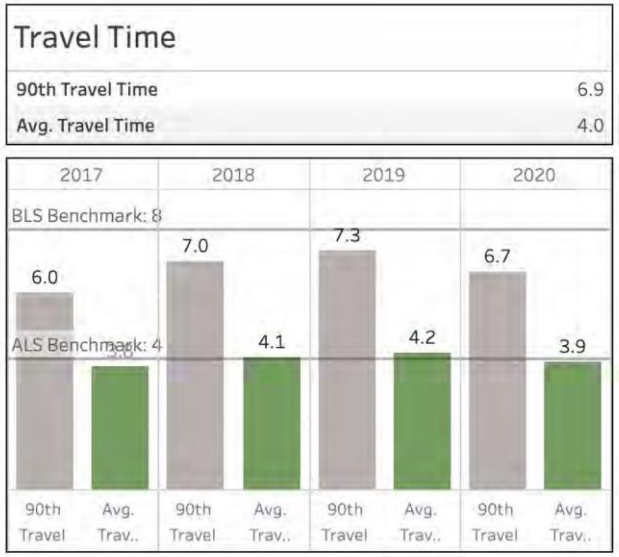
- TT overall was 8.1 minutes
- CY2020 TT – 8.3_ minutes (meets benchmark)

February 22, 2021 (C)

CFD

***CY2017 to CY2020 CFD (BLS) (90th %)**

- TT overall was 6.9 minutes
- CY2020 TT - 6.7 minutes (underperformance – 2.7 minutes)



February 22, 2021 (C)

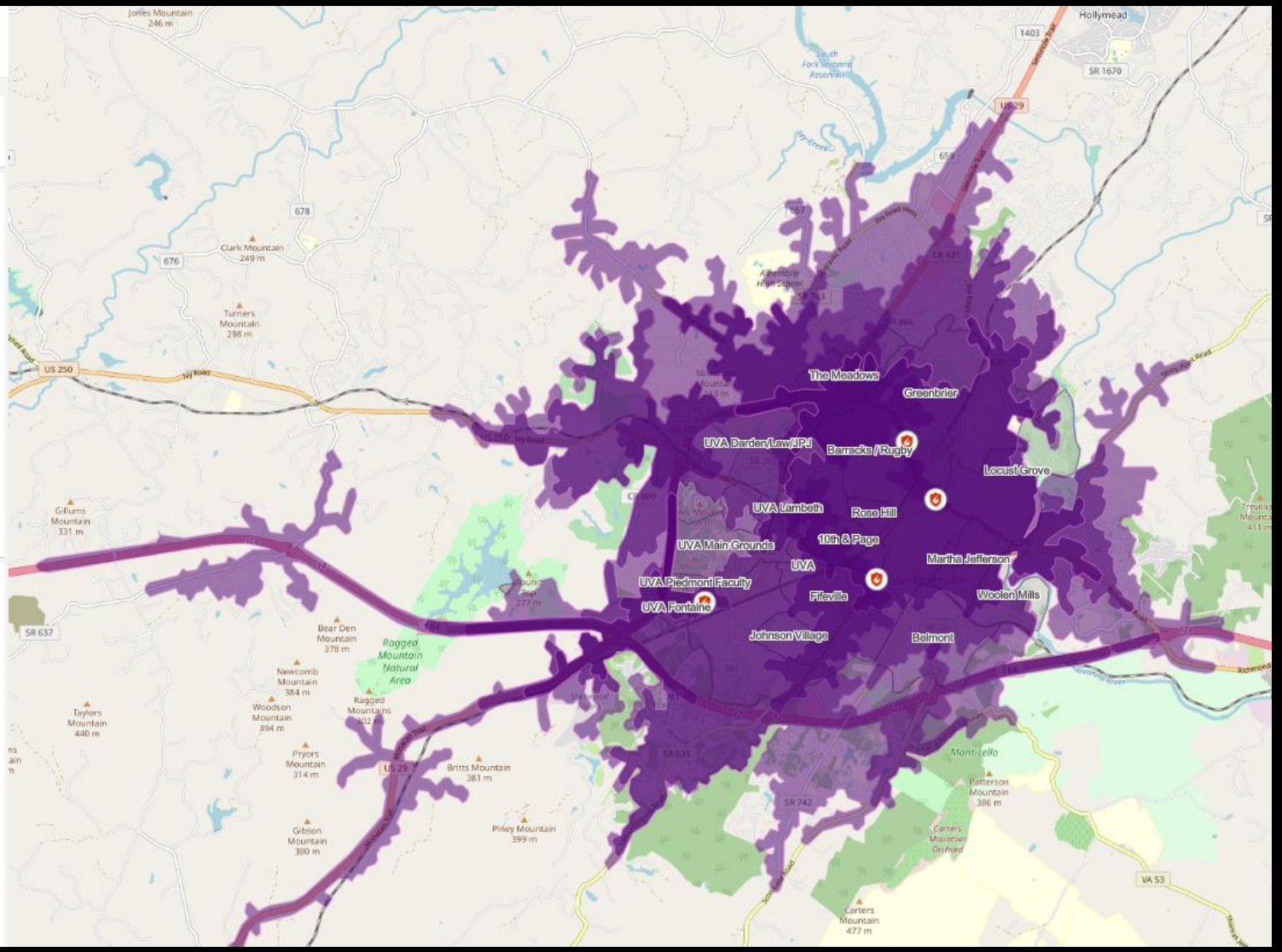
DATA & TECHNOLOGY

4 MINUTES VS. 8 MINUTES

Layers

Drive-time analysis

- CFD Stations and CARS
- 4 Minute Drive Times
  - CARS_4_Min_Travel
  - Ridge_4_Min_Travel
  - Bypass_4_Min_Travel
  - Fontaine_4_Min_Travel
- 8 Minute Drive Times
  - Ridge_8_Min_Travel
  - Bypass_8_Min_Travel
  - CARS_8_Min_Travel
  - Fontaine_8_Min_Travel



FAMILY INTEGRITY RESPECT EXCELLENCE

DEFINITIONS

- 90th percentile response times were calculated for five different response time elements within Tableau:

  Call Handling Time: time from an ECC dispatcher answering a 911 call to a unit being notified

  Turnout Time: time from a unit receiving notification of the incident to the unit's wheels beginning to move

  Travel Time: time from a unit beginning to move toward the incident to a unit's arrival on scene

DEFINITIONS

- 90th percentile response times were calculated for five different response time elements within Tableau:

  Total Response Time: Aggregation of the previous three response time elements that measure the time from ECC to the arrival of the first unit on scene.

  Unit Best Performance Time: Aggregation of turnout and travel time, as these two elements are within the control of a crew staffing a unit (travel time to a lesser extent to safely travel to a scene).

DEFINITIONS

- **Emergency Medical Technician (EMT-Basic):** The Emergency Medical Technician is to provide basic emergency medical care and transportation. This individual possesses the basic knowledge and skills necessary to provide patient care and transportation.
- **Advanced - Emergency Medical Technician (A-EMT):** primary focus of the Advanced Emergency Medical Technician is to provide basic and limited advanced emergency medical care and transportation for **critical** and **emergent** patients.

