Standard of Cover and Strategic Plan

ROUND ROCK, TEXAS

DRAFT REPORT

June 10, 2024

matrix consulting group

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Appendix B: Index of Tables

Introduction and Executive Summary

The City of Round Rock retained the Matrix Consulting Group to facilitate a Strategic Plan and Standard of Cover for the Fire Department. This document includes the project team's research and analysis of the Round Rock Fire Department (RRFD) and community, which includes risk assessment, staffing, response capabilities, and deployment analysis.

Scope of Work

The scope of this study included assessing the current fire protection system operations, response capabilities, staffing, and other resources necessary for delivering services to the City. A review of services and the delivery of those services should be performed periodically to ensure needs are being met. This project focused on the emergency services system delivery that included:

- Response capabilities.
- Response time analysis.
- Resource locations.
- Available resources to serve the City.
- Staffing and workforce.

The approaches used in this study were comprehensive, as described below.

Approaches Utilized in the Study

The project team assessed the Fire Department to understand and evaluate the Department's service level and organizational issues. The principal approaches utilized by the project team in this study included, but were not limited to, the following:

- Internal Interviews – Project team members interviewed numerous executive, management, and supervisory staff members of the City.
- Data Collection – the project team collected a wide variety of external and internal data documenting the structure, operations, and organization, including:
  - Staffing and scheduling.
  - Documentation reflecting operations management.
  - Numerous output data points reflect services provided.
  - Various other performance information and indicators.

- This data was summarized in a descriptive profile of the Round Rock Fire Department, which was reviewed and modified by Department staff to ensure we had a factual foundation for the study. This approach ensured that the project team understood the RRFD appropriately.

Data was collected over the past several months and presented in interim deliverables. The project team reviewed facts, findings, and conclusions through these interim deliverables with the RRFD throughout this process.

Executive Summary

The City of Round Rock is located in central Texas in Williamson County and is part of the Austin metropolitan area. City services are provided to an estimated 125,000 residents, covering about 38 square miles. The Round Rock Fire Department (RRFD) provides fire suppression, rescue, fire prevention, public education, fire investigation, and special operations response to technical search and rescue incidents. These services are provided by 187 career personnel.

Round Rock experienced considerable growth between 2010 and 2022, with an increase of about 25% or 25,000 residents. Based on projections from the Round Rock Populations Projection report, this growth is expected to continue with an anticipated population of 161,000 residents by 2030, with calls for service increasing as well. Commercial growth typically follows residential growth but to a somewhat lesser degree. To best prepare for these challenges, the RRFD must maintain appropriate service levels and expand the emergency services system.

Maintaining appropriate service levels begins with establishing performance objectives for the RRFD that will be utilized in future planning efforts. These performance objectives can be used to confirm when new resources will be needed. These improvements include adding personnel, apparatus, or facilities, replacing resources to alleviate maintenance needs, or upgrading systems and technologies to improve services.

Strategic Improvement Opportunities

The following table provides a summary of opportunities for improvement established in this report. The report should be reviewed to understand the factual basis behind each opportunity and the analysis leading to each opportunity. The following suggested timelines are provided for implementation as funding allows. The specific initiatives, steps required, and costs associated with these initiatives can be found at the end of this report:

- Short-term: less than three years.
- Intermediate: longer than three years but less than five years.
- Long-term: longer than five years.

Short Term Improvement Opportunities – less than three years

- Establish a work group with the Communications Center to improve the capture of time stamps for apparatus and data points to measure the response time components effectively.
- Work with the Communications Center to educate and establish call processing benchmark performance objectives.
- Ensure that the Fire Department and Communications Center personnel are communicating properly to capture the time stamps and effectively measure performance.
- Round Rock should establish a benchmark performance objective of two minutes for 90% of emergency calls.
- Establish standard operating procedure updates to promote improvements in turnout time to emergency calls for service, including a procedure to place the apparatus enroute to improve accuracy.
- Consider adding timers at the fire stations' bay doors to indicate the time elapsed since the dispatch was received.
- In keeping with the NFPA guidance, the RRFD should establish a 4-minute travel time benchmark performance objective for 90% of the emergency calls for service in the urban planning zones.
- Following the CPSE guidance, the RRFD should establish a 5-minute travel time benchmark performance objective for 90% of the emergency calls for service in the suburban planning zone.
- In keeping with the NFPA guidance, the RRFD should establish an 8-minute travel time benchmark performance objective for 90% of the emergency calls for service in the urban planning zones for the arrival of an effective response force.
- Following the CPSE guidance, the RRFD should establish a 10-minute travel time benchmark performance objective for 90% of the emergency calls for service in the suburban planning zones for the arrival of an effective response force.

Intermediate-Term Improvement Opportunities - 3 - 5 years

- Improve the distribution of resources by constructing a new Fire Station in the area of Old Settler Blvd. and Red Bud Lane for $5.3M.
- Add a Deputy Chief of Operations to improve operational personnel's supervision, support, and development at a first-year cost of $199,950.
- Move the public education program management and delivery to Community Risk Reduction to combine similar resources and activities.

Long-Term Improvement Opportunities – 5 years or longer

- Improve the distribution of resources by constructing a new Fire Station in the area of 3311 FM 1431 for $5.3M.
- Improve the distribution of resources by constructing a new Fire Station in the University Blvd. and Lunata Way area based on the increased population density and development of the area for $5.3M.
- Staff the new engine companies at Stations 10, 11, and 12 with a minimum of four personnel to improve the arrival of an effective response force.

Round Rock Fire Department Organization

This section provides an overview of the general characteristics of the Round Rock Fire Department.

Background

Round Rock is located in central Texas in Williamson County and is part of the Austin metropolitan area. The City has a diverse and robust economy focused on technology, healthcare, retail, and manufacturing. Significant employers include Dell Technologies, Samsung Austin Semiconductor, and St. David's Round Rock Medical Center.

Round Rock has experienced significant population growth in recent years, which has led to ongoing development and infrastructure improvements. The City has a mix of established neighborhoods and newer residential areas to accommodate its growing population. The City has several highly rated public and private schools, including the Round Rock Independent School District, known for its strong academic programs. Higher education options exist, including Texas State University's Round Rock campus and Austin Community College.

The Round Rock Express, a minor league baseball team affiliated with the Texas Rangers, plays its home games at the Dell Diamond, a popular sports and entertainment complex in the City.

A council-manager form of government governs Round Rock. The City Council consists of the Mayor and six City Council members, each elected by the residents of Round Rock. The Mayor and Council members serve staggered terms. The City Manager is the City's chief executive officer responsible for the daily administration and management of city operations. The City Council appoints the City Manager, oversees city departments, implements policies established by the City Council, and manages the City's budget.

Demographic Profile

The following table illustrates the demographic profile of the City and the changes that have occurred since 2010.

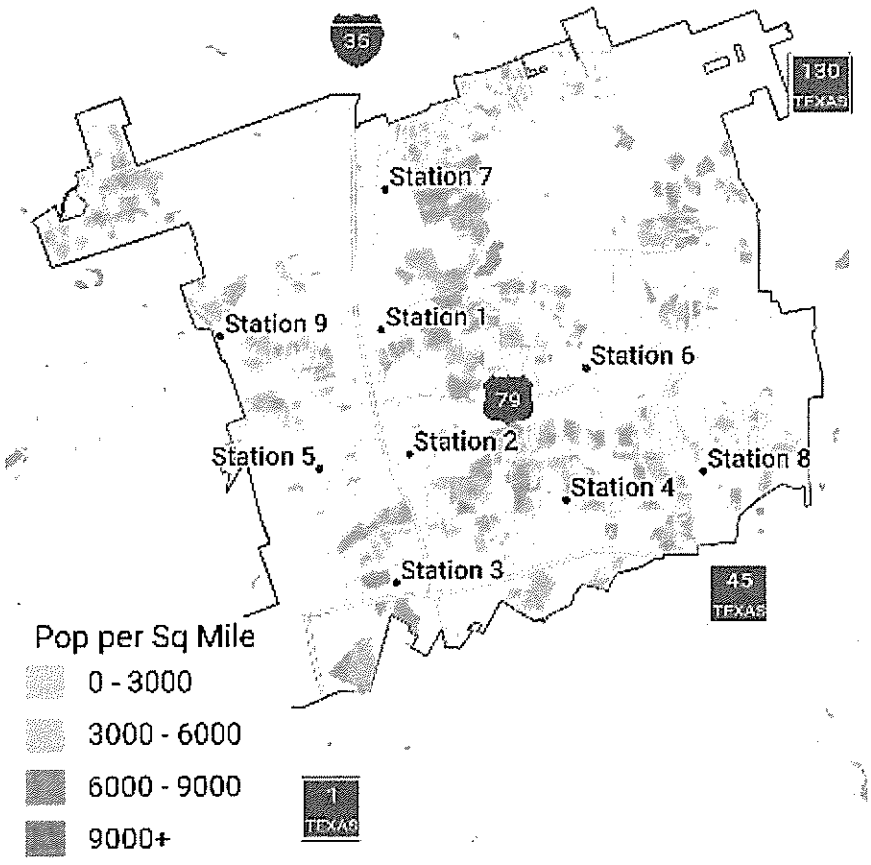
Table 1: City of Round Rock Demographics

US Census Bureau	2010	2015	2022
Estimated Population	99,887	109,690	124,790
Median Age	31.8	32.5	35.2
Children Under Age 5	8.8%	8.6%	5.2%
Children Ages 5 to 19 years	23.8%	24.1%	23.1%
Persons Age 20 to 59 years	59.6%	56.5%	55.7%
Persons Age 60 and Over	7.8%	10.8%	16.0%
Families in Poverty	4.8%	7.1%	7.9%
Civilian Labor Force Unemployed	7.1%	6.6%	2.6%
Median Household Income	$82,533	$87,963	$113,508
Employment Sectors:			
Education, Health Care, Soc. Svc.	18.4%	20.0%	22.4%
Retail Trade	12.4%	11.8%	10.3%
Professional, Scientific, Mgmt.	14.5%	14.3%	17.0%
Finance, Insurance, Real Estate	7.3%	6.6%	7.1%
Entertainment, Recreation, Food	7.7%	8.4%	9.5%
Construction	6.2%	6.6%	4.4%
Manufacturing	13.9%	11.2%	7.8%
Transportation, Warehousing, Util.	3.6%	3.6%	6.5%
Public Administration	5.1%	5.9%	5.3%
Other Services	4.3%	4.8%	4.7%
Wholesale	3.5%	3.4%	1.8%
Information	2.5%	3.0%	3.1%
Agriculture, Forestry, Fishing	0.6%	0.5%	0.2%

The City's population has increased approximately 25% since 2010, adding an estimated 24,900 residents. The median age is growing in the City from 31.8 in 2010 to 35.2 in 2022. Median household income has increased by about 37% over the past twelve years, and the number of families in poverty has risen by about 3%.

The following map provides a view of population density by census blocks.

Population Density
2020 Blocks



As illustrated, there are population clusters throughout the City; however, there are open areas for additional development.

Organization

Reporting directly to the Fire Chief are two Assistant Fire Chiefs and a Battalion Chief who oversee the three main branches of the Department. The Emergency Manager and an Administrative Assistant also report to the Fire Chief.

The Administration branch consists of an Assistant Fire Chief of Administration overseeing three direct reports within three divisions. Two positions are civilian positions, Logistics and the Crisis Response Unit, and the third division, Community Risk Reduction, is managed by a Captain.

A Battalion Chief manages Fire Prevention, with two Captains handling two divisions in the branch. News construction and fire investigations are controlled by one Captain, with fire safety inspections and public education managed by the other.

Operations are the largest branch, comprising an Assistant Fire Chief with eight direct reports. Six direct reports are Battalion Chiefs, two for each of the three operational shifts. One operational shift consists of two Battalion Chiefs, five Captains, six Lieutenants, 12 Drivers, and 23 Firefighters. A Battalion Chief manages the training division, and another manages Special Operations.

Vision Statement

To make a measurable difference in our community accomplished through excellent and compassionate service delivery.

Mission Statement

We Care

Values

Compassion: We support each other, especially in times of need, and we show care for those we serve.

Teamwork: We work together toward a common vision.

Integrity: We do what's right. We're trustworthy and responsible for our actions.

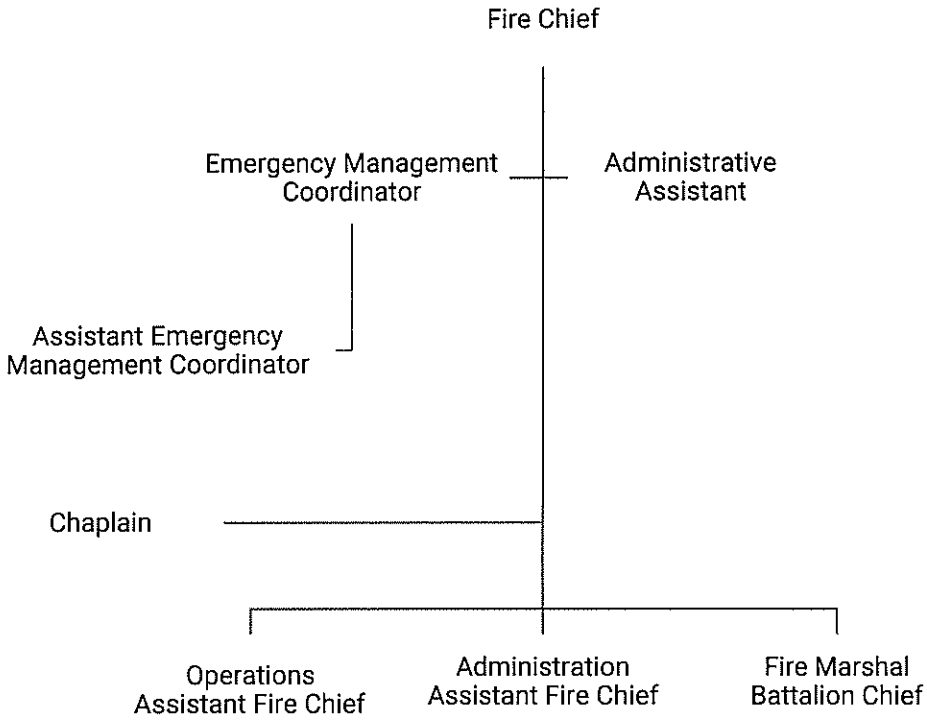
Honor: We honor each other and the community we serve

Trust: We have confidence in the abilities of our officers and trust them to make fair and equitable decisions.

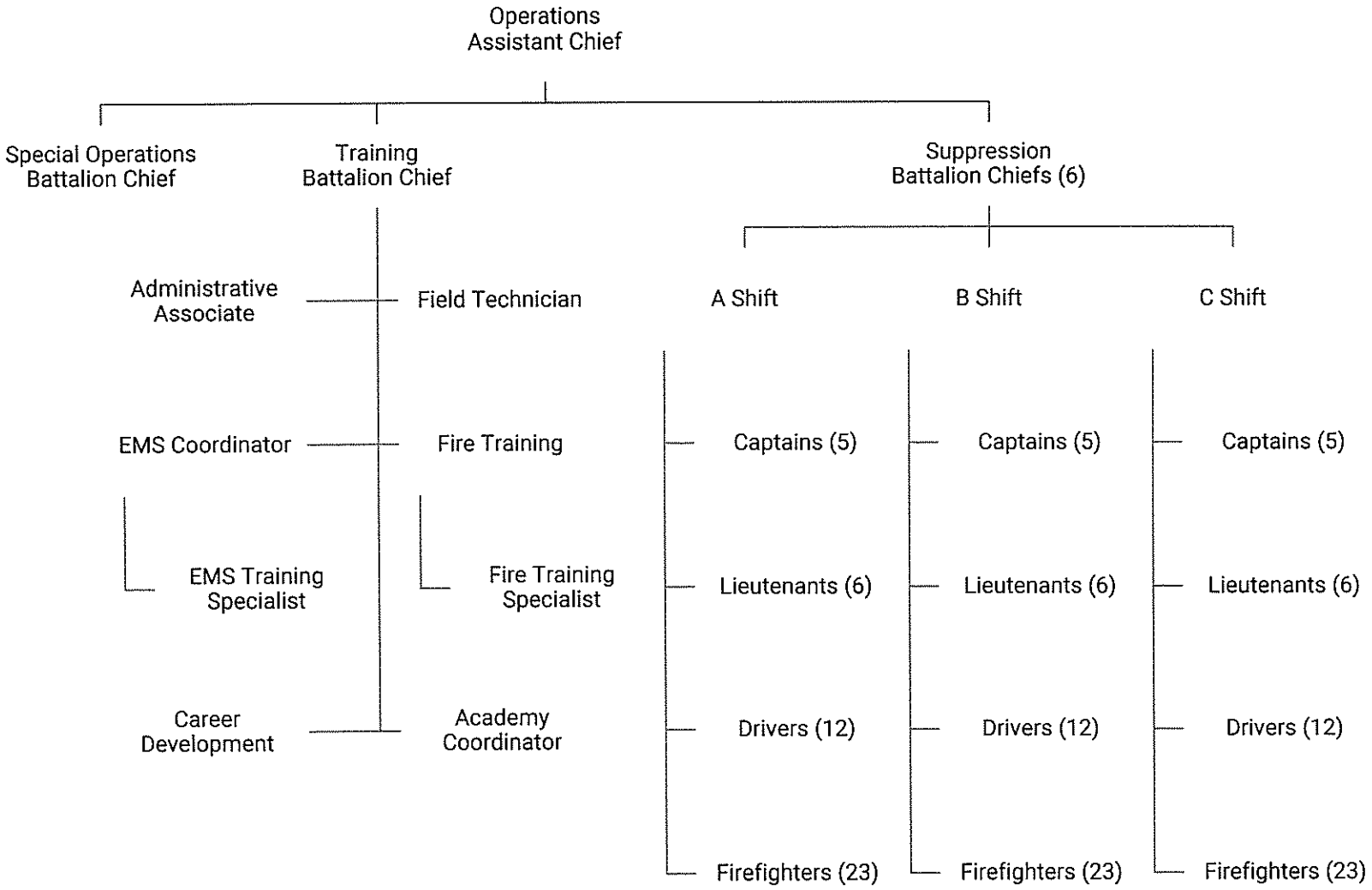
Pride: We take pride in what we do. We are loyal, we respect our jobs.

The organizational charts that follow illustrate the current Fire Department organization.

Round Rock Fire Department Executive Team



Round Rock Fire Department Operations

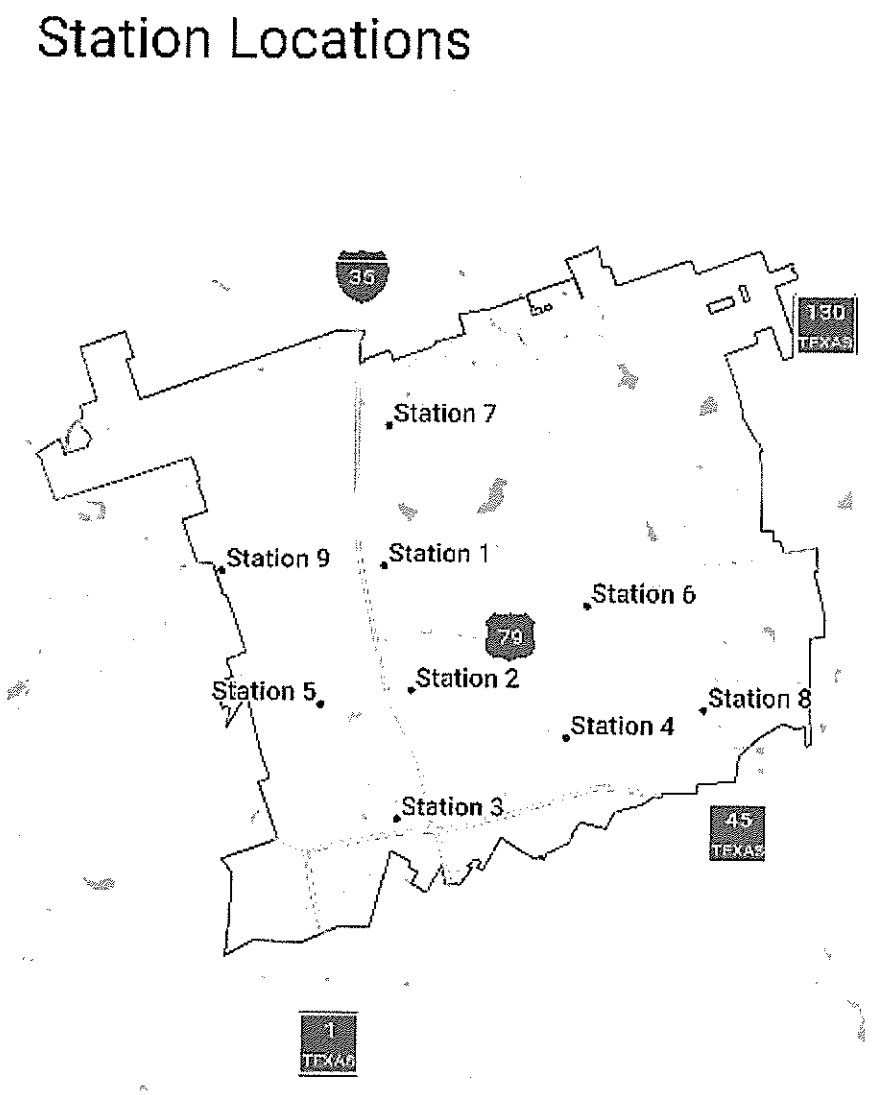


Operations

This section provides an overview of the emergency operations of the Round Rock Fire Department.

Physical Resources

Service to the City is currently provided by nine fire stations located in the City. These stations also provide services to utility and emergency service districts. The following map illustrates the location of the fire stations.



Round Rock Fire Department has 144 career personnel assigned to shift operations, with 48 personnel assigned each shift. Operations personnel operate on a three-platoon

system, working 48 hours on and 96 hours off duty. The daily minimum staffing is 37 personnel, including both Battalion Chiefs.

The tables below outline the station's apparatus and staffing.