DEFINITIONS

- **Emergency Medical Technician-Paramedic (EMT-P):** A Paramedic is an allied health professional whose primary focus is to provide **advanced** emergency medical care for **critical** and **emergent** patients.
- ***Emergency Medical Technician-Intermediate (EMT-I):** Recognized in Virginia based on approved scope of practice by a medical director

DEFINITIONS

- ECC determines the type of response (ambulance/trauma/medic level) needed for a 911 caller based on call processing parameters and medical response plans approved by the local medical director responsible for an EMS system. The call triage process is currently being upgraded.

  Advanced Life Support: Involves the administration of medications and basic or advanced medical/trauma procedures by paramedics and typically only done by physicians in an in-hospital setting.

  Basic Life Support: Basic medical care provided by EMTs in an ambulance or other setting.

DATA REVIEW
ALS vs. BLS

What Gets Measured
Gets Improved

CONTINUOUS QUALITY IMPROVEMENT

DATA & TECHNOLOGY

SERVICES

PROXIMITY DISPATCH

- CFD now sends the closest "appropriate" ambulance to ALS & BLS level calls
- Prior to change - ambulances were often sent to scenes with long response times and very frequently passed a fire station with an "appropriate" life support available in the station.

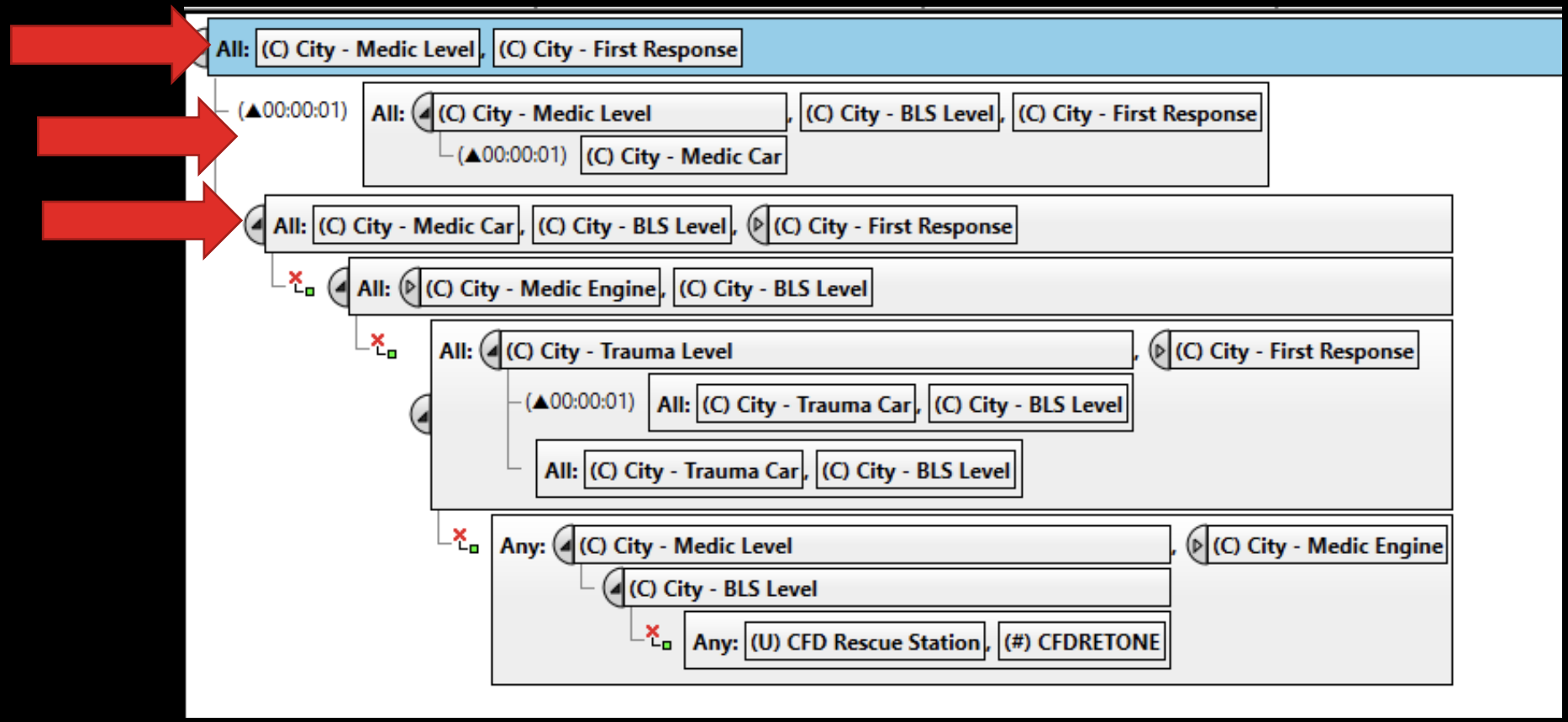
- Improvement was necessary for providing a timelier response with the highest level of out-of-hospital medical care to neighborhoods such as 10th & Page, Fifeville, Fry's Springs, Ridge Street, Woolen Mills, and others.
- 10th & Page neighborhood is #1 for Cardiac Arrests, #3 for Diabetic, Cardiac Emergencies, and Falls

The EMS system must ensure timely responses to all neighborhoods.

SERVICES

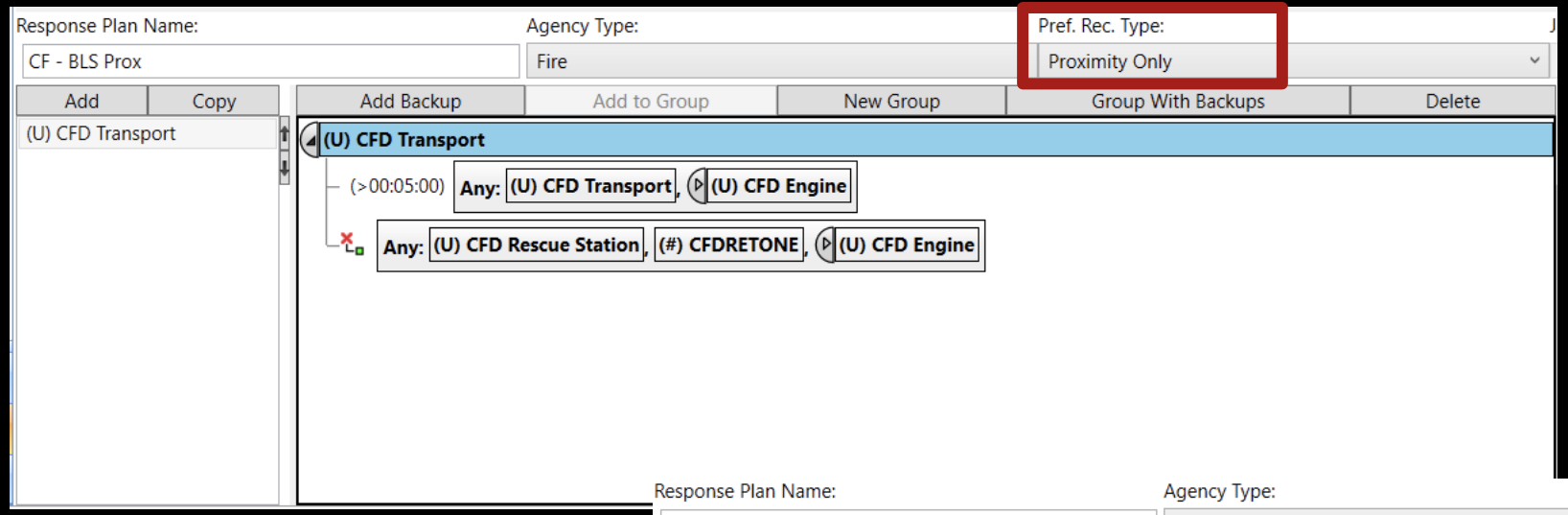
CLOSEST AMBULANCE

- Cardiac Arrest Response - Example



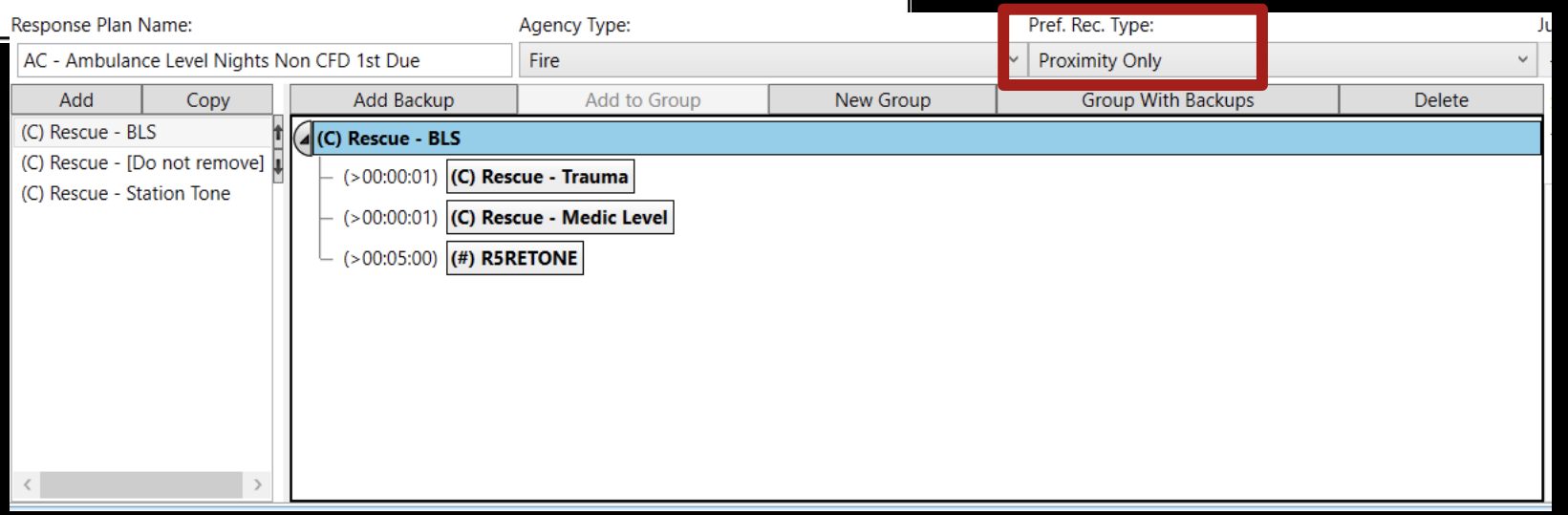
CLOSEST AMBULANCE

- BLS Response Plan - City



SERVICES

- BLS Response - County



SERVICES

IMPLICATIONS

- Statement - "83% of all patients …. only required Basic Life Support (BLS) level care".
- 100% of patients transported require BLS level care;

  BLS staffed ambulances only provide "basic" care (unit capability)

  - Limited opportunity to receive higher-level care (BLS units do not have medics on board).
  - If an advanced level care or assessment is needed on BLS call, then what?
- In reviewing a sample (small) of "BLS" calls with abdominal pain transported by EMS, approximately 18% were admitted; thus, suggests they were patients who could have benefitted from advanced life support measures (IVs, EKGs, etc. prior to arrival in ED).

OUTCOMES

- Impact
  - Hospital data exchange (HDE) no automated - needed
  - Response has improved service delivery in areas such as
    - Travel Time
    - Total Response Times
    - Unit Best Performance
    - Turnout.
  - Barracks Road, Greenbrier, JPA, Johnson Village, Lewis Mountain, Locust Grove, Rose Hill, Starr Hill, UVA, and Venable have seen a
    - 17% improvement in Travel Time
    - 10% improvement in Total Response Times
    - 11% improvement in Unit Best Performance