Station 1

203 Commerce Blvd

Description of Use	It serves as the central fire station and the City's central section.				
Apparatus Space	Four drive-through bays				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 1	2007	Pierce Dash	Type 1 Engine	3
	Battalion 1	2013	Ford F-350	Command	1
	Brush 1				Cross Staffed
	Engine 465				Cross Staffed
	Tender 1	2007	Pierce DX	Water Tender	Cross Staffed
	Wildland Trailer				

Station 2

200 West Bagdad Avenue

Description of Use	It provides service to the south-central area of the City.				
Apparatus Space	Two drive-through bays				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Rescue 2	2015	Pierce Dash CF		3
	TRT 2				Cross Staffed
	Squad 2				2

Station 3

221 Sundance Parkway

Description of Use	It is located in the City's southern area, providing service to the far southern area.				
Apparatus Space	Three drive-through bays				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 3	2018	Pierce Dash CF	Type 1 Engine	3
	Truck 3	2018	Pierce Velocity	Aerial Ladder	3

Station 4

1301 Double Creek

Description of Use	It provides service to the City's east-central area.				
Apparatus Space	Three drive-through bays				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 4	2021	Pierce Enforcer	Type 1 Engine	3
	Battalion 2			Command	1
	Brush 4	2012	Ford F-550	Type 6 Engine	Cross Staffed
	Battalion 3			Reserve Command	

Station 5

350 Deepwood

Description of Use	It provides service to the western central area of the City.				
Apparatus Space	Three drive-through bays				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 5	2022	Pierce Enforcer PUC	Type 1 Engine	3
	Brush 5				Cross Staffed

Station 6

2919 Joe DiMaggio

Description of Use	It is located in the City's northeast area, providing service to the eastern sections.				
Apparatus Space	Four drive-through bays				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 6	2013	Pierce Impel	Type 1 Engine	3
	HazMat 6				Cross Staffed
	Air Unit				Cross Staffed

Station 7

4025 North Mays Street

Description of Use	The station provides service to the far northern areas of the City.				
Apparatus Space	Two drive-through bays				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 7				3
	Truck 7				3

Station 8

1612 Red Bud

Description of Use	It is located in the far eastern area of the City and provides service to the far eastern regions.				
Apparatus Space	Three drive-through bays				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Ladder 8				3
	Reserve Ladder				

Station 9

2721 Sam Bass Road

Description of Use	It provides service to the far western areas of the City.				
Apparatus Space	Three back-in-style bays				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Quint 9				3
	Blocker 9	2000	Ford F-650		Cross Staffed

Historical Workload

The Department responds to emergency and non-emergency calls for service. The following table illustrates the activities of the RRFD grouped by the type of call or details of calls responded to by the Department.

Table 2: Calls For Service 2019-2022

	2019	2020	2021	2022	Total	Pct.
Auto Accidents	788	693	993	823	3,297	6.2%
Medical Calls	4,553	3,886	5,228	4,912	18,579	34.9%
Medical Assist	1,612	1,655	3,149	2,145	8,561	16.1%
Total Medical and Auto Accidents	6,953	6,234	9,370	7,880	30,437	57.1%
Aircraft Fire	0	1	0	0	1	0.0%
Fire Alarm - False	52	36	236	167	491	0.9%
Fire Alarm - Malfunction	391	381	658	434	1,864	3.5%
Fire Alarm - Activation	285	268	314	281	1,148	2.2%
Mutual Aid	10	2	13	10	35	0.1%
Other Type Fire	58	75	103	67	303	0.6%
Smoke Scare	51	48	91	61	251	0.5%
Structure Fire	40	48	128	47	263	0.5%
Overpressure/Rupture/Explosion	3	6	8	16	33	0.1%
Vegetation/Brush/Debris Fires	157	154	166	234	711	1.3%
Vehicle Fire	50	53	57	61	221	0.4%
All Fire Calls	1,097	1,072	1,774	1,378	5,321	10.0%
Rescue Calls - Extrication	20	18	11	15	64	0.1%
Rescue Calls - Elevator	11	21	31	18	81	0.2%
Rescue Calls - Search	11	5	9	9	34	0.1%
Rescue Calls - Technical	2	1	2	3	8	0.0%
Rescue Calls - Water	2	1	2	0	5	0.0%
Rescue Calls - Other	97	57	70	88	312	0.6%
All Rescue Calls	143	103	125	133	504	0.9%
Dispatched/Canceled	988	1,400	2,853	3,473	8,714	16.4%
Fire Code Enforcement	172	220	59	2	453	0.8%
Severe Weather	2	1	6	5	14	0.0%
Good Intent	165	153	170	193	681	1.3%
Hazardous Material	10	9	13	6	38	0.1%
Hazardous Conditions	317	317	468	348	1,450	2.7%
Non-Coded Calls	0	0	3	0	3	0.0%
Service Calls	941	1,288	1,721	1,730	5,680	10.7%
Other Types of Calls	2,595	3,388	5,293	5,757	17,033	32.0%
Total Calls for Service	**10,788**	**10,797**	**16,562**	**15,148**	**53,295**	

Medical and medical assist calls represent approximately 51% of the call volume, with auto accidents accounting for an additional 6.2%. Other calls, including service calls, hazardous condition calls, and canceled calls, account for approximately 32% of the calls for service.

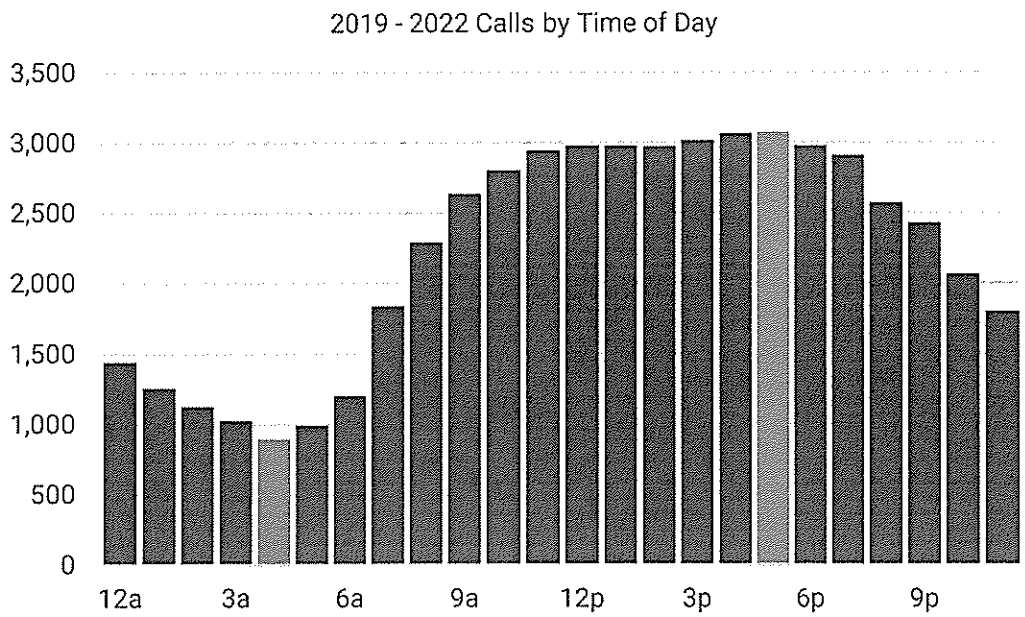
The following table displays the total number of calls for service handled by the Round Rock Fire Department by each hour and day of the week for the past four years. Both emergency and non-emergency calls were included to provide an overall view of the call demand on the emergency services system.

Table 3: 2019 – 2022 Calls for Service by Hour and Weekday

	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
12 am	225	201	221	199	176	220	200	1,442
1 am	249	147	156	174	165	172	196	1,259
2 am	204	144	150	171	149	138	172	1,128
3 am	167	129	123	143	151	146	171	1,030
4 am	122	139	113	150	130	109	134	897
5 am	135	127	155	138	143	138	158	994
6 am	143	176	195	188	177	158	168	1,205
7 am	206	267	292	279	305	275	216	1,840
8 am	219	378	358	377	357	333	268	2,290
9 am	297	357	429	422	394	361	375	2,635
10 am	324	429	414	443	422	389	381	2,802
11 am	372	418	473	454	442	408	376	2,943
12 pm	376	386	414	474	471	450	407	2,978
1 pm	375	412	408	415	441	504	421	2,976
2 pm	384	479	431	400	432	448	398	2,972
3 pm	349	467	443	429	480	485	361	3,014
4 pm	371	447	478	427	451	488	402	3,064
5 pm	368	421	456	454	468	504	404	3,075
6 pm	436	400	414	419	427	465	414	2,975
7 pm	367	409	423	455	417	431	405	2,907
8 pm	325	356	377	362	356	420	375	2,571
9 pm	323	328	354	337	348	377	362	2,429
10 pm	274	254	291	286	299	327	336	2,067
11 pm	224	243	235	216	285	297	302	1,802
Total	**6,835**	**7,514**	**7,803**	**7,812**	**7,886**	**8,043**	**7,402**	**53,295**

The call volume is heaviest during the middle part of the day, from mid-morning to the early evening, with every day of the workweek relatively even in terms of the number of calls. Calls for service varied by time of day and day of the week. The busiest hour of the day is 5 pm, with the slowest hour being 4 am.

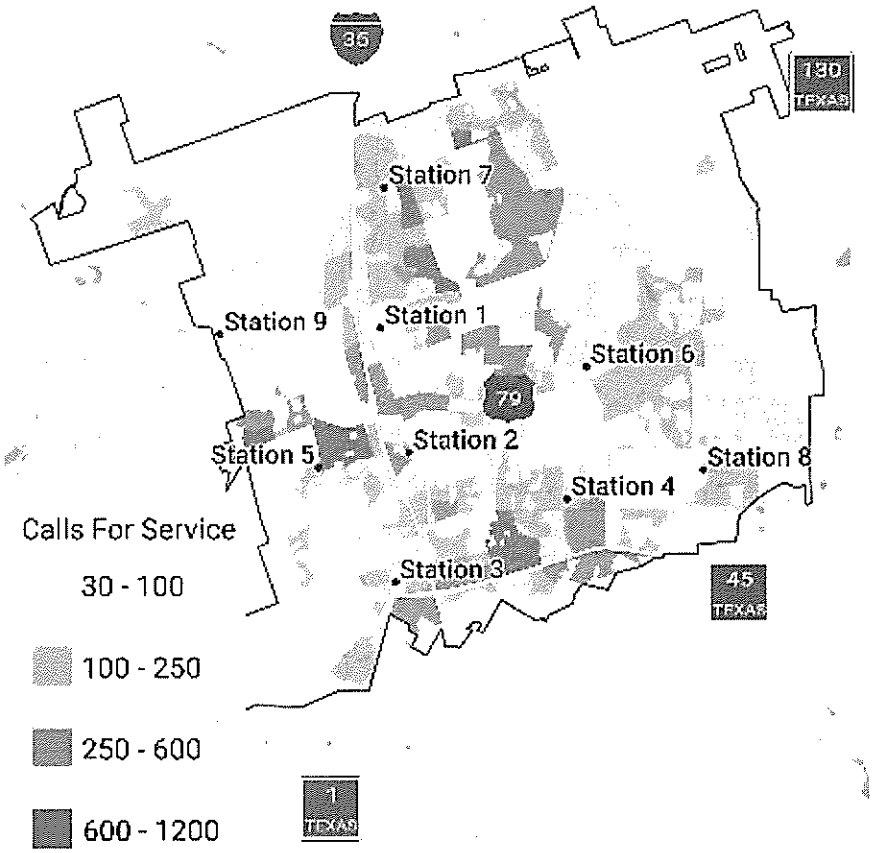
The following chart further illustrates the calls for service by hour of the day.



As illustrated above, calls increase sharply at the 7 am hour, peaking at 4 pm, but remain relatively steady from 11 am to 7 pm. The calls gradually decline at 7 pm and continue to fall overnight, with 4 am being the slowest hour of the day.

The following map illustrates the call demand based on the census blocks to outline the location of the calls.

Calls For Service - 2020 Blocks
2019 - 2022



As illustrated, there is a significant clustering of calls near stations 5 and 7, with other pockets of calls throughout the City, mainly in the residential areas.

Training and Education

The Training Division is a part of the Operations Branch and is managed by a Battalion Chief. Staffing includes eight positions to coordinate and provide training and continuing education for fire, emergency medical services, and career development. Training opportunities include internal courses and training and external opportunities. An annual calendar is generated to identify the internal courses and training for the academies and company evolutions.

Standard Operating Procedures (SOP) for the Department include a section on training, the requirements for different positions, and eligibility for relief and acting positions. The SOPs include the coursework for each role and procedures for testing and eligibility to act in the next higher rank. The annual schedule incorporates these classes as a part of the schedule.

The following table illustrates the hours of training provided in 2022.

Subject Area	2022
Blue Card Continuing Education Hours	40
Certification and EMS Training Hours	4,120
ISO Training Hours	4,935
Total Man Hours	**9,095**

The Blue Card Incident Management System is a structured approach for managing emergency response and incident command. It was developed to standardize and simplify the command process, making it easier for responders from different agencies to work together effectively. Continuing education hours must be completed over three years to maintain certification. The Insurance Services Office (ISO) contains specific training hour requirements to receive credit towards the ISO grading schedule.

Fire Marshal's Office

Fire Prevention is managed by a Battalion Chief (Fire Marshal) who reports to the Fire Chief. Staffing for this branch includes eight positions to perform fire safety inspections, fire investigations, and public education activities.

The following table illustrates the plan review and new construction activity for the past three years.

Activity	FY 20-21	FY 21-22	FY 22-23
Plan Reviews	796	1,088	1,079
Construction Consultations	692	750	732
New Construction Inspections	1,498	1,440	1,625
Total Activity	**2,986**	**3,278**	**3,436**

Consultations are shown as each meeting will require thirty minutes to two hours to complete and are part of each project. Each project could have several inspections and system testing procedures depending on the project size.

Fire safety inspections are conducted annually for most of the occupancies in the City. The following table illustrates the inspection activity for the past three years.

Activity	FY 20-21	FY 21-22	FY 22-23
Initial Inspections	2,152	1,117	1,181
Follow-up Inspections	1,498	902	1,047
Total Activity	**3,650**	**2,019**	**2,228**

In FY21-22, the inspection reporting mechanism changed, significantly dropping the number of inspections. In the past, a report was completed for each building in an apartment complex; now, a single report is completed for the complex with the structures identified in the single report. Restaurants were being inspected semi-annually; now, they are on an annual schedule.

Fire investigations are part of the activities in the Fire Marshals Office. The following table highlights the activity for the past three years.

Activity	FY 20-21	FY 21-22	FY 22-23
Total Investigations	13	23	22
Open Cases	0	2	3
Closed Cases	13	21	19

The final component of the Fire Marshals Office is public education and fire prevention programs. The following table highlights the number of programs for the past three years.

Activity	2021	2022	2023
Rock Solid Programs at Schools	16	32	27
Fire Extinguisher Training	8	5	5
Other Programs	10	18	20
Total Activity	**34**	**55**	**52**

Other programs include presentations to senior centers and HOAs. National Night Out, Public Safety Day, and Holiday Safety Tips are also included in different programs.

Financial Resources

Developing the City of Round Rock's Annual Operating and Capital Budget is a comprehensive effort that involves input from the Mayor and City Council, outside governmental agencies, and all City departments and offices. The budget is prepared by the Executive Team of the City Manager and the various departments in the City and approved by the City Council. The City operates on a fiscal year ending September 30 of each year.

The following table illustrates the operating expenditures for the Fire Department.

Table 4: FY 2020 – 2023 RRFD Expenditures

Line Item	2020 Actuals	2021 Actuals	2022 Projected Actuals	2023 Adopted Budget
Personnel Services	$ 21,640,595	$ 23,923,015	$ 24,355,222	$ 27,097,817
Operating Expenses	$ 1,837,955	$ 1,947,397	$ 2,554,090	$ 3,235,025
Total Operating Expenditures	**$ 23,478,550**	**$ 25,870,412**	**$ 26,909,312**	**$ 30,332,842**
Capital Expenditures	-	-	$ 834,000	$ 173,500
Total Expenditures:	**$ 23,478,550**	**$ 25,870,412**	**$ 27,743,312**	**$ 30,506,342**

As shown, in 2022 and 2023, personnel services comprise 90% and 89% of the operating expenditures, respectively.

Community Contributions

The City of Round Rock retained the Matrix Consulting Group (MCG) to complete a Standard of Cover and Strategic Plan for the Round Rock Fire Department (RRFD). The scope of work included deploying a community survey to gauge the attitudes of the community members throughout the City and their opinions on RRFD operations.

In the following sections, a complete analysis is presented for each question. The overall theme of responses to the survey related to the services provided by the Fire Department is shown below.

Community Identifiers

The survey was distributed using the City of Round Rock website, city newsletter, and social media accounts for the City and the Fire Department. A total of 419 responses were received, and all replies are confidential. According to Census Bureau 2022 data, this represents a 0.9% participation rate of the 45,859 households in the City, which would not be considered statistically significant.

While electronic survey responses were anonymous, the project team asked respondents to identify their status in the City as a resident or non-resident in the Emergency Services District (ESD). Of the 419 responses, 53 (12.6%) respondents indicated they were non-residents of the ESD. The following table summarizes responses to these inquiries.

Table 5: Community Identifiers

Response	Count	Pct
Resident	340	81.1%
Non-Resident (ESD)	53	12.6%
Business Owner	1	0.2%
Business Manager	3	0.7%
Business Employee	10	2.4%
Business Owner and Resident	12	2.9%
Total	**419**	**100.0%**

An overwhelming number of respondents indicated they were residents of the City, with 12.6% being residents of the ESD. 2.9% indicated they were both residents and business owners. The remaining 3.3% of respondents indicated they were part of the business community.

Service Delivery

The following sections are related to the respondents' opinions relative to the existing delivery of services from the Round Rock Fire Department.

Understanding Service Provisions

Respondents were asked to identify their understanding of the services provided by the Fire Department. 390 (93.1%) respondents answered the question, with 29 respondents skipping it.

Table 6: Understanding Services

Service Provided	Pct.
Structural Firefighting	96.4%
Vehicle Accidents	94.9%
Emergency Medical Services	92.8%
Technical Rescue such as Water Rescue / Search / Rope Rescue / Confined Space Entry	87.4%
Hazardous Materials Response	81.5%
Public Education	78.5%
Emergency/Storm Preparedness	72.6%
Business Inspections	71.3%
Home Fire Safety Inspections	68.5%
Other (Please Specify)	10.5%

Structural firefighting, vehicle accidents, and emergency medical services were the most known services provided by the Fire Department. Other services respondents cited include:

- Community engagement and education.
- Safety services include child safety seat installations and safety checks for senior citizens.
- Fire prevention services, including fire alarm checks and plan reviews.

Other services in the previous table are known but on a lower scale. There is an opportunity to educate the public about the Fire Department and its services.

Response Time

The following tables outline the responses about expectations for response time. 390 (93.1%) respondents answered the question, with 29 respondents skipping it. The statement, "In your opinion, how long should it take for emergency resources to arrive

after you call 911 considering call processing time, travel time, traffic, time of day." was open to all respondents whether a service was used.

Table 7: Community Response Time Expectations

Response Time	Pct.	Count
4 to 5 minutes	34.4%	134
5 to 6 minutes	28.5%	111
6 to 7 minutes	13.1%	51
7 to 8 minutes	14.9%	58
Greater than 8 minutes	3.3%	13
Other Comments	5.9%	23

Over 60% of the respondents opine the response time should be six minutes or less. About 27% of respondents expect the response time to be between six and 8 minutes. About 6% of the respondents commented on response time; the following summarizes these points.

- **Varied Expectations for Response Times:** There's a range of opinions on what an ideal response time should be, with some people suggesting that it should be as low as under 2 minutes, while others consider 10 to 15 minutes reasonable. This variation indicates that public perception of acceptable response times differs widely.
- **Impact of External Factors:** Many responses acknowledge that factors such as traffic conditions, weather, and the nature of the emergency (e.g., life-threatening situations vs. inspections and training) significantly affect response times. There's an understanding that these factors make setting a fixed goal for response times challenging.
- **Need for Rapid Response in Critical Situations:** Several comments emphasize the urgency of quick response in life-threatening situations, suggesting goals of around 3 to 5 minutes. The importance of fast response is highlighted in heart attacks, house fires, and other emergencies where every second counts.

This inquiry intends to gauge the residents' expectations and not necessarily to match a standard or regulation. As the comments allude to, there is a wide array of thoughts and opinions on response time expectations.

Communications

Respondents were queried about the methods the Fire Department could use to communicate with the residents and businesses in the City. Respondents were allowed to have multiple selections for their responses.

Table 8: Methods of Communication

Method	Pct.	Count
Facebook	77.2%	295
City/Department website	67.5%	258
Text	59.9%	229
Email	58.9%	225
Public meetings (in person)	43.7%	167
Instagram	38.0%	145
Hard Copy newsletters or mailers	37.4%	143
Newspaper	22.0%	84
X (twitter)	19.6%	75
YouTube	18.6%	71
Other	2.9%	11

Most respondents preferred electronic methods using Facebook, the City website, texts, and email. Comments for this question included using local news media, TikTok, and other social media platforms like Nextdoor.

External Relationships

The community was asked about the effective use of mutual aid and working with the neighboring departments. 359 (85.7%) respondents answered the question, with 60 respondents skipping it. Three statements were used, and the respondents were given five responses ranging from highly supportive to no opinion. The following table illustrates the results.

Table 9: External Relationships Community Expectations

	Extremely Supportive	Very Supportive	Somewhat Supportive	Not Supportive	No Opinion
How supportive are you of having Round Rock's Fire Department look for ways to work together more effectively/efficiently with neighboring fire departments?	72.3%	19.8%	6.1%	1.4%	0.3%
Combined training with other fire departments in the area.	74.7%	18.9%	4.2%	1.4%	0.8%
Fire Stations jointly operated between Round Rock Fire Department and neighboring fire departments.	52.8%	15.6%	17.0%	13.1%	1.4%

According to the first two statements, approximately 90% of the respondents support working with neighboring fire departments. Regarding the joint operation of a fire station, the response was mixed, with 68.4% of the respondents supporting the endeavor and 31.6% having mixed or no opinions. In the open-ended responses at the end of the survey, ten responses were not supportive of a joint station operation.

Customer Interaction

The survey questioned the respondents if they had used the emergency services provided by the Fire Department in the past thirty-six months. As RRFD does not provide EMS transport services, respondents were not asked about the quality of medical care. They were allowed to rate those services if they had utilized any emergency services.

Respondent Interactions

Respondents were asked if they utilized any emergency services provided by the Fire Department.

Table 10: Community Services Utilization

Response	Count	Pct.
Yes	214	55.7%
No	170	44.3%
Total	384	100.0%

The total number of respondents to the survey was 419; of those, 384 (91.6%) responded to this question. Of the 384 respondents to this question, 214 (55.7%) have had some form of interaction with the emergency services provided by the Fire Department.

Interactions with Personnel

Respondents were asked to rate their experience with the Fire Department personnel. Of the 214 emergency service respondents, 202 (94.4%) responded to the following statements.