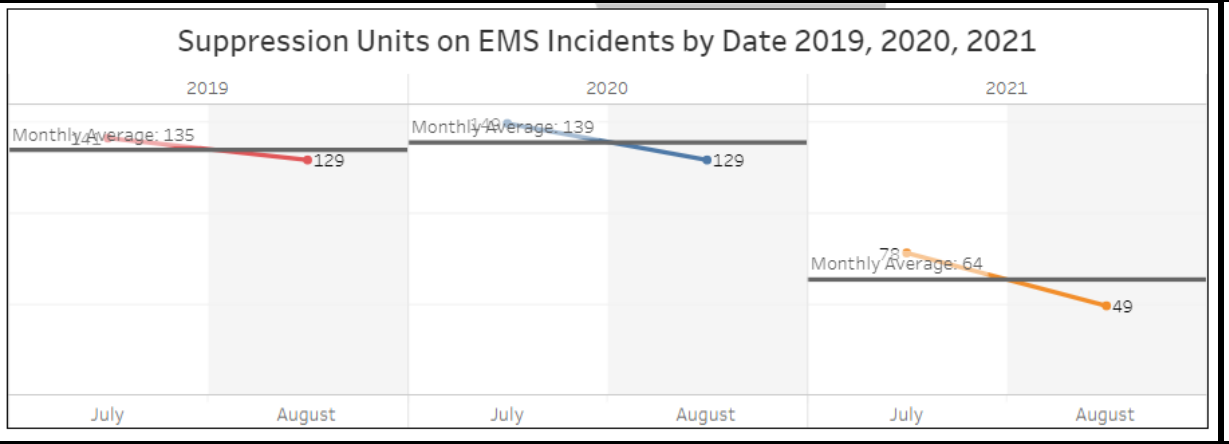
MULTIPLE UNIT RESPONSES

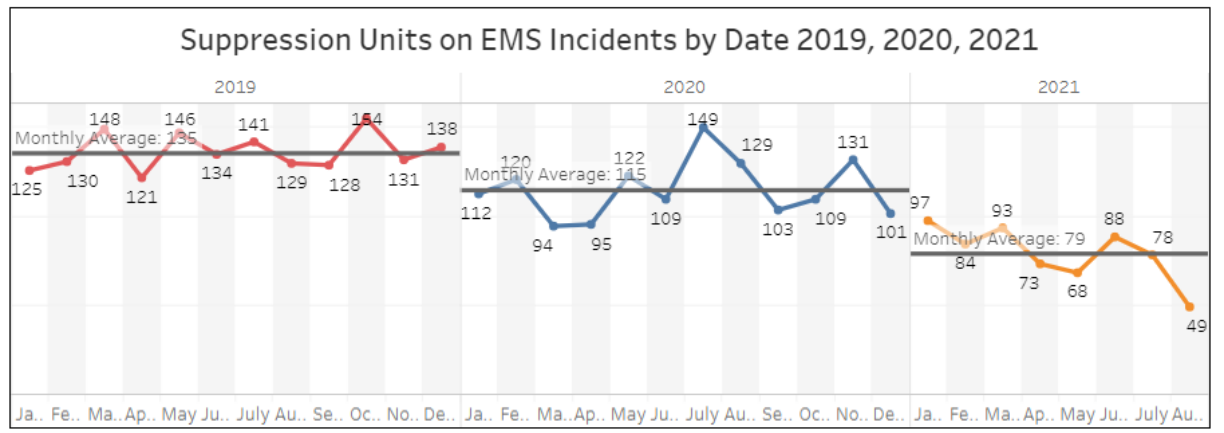
- CFD rarely multiple units of the same "type" to medical scenes
- Findings - more efficient use of resources
  [past-practice] non-CFD unit arrives and requests a medic or a suppression unit
- Validity - Based on EMS data only and queries any "response incident number" (as it's called in the EMS dataset) with more than one unit with a confirmed arrival time on scene
- Filtered to city and UVA zones only to remove county responses.

Date Range	7/24/20-9/7/20	7/24/21-9/7/21
EMS Incidents with Multiple Units	247	113
Average Daily EMS Incidents with Multiple Units	5.4	2.5

IMPLICATIONS

- # of EMS runs in the city+UVA that result in a call for fire engines/trucks on BLS calls
- Improved efficiency in reducing the use fire engines/trucks to BLS calls





PRE/POST-PROXIMITY ANALYSIS

DATA SOURCES

- The FRITS_Final_Apparatus table is an authoritative, apparatus-level table built by ACFR
- ImageTrend – RMS used to collect data for CFD, CARS, and ACFR
- A custom query built in ImageTrend's report writer module to bring additional relevant data into the analysis

- Dataset imported into ArcGIS Pro, clipped to city boundaries to exclude any responses to Albemarle County, and a spatial join on city neighborhoods and UVA polygons was performed to enable neighborhood-level analysis of response performance changes after proximity dispatching was implemented.

VALIDITY PROCESS

Filters applied to extract/control for outliers and limit the date range to the defined study period:

- Incident Dates between July 3, 2021, and August 13, 2021
- Call Handling Time (Incident Dispatch Notified to Unit Notified by Dispatch in Minutes) <= 5 minutes

VALIDITY PROCESS

- Turnout Time (Incident Unit Notified by Dispatch to Unit Enroute in Minutes) <=5 minutes
- Travel Time (Incident Unit Enroute to Unit Arrived on Scene in Minutes) <=25 minutes
- Total Response Time (sum of the previous three response time elements) <=30 minutes

METHODOLOGY

- CARS and CFD call volumes vary by day of week with CARS historically running more incidents on weekend days.
- Based on this historical pattern, an equal number of weekdays and weekend days were used in the comparative analysis prior to priority dispatch implementation on 7/24/21 and after that date.
- The pre-proximity dispatch date range - Saturday 7/3/21- Friday 7/23/21
- The post-proximity dispatch date range - Saturday 7/24/21- Monday 8/13/21
- 21 days are included in both analyses 15 weekdays and 6 weekend days

NEIGHBORHOOD ANALYSIS

- For neighborhood analyses, only neighborhoods with ten or more EMS incidents in the two study periods compared (before and after proximity dispatch implementation) were examined.

- The threshold of ten incidents in each period was used to select neighborhoods for analysis as 90th percentile calculations are only considered statistically significant when there are ten or more unique numbers to analyze.

NEIGHBORHOOD ANALYSIS

- Only neighborhoods with 10 or more EMS incidents in the two study periods compared (before and after proximity dispatch implementation) were examined.

- A threshold of 10 incidents in each period was used to select neighborhoods for analysis
  - 90th percentile calculations are only considered statistically significant when there are 10 or more unique numbers to analyze.

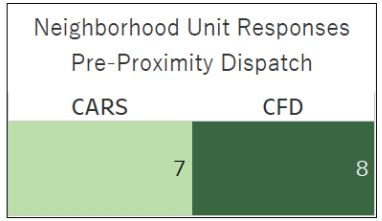
- 10th & Page
- Belmont
- Fifeville
- Fry's Spring
- Martha Jefferson
- North Downtown
- Ridge Street
- The Meadows
- Woolen Mills

Incident Response:

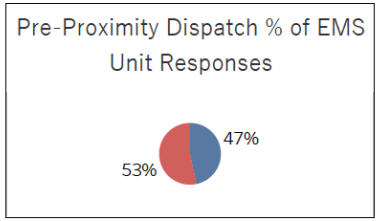
- 1st: Cardiac Arrest | 69.1 per sq. mile
- 2nd: Hazardous Conditions | 0.12 per 1,000
- 2nd: Allergic Reactions | 51.9 per sq. mile
- 3rd: Structure Fires | 5.05 per 1,000
- 3rd: Drug Use | 161.4 per sq. mile
- 3rd: Diabetic Emergencies | 115.3 per sq. mile
- 3rd: Cardiac Emergencies | 345.9 per sq. mile
- 3rd: Dispatched Falls | 305.5 per sq. mile
- 3rd: Asthma | 34.6 per sq. mile

10th & Page Pre- and Post-Proximity Dispatch Response Performance

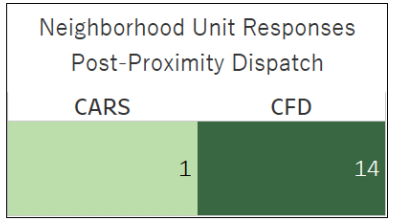
Neighborhood Unit Responses Pre-Proximity Dispatch



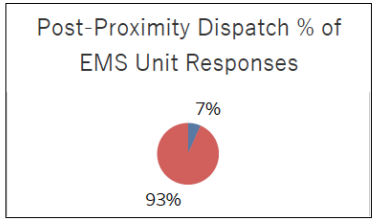
Pre-Proximity Dispatch % of EMS Unit Responses



Neighborhood Unit Responses Post-Proximity Dispatch



Post-Proximity Dispatch % of EMS Unit Responses



90th Percentile EMS Response Times Pre- and Post-Proximity Dispatch

	Pre-Proximity (7/3-7/23/21)	Post-Proximity (7/24-8/13/21)
EMS Incidents	13	15
90th Percentile Call Handling Time	4.3	2.3
90th Percentile Turnout Time	1.82	1.64
90th Percentile Travel Time	4.2	3.8
90th Percentile Total Response Time	8.1	6.7
90th Percentile Unit Best Performance Time	5.2	5.3

* Multiple units may respond to a single incident. Unit responses often will differ from the count of unique incidents run as a result.

Response Performance Change from Pre-Proximity to Post-Proximity

Neighborhoods
- [x] 10th & Page
- [ ] Belmont
- [ ] Fifeville
- [ ] Fry's Spring
- [ ] Martha Jefferson

Call Handling Change: -47%

Turnout Change: -10%

Travel Time Change: -10%

Total Response Time Change: -17%

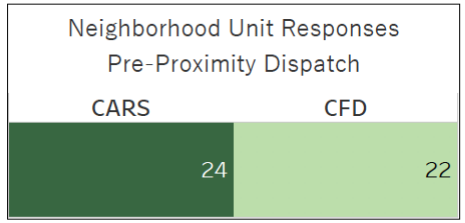
Unit Best Performance Change: +2%

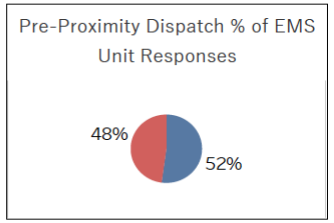
FAMILY INTEGRITY RESPECT EXCELLENCE

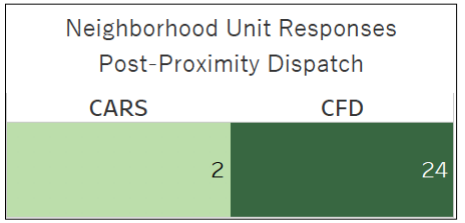
Incident Response Rankings:

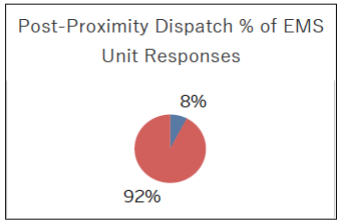
- 2nd: Asthma | 38.9 per sq. mile
- 2nd: Strokes | 74.0 per sq. mile
- 3nd: Seizures | 188.9 per sq. mile

Fifeville Pre- and Post-Proximity Dispatch Response Performance









90th Percentile EMS Response Times Pre- and Post-Proximity Dispatch

	Pre-Proximity (7/3-7/23/21)	Post-Proximity (7/24-8/13/21)
EMS Incidents	41	26
90th Percentile Call Handling Time	3.9	3.2
90th Percentile Turnout Time	1.8	1.6
90th Percentile Travel Time	7.2	4.6
90th Percentile Total Response Time	9.9	8.2
90th Percentile Unit Best Performance Time	8.5	6.0

Response Performance Change from Pre-Proximity to Post-Proximity

Call Handling Change: -18%

Turnout Change: -13%

Travel Time Change: -36%

Total Response Time Change: -17%

Unit Best Performance Change: -29%

FAMILY INTEGRITY RESPECT EXCELLENCE

OVERALL

- EMS incidents 338
- 90th Percentile
  - *Travel Time improved by 6%
  - Total Response Time improved by 4%

First Arriving Unit Response Performance Change Pre- and Post-Priority Dispatch Implementation

Average Daily EMS Transports Pre-Proximity Dispatch	
CARS	CFD
6	5

Average Daily Transports Post-Proximity Dispatch	
CARS	CFD
3	7

90th Percentile EMS Response Times Pre- and Post-Proximity Dispatch

	Pre-Proximity (7/3-7/23/21)	Post-Proximity (7/24-8/13/21)
EMS Incidents	357	338
90th Percentile Call Handling Time	3.1	3.0
90th Percentile Turnout Time	1.74	1.73
90th Percentile Travel Time	6.8	6.4
90th Percentile Total Response Time	9.8	9.4
90th Percentile Unit Best Performance Time	7.8	7.3

Response Performance Change from Pre-Proximity to Post-Proximity

Call Handling Change: -3%

Turnout Change: -1%

Travel Time Change: -6%

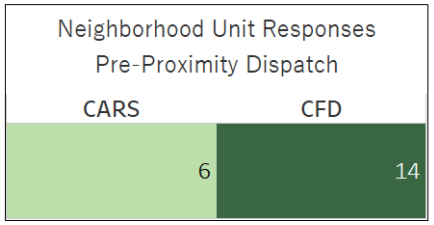
Total Response Time Change: -4%

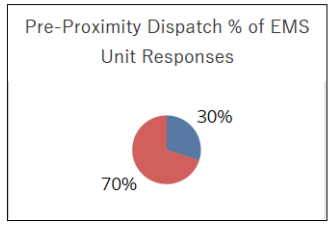
Unit Best Performance Change: -4%

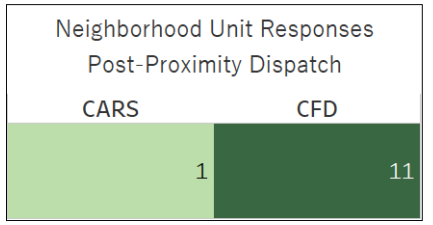
Incident Response Rankings:

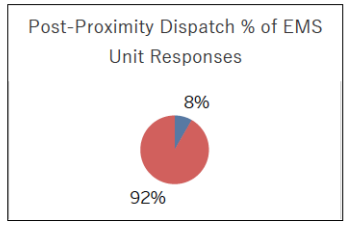
- No Incident Response Rankings

Fry's Spring Pre- and Post-Proximity Dispatch Response Performance









90th Percentile EMS Response Times Pre- and Post-Proximity Dispatch

	Pre-Proximity (7/3-7/23/21)	Post-Proximity (7/24-8/13/21)
EMS Incidents	18	10
90th Percentile Call Handling Time	2.4	1.8
90th Percentile Turnout Time	1.6	1.4
90th Percentile Travel Time	7.0	3.1
90th Percentile Total Response Time	9.8	5.8
90th Percentile Unit Best Performance Time	8.1	4.0

Response Performance Change from Pre-Proximity to Post-Proximity

Neighborhoods
- [ ] 10th & Page
- [ ] Belmont
- [ ] Fifeville
- [x] Fry's Spring
- [ ] Martha Jefferson

Call Handling Change: -26%

Turnout Change: -14%

Travel Time Change: -55%

Total Response Time Change: -40%

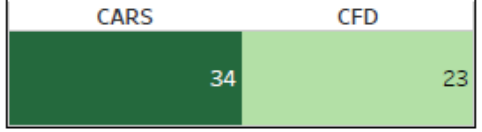
Unit Best Performance Change: -51%

Incident Response Rankings:

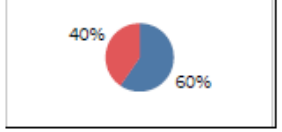
- No Top 3 Incident Rankings

Belmont Pre- and Post-Proximity Dispatch Response Performance

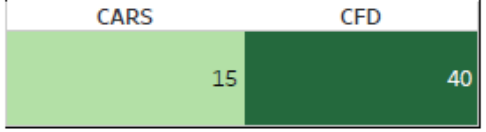
Neighborhood Unit Responses Pre-Proximity Dispatch