Table 11: Community Interactions with Personnel

Statement	Excellent	Good	Fair	Poor	No Opinion
Knowledge of the personnel.	72.1%	17.9%	1.0%	2.5%	6.5%
Responsiveness of the personnel.	71.9%	19.6%	1.5%	1.5%	5.5%
Courtesy of the personnel	81.9%	12.6%	2.0%	2.0%	1.5%
Your overall impression of the personnel.	78.5%	16.0%	2.5%	1.5%	1.5%

Over 90% of the respondents opined the knowledge and responsiveness of personnel was excellent or good. About 95% of the respondents opined that the courtesy and overall impression of the personnel were excellent or good. Supporting comments for these interactions are summarized as follows:

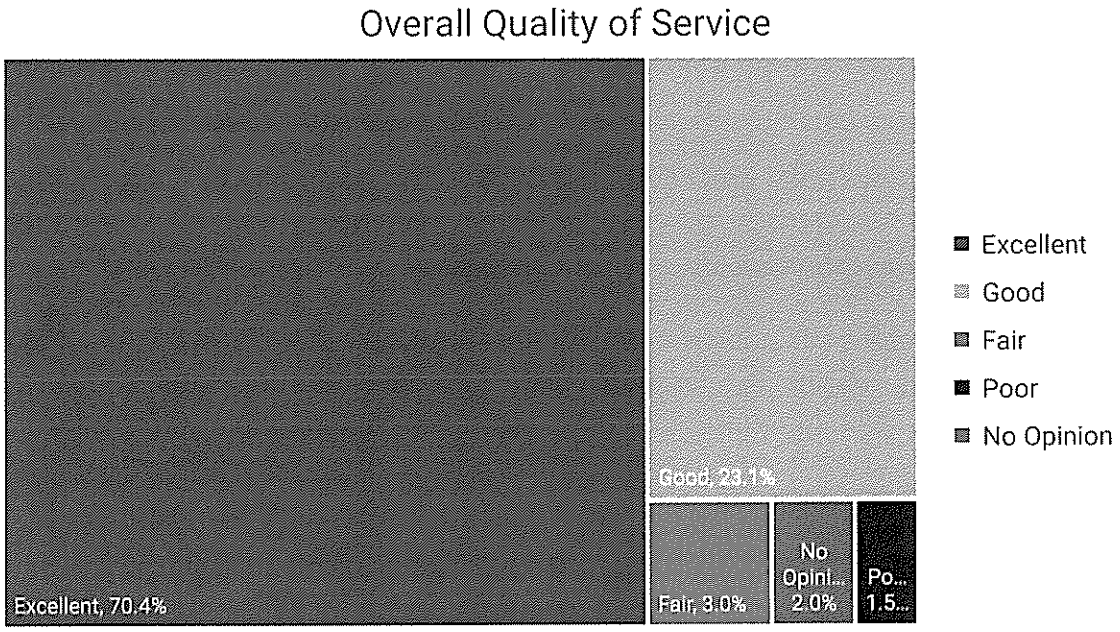
- **Positive Experiences with Response Teams:** Many individuals recounted experiences where the response team was excellent, particularly in medical emergencies like cough syncope or accidents. They were described as professional, knowledgeable, and very helpful.
- **Emergency Situations Handled with Care:** In emergencies, like accidents or medical episodes, the fire department personnel were noted for their kindness and professionalism. Even in non-critical situations, such as helping someone up after a fall, they were commended for their compassionate approach.
- **Swift and Effective Emergency Responses:** Many stories highlighted the quick and efficient response of the fire department to emergency calls, with instances of life-saving interventions in medical emergencies like strokes or sepsis.
- **Areas of Concern and Improvement:** Despite many positive reviews, some experiences were less favorable. There were instances where the response was

perceived as slow or lacking urgency, particularly in critical situations like cardiac arrests, leading to dissatisfaction and distress for the families involved.

Overall, the feedback reflects high satisfaction with the professionalism, kindness, and effectiveness of the fire department and emergency response teams, along with areas where respondents see room for improvement.

Overall Quality

Respondents were asked to provide their overall impression of the Fire Department.



Over 90% of the respondents rated their overall experience as excellent or good.

Open Ended Response

The final section of the survey provided an open-ended statement to allow the respondents to further explain their responses to the previous questions and statements. It also allowed the respondents to express their thoughts about the Fire Department, which may not have been addressed in any earlier sections.

Supplemental Comments

The statement for this section is as follows: Please elaborate on any questions or provide any additional comments. There were 419 responses to the survey, with 50 (12%) respondents providing supplemental comments to this statement.

- **Community Engagement and Education:** There's a call for continued educational programs, especially in schools, and suggestions for more tools and resources for fire prevention education.
- **Mutual Aid and Joint Operations:** Opinions are mixed on mutual aid and joint operations with neighboring fire departments. While some see it as necessary, especially in under-resourced areas, others express concerns about response times, varying standards, and the potential impact on local services. There are concerns about managing shared facilities between multiple departments, particularly cost-sharing, maintenance, and supplies.
- **Response Times and Emergency Services:** Concerns about emergency response times are raised, with personal accounts indicating severe consequences due to delays.
- **Resource Allocation and Expansion:** There's support for expanding and modernizing fire stations to serve growing populations better and establish an ambulance transport service.

While there is a significant appreciation for the fire department's work, the feedback highlights concerns about the logistics and effectiveness of shared operations, maintaining high service standards, and efficiently using resources.

Additional Rating Comments

The statement for this section is as follows: Please elaborate on any ratings you gave the Fire Department regarding their services or employees that you believe need further explanation. There were 419 responses to the survey, with 30 (7%) respondents providing additional comments to this statement.

- **Appreciation and Support:** There's strong community appreciation for the RRFD, with residents expressing gratitude and pride in the department's service.
- **Efficiency and Capability:** The RRFD is commended for efficiently managing its duties in a rapidly growing environment. The strategic placement of fire stations for optimal access to various areas is also praised.
- **Community Involvement:** There's a suggestion to enable the community through training and encourage preventative measures.

- **Response Time and Quality of Service:** The RRFD is recognized for its excellent response time and high-quality service, with some respondents noting their exceptional ISO rating.
- **Resource Expansion:** There's a call for expanding the department's resources to support their efforts and benefit the community, including addressing any perceived deficiencies and implementing necessary policies. Concerns are raised about staffing levels, specifically the need for four-person staffing per unit, as the National Fire Protection Association (NFPA) recommends

The Round Rock community holds the RRFD in high regard, appreciating their efficiency, professionalism, and quality of service. While there is a call for better staffing and expanded resources, the overall sentiment is exceptionally supportive and proud of their fire department.

General Comments

The statement for this section is as follows: Is there any additional information you would like the City to provide residents with about the Fire Department or Fire Department services in Round Rock. There were 419 responses to the survey, with 45 (11%) respondents providing additional comments on this statement.

- **Fire Station Locations and Accessibility**: Requests are made for new fire stations in specific areas like North Round Rock. Residents are interested in maps and information about the nearest fire stations.
- **Community Outreach and Education**: Suggestions include more public safety announcements, senior program outreach for smoke detector assistance, and participation in community events. The idea of open houses to meet firefighters and programs similar to Citizen's Police Academy is proposed.
- **Communication and Information**: There's a desire for better communication from the RRFD, including more detailed explanations of services, presence at neighborhood association meetings, and more significant social media or newsletter presence. Requests for non-emergency contact numbers and information hotlines are also mentioned. There are suggestions for more public service announcements about fire prevention, rules regarding fireworks, and blocking fire lanes/hydrants.
- **Services and Policies**: Interest is shown in understanding the specific services provided to the City versus County areas and why particular policies are in place.

In summary, while there is a high level of satisfaction and appreciation for the RRFD, the community also desires improved communication, expanded services, and continued community engagement and education initiatives.

Employee Contributions

The City of Round Rock (TX) retained the Matrix Consulting Group (MCG) to complete a Community Risk Assessment, Standard of Cover, and Strategic Plan for the Round Rock Fire Department (RRFD). The scope of work included an anonymous survey to gauge the attitudes of the department employees on diverse topics about the department and serving the community. This survey generally asked three types of questions:

- **General questions:** At the beginning of the survey, respondents were asked to provide information about their Fire Department assignment. These responses are used in this analysis to explore differences in responses between groups of respondents.
- **Multiple Choice Statements:** Respondents were presented with multiple choice statements indicating their level of agreement or disagreement with statements on various topics related to the Fire Department. Response options were "strongly agree" (SA), "agree" (A), "neither agree or disagree", "disagree" (D), and "strongly disagree" (SD). Respondents could also opt out of responding to the statement, in which case they were not counted among the responses received for that statement.
- **Open-ended response questions:** Respondents were allowed to provide additional comments after each section. At the end of the survey, staff were given space to give opinions about the department's strengths and weaknesses in their own words.

The survey was distributed electronically to all 180 Fire Department employees in November 2023. A total of 115 responses were received, in varying degrees of completion, for an overall response rate of 63.8%.

Summary of Findings

A complete analysis of survey findings can be found in the sections following the summary of findings. The following subsections summarize key findings of the responses received in this survey.

Respondent Demographics

While the survey was anonymous, the project team asked respondents to indicate their rank, assignment, and years of service within the RRFD. The following tables summarize demographic data collected from these questions.

Table 12: Rank of Respondents

Rank	Number of Respondents	Percentage
Battalion Chief and above	11	9.6%
Captain	16	13.9%
Lieutenant	24	20.9%
Driver/Engineer	26	22.6%
Firefighter	32	27.8%
Civilian	6	5.2%
Total	**115**	**100.0%**

All of the participating employees of the RRFD responded to the question, of which the rank of Firefighter had the highest participation rate at 28%, with the Driver/Engineer rank at about 23%.

Table 13: Station Assignments

Response	Number of Respondents	Percentage
Administration / Prevention / Training	24	20.9%
Station 1	11	9.6%
Station 2	12	10.4%
Station 3	16	13.9%
Station 4	13	11.3%
Station 5	6	5.2%
Station 6	8	7.0%
Station 7	14	12.2%
Station 8	6	5.2%
Station 9	5	4.3%
Total	**115**	**100.0%**

Administration, prevention, and training represented the most significant number of participants, with Stations 3, 4, and 7 rounding out the top four assignments.

The seniority of the respondents is shown in the following table.

Table 14: Seniority of Respondents

Time	Number of Respondents	Percentage
Less than five years	20	17.4%
5 - 10 years	26	22.6%
Over ten years	69	60.0%
Total	**115**	**100.0%**

About 60% of the respondents have at least ten years of service with the RRFD, and another 23% have five to ten years of service. Seniority within the department provides an excellent opportunity to mentor those with less than five years of seniority to ensure future service level continuity.

Strengths of the Fire Department

The following bullet points summarize the strengths of the Fire Department as noted in the responses to this survey:

- Respondents believe that they provide a high level of service to the community and enjoy a healthy, positive relationship with the community.
- Respondents felt the equipment and apparatus were good and appropriate for work performance.
- Training is appropriate for skills maintenance, and the department has a positive relationship with response partners.

Fire Department Improvement Opportunities

The following bullet points summarize the opportunities to improve the Fire Department as noted in the responses to this survey:

- Respondents believe the staffing levels need to be improved.
- Improvements in strategic planning and budget management.
- Training improvements include updated policies and more comprehensive training in languages other than English and Spanish.

Service to the Community

This section provided eight statements related to the service provided to the community by the RRFD. The respondents were asked to provide their opinions based on these statements. The response options were "strongly agree" (SA), "agree" (A), "disagree" (D), and "strongly disagree" (SD). Respondents could also choose "neither agree or disagree" to indicate neutral feelings or opinions. Respondents could also opt out of responding to the statement, in which case they were not counted among the respondents for that statement.

Community Relationships

Respondents were asked to indicate their level of agreement with four statements regarding their perception of the department's relationship with the community. In general, the respondents believe they provide a high level of service to the City and enjoy a positive relationship with those they serve.

Table 15: Community Relationships

Statement	SA	A	Neither Agree nor Disagree	D	SD
Our Department provides a high level of service for the community.	54%	33%	4%	8%	0%
Residents view our Department as a high priority.	46%	37%	15%	2%	0%
Our Department has positive relationships with our residents.	64%	32%	4%	0%	0%
Our approach to providing services improves the quality of life in the City of Round Rock	39%	36%	16%	5%	4%

As shown, most respondents opined they provide high service levels and are respected by the community. Also, they feel that the approach to delivering service improves the quality of life and that they have a positive relationship with the residents.

External Agency Relationships

In this sub-section, the respondents provided their opinions on their relationships with other regional emergency service providers. Mutual aid received and provided were asked separately. About 73% of the respondents felt the department provides effective mutual aid; however, 21% felt the mutual aid received was not as effective.

Table 16: External Relationships

Statement	SA	A	Neither Agree nor Disagree	D	SD
Our department has positive relationships with our response partners.	20%	66%	12%	2%	0%
We provide effective mutual aid to neighboring fire departments.	31%	42%	21%	5%	0%
We receive effective mutual aid from our neighboring fire departments.	4%	17%	33%	31%	15%
There are opportunities to improve shared services with neighboring agencies.	26%	55%	14%	3%	3%

Respondents believe there are opportunities to improve shared services, with 81% providing a positive response.

Management and Administration

This section provided seventeen statements related to the management and administration of the RRFD. The respondents were asked to provide their opinions based on these statements. The response options were "strongly agree" (SA), "agree" (A), "disagree" (D), and "strongly disagree" (SD). Respondents could also choose "neither agree or disagree" to indicate neutral feelings or opinions. Respondents could also opt out of responding to the statement, in which case they were not counted among the respondents for that statement.

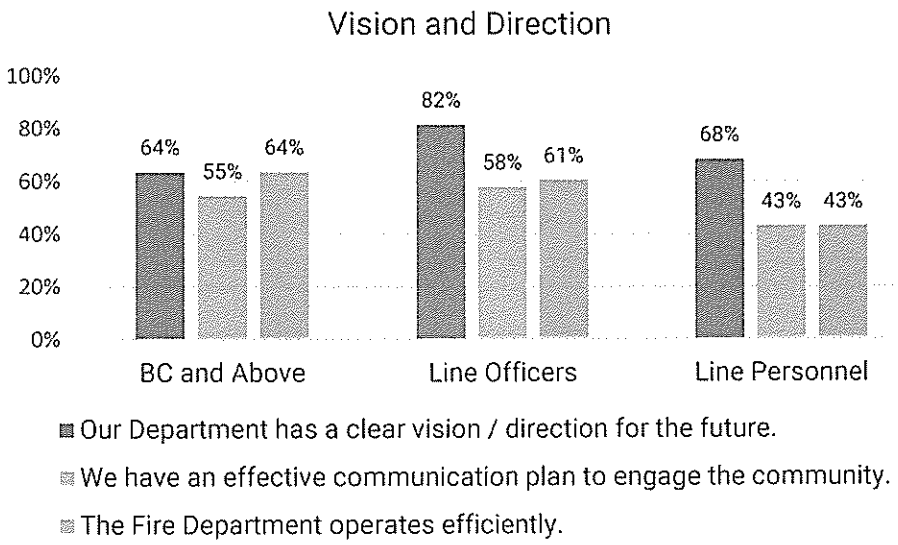
Fire Department Vision and Direction

Respondents provided their opinions related to the future direction of the Fire Department. Individual performance expectations received a 71% positive response, but 48% opined there is no effective communication plan with the residents.

Table 17: Vision and Direction

Statement	SA	A	Neither Agree nor Disagree	D	SD
Our Department has a clear vision / direction for the future.	3%	11%	17%	36%	33%
I am kept informed of important Department information.	6%	29%	27%	29%	10%
My performance expectations are made clear.	19%	52%	17%	11%	1%
We have an effective communication plan to engage the community.	5%	21%	26%	41%	7%
The Fire Department operates efficiently.	4%	20%	26%	34%	17%
The Fire Department does a good job in recruiting local residents for positions in the Department.	7%	20%	42%	19%	12%

About 69% of the respondents opined the Department does not have a clear vision or direction for the future, and 51% believe the Department does not operate efficiently. The following chart provides an additional view of three statements that received negative responses.



In the previous chart, the ranks of the employees were used to break down the results further. The line officers are Captains and Lieutenants, and line personnel are drivers and firefighters. All three statements' negative responses are over 50%, except for the line personnel for the communications and efficiency statements. All three groups are similar, indicating the issues are more systemic than within a single group.

Fire Department Policies

Respondents were asked about the policies and procedures of the fire department. Most respondents agreed they are current and clearly defined.

Table 18: Policy and Procedures

Statement	SA	A	Neither Agree nor Disagree	D	SD
Department policies are current.	10%	47%	29%	13%	2%
Policies related to operations are adequate and clearly defined.	10%	48%	29%	8%	4%
Department policies are routinely reviewed.	6%	34%	38%	15%	6%
Department policies are consistently updated to improve our operations.	7%	24%	38%	27%	4%

Between 30% and 40% of the respondents did not express an opinion on these four statements. The lack of an opinion indicates an opportunity to improve the policies and procedures of the Department related to consistency, currency, and routine reviews.

Organizational Structure

Respondents were asked to indicate their level of agreement with three statements regarding their perception of the Fire Department's organizational structure.

Table 19: Organizational Structure

Statement	SA	A	Neither Agree nor Disagree	D	SD
The current organizational structure is appropriate for our Department.	7%	28%	21%	27%	17%
The supervision at emergency scenes is sufficient.	17%	50%	15%	15%	3%
Spans of control in the Fire Department are appropriate.	9%	51%	17%	15%	8%

Supervision at emergency scenes and span of control received positive responses but was not overwhelming support. The organizational structure is relatively even related to positive and negative reactions. These responses may be related to the staffing issues noted in the comments section of the surveys.

Finance and Budget

These statements are directed at the budget and the use of overtime. Respondents were primarily pessimistic about budgeted funds and capital planning. About 80% of the respondents opined that budgets and capital planning need improvement.

Table 20: Financial Resources

Statement	SA	A	Neither Agree nor Disagree	D	SD
Budgeted funds allow our Department to operate effectively.	4%	6%	12%	32%	46%
The Department is effective at capital planning.	2%	4%	13%	37%	46%
Overtime assignment policies ensure equal opportunities for overtime.	14%	40%	29%	10%	6%
I am not required to work excessive amounts of overtime.	27%	40%	21%	8%	4%

Over half the respondents were satisfied that the overtime opportunities were equally available. Most of the respondents felt the overtime was not excessive.

Staffing and Operations

This section provided twelve statements related to staffing and operations of the Fire Department. The respondents were asked to provide their opinions based on these statements. The response options were "strongly agree" (SA), "agree" (A), "disagree" (D), and "strongly disagree" (SD). Respondents could also choose "neither agree or disagree" to indicate neutral feelings or opinions. Respondents could also opt out of responding to the statement, in which case they were not counted among the respondents for that statement.

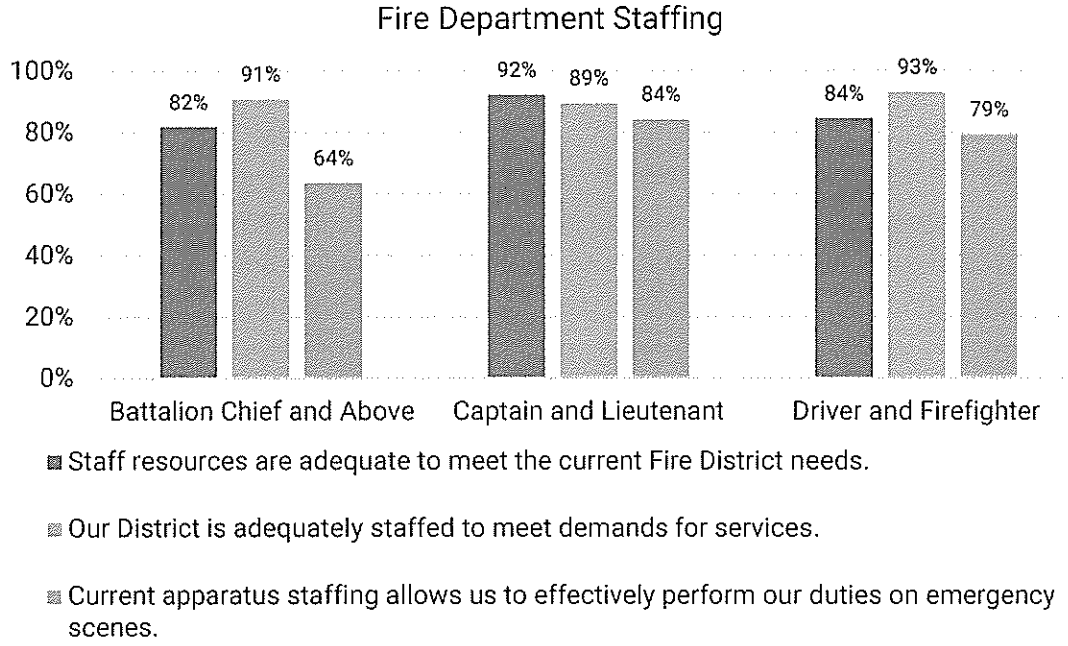
Staffing Resources

In this first sub-section, the staffing of the Fire Department is addressed. The respondents feel they work well with each other on calls for service, with 96% in agreement.

Table 21: Fire Department Staffing

Statement	SA	A	Neither Agree nor Disagree	D	SD
Staff resources are adequate to meet the current Fire Department needs.	1%	4%	10%	38%	47%
Our Department is adequately staffed to meet demands for services.	2%	3%	5%	33%	57%
Current apparatus staffing allows us to effectively perform our duties on emergency scenes.	2%	4%	18%	28%	48%
Our personnel work well with each other on calls for service to which they respond.	49%	46%	4%	0%	0%
The current shift staffing model works well.	21%	20%	21%	20%	18%

Most respondents believe the staffing does not meet the needs of the Fire Department or the services provided. The following chart provides an additional view of three statements that received negative responses.



In the previous chart, the ranks of the employees were used to break down the results further. The line officers are Captains and Lieutenants, and line personnel are drivers and firefighters. All three statements' negative responses are over 60%. The staffing issue appears more systemic, with all three groups expressing similar opinions.

Communications

About 60% of the respondents agree that the current dispatch system works well for the Fire Department, with 13% disagreeing.

Table 22: Communications

Statement	SA	A	Neither Agree nor Disagree	D	SD
The 911 Dispatch system works well for Fire/Rescue calls,	13%	50%	25%	12%	0%
Dispatch information provided to us on incidents is accurate.	8%	48%	31%	12%	1%
Dispatch information provided to us on incidents is received in a timely fashion.	10%	58%	27%	4%	1%

About 30% of the respondents did not express an opinion about the communications system.

Training and Education

Respondents were asked to indicate their level of agreement with four statements regarding their perception of the department's training needs.

Table 23: Training and Education

Statement	SA	A	Neither Agree nor Disagree	D	SD
We receive the practical training we need to keep all of our skills high.	27%	58%	10%	4%	1%
Our Department places a high value on ensuring proper training for field personnel.	35%	55%	6%	3%	1%
Training facilities are adequate for practical training evolution's and activities.	54%	37%	4%	6%	0%
Our Department places a high value on Health and Wellness programs.	13%	35%	27%	19%	7%

Respondents overwhelmingly support training and education programs but are slightly less agreeable on topics related to health and wellness programs. About 47% of the respondents opined the Department places a high value on health and wellness

programs. The remaining respondents are evenly split between those with no opinion and those who disagree with the statement.