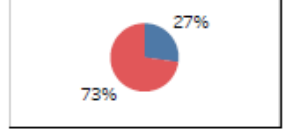
Pre-Proximity Dispatch % of EMS Unit Responses



Neighborhood Unit Responses Post-Proximity Dispatch



Post-Proximity Dispatch % of EMS Unit Responses



90th Percentile EMS Response Times Pre- and Post-Proximity Dispatch

	Pre-Proximity (7/3-7/23/21)	Post-Proximity (7/24-8/13/21)
EMS Incidents	48	47
90th Percentile Call Handling Time	3.4	3.3
90th Percentile Turnout Time	1.6	1.9
90th Percentile Travel Time	6.7	6.9
90th Percentile Total Response Time	9.9	10.4
90th Percentile Unit Best Performance Time	7.9	8.3

Response Performance Change from Pre-Proximity to Post-Proximity

Neighborhoods
- [ ] 10th & Page
- [x] Belmont
- [ ] Fifeville
- [ ] Fry's Spring
- [ ] Martha Jefferson

Call Handling Change: -2%

Turnout Change: +22%

Travel Time Change: +2%

Total Response Time Change: +4%

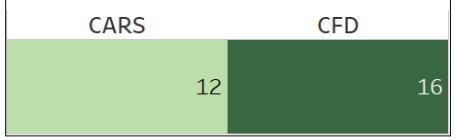
Unit Best Performance Change: +5%

Incident Response Rankings:

- 2nd: Cooking Fires | 3.9 per 1,000
- 3rd: Alcohol Intoxications | 76.4 per 1,000
- 3rd: Cardiac Arrest | 61.6 per sq. mile

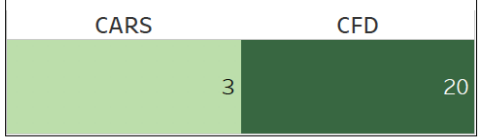
Ridge Street Pre- and Post-Proximity Dispatch Response Performance

Neighborhood Unit Responses Pre-Proximity Dispatch

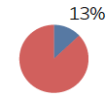


Pre-Proximity Dispatch % of EMS Unit Responses

Neighborhood Unit Responses Post-Proximity Dispatch



Post-Proximity Dispatch % of EMS Unit Responses



90th Percentile EMS Response Times Pre- and Post-Proximity Dispatch

	Pre-Proximity (7/3-7/23/21)	Post-Proximity (7/24-8/13/21)
EMS Incidents	27	21
90th Percentile Call Handling Time	2.9	2.0
90th Percentile Turnout Time	1.8	1.5
90th Percentile Travel Time	6.5	5.4
90th Percentile Total Response Time	10.3	7.5
90th Percentile Unit Best Performance Time	8.2	6.9

Response Performance Change from Pre-Proximity to Post-Proximity

Neighborhoods
- 10th & Page
- Belmont
- Fifeville
- Fry's Spring
- Martha Jefferson

Call Handling Change: -31%

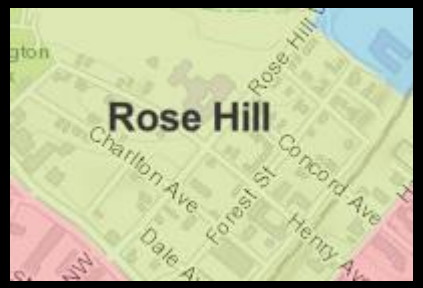
Turnout Change: -16%

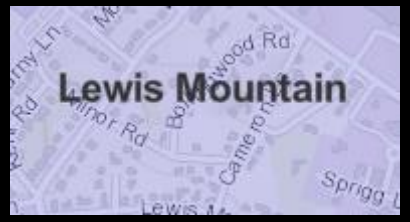
Travel Time Change: -16%

Total Response Time Change: -27%

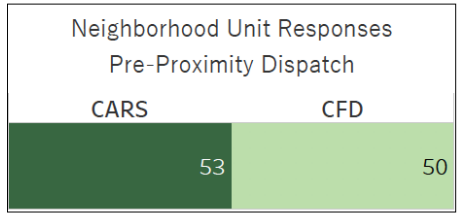
Unit Best Performance Change: -16%

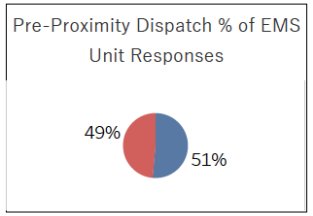
FAMILY INTEGRITY RESPECT EXCELLENCE

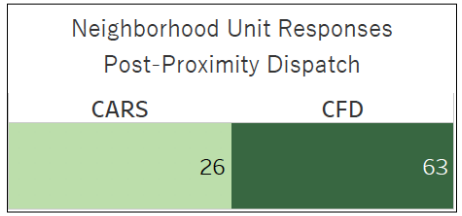


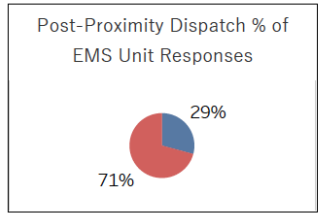


Other Neighborhoods Pre- and Post-Proximity Dispatch Response Performance (Barracks/Rugby, Barracks Rd., Greenbrier, JPA, Johnson Village, Lewis Mountain, Locust Grove, Rose Hill, Starr Hill, UVA, Venable)



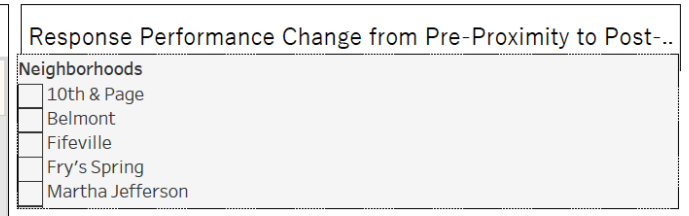






90th Percentile EMS Response Times Pre- and Post-Proximity Dispatch

	Pre-Proximity (7/3-7/23/21)	Post-Proximity (7/24-8/13/21)
EMS Incidents	86	85
90th Percentile Call Handling Time	3.0	2.9
90th Percentile Turnout Time	1.5	1.8
90th Percentile Travel Time	7.6	6.3
90th Percentile Total Response Time	10.1	9.1
90th Percentile Unit Best Performance Time	8.2	7.3



Call Handling Change: -3%

Turnout Change: +20%

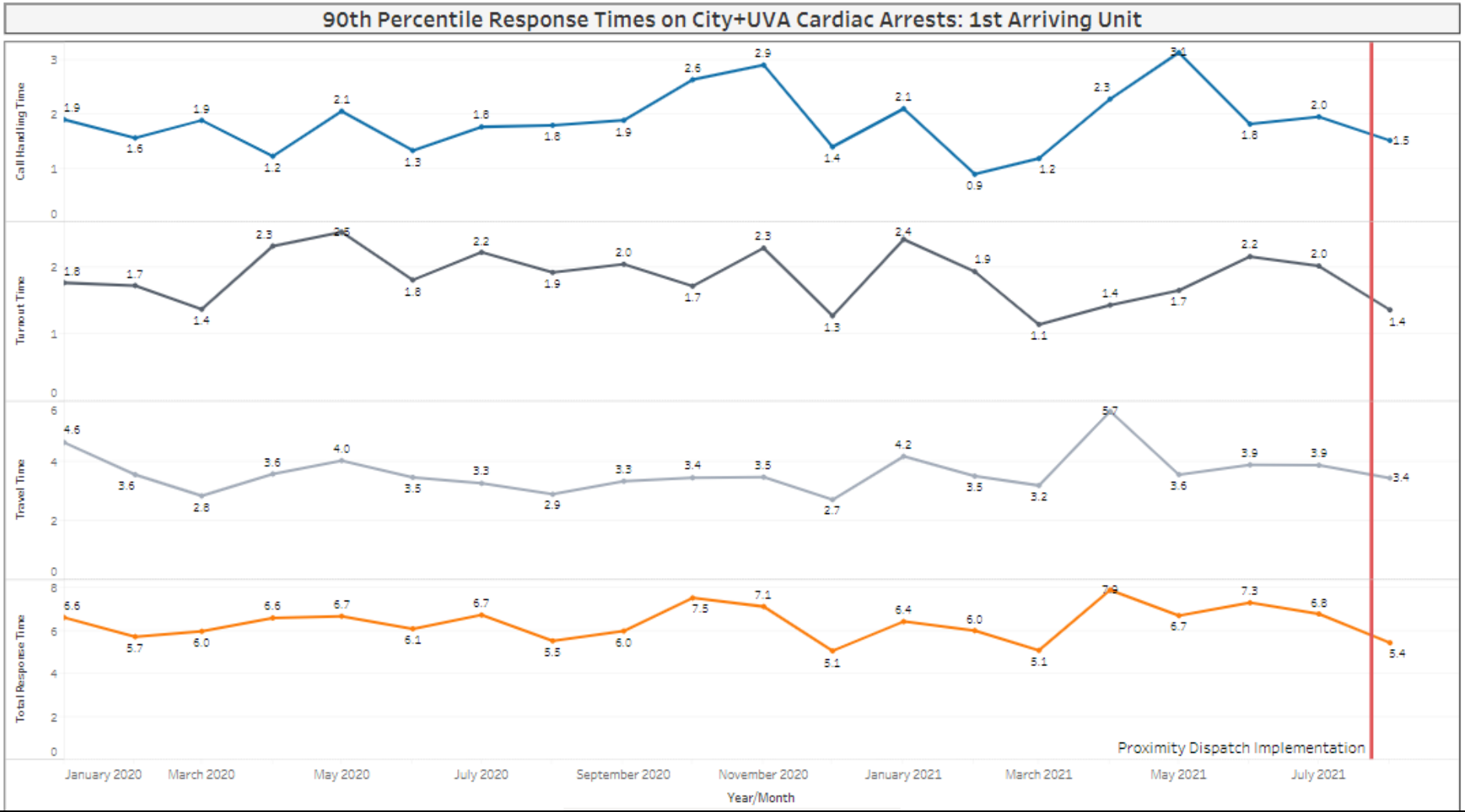
Travel Time Change: -17%

Total Response Time Change: -10%

Unit Best Performance Change: -11%

FAMILY INTEGRITY RESPECT EXCELLENCE

CARDIAC ARREST



FAMILY INTEGRITY RESPECT EXCELLENCE

STANDARD OF RESPONSE COMPLIANCE

FAMILY INTEGRITY RESPECT EXCELLENCE

- 71% of the time in FY21 the first arriving CARS unit on an ambulance-level EMS call met the performance benchmark for turnout and travel time.
- 87% of the time in FY21 first arriving CARS met the performance benchmark for travel time.

Ambulance-level EMS Response Time Element	% of Time 1st Arriving Unit Meets Benchmark
Alarm Handling	14%
Turnout Time	52%
Travel Time	87%
Total Response Time	71%
System Unit Performance Time	71%

Charlottesville-Albemarle Rescue Squad EMS

SORC Compliance: FY21 (7/1/20-6/30/21)

This following table is the standard format used to report baseline and benchmark fractile performance for accredited fire agencies. The 2020 column represents final EMS incidents and responses from July 1st, 2020 to June 30th, 2021.

Response levels are divided into ambulance-level and medic/trauma-level as classified by ECC when dispatching units.

(Ambulance-Level) Emergency Medical Service – 90th Percentile Times – Baseline Performance			2020	Benchmark	Gap
Alarm Handling	Pick-up Dispatch	Urban	4:22	1:00	3:22
Turnout Time	Turnout time 1st Unit	Urban	1:49	1:00	0:49
Travel Time	Travel Time 1st unit **Distribution**	Urban	8:43	8:00	0:43
	Travel Time ERF **Concentration**	Urban	8:43	8:00	0:43
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	12:48	10:00	2:48
		Urban	N=1792		
	Total Response Time ERF **Concentration**	Urban	12:48	10:00	2:48
		Urban	N=1792		
****System Unit Performance Time**	CARS Turnout+Travel Time	Urban	11:26	9:00	2:26

- 10% of the time in FY21 the first arriving CARS unit on a medic/trauma-level EMS call met the performance benchmark for turnout and travel time.
- 22% of the time in FY21 first arriving CARS met the performance benchmark for travel time.

Medic-level EMS Response Time Element	% of Time 1st Arriving Unit Meets Benchmark
Alarm Handling	13%
Turnout Time	54%
Travel Time	22%
Total Response Time	10%
System Unit Performance Time	14%

(Medic/Trauma-Level) Emergency Medical Service – 90th Percentile Times – Baseline Performance			2020	Benchmark	Gap
Alarm Handling	Pick-up Dispatch	Urban	4:33	1:00	3:33
Turnout Time	Turnout time 1st Unit	Urban	1:51	1:00	0:51
Travel Time	Travel Time 1st unit **Distribution**	Urban	8:29	4:00	4:29
	Travel Time ERF **Concentration**	Urban	7:19	8:00	0:40
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	12:41	6:00	6:41
		Urban	N=685		
	Total Response Time ERF **Concentration**	Urban	10:44	10:00	0:44
		Urban	N=917		
System Unit Performance Time	Turnout+Travel Time	Urban	11:24	5:00	6:24

- 96% of the time in FY21 the first arriving CFD unit on an ambulance-level EMS call met the performance benchmark for turnout and travel time.
- 98% of the time in FY21 first arriving CFD met the performance benchmark for travel time.

Ambulance-level EMS Response Time Element	% of Time 1st Arriving Unit Meets Benchmark
Alarm Handling	33%
Turnout Time	38%
Travel Time	98%
Total Response Time	95%
System Unit Performance Time	96%

Charlottesville Fire Department EMS SORC

Compliance: FY21 (7/1/20-6/30/21)

This following table is the standard format used to report baseline and benchmark fractile performance for accredited fire agencies. Years are measured by fiscal years (July 1st to June 30th the next year).

Response levels are divided into ambulance-level and medic/trauma-level as classified by ECC when dispatching units.