Physical Resources

This section provided eight statements related to the physical resources of the Fire Department. The respondents were asked to provide their opinions based on these statements. The response options were "strongly agree" (SA), "agree" (A), "disagree" (D), and "strongly disagree" (SD). Respondents could also choose "neither agree or disagree" to indicate neutral feelings or opinions. Respondents could also opt out of responding to the statement, in which case they were not counted among the respondents for that statement.

Apparatus and Equipment

Respondents were asked to indicate their level of agreement with four statements regarding their perception of the department's apparatus and equipment.

Table 24: Apparatus and Equipment

Statement	SA	A	Neither Agree nor Disagree	D	SD
We have the appropriate apparatus to provide high levels of service.	15%	43%	12%	16%	14%
Our apparatus has the appropriate equipment to provide effective services.	29%	61%	7%	4%	0%
Our fire apparatus is well maintained.	63%	35%	3%	0%	0%
Our fire equipment is well maintained.	60%	38%	3%	0%	0%

Respondents were overwhelmingly agreeable to the apparatus and equipment being appropriate and well-maintained.

Facilities

Respondents were asked to indicate their level of agreement with four statements regarding their perception of the department's facilities.

Table 25: Facilities

Statement	SA	A	Neither Agree nor Disagree	D	SD
The locations of our fire stations are effective in meeting the needs of the City.	2%	17%	21%	38%	23%
Our fire stations provide a safe workplace.	36%	54%	5%	2%	3%
Our fire stations are well maintained.	15%	49%	14%	15%	6%
Our fire stations meet the needs of the City.	6%	27%	23%	31%	14%

Respondents opined that while the facilities provided a safe workplace, many expressed that the stations were ineffective in meeting the City's needs. About 21% felt the maintenance could be improved, while 14% had no opinion.

Open Ended Responses

This section of the survey provided four open-ended statements to allow the respondents the opportunity to explain or expound upon their responses to the above-noted sections. It also provided a mechanism for the respondents to express their thoughts on strengths and potential for improvements within the Fire Department.

Strengths of the Fire Department

Of the 115 respondents, 49 (43%) provided comments addressing their views of the strengths of the Fire Department. Based on the comments, the themes in those responses provided the following points.

- **Quality of Equipment and Apparatus**: Many responses highlight the high quality of the equipment and apparatus used by the department. There's a general appreciation for the current state of these tools, though some responses suggest a need for upgrades or enhancements.
- **Training and Professional Development**: Training facilities and opportunities for professional growth are frequently mentioned as strengths. The organization seems to place a high value on training and ensuring the workforce is well-prepared. However, there's also an indication that the training facilities are underutilized and could benefit from improvements.
- **Personnel Dedication and Teamwork**: The commitment and dedication of individual personnel to the department are consistently noted as a key strength.

There's an emphasis on a solid work ethic, camaraderie, and the ability to work effectively as a team, especially in challenging conditions with limited resources.

These themes underscore the organization's focus on maintaining high-quality equipment, investing in training and professional growth, and the importance of a dedicated and cohesive team to its success. Despite challenges such as inadequate staffing and resource limitations, the responses reflect a positive outlook toward the department's capabilities and potential.

Improvement Opportunities

Of the 115 respondents, 50 (43%) provided comments addressing their views of opportunities to improve the Fire Department. Based on the comments, the themes in those responses provided the following points.

- **Staffing and Personnel Needs:** This is a recurring theme in many responses. There is a strong emphasis on the need for more personnel, specifically four-person staffing on apparatus, additional administrative and support staff, and more firefighters. This concern is often linked to the need to keep up with the department or City's growth and provide adequate coverage and response times.
- **Leadership and Management:** Many responses highlight concerns regarding leadership and management within the department. This includes critiques of the current leadership style, the need for better vision and strategic planning, improved accountability at all levels, and better budget management. The feedback suggests a desire for more proactive and effective leadership.
- **Infrastructure and Resource Allocation:** The responses frequently mention the need for more fire stations to improve city coverage and response times, better or more modern equipment and apparatus, and concerns about budget allocation and management. There is also a call for improvements in training facilities and opportunities.

Overall, these responses reflect a workforce that is keenly aware of the operational challenges faced by their department, especially in terms of human resources, leadership, and infrastructure. The feedback indicates a desire for change and improvement in these key areas to enhance the department's effectiveness and efficiency.

Additional Comments

Two open-ended statements allowed the respondents to provide an additional narrative to statements to which they "strongly disagree," the second statement allowed respondents to provide further thoughts or other inputs related to the survey.

Additional Narrative for Strongly Disagree Responses

This statement is designed to allow respondents to provide further comments on statements they strongly disagreed with. The following points summarize the comments.

- **Inadequate Staffing and Resources:** Many respondents express concerns about insufficient staffing levels, particularly the need for four-person staffing on engines and trucks. This is seen as essential for effective and safe fireground operations. There's also a call for more civilian support staff for various departmental functions like Prevention and Training.
- **Poor Strategic Planning and Budget Management:** Several responses highlight issues with budget management, including inefficient capital planning, budget shortfalls, and spending freezes impacting department operations. There's a sense that the department struggles with long-term planning and budget allocation, often reacting to immediate needs rather than following a strategic approach.
- **Challenges in Leadership and Communication:** Department leadership's perceived lack of clear vision and direction is a common theme. Responses indicate that decision-making often seems ad hoc and last-minute, lacking proactive leadership. There's also a call for better communication within the department and more effective engagement with the community.
- **Infrastructure and Location Concerns:** Respondents note concerns about the current and future locations of fire stations, suggesting that some areas are not adequately covered, leading to extended response times. There's also mention of infrastructure issues like mold and disrepair in existing stations.
- **Training and Equipment Needs:** The need for updated training policies and better equipment provisioning is mentioned. Some responses indicate that reserve equipment is not adequately stocked, and there are calls for more comprehensive training in languages other than English and Spanish.

The feedback suggests a desire for a more proactive, well-resourced, and strategically guided approach to department management and operations.

Additional Thoughts, Innovations, or Other Comments

This statement is designed to allow the respondents to comment or provide additional thoughts or innovations on topics related to the survey.

- **Mixed Sentiments about Department Performance:** Responses range from disappointment and frustration to recognition of the department's potential for greatness. There is a sense that while the department has many strong points, it often falls short in certain areas.
- **Staffing and Resource Concerns:** Many respondents express concerns about inadequate staffing levels and needing more personnel, especially four-person staffing on apparatus. The need for more administrative and support staff and concerns about outdated policies and inadequate budgeting are also highlighted.
- **Leadership and Vision:** A call for clearer vision and better leadership from the top. Respondents express a need for more accountable leadership and a better understanding of the department's direction.
- **Facilities and Equipment:** The apparatus's quality and the mechanics' dedication are praised. However, there are concerns about the working conditions of the mechanics and the design of new stations. Suggestions for improvements in facilities and equipment are made.
- **Comparison with Other Departments:** Some responses compare the department unfavorably with neighboring ones, indicating a perception of falling behind in standards and innovations.
- **Inclusivity and Communication Issues:** Non-officers and minority department members feel their viewpoints are often overlooked. There's a sense that the administration could be more inclusive and communicative.
- **Positive Aspects:** Despite the challenges, some responses highlight positive aspects like good external customer service and the potential for improvement and growth.
- **Need for Proactive Planning:** A common theme is the need for the department to shift from a reactive to a proactive approach, particularly in staffing and station placement, to keep pace with city growth.
- **Budget Management and Operational Efficiency:** Concerns about budget mismanagement and the need for more efficient operational planning are noted.

There is a desire for improvement and growth to meet the demands of a growing city and maintain high service standards.

Employee Forums

The employee forums were established using a SWOT Analysis format. The SWOT Analysis uses the following definitions to provide a platform to evaluate an organization.

- **Strengths**: These are internal factors that an organization excels at. They can include a strong brand, loyal customer base, unique technology, or a robust balance sheet.
- **Weaknesses**: These are internal factors that hinder the organization's performance. Examples might be outdated technology, poor financial health, or lack of skilled personnel.
- **Opportunities**: These are external factors that could benefit the organization. Opportunities arise from market trends, changes in regulations, or emerging technologies.
- **Threats**: These are external factors that pose risks to the organization. Threats can include competition, economic downturns, or disruptive innovations.

Twelve employee forums were held on Monday, April 8, 2024; Wednesday, April 10, 2024; Thursday, April 11, 2024; and Friday, April 12, 2024. The groups were not divided by functional areas but were open to anyone who desired to participate.

At the end of each forum, participants were asked to rank their top 3 in order of importance. Their top priority was given three points, their second was given two points, and their third was given one point.

It is important not to lose the points and issues made in these discussions. While the top three issues are shown in the following sections, all the comments and issues are included in the appendix. Including all the comments and issues will illustrate the diversity of the discussions and the ideas and opinions of the employees.

Strengths of the Organization

The following table illustrates the top three points from each group.

Table 26: Employee Forums Organizational Strengths – Top Comments

Group 1	Group 2	Group 3	Group 4
• Pay Scale • Passion of the personnel • Apparatus and Equipment • Employee retention.	• Training Facility • Quality of Personnel • Support of the Community	• Current shift schedule • Equipment • Quality of Stations. • Apparatus • Training Opportunities	• High-performing personnel. • Organizational resiliency. • Apparatus and Equipment.
Group 5	**Group 6**	**Group 7**	**Group 8**
• Customer service. • Apparatus maintenance. • Continual improvement mindset. • Training resources. • Quality stations, equipment, and apparatus	• Training Opportunities • Apparatus, equipment, and stations. • Shift schedule.	• Training opportunities • Apparatus and equipment. • Organizational culture of high performance.	• Personnel (do more with less, knowledge). • Shift Schedule • Equipment.
Group 9	**Group 10**	**Group 11**	**Group 12**
• Community image • Quality of personnel • Training facilities.	• Apparatus and equipment • Public support • Training opportunities	• Public relations • Training programs • Apparatus maintenance • Personnel • Training opportunities	• Quality personnel • Training facilities • Well equipped • Training programs

Those groups with more than three comments had a tie for the third-ranked item. Apparatus, equipment, and stations were ranked high by most groups. Training facilities and opportunities were also ranked high by most of the groups.

Weaknesses of the Organization

The following table illustrates the top three points from each group.

Table 27: Employee Forums Organizational Weaknesses – Top Comments

Group 1	Group 2	Group 3	Group 4
• Fire Department keeping pace with the growth of the City.	• Minimum staffing of 3 personnel on apparatus	• Minimum staffing of 3 personnel on apparatus	• Minimum staffing of 3 personnel on apparatus
• Operational Staffing.	• Deployment plan not aligned with growth, risks, and community needs.	• Station locations	• Fire department not keeping up with community growth.
• Long Response Times in several fire zones.	• Future station location planning.	• Squad deployment plan.	• Lack of follow-through on strategic initiatives.
Group 5	**Group 6**	**Group 7**	**Group 8**
• Minimum staffing of 3 personnel on apparatus	• Minimum staffing of 3 personnel on apparatus	• Minimum staffing of 3 personnel on apparatus	• Manpower
• Operational supply budget no keeping up with growth in department.	• Long response times to developing areas of the City.	• Administration does not listen to line staff.	• Future planning.
• Lack of execution of strategic plans.	• Fire department ability to keep up with community growth.	• Too much interference of fire department by HR and City Hall.	• Budget not meeting the needs of the fire department.
	• Input from line staff ignored by fire department leadership.	• Support staffing levels (administration and logistics)	
	• Budget not aligned with operational needs.		
Group 9	**Group 10**	**Group 11**	**Group 12**
• Shift staffing of 3-person minimum	• Shift staffing of 3-person minimum	• Shift staffing of 3-person minimum	• Minimum staffing on apparatus
• Support staffing levels	• Administrative staffing levels	• Fire department services not keeping pace with growth.	• Robbing Peter to pay Paul
• Fire Chief's lack of vision for the future.	• Logistics staffing and supply chain issues	• Staffin not aligned with community risk profile.	• Overreaching HR practices.
		• Budget process for operational line items.	• Response times.
		• Station staffing levels.	

Those groups with more than three comments had a tie for the third-ranked item. Several groups addressed community growth and maintaining service levels. Every group also noted the staffing of the apparatus.

Opportunities for the Organization

The following table illustrates the top three points from each group.

Table 28: Employee Forums Organizational Opportunities – Top Comments

Group 1	Group 2	Group 3	Group 4
• Full utilization of ESD Funds for fire department purposes	• Using fire department generated revenue to support fire department needs.	• Dedicated fire dispatchers in emergency communications.	• Increased staffing of Critical Response Unit to allow 24/7 coverage.
• Charging outside agencies to use the Training Center	• Partnering with auto aid agencies (annex Hutto 3 into Round Rock ESD).	• Charging for external agencies using the training center.	• Competitive pay for civilian fire department personnel.
• Charging skilled care facilities for non-emergent lift assists.	• Increased focus on acquiring available grant funding.	• Implementing fire impact fees for development/redevelopment.	• Updating the apparatus replacement timelines to align with supply chain.
Group 5	**Group 6**	**Group 7**	**Group 8**
• Planning fire department resources to align with growth in the City.	• Using ESD funds to effectively service the District.	• Improved media relations/public communication/social media efforts.	• Implementing 4-person staffing.
• Dedicated fire dispatchers in emergency communications.	• Citizen and Council education of fire department services and needs.	• Charging skilled care facilities for non-emergent lift assists.	• Constructing stations in annexed and developing areas.
• Charging skilled care facilities for non-emergent lift assists.	• Using excess fund balance money for immediate needs (construction finance fund)	• Effective staffing/compensation of the Crisis Response Unit.	• Growth within the fire department.
• Charging outside agencies to use the Training Center		• Billing for non-911 services.	

Group 9	Group 10	Group 11	Group 12
• Better use of staff knowledge, skills, and abilities in decision making. • Capitalizing on income opportunities related to growth (impact, inspection, plan review). • Charging skilled care facilities for non-emergent lift assists.	• Community support to fund bond initiatives. • Implementing fire impact fees. • Charging outside agencies to use the Training Center • Accounting for deployment reimbursements to fund fire department needs.	• Education of Council more frequently on importance of key fire department issues. • Improved use of data in decision making. • Fire impact fees.	• Fully staffing vacancies • Better planning for future needs • Implement the strategic plan.

Opportunities for the organization centered on funding from the ESD, charging for services, and charging for using the training facility.

Threats to the Organization

The following table illustrates the top three points from each group.

Table 29: Employee Forums Threats to the Organization – Top Comments

Group 1	Group 2	Group 3	Group 4
• City growth outpacing fire department capacity. • Priority of fire department issues by City Management. • Micro-management of fire department by HR and City Management.	• Costs outpacing the budget. • Too much oversight by HR on hiring and promotional processes. • Improved relationship between labor and City Management.	• Development/redevelopment outpacing fire department capacity. • Property tax reform • Loss of ESD district due to annexation from neighboring cities.	• Budget allocations not funding staffing needs • Robbin Peter to pay Paul (suppression staff pulled for academies) • Vertical growth without staffing to meet deployment needs.

		• Operational tactics are not equal to similar communities.	• Loss of ESD district due to annexation from neighboring cities.
Group 5	**Group 6**	**Group 7**	**Group 8**
• Growth outpacing fire department service capacity.	• Continued development/growth outpacing fire department capabilities.	• HR interference.	• Not staffing stations to meet community needs.
• Reliance on automatic aid partners as first due resource.	• Continued lack of implementation of plans.	• Community growth outpacing fire department ability to provide needed services.	• Squads not deployed properly.
• Lack of accepted input from line personnel.	• Lack of accepted input from line personnel.	• Not adding additional response resources as stations are built.	• Growth and call volume outpacing fire department capabilities.
• Continued reactive decision making.			
Group 9	**Group 10**	**Group 11**	**Group 12**
• Growth continues to outpace staffing and resource capabilities.	• Growth outpacing ability of fire department to service community needs.	• Growth outpacing ability of fire department to service community needs.	• HR interference in fire department on non-HR issues.
• HR interference in fire department issues.	• Continuing to rob Peter to pay Paul.	• HR interference in fire department on non-HR related issues.	• Growth of City outpacing fire department ability to provide services.
• Ineffective/inappropriate budgeting and funding of services.	• Budget allocations not meeting service needs.	• Chief too focused on pleasing City Hall vs. leading the agency.	• Lack of adequate support staff.
	• Administrative support not aligned with line staffing.		
	• Rising costs of construction materials and goods.		

The community's growth and the impact of service levels were a part of every group. Several groups also cited staffing issues in administrative support and operations.

Community Risk Assessment

Risk Factors and Categories

Risk is the possibility of loss, injury, or other unwelcome adverse circumstances or events. As a community, we try to reduce the effects of unwanted occurrences through mitigation efforts before an emergency and using services such as police departments, public works, and fire departments to mitigate the incident once it occurs. Determining the fire and non-fire risks in a community provides the foundation to develop mitigation strategies and the resources needed should that incident happen. Components used in the risk assessment are further defined in the following sections.

Identification

The first step is to identify the risks in a community. These are determined by the emergency services' responses, including emergency medical calls and fires. Further identification of the types of emergency medical calls and fires will allow a more defined risk assessment. In addition to the types of response by the emergency services, natural and manufactured hazards also impact a community. These events range from earthquakes and floods to hazardous material incidents and acts of terrorism. These events may not occur as often as an emergency medical call, but they can have a lasting effect on the community.

Risk Evaluation

Risk assessment models typically used for a community risk assessment use a two-axis probability and consequences model to evaluate a designated risk. A three-axis risk categorization is a framework used to assess and classify risks based on three key dimensions or axes. Each axis represents a specific aspect or characteristic of risk, allowing for a more comprehensive understanding and analysis of potential threats. Here are three common examples of risk categorization axes:

- **Probability Axis:** The probability axis assesses the likelihood of an event occurring. It typically ranges from low to high or can be represented numerically from 1 to 5 or 1 to 10. A low probability suggests that the risk event is improbable, while a high likelihood indicates a greater chance of occurrence.
- **Consequence Axis:** This axis evaluates an event's potential consequences or impacts. It considers the severity, magnitude, or extent of harm or damage resulting from the event. The impact axis can also be represented on a scale, such

as low to high or 1 to 5, reflecting the level of damage or disruption caused by the risk.

- **Emergency Services Axis:** The emergency services axis focuses on the extent to which effective response capabilities or mitigation strategies are in place to manage the risk. The emergency services axis helps determine the level of preparedness and the ability to respond to and mitigate the identified hazards.

By combining these three axes, fire departments can assess and categorize risks based on their likelihood, impact, and the response capabilities in place. This categorization enables a more nuanced understanding of risks and facilitates prioritization and allocation of resources for risk management efforts.

Probability

Probability is the likelihood of an unwanted event occurring within a given period. Events that occur weekly are highly probable, while those that occur annually are less likely. The following matrix provides a method to score the probability of an event occurring. While there are various methods to quantify the probability, the following table was adapted from the Community Risk Assessment guide developed as a part of the Vision 20/20 project[1].

Table 30: Probability

Probability Score	Descriptor	Description
2	Unlikely	• Events may only occur in exceptional circumstances. • Greater time than annually.
4	Possible	• It might occur at some time – annually. • There are no recent recorded incidents.
6	Probable	• Likely to or may occur/recur – quarterly. • There is strong anecdotal evidence it will occur.
8	Highly Probable	• Likely to or may occur/recur – weekly. • High level of recorded incidents or strong anecdotal evidence.
10	Frequent	• It occurs at least daily or multiple times each day.

[1] Community Risk Assessment https://strategicfire.org/

Consequence

Consequence measures a disparate outcome defined by loss of life, property, or historic values. There may also be additional economic considerations, such as loss of jobs and tax revenue. The following matrix provides a method to score the consequences to the community that an event may create.

Table 31: Consequence

Consequence Score	Descriptor	Description
2	Insignificant	• 1 or 2 people affected, minor injuries/property damage • A small number are displaced, and little outside support is needed. • No environmental concerns.
4	Minor	• A small number (<10) of injuries but no fatalities. • Minor medical treatment is required. • Some displacement is possible (less than 24 hours) with minimal support needed. • No lasting environmental effects.
6	Moderate	• Limited number of people affected (11 – 50). • Some hospitalizations but no fatalities. • Dozens may be displaced for up to 24 hours and need outside support. • Some environmental impacts with short-term effects.
8	Significant	• More than 25 people are affected. • Multiple serious injuries and hospitalizations with possible multiple fatalities. • Large numbers are displaced, and there is a definite need for outside resources. • Significant environmental impact with long-term effects.
10	Catastrophic	• Large numbers of people (>100) are affected with multiple hospitalizations and fatalities. • Widespread, long-term displacement with a definite need for outside resources. • Damage to infrastructure and loss of critical services. • Significant long-term environmental impact and the community needs long-term support.

Impact on Emergency Services

The risk assessment model being utilized is a three-axis model that allows a deeper look at how a community is affected by hazards. Round Rock Fire Department (RRFD) is accountable for fire response, medical response, rescue response, wildfire response, and hazardous materials response. This third axis of the risk assessment scores the impact on the RRFD to provide the services needed to the community during specific hazards.

The following matrix illustrates the impact score and what may be an example of the type of call creating that impact. The score is based on the number of units assigned to the type of call. For example, a moderate impact will utilize approximately 25% of the available resources that may impact other calls for service.

Table 32: Impact on the Round Rock Fire Department

Impact Score	Descriptor	Description
2	Minimal	• 5 or less personnel – Example – Low-risk EMS calls (sick person, minor injury). (1 to 2 units) • 6 – 8 personnel – Example – Low-risk fires, service calls, moderate-risk EMS calls. (2 units) • 9 – 12 personnel – Example – Low-risk hazardous materials calls, auto accidents with entrapment. (3 units) • 13 – 18 personnel – Example – Moderate risk structure fire, high-risk hazardous materials. (4 to 6 units) • > 18 personnel – Example – Maximum/High-risk structure fires, large wildland fires, natural disasters. (more than 6 units)
4	Minor	
6	Moderate	
8	Significant	
10	Catastrophic	

Risk Assessment Methodology

Considering the three-axis model, Heron's Formula is used to calculate a score for the risk. The formula uses the scores from probability(P), consequence(C), and impact(I) to create the overall quantitative score.

$$\text{Risk} = \sqrt{\frac{(PC)^2+(CI)^2+(IP)^2}{2}}$$

Using the score derived from the previous calculation provides a mechanism to rank the various risks faced by the community and the RRFD. The following table highlights the level of risk based on the score.