(Ambulance-Level) Emergency Medical Service – 90th Percentile Times – Baseline Performance			2020	2019	2018	2017	Benchmark	Gap
Alarm Handling	Pick-up Dispatch	Urban	2:55	2:58	2:57	3:24	1:00	1:55
Turnout Time	Turnout time 1st Unit	Urban	2:13	2:12	2:15	2:28	1:00	1:13
Travel Time	Travel Time 1st unit **Distribution**	Urban	5:19	6:37	6:34	05:56	8:00	2:40
	Travel Time ERF **Concentration**	Urban	5:19	6:37	6:34	5:56	8:00	2:40
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	8:49	9:57	9:48	10:15	10:00	1:10
		Urban	N=2124	N=2,167	N=1,983	N=2,795		
	Total Response Time ERF **Concentration**	Urban	8:49	9:57	9:48	10:15	10:00	1:10
		Urban	N=2124	N=2,167	N=1,983	N=2,795		
****System Unit Performance Time**	CFD Turnout+Travel Time	Urban	7:22	9:47	7:57	**N/A	9:00	1:37

- 58% of the time in FY21 the first arriving CFD unit on a medic/trauma-level EMS call met the performance benchmark for turnout and travel time.
- 75% of the time in FY21 first arriving CFD met the performance benchmark for travel time.

Medic-level EMS Response Time Element	% of Time 1st Arriving Unit Meets Benchmark
Alarm Handling	32%
Turnout Time	39%
Travel Time	75%
Total Response Time	58%
System Unit Performance Time	63%

(Medic/Trauma-Level) Emergency Medical Service – 90th Percentile Times – Baseline Performance			2020	2019	2018	2017	Benchmark	Gap
Alarm Handling	Pick-up Dispatch	Urban	2:49	3:04	2:41	3:24	1:00	1:49
Turnout Time	Turnout time 1st Unit	Urban	2:13	2:13	2:19	2:28	1:00	1:13
Travel Time	Travel Time 1st unit **Distribution**	Urban	5:33	6:31	6:43		4:00	1:33
	Travel Time ERF **Concentration**	Urban	7:19	7:05	7:39		8:00	0:40
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	7:42	10:07	9:55	10:15	6:00	1:42
		Urban	N=901	N=894	N=686	N=2,795		
	Total Response Time ERF **Concentration**	Urban	10:44	11:09	11:06		10:00	0:44
		Urban	N=917	N=666	N=836			
1st Arriving Unit Performance Time	Turnout+Travel Time	Urban	7:42	8:12	8:12	6:45	5:00	2:42

OTHER COMMUNITY NEEDS

THE FUTURE

CRITICAL ISSUE E:
PARTNERSHIPS

A partnership is often thought to be a form of business, where two or more people come together to share ownership, responsibility, and profits from a given business venture. In every community across our nation, a partnership exists between the fire and emergency services and the general public that is built upon a shared commitment to the health and safety of its residents. The fire and emergency services are in an enviable position in communities, as they are well positioned to be the hub of service provision for many supporting services already found within their community, and that align with organization's core mission. The importance of this has been clearly proven during homeland security threats, through the interagency cooperation, intelligence sharing, and joint response to those events by law enforcement and the fire and emergency services. There are significant opportunities to create partnerships with allied health care, mental and behavioral health providers, and various social service agencies to leverage the talents of each agency with a focus on improving service to the community. Too often agencies respond multiple times to the same individual who calls 911 as their only known access for assistance, when the need is truly not an emergency, but could be met by another service provider in the community. Over the next 30 years, the fire and emergency services will need to partner with related service providers to create a local response network that can provide a host of services under the umbrella of a multifaceted organization, if it hopes to meet the needs of the community served.

The fire and emergency services are in an enviable position in communities, as they are well positioned to be the hub of service provision for many supporting services already found within their community, and that align with organization's core mission.

There are significant opportunities to create partnerships with allied health care, mental and behavioral health providers, and various social service agencies to leverage the talents of each agency with a focus on improving service to the community. Too often agencies respond multiple times to the same individual who calls 911 as their only known access for assistance, when the need is truly not an emergency, but could be met by another service provider in the community.

https://www.cpse.org/wp-content/uploads/2020/07/21st-Century-Fire-and-Emergency-Services-White-Paper-Final-07.15.20.pdf

UVA researchers reveal shortage in at-home medical care

INITIATIVES

Mental Health Task Force	Sister Cities Ghana	Collaboration	Cultural Change
Policies	Diversity	Inclusion	Equity

STOP THE BLEED®
SAVE A LIFE

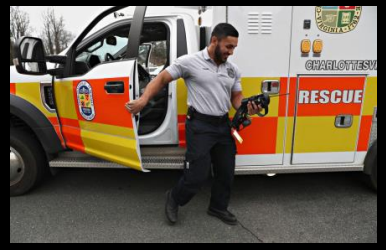
HEART SAFE community

CFD Frequent Utilizers

How can the Charlottesville Fire Department effectively and efficiently meet the needs of the community?

CHARLOTTESVILLE FIRE DEPT.

FAMILY INTEGRITY RESPECT EXCELLENCE



THE FUTURE

UVA researchers reveal shortage in at-home medical care

COMMUNITY DRIVEN

Collaboration

UVA Health

Injury Prevention

Our Trauma Center's Injury Prevention Program collaborates with various committed community partners, including Albemarle County Police Department, Charlottesville Fire Department, Charlottesville-Albemarle Rescue Squad and more.

BRHD, UVA Health, and Charlottesville Fire team up to roll out in-home vaccinations

Novant Health is bringing the COVID-19 vaccine to patients who have trouble leaving home during the pandemic. (wbtv)

By Riley Wyant

Published: May. 10, 2021 at 9:28 PM EDT

CHARLOTTESVILLE FIRE DEPT.

FAMILY INTEGRITY RESPECT EXCELLENCE

UVA researchers reveal shortage in at-home medical care

THE FUTURE?

- Opportunities to create partnerships with allied health care, mental and behavioral [mental] health providers, and various social service agencies
- Partner with related service providers to create a local response network that can provide a host of services not only focused on emergency response but under the umbrella of a multifaceted volunteer organization

WHAT'S NEXT?

- Bypass Fire Station
- Pulse Point – Heart Safe Charlottesville
- ProQA Emergency Medical Dispatch Protocols
- Continued mutual-aid and other resources to support EMS
- Community Mental Health Initiatives – CFD/CARS/CPD
- Frequent 911 Users
- Prevention of hospital re-admission
- MIH – volunteers at CARS with advanced medical background

Dr. Hezedean A. Smith, Fire Chief

"NFPA 1710 is a national standard for fire departments, and as an accredited ISO 1 all-hazards department, we are committed to improving the EMS/FIRE system through a collaborative approach with all stakeholders."

"Our focus is on maintaining our accreditation status and ensuring our all-hazards preparedness meet the needs of our community. We must transition to becoming a 21st century community with fire and prehospital medical service delivery consistent with the needs of our residents and visitors."

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View our Annual Report

COMMENTS