Score	Overall Level of Risk
0 – 24.99	Low
25 – 49.99	Moderate
50 - 100	High

Natural Hazard Assessment

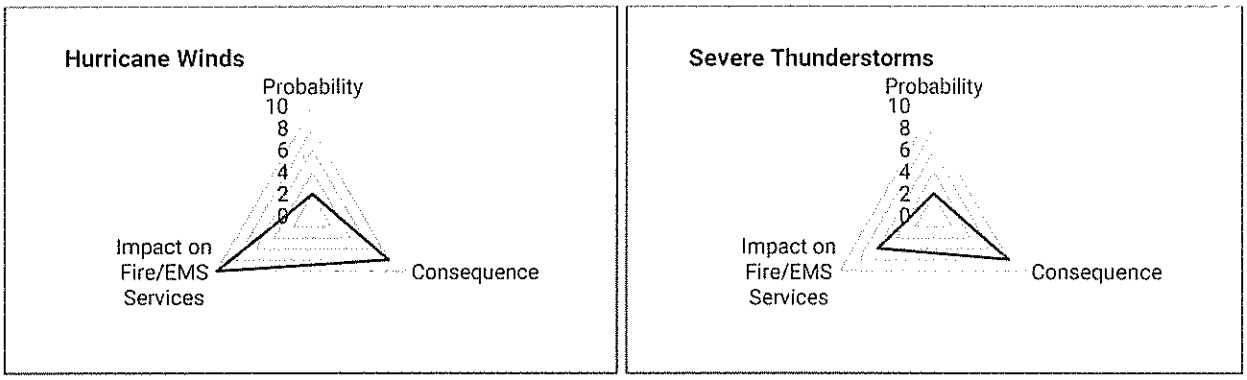
The City of Round Rock developed a Hazard Mitigation Plan[2] (HMP) in 2018. This plan is a valuable source of natural hazard identification, probability, and vulnerability of the various hazards that may impact the residents and businesses of the City. These events will be highlighted further in the following sections, including their impact on the RRFD.

Atmospheric Hazards

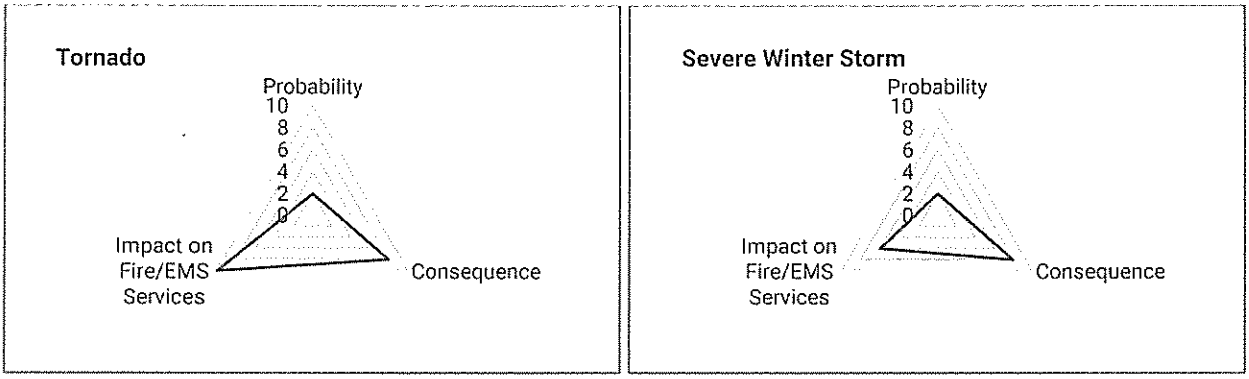
Hazards in this category are identified in the HMP as hurricane winds, severe thunderstorms, tornados, severe winter storms, and hail. These are typically widespread events, meaning they will affect large areas of the City. Using the scores from the previous section and data in the HMP, the following charts provide a risk assessment score for the identified hazards.

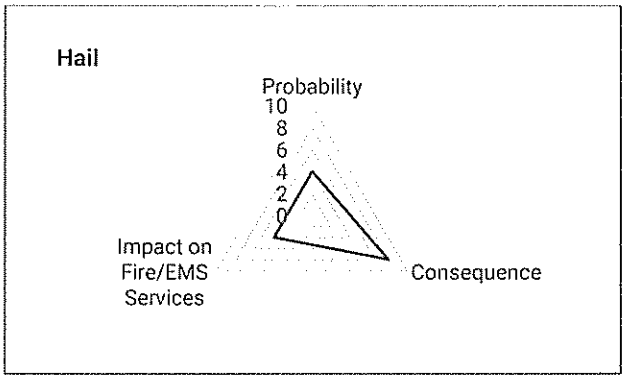
Table 33: Atmospheric Risk Assessment

Event	Hurricane Wind			Severe Thunderstorm			Tornado			Severe Winter Storm			Hail		
	P	C	I	P	C	I	P	C	I	P	C	I	P	C	I
Risk Score	2	8	10	2	8	6	2	8	10	2	8	6	4	8	4
Calculated Score	59.4			36.8			59.4			36.8			33.9		



[2] The City of Round Rock Hazard Mitigation Plan: Preparing for a Secure and Sustainable Future 2018-2022

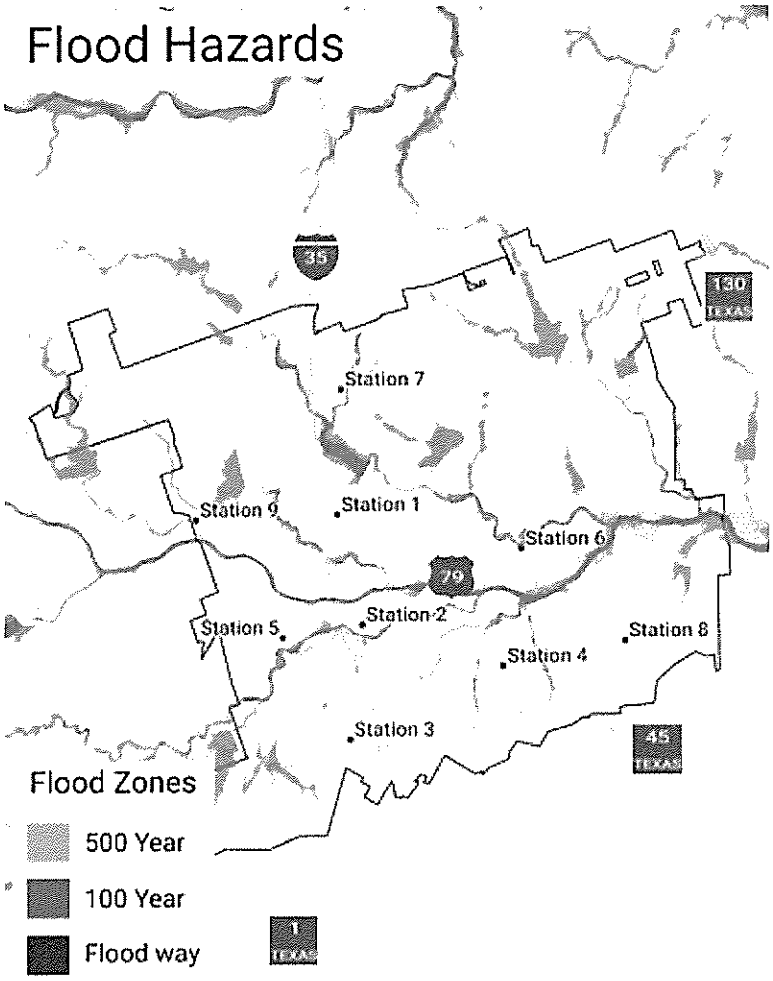




The probability for most of these events is low as many occur once every five to ten years and are typically widespread across the community. The fire department response will vary depending on the damage but will likely be more for search and rescue operations.

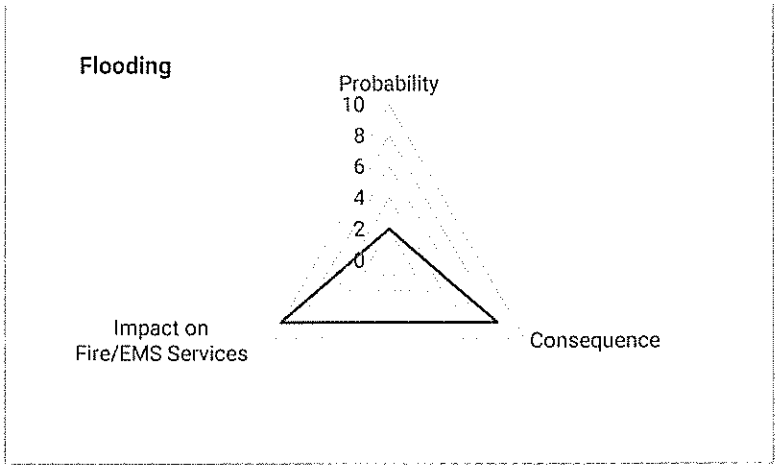
Hydrologic Hazards

The primary hazard in these types of events is flooding. The following map illustrates the flood zones in the City.



Typically, flooding in these areas results from large-scale weather systems generating large amounts of rain over a prolonged period. Remnants of hurricanes and tropical storms can also produce large amounts of rain.

Using the scores from the previous section and data contained in the HMP, the following chart provides a risk assessment score for the flooding hazard.

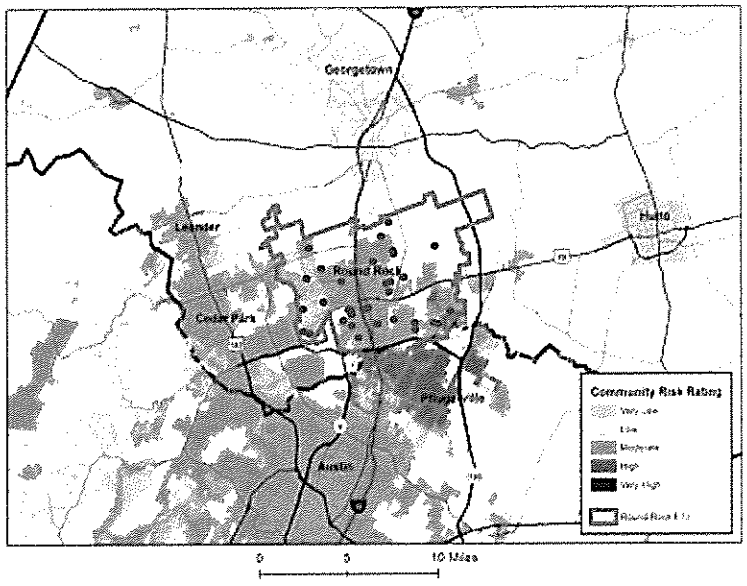


Based on past occurrences, the probability of a flood event is likely within the next year, with consequences limited to the floodways and flood zones. The fire department's response is to use special teams. Water rescues will likely require boats, other watercraft, and personnel trained to operate in these events. The risk score for this type of event is 55.4.

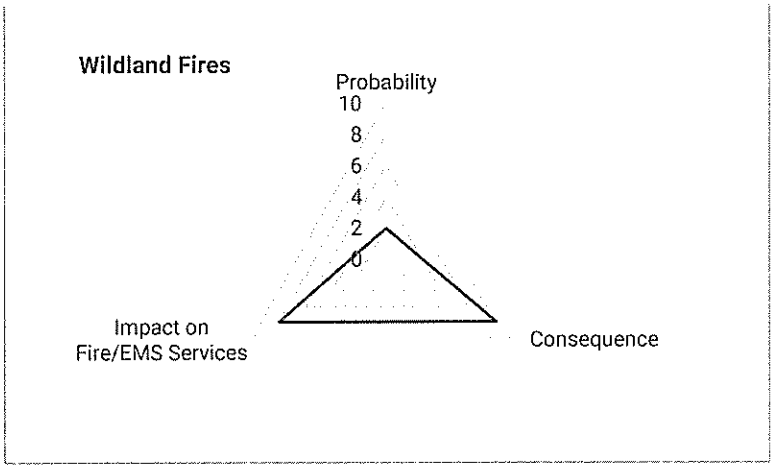
Wildland Urban Interface

As the population grows and expands towards the forested and grassy areas, an interface between the urban setting and the wildlands is established. This expansion can create a significant hazard to life and property due to wildland fires. Wildland fires are not limited to those western states with large, forested areas. Large grass and brush fires across the Midwest can be as destructive as those in the western United States.

The Texas Forest Service provides wildfire hazards for a community based on the level of risk. The following map highlights the risk level for the City's urban wildfire interface.



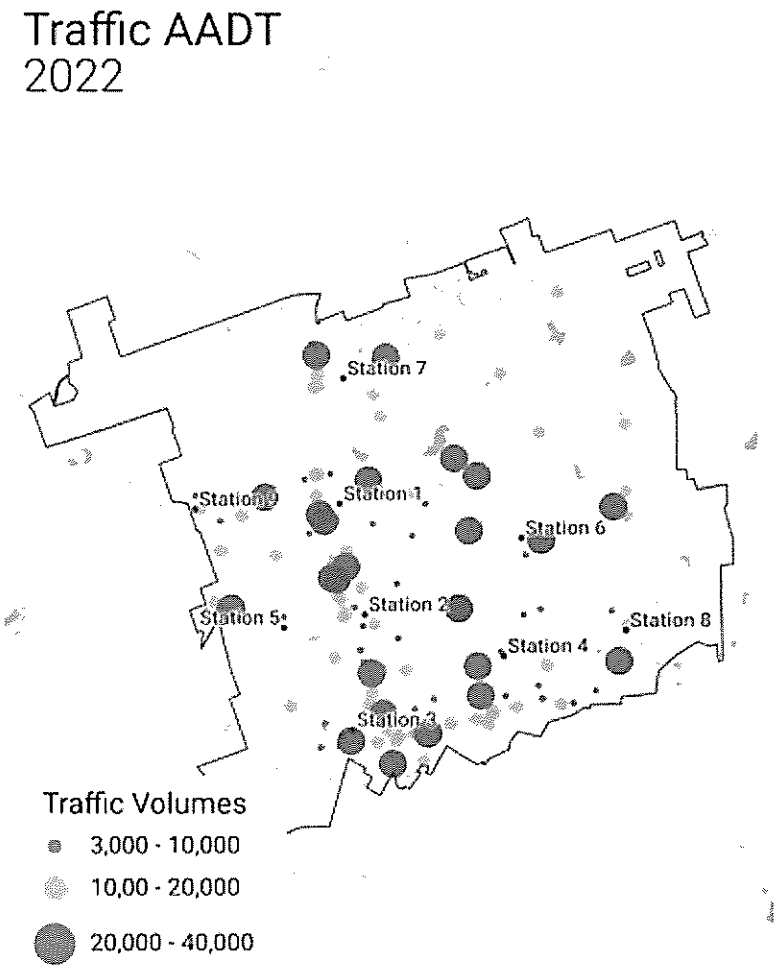
There is a moderate risk in the southwestern area of the City. This risk will change based on conditions, including drought conditions. Using the scores from the previous section and data in the HMP, the following chart provides a risk assessment score for the wildland fire hazard.



Based on past occurrences, the probability of a wildland fire event is likely within three to five years, with consequences for a widespread area of the City. The fire department's response will be fire suppression, and depending on the severity of the fire, it may require additional resources. The risk score for this type of event is 48.0.

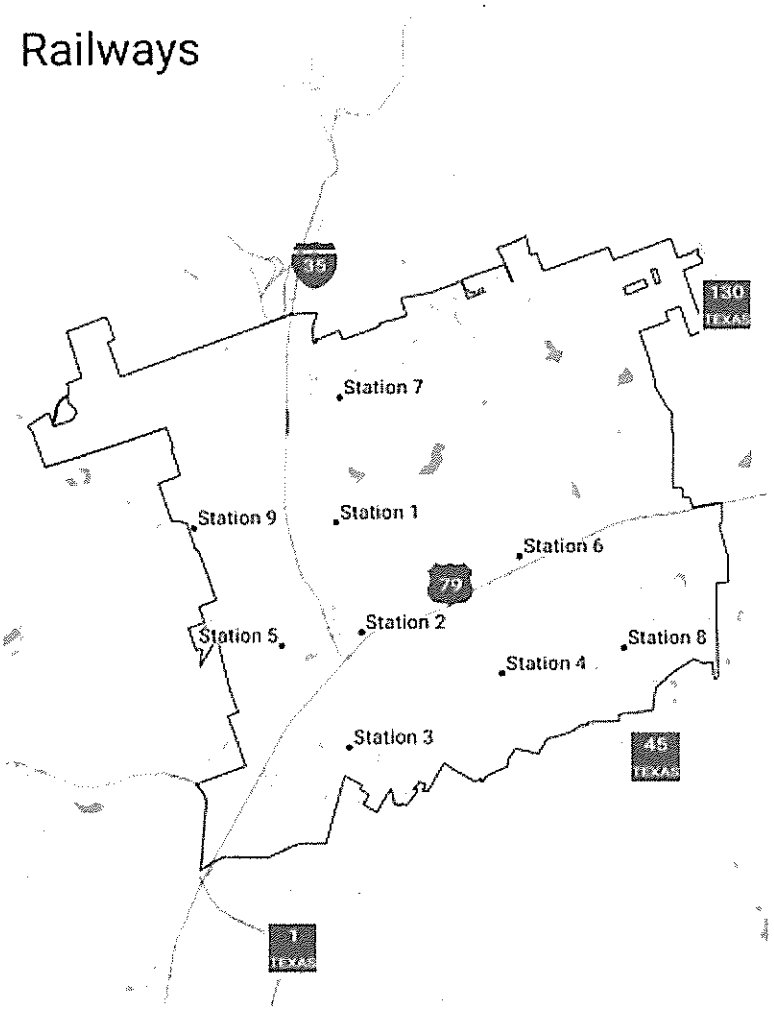
Transportation Hazards

Within the City, several hazards are related to the transportation of people, freight, and other commodities. Interstate 35 is a major highway that spans from Minnesota to the Mexican border, traversing the City along a north-south route in the western section of the City. To the east of the City and just outside the City limits is State Route 130, which provides a north-south route paralleling Interstate 35. University Blvd., U.S. Route 79 (East Palm Valley Blvd), and State Route 45 connect Interstate 35 and State Route 130 from east to west through the City. The following map illustrates the traffic counts at various points along these routes in the City.

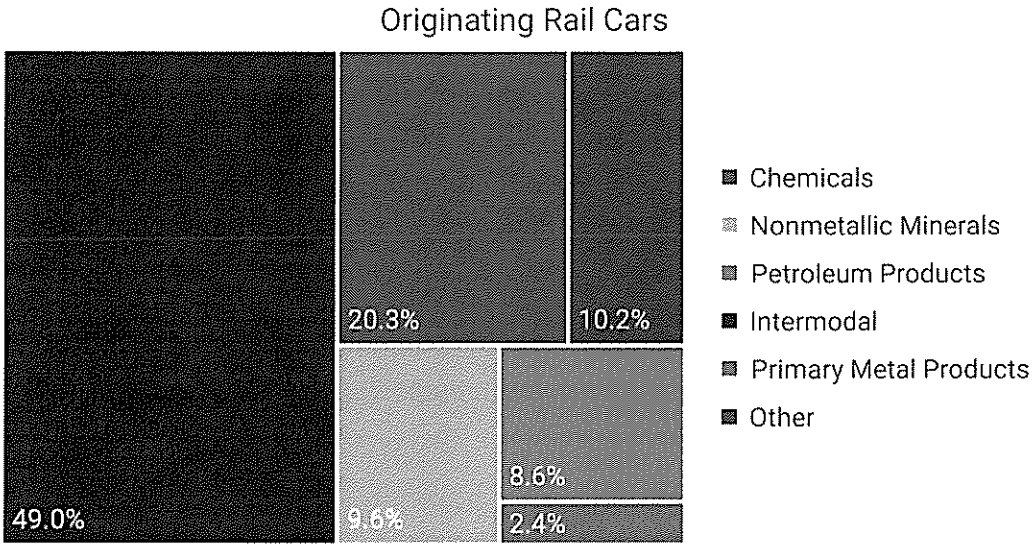


As expected, there are heavy traffic counts along Interstate 35, with heavier traffic in the City's business and retail sections. Note that this is an annual average daily traffic count; this does not address peak traffic.

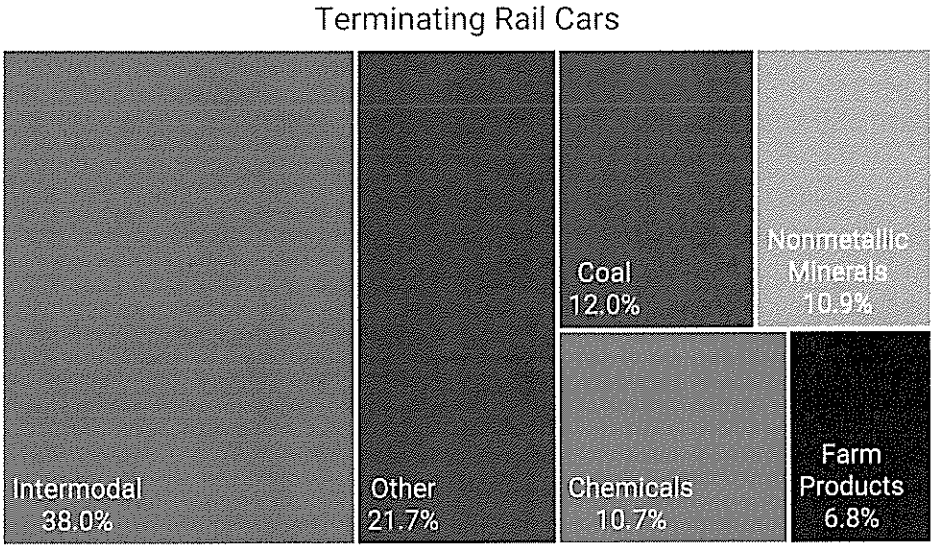
Regarding railroad transportation, Union Pacific Railroad is the primary rail carrier in Round Rock. Other smaller regional lines exist in support of the Union Pacific operations. The following map illustrates the primary rail lines in the City.



Rail Freight is tracked as freight originating in Texas and freight terminating in Texas. The following charts illustrate the freight movement in Texas.



The largest outbound freight is intermodal, a cargo container carrying various products.



The largest inbound freight is intermodal, a cargo container carrying various products.

Physical Environment Hazard Assessment

Physical hazards are facilities in the built-upon area that may present a unique challenge for the RRFD. These facilities are also referred to as target hazards. The Federal Emergency Management Agency (FEMA) defines target hazards as those facilities either in the public or private sector that provide essential products and services to the public, are otherwise necessary to preserve the welfare and quality of life in the community, or fulfill crucial public safety, emergency response, and/or disaster recovery functions.

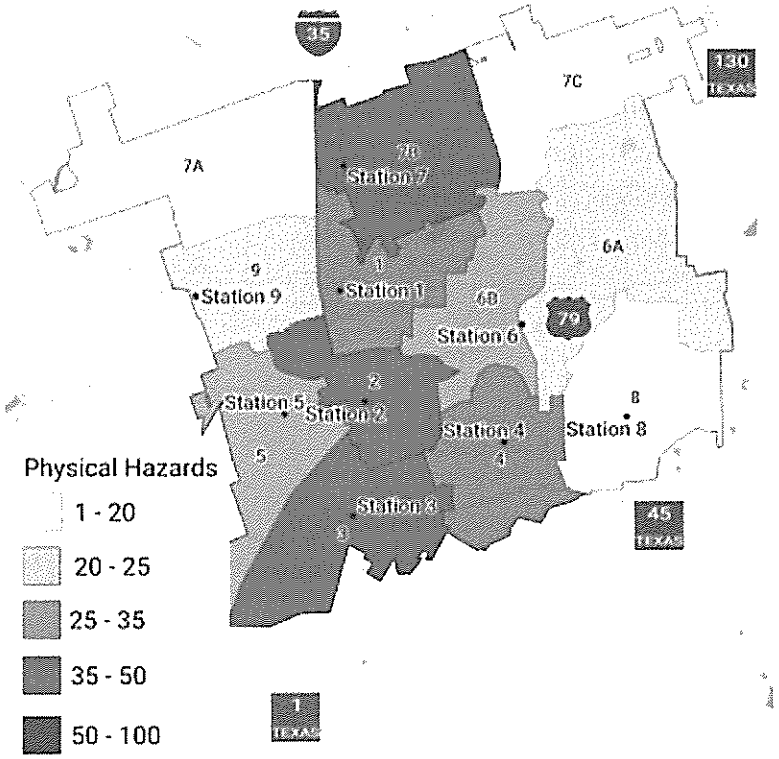
Each of these physical hazards presents a significant risk in varying ways, including terrorism/mass casualty incidents, loss of a business, loss of a cultural asset, or the loss of dwelling units. The following table illustrates the type and number of target hazards in the City.

Table 34: Physical Hazards by Type

Physical Hazard Type	With Sprinkler Systems	Without Sprinkler Systems	Total Physical Hazards	Pct of the Total
Assembly	136	31	167	37.9%
Day Care Facilities	48	39	87	19.7%
Hazardous Materials Storage Facilities	40	7	47	10.7%
Other	46	1	47	10.7%
Educational	37	1	38	8.6%
Assisted Living, Nursing Homes, Hospitals, Extended Care Facilities	26	5	31	7.0%
High Fire Flow Buildings	0	12	12	2.7%
Unprotected Large Buildings	0	7	7	1.6%
Mid and High Rise	5	0	5	1.1%
Hotel/Motel			0	0.0%
Total	**338**	**103**	**441**	

The largest segment of physical hazards are places of assembly, including restaurants, places of worship, and nightclubs. The following map highlights the location of these risks.

Physical Hazard Totals
Planning Zones



As illustrated, a large concentration of target hazards exists in the City's central section along the I-35 corridor.

Supplemental Risk Factors

This section provides an overview and analysis of factors that can and will impact the delivery of services and the recovery of the community from emergency events.

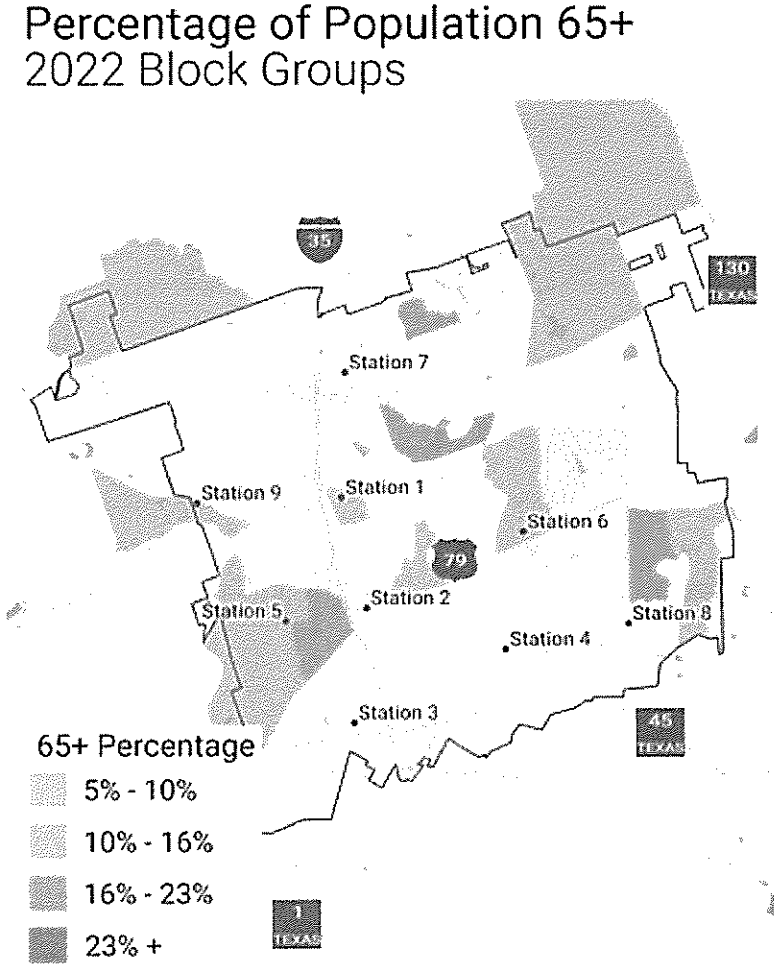
Demographic Vulnerabilities

Aging Population

Like many other demographic groups, senior citizens may be vulnerable to physical, emotional, and financial challenges. It's important to note that vulnerability can vary significantly among individuals, and not all seniors will experience the same issues. Some common vulnerabilities for senior citizens include:

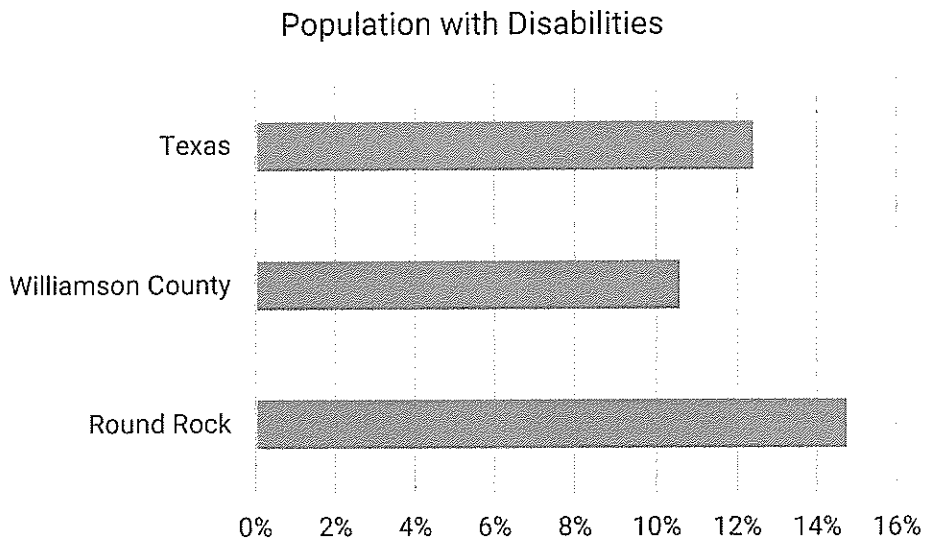
- Physical Health Issues
- Isolation and Loneliness
- Financial Vulnerability
- Elder Abuse
- Healthcare Access and Quality
- Housing Insecurity
- Nutrition and Health
- Technology and Digital Literacy
- Emergency Preparedness
- Legal and End-of-Life Issues

In the Round Rock area, the senior citizen population is increasing. According to the U.S. Census Bureau, residents over 60 were 8% of the population in 2010. In 2022, senior residents increased to approximately 16% of the total population. The following map illustrates the distribution of senior citizens in Round Rock.

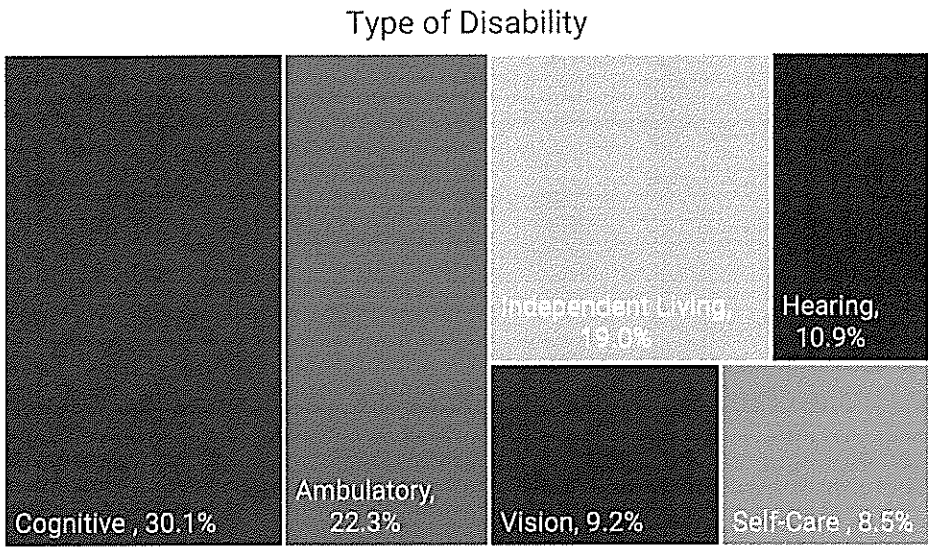


Population with Disabilities

Another population group that will likely require additional assistance is those with disabilities. Those within this population group may need additional medical services due to their disability, or they may be unable to self-evacuate from their home or other building during an emergency. The following chart illustrates the percentage of the disabled population compared to Williamson County and Texas.



To further highlight the issue of disabilities, the following chart illustrates the types of disabilities in Round Rock.

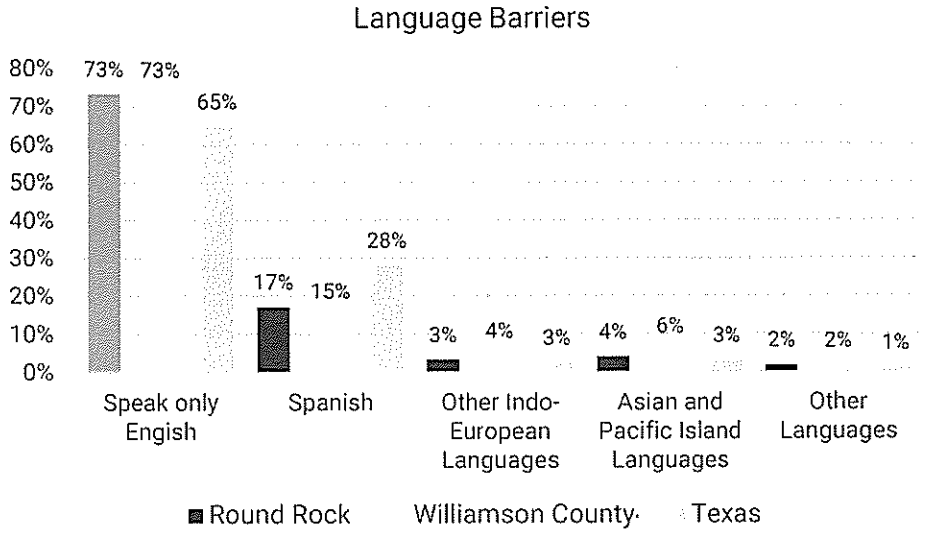


Cognitive difficulty is the largest group, with ambulatory issues close behind.

Language Barriers

As more individuals and families come to the United States from other countries, the language barrier is also increasing. RRFD personnel may encounter an individual or family needing another type of communication. These encounters could be on calls for service, public education events, or evacuation notices. The following chart highlights the

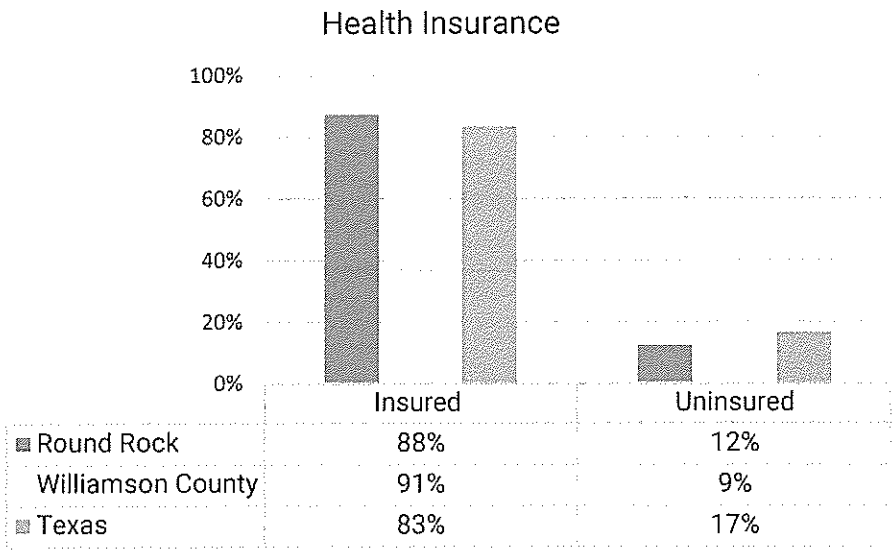
percentage of people over five years of age who may have a language barrier based on the language spoken at home.



In Round Rock, approximately 17% of the population speak Spanish at home compared to 28% in Texas.

Health Care Insurance

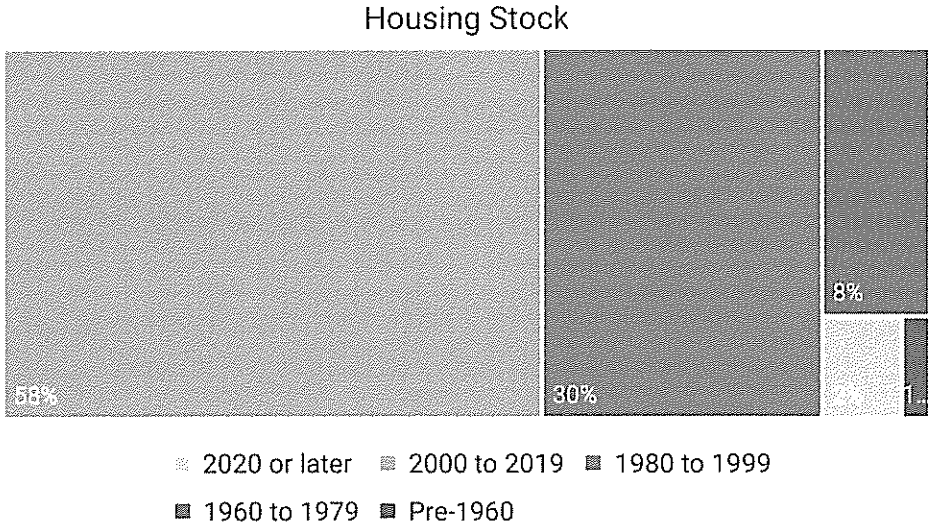
The lack of health care insurance can impact the community and RRFD. Those with insurance can typically access healthcare services and will have a reduced financial burden. Insured individuals are less likely to use emergency rooms for non-emergency care and other emergency services. Lack of health insurance may affect lower-income populations at a higher rate since they cannot pay for medical visits.



In Texas, approximately 17% of the population is without healthcare insurance, which is higher than Round Rock, with about 13% uninsured.

Housing

The U.S. Census Bureau estimated approximately 47,702 housing units in Round Rock. Of the occupied housing units, about 67% are single-family residences, and the remaining are multi-family, with 19% in buildings with 20 or more units. Approximately 39% of these units were constructed before 2000.

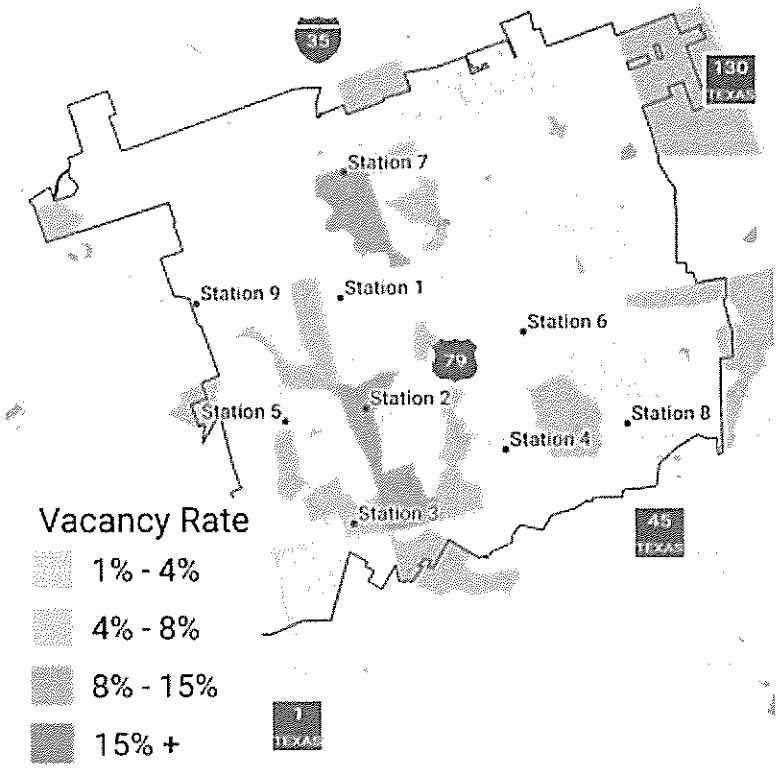


The fire risk is more significant in older buildings with outdated building codes, which may have a building construction, type of materials, or wiring that increases the risk and

spread of fire. Research from the National Fire Protection Association has also noted rental property as a factor in fires involving unsafe human behavior and fatal fires. In Round Rock, about 46% of the housing units are renter-occupied.

The National Fire Protection Association (NFPA) reports that from 2011 to 2015, fire departments responded to an average of 30,200 structure fires per year in vacant properties. According to the report, fires in vacant buildings are more likely to have been intentionally set and spread beyond the building than in other structures. The following map illustrates the vacant buildings by census tract, based on estimates from the U.S. Census Bureau for 2022.

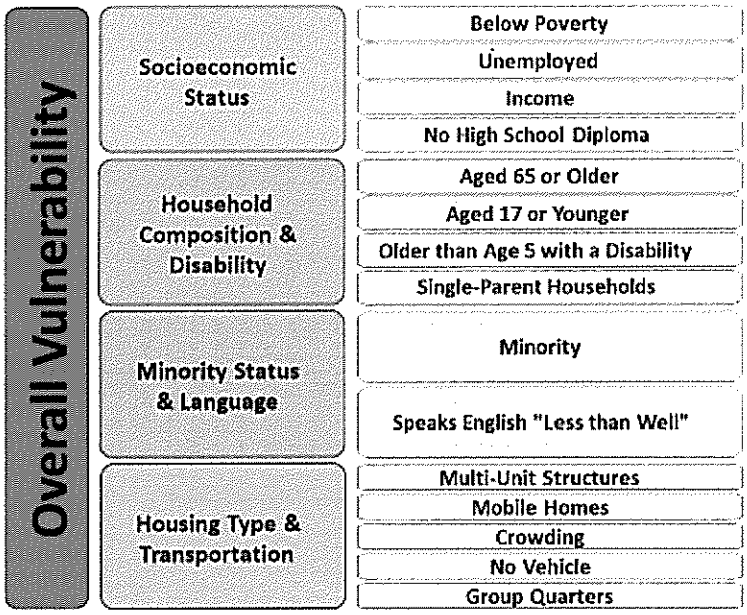
Vacancy Rates
2022 Block Groups



The higher vacancy rate is in areas south of Station 2 and east of Station 3. To the south of Station 7 are commercial and recreational areas, and to the northeast, the area is largely undeveloped.

Social Vulnerability

The Centers for Disease Control and Prevention (CDC) created the Social Vulnerability Index (SVI) to assist public health and emergency response organizations to identify and map the areas of a community that will most likely need support before, during, and after a hazardous event. The SVI is determined by examining socioeconomics, housing composition, and residents with disabilities. The following chart from the CDC illustrates the United States (U.S.) Census Bureau data was used to calculate the areas' SVI.



As noted, 15 social factors are grouped into four themes to create a vulnerability index. Each element receives a ranking that is combined into the overall theme. It is possible to have an area that has a lower ranking in terms of housing but has a higher ranking due to the age of the residents and the type of household, such as single-parent households. The intent is not to identify impoverished areas of a community but to identify areas that may require additional assistance following an emergency.

This tool uses specific socially and spatially relevant information to assist public health officials and local planners in better preparing communities to respond to emergencies such as severe weather, floods, disease outbreaks, or chemical exposure.

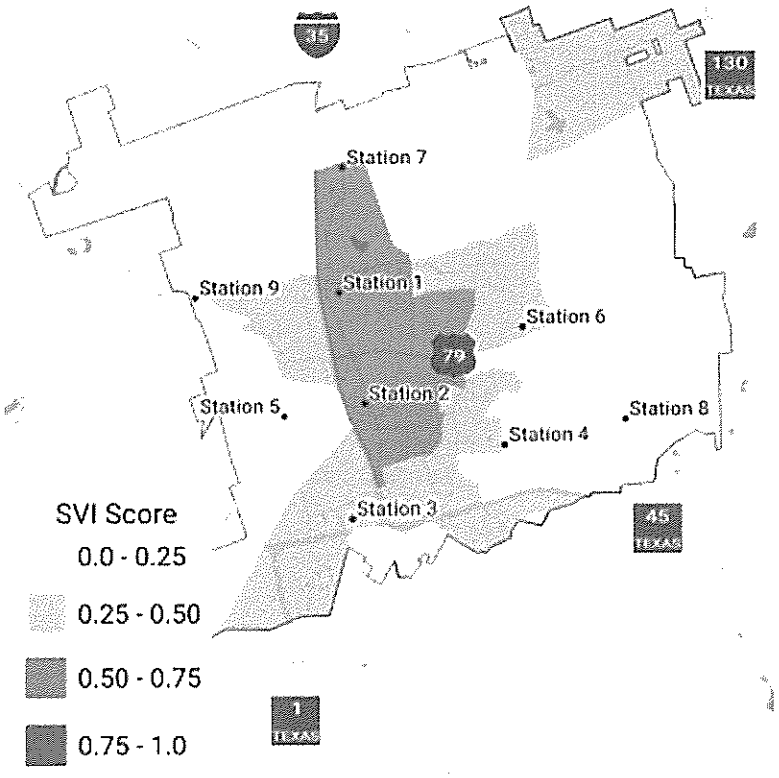
The tool can be used to:

- Allocate emergency preparedness funding by community need.
- Estimate the amount and type of needed supplies such as food, water, medicine, and bedding.

- Decide how many emergency personnel are required to assist people.
- Identify areas in need of emergency shelters.
- Create a plan to evacuate people, accounting for individuals with unique needs, such as those without access to transportation, those with limited mobility or medical requirements, or those with communication barriers such as language access.
- Identify communities needing continued support to recover following an emergency or natural disaster.

The following map illustrates the SVI score by census blocks for the City.

Social Vulnerability Index



The highest SVI scores are east of I-35 into the downtown area of Round Rock. These higher scores are not an indication these areas are deprived. It is an indication these

areas will probably need additional assistance in the event of an emergency or other significant incident.

Emergency Services Delivery

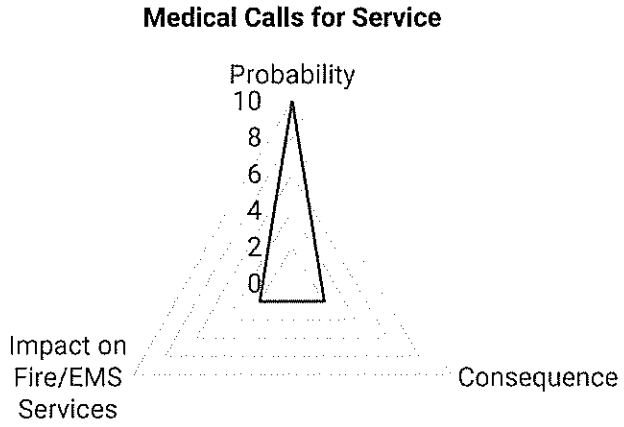
As noted, the fire department is responsible for responding to and mitigating unwanted fires, emergency medical calls, hazardous materials, and wildfires; each incident presents different hazards and requires different responses to mitigate the incident. The following sections highlight these responses regarding risk and the impact on the community and the fire department.

Low Risk Calls

Using the risk scale previously described, low risk calls for service are those calls that have a total risk score of 24.99 or less. These calls usually involve only 1 or 2 people and, regarding resources, do not significantly impact the fire department's response. Many calls occur daily, such as medical calls for service, but may also happen weekly. Round Rock has an average of 27.2 low risk calls for service each day based on the past five years of calls examined.

Table 35: Low-Risk Calls for Service

- Fire Alarm Calls
- Good Intent Calls
- Hazardous Condition Calls
- Medical Calls
- Overpressure Rupture/Explosion/Overheat
- Rescue Calls – Elevator
- Rescue Calls – Other
- Rescue Calls – Search
- Service Calls
- Smoke Scares
- Vehicle Fire



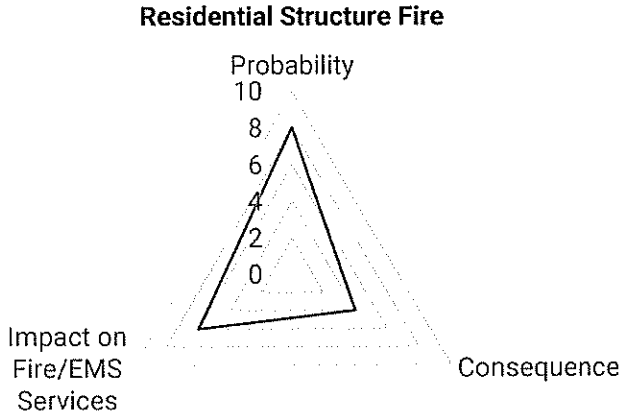
Using medical calls for service as an example, the probability of a call occurring is high, and the consequence is low as it usually involves 1 or 2 residents. The impact on the fire department is low as the response is typically a single unit response with 2 to 3 personnel. The total risk score for a medical call for service is 20.2.

Moderate Risk Calls

Moderate risk calls for service are those calls that have a total risk score of 25 to 49.99. These calls may involve less than ten people and, in terms of resources, may significantly impact the RRFD response as two or more resources may be needed. While some of these calls may occur daily, in Round Rock, these calls occur approximately twenty-one times a week based on the past five years of calls examined.

Table 36: Moderate-Risk Calls for Service

- Auto Accidents
- Hazardous Materials
- Rescue Calls – Extrication
- Rescue Calls – Technical
- Rescue Calls – Water
- Residential Structure Fire
- Vegetation/Brush



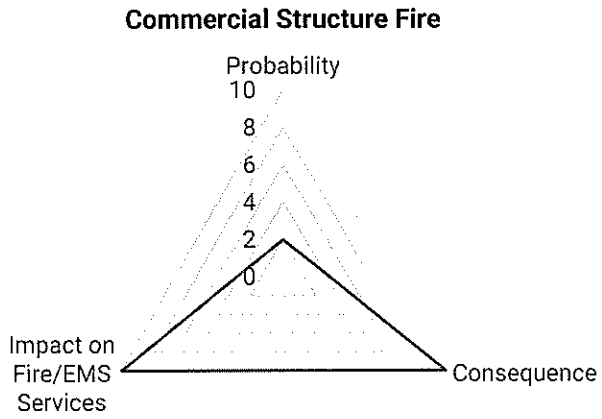
Using a residential structure fire as an example, the probability of a call occurring is probable, and the consequence is moderate as it usually involves 3 to 4 residents. The impact on the fire department is significant as the response will require multiple units and 16 to 17 personnel. The total risk score for a residential structure fire is 44.2.

High Risk Calls

High-risk calls for service are those calls that have a total risk score of 50 to 74.99. These calls may involve less than ten people and, regarding resources, may have a catastrophic impact on the fire department response and require assistance from other agencies. In the past four years, a structure fire in 2023 in a large apartment building fits this category.

Table 37: High-Risk Calls for Service

- Commercial Structure Fire
- Multi-Casualty over ten patients
- Target Hazard Structure Fire
- Terrorism Event



As noted, one structure fire call in Round Rock in the past five years fits this risk category. It is included here to identify the risk and the potential effect of one of these events.

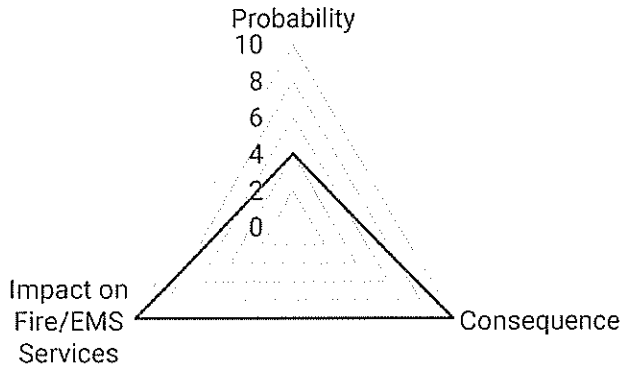
Severe Risk Calls

Severe risk calls for service are those calls that have a total risk score of 75 to 100. These calls will involve more than 100 people, could be spread over a large area, and include specific targets. A response from the fire department will require assistance from other agencies. In the past five years, a tornado response in March 2022 fits this risk category.

Table 38: Severe Risk Calls for Service

Terrorism Event

- Target Hazard Structure Fire
- Terrorism Event
- Wildland Urban Interface



As noted, a tornado response in 2022 in Round Rock in the past five years fits this risk category.

Community Growth and Development

This section provides an overview of the anticipated growth in the City and the projection of the demand for services. In August 2022, the City of Round Rock Planning and Development Services (PDS) released the Round Rock Population Projections report.[3] This report details projected residential units and population increases, providing an excellent source for the future service delivery needs of the fire department. Highlights of this report are included for reference in the following sections.

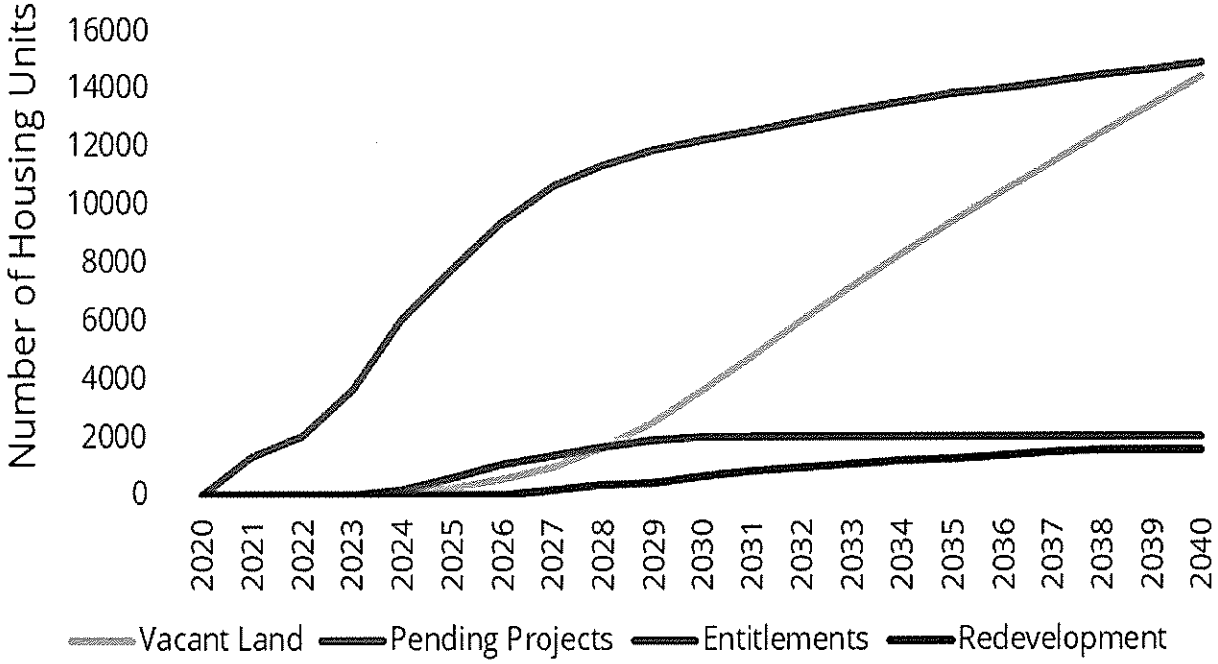
Residential Development

The PDS provided a projection for residential units in the City based on the following four components.

- **Pending Projects:** The build-out of projects in various stages of the development process, including subdivisions, multi-family complexes, and mixed-use developments.
- **Land Entitlements:** The process that landowners have taken to prepare a site to develop in a particular way through zoning, future land use designation, or a development agreement with the local government.
- **Redevelopment:** Construction activity that would add housing units to an existing property suitable for higher-density development.
- **Vacant Land:** The development of currently vacant or agricultural land into residential units, as identified on the Round Rock 2030 Future Land Use Map (FLUM).

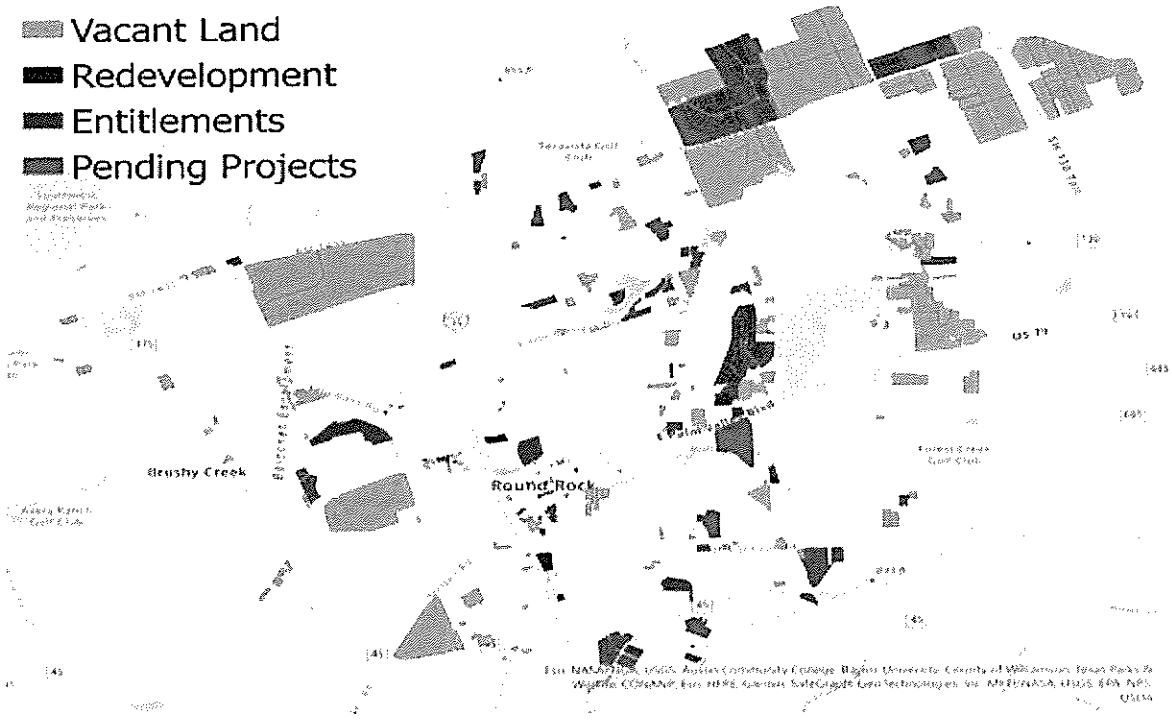
[3] https://www.roundrocktexas.gov/wp-content/uploads/2022/08/2020-2040-Population-Projections-Report.pdf

PROJECTED RESIDENTIAL UNIT INCREASE BY COMPONENT



The graph shows the cumulative projected residential unit increase within the City of Round Rock. The increase in population in the next 20 years will largely be from the development of vacant land throughout Greater Round Rock and projects currently in the development process.

2023-2040 LAND DEVELOPMENT BY METHODOLOGY COMPONENT



The four components used to project population growth are currently vacant land, pending projects in the development process, land use entitlement process, and the potential future site for redevelopment. A considerable amount of vacant land in the City's northeast area will be developable.

Population Projections

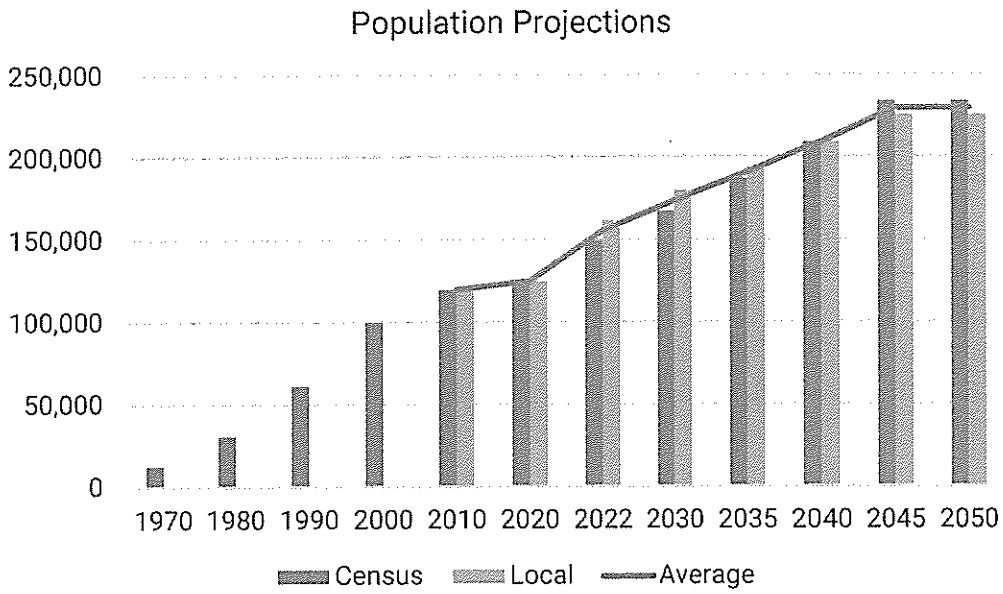
The PDS utilized the residential units as a basis for population increases. The following table provides estimates through 2040.

Table 39: 2020 – 2040 Population Projections

YEAR	CITY LIMITS POPULATION	1-YR CHANGE	GREATER ROUND ROCK POPULATION	1-YR CHANGE
2020	119,468 (Census)	N/A	178,704	N/A
2021	122,827	2.8%	182,336	2.0%
2022	124,614	1.5%	184,993	1.5%
2023	128,292	3.0%	189,286	2.3%
2024	134,540	4.9%	196,035	3.6%
2025	139,834	3.9%	202,208	3.1%
2026	145,208	3.8%	208,843	3.3%
2027	149,621	3.0%	214,486	2.7%
2028	153,530	2.6%	219,624	2.4%
2029	157,298	2.5%	224,320	2.1%
2030	161,136	2.4%	228,933	2.1%
2031	164,982	2.4%	233,479	2.0%
2032	168,791	2.3%	237,885	1.9%
2033	172,520	2.2%	242,143	1.8%
2034	176,163	2.1%	246,273	1.7%
2035	179,507	1.9%	250,040	1.5%
2036	182,560	1.7%	253,433	1.4%
2037	185,513	1.6%	256,700	1.3%
2038	188,427	1.6%	259,901	1.2%
2039	191,306	1.5%	263,017	1.2%
2040	194,151	1.5%	266,051	1.2%

As illustrated, the population of Round Rock is projected to be 194,151 by 2040, with over 266,000 in the Greater Round Rock Area, which includes Extra-Territorial Jurisdiction (EJT) and Municipal Utility Districts (MUD).

The following chart compares the growth based on the U.S. Census Bureau and the projections from the Round Rock Population Projections report.

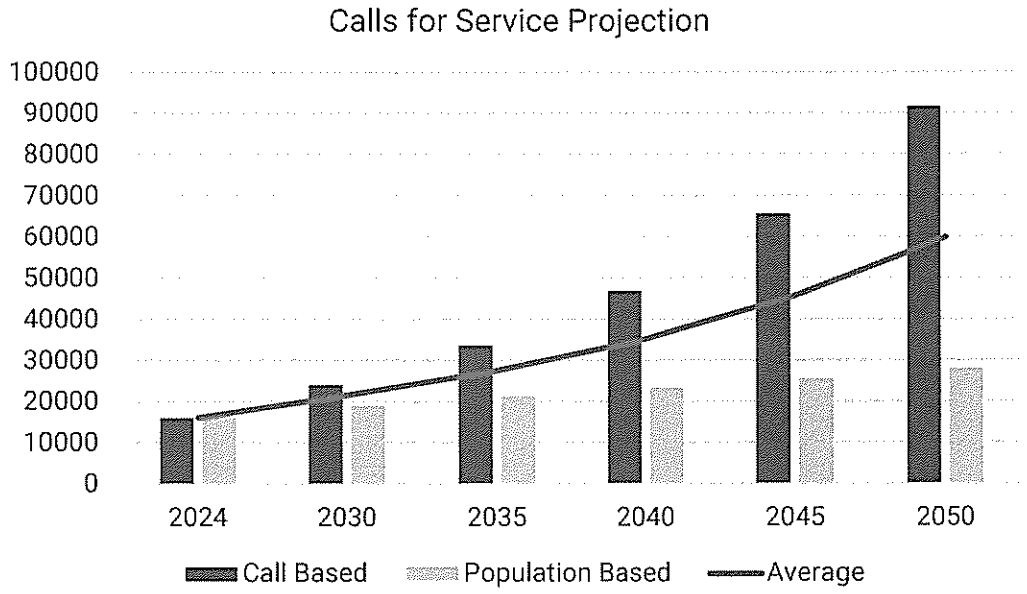


As illustrated, both projections are relatively close, with the Round Rock Population Projections reporting slightly higher. The Round Rock report is only projected for 2040; a 1.5% annual growth was used to project those years beyond the 2040 projection.

Emergency Services Demand Projection

As the population in an area continues to grow and new buildings are constructed, the demand for services will also increase. These services take many forms for local government, including public works, parks, law enforcement, and fire and emergency medical services. For the RRFD, the calls for service have increased an average of 6.9% each year from 2019 to 2023. Population growth has risen approximately 2.3% annually for the past 11 years.

The following chart illustrates the projected calls for service through 2050.

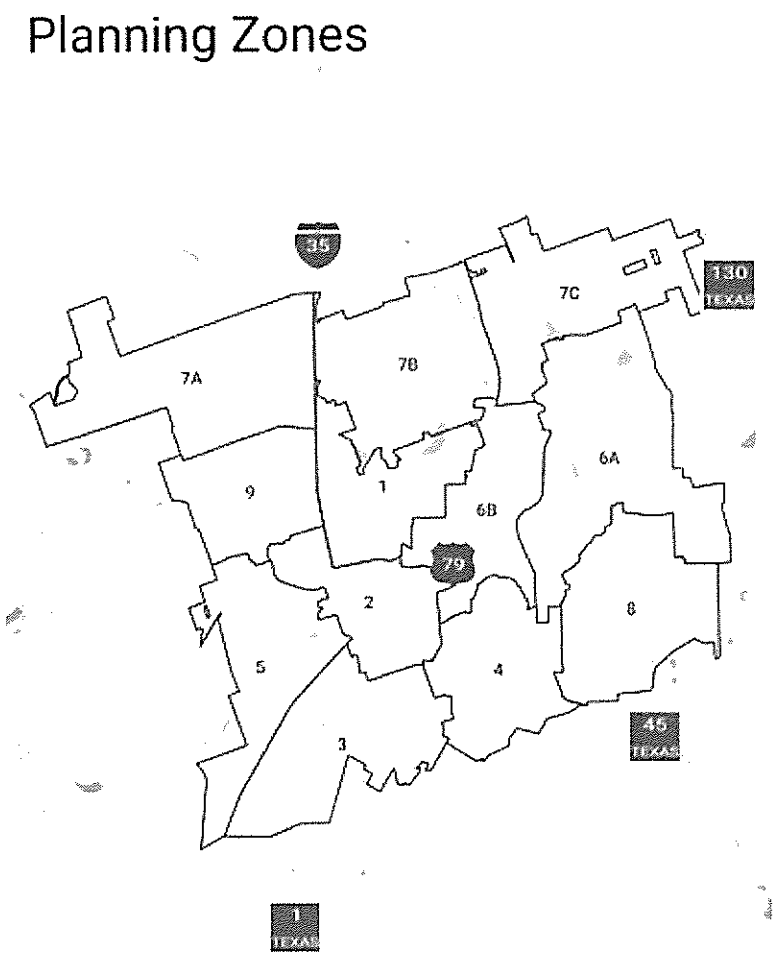


The calls are shown based on population growth and historical call volume. Over the past five years, the average call volume has been 0.12 calls per person. Based on the historical calls for the past five years, the annual average increase is 6.9%. Based on the population growth, the calls for service in 2050 are projected to be 28,049. Using the historical calls for service as a base, in 2050, the number of calls for service will be 91,647. The average between the two methods is 59,848 in 2050.

It should be noted that a few factors may contribute to the differences between these two estimating methods. First, the COVID-19 pandemic in 2020 was responsible for many departments nationwide experiencing a drop or minimal growth in call volume. Then, the same departments experienced a significant increase in call volume in the following year. Round Rock saw a 2.6% decrease in call volume between 2019 and 2020. Then, in 2021, there was a 19.6% increase in call volume in 2020.

Planning and Assessment Zones

Using planning zones allows the fire department to document various categories and classes of risk. These areas will also be employed in the response analysis using baseline and benchmark performance objectives to determine incident response distribution and resource allocations. The following map illustrates that the fire department has ten planning zones.



These planning zones follow the station response areas. Two of the station response zones were divided further to provide a mechanism for future planning related to anticipated growth. The following table provides an overview of the planning zones associated with the City.

Table 40: Planning Zones Overview

Planning Zone	Pct of Population	Pct of City Area	Pct of Physical Hazards	Pct of Total Calls for Service
1	11.0%	9.5%	9.5%	11.2%
2	8.4%	8.4%	12.2%	12.3%
3	10.6%	13.2%	13.6%	11.1%
4	15.0%	10.5%	8.4%	10.8%
5	6.1%	11.6%	6.1%	7.5%
6A	12.1%	19.6%	6.3%	5.5%
6B	10.6%	10.3%	5.7%	8.0%
7A	10.2%	17.1%	2.0%	0.2%
7B	17.1%	14.5%	23.8%	15.0%
7C	3.4%	13.4%	0.0%	1.0%
8	15.6%	13.2%	4.5%	5.6%
9	7.6%	8.9%	5.0%	5.3%

Planning Zone 7B has the most significant percentage of the population, physical hazards, and calls for service. This area is just north of downtown and contains a large retail area along I-35.

Based on the definitions in the NFPA 1710 document, the following designations are used to identify the service areas of the City.

Urban – Population density of over 1,000 per square mile.

Suburban – Population density between 500 and 1,000 per square mile.

Rural – Population density of less than 500 per square mile.

Using these definitions, RRFD will be able to tailor services to the different planning zones in the City and assist with planning future needs of the emergency services delivery system.

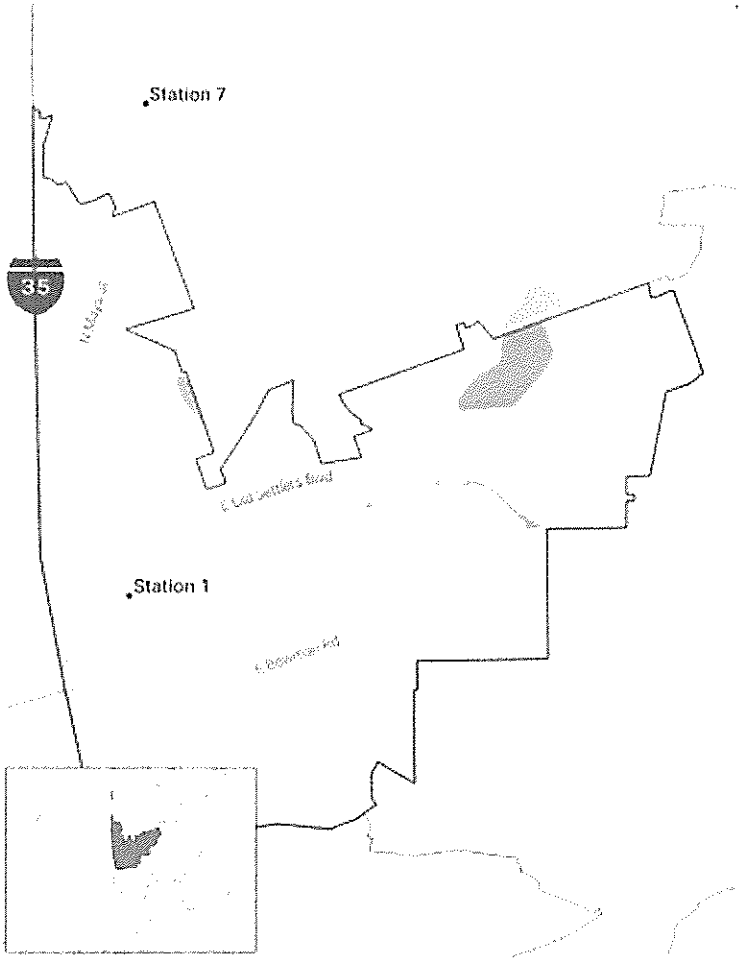
Table 41: Planning Zone Demographics

Planning Zone	Population Density	Demographic
1	3,811.7	Urban
2	3,288.8	Urban
3	2,638.4	Urban
4	4,687.8	Urban
5	1,730.5	Urban
6A	2,026.8	Urban
6B	3,384.4	Urban
7A	1,953.4	Urban
7B	3,886.2	Urban
7C	821.2	Suburban
8	3,884.6	Urban
9	2,786.8	Urban

Planning Zone 7C in the northeast section of the City that is not quite to the urban demographic. This area has been identified in the Round Rock Population Projections report as an area for future growth, including pending projects.

The following illustrations highlight significant points for each of the planning zones.

Planning Zone 1 Key Facts

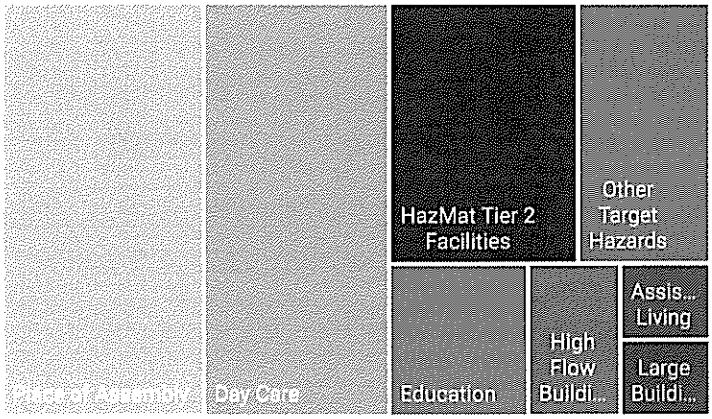


Population:	13,722
Housing Units:	5,229
Square Miles:	3.60
Density:	3,811.7
Avg Per Household:	2.6

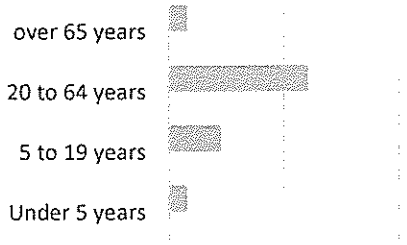
Calls for Service		
		Pct of Total
2019	1,395	11.9%
2020	1,388	12.2%
2021	1,649	12.1%
2022	1,897	12.4%
2023	1,687	11.2%

This zone is in the center section of the City and includes the downtown area. The zone represents the normal response area for Station One.

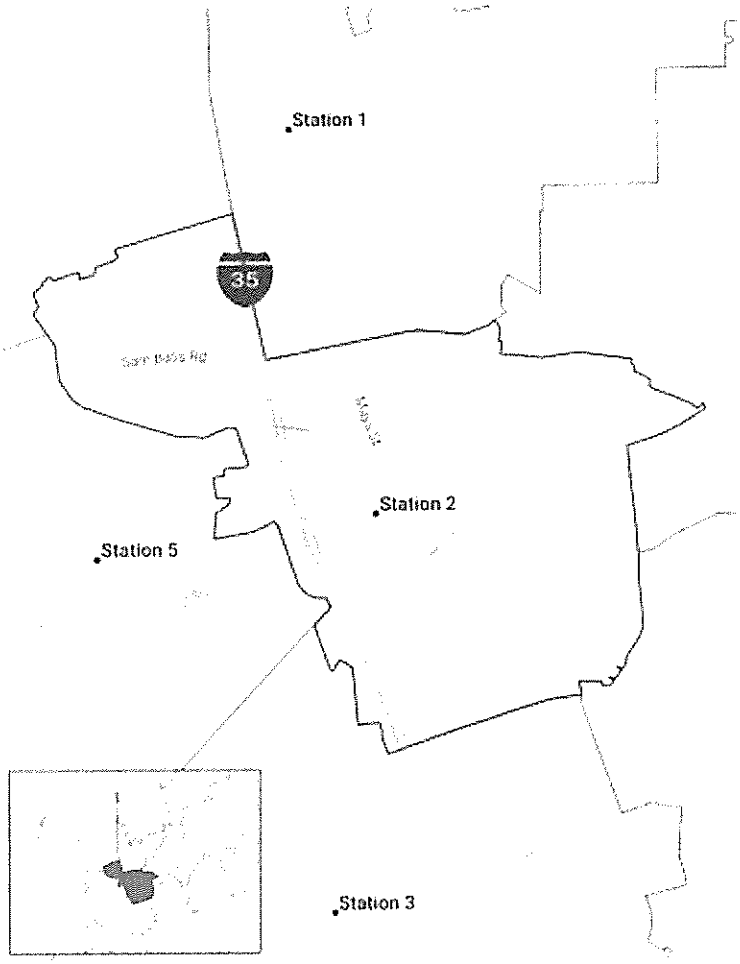
Target Hazards



Age Demographics



Planning Zone 2 Key Facts

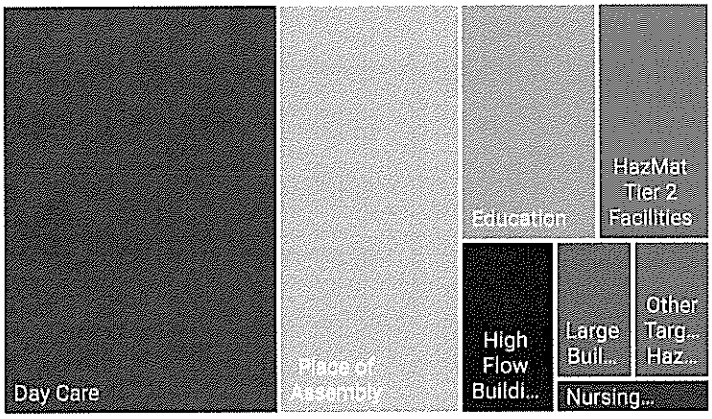


Population:	10,524
Housing Units:	4,315
Square Miles:	3.20
Density:	3,288.8
Avg Per Household:	2.4

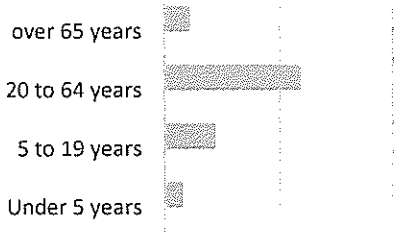
Calls for Service		
		Pct of Total
2019	1,664	14.2%
2020	1,406	12.3%
2021	1,749	12.8%
2022	1,827	12.0%
2023	1,852	12.3%

This zone is in the center section of the City just south of the downtown area. The zone represents the normal response area for Station Two.

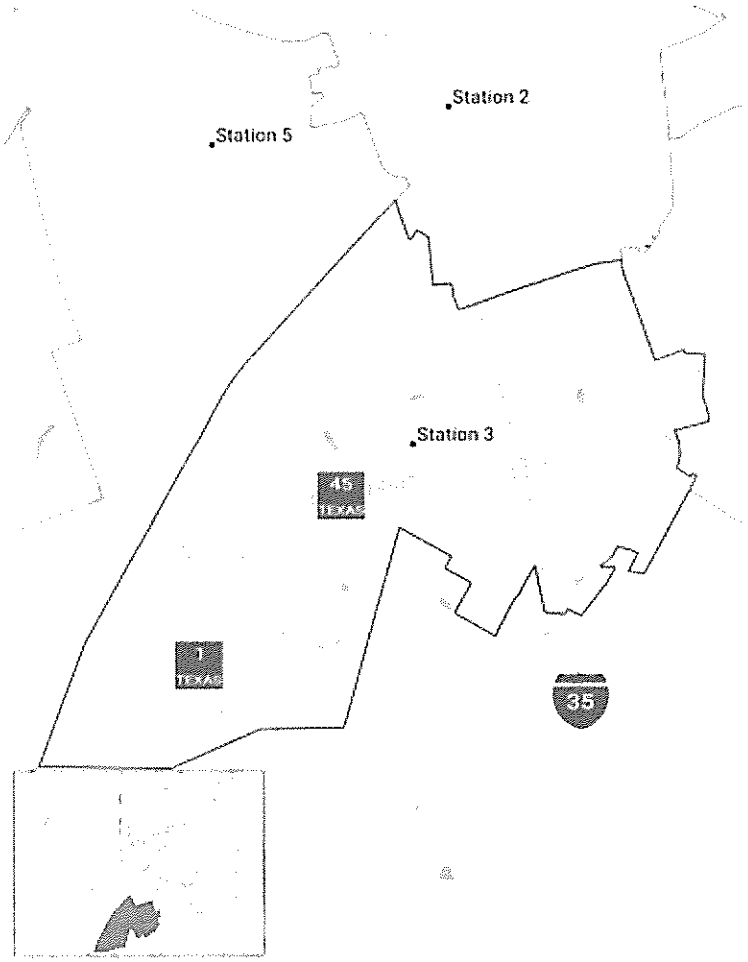
Target Hazards



Age Demographics



Planning Zone 3 Key Facts

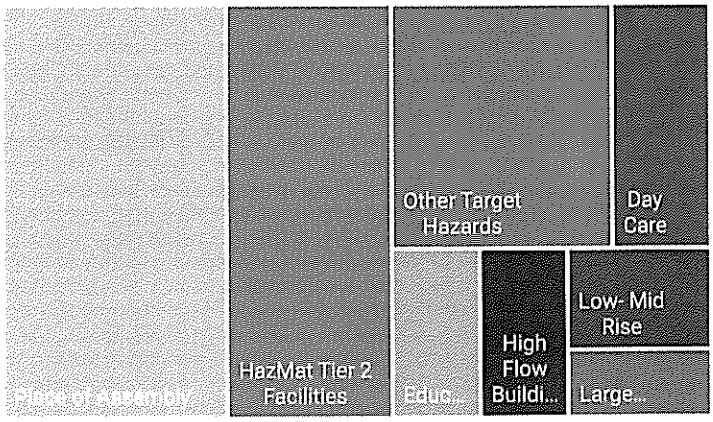


Population:	13,192
Housing Units:	6,621
Square Miles:	5.00
Density:	2,638.4
Avg Per Household:	2.0

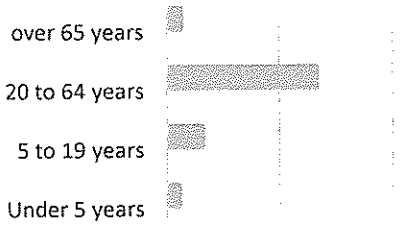
Calls for Service		
		Pct of Total
2019	1,444	12.3%
2020	1,302	11.4%
2021	1,575	11.6%
2022	1,509	9.9%
2023	1,668	11.1%

This zone is in the south-central section of the City, which includes the I-35 and Highway 45 interchanges. The zone represents the normal response area for Station Three.

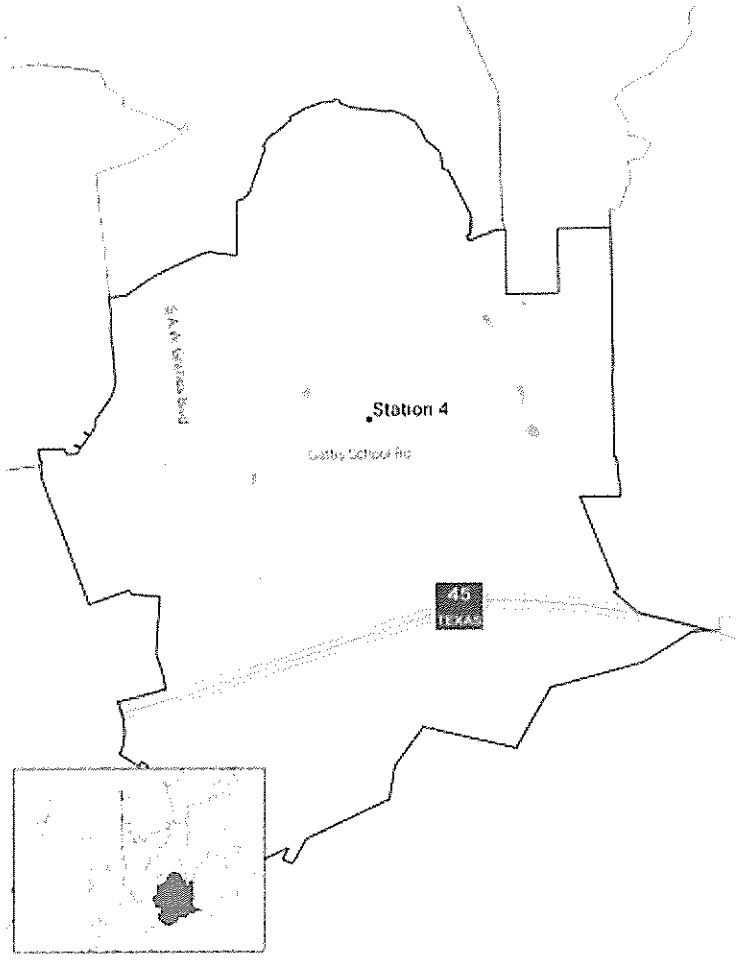
Target Hazards



Age Demographics



Planning Zone 4 Key Facts

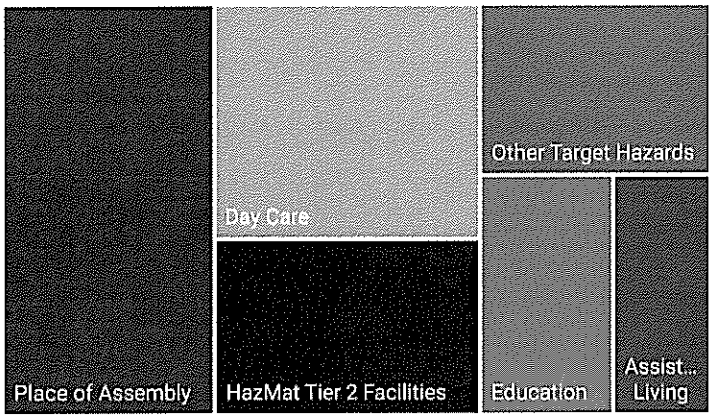


Population:	18,751
Housing Units:	7,480
Square Miles:	4.00
Density:	4,687.8
Avg Per Household:	2.5

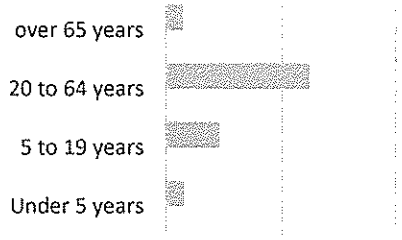
Calls for Service		
		Pct of Total
2019	1,270	10.9%
2020	1,273	11.2%
2021	1,426	10.5%
2022	1,607	10.5%
2023	1,631	10.8%

This zone is in the City's southern section, which includes a section of Highway 45. The zone represents the normal response area for Station Four.

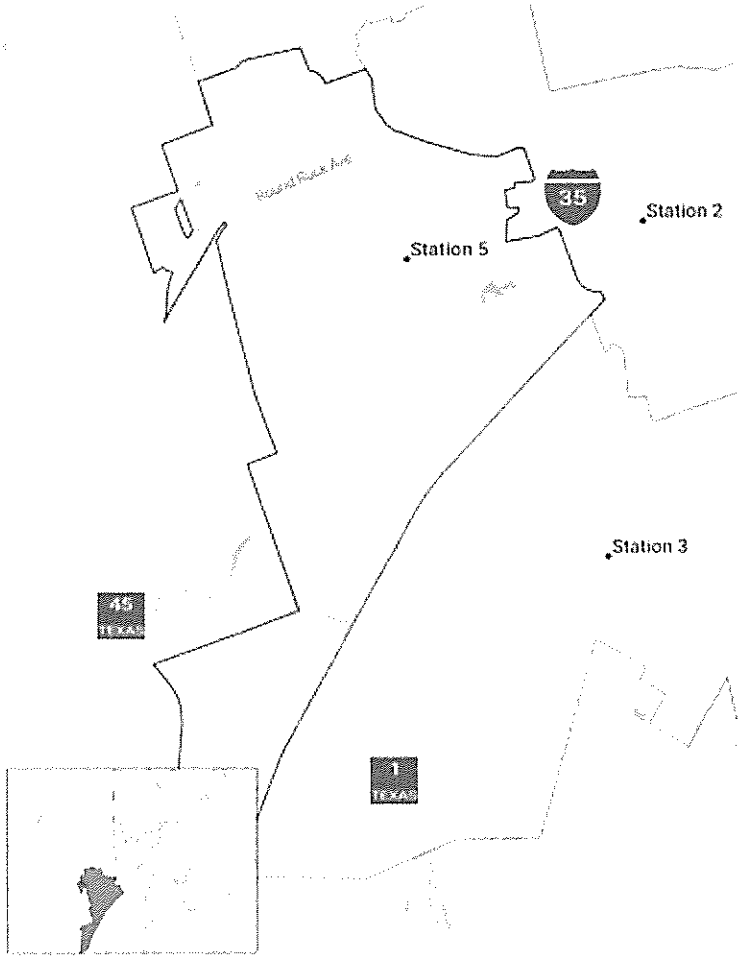
Target Hazards



Age Demographics



Planning Zone 5 Key Facts

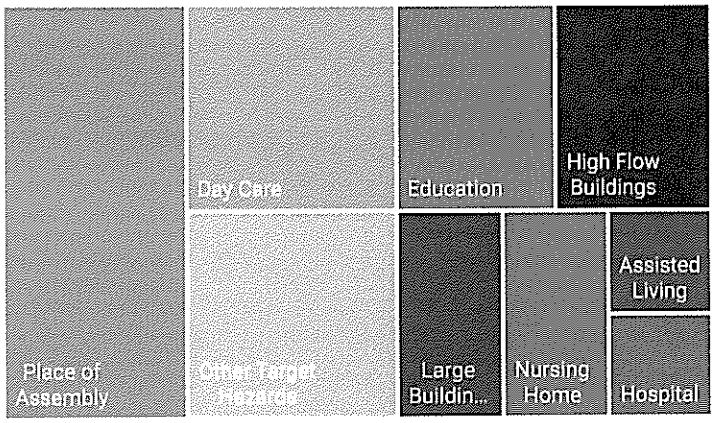


Population:	7,614
Housing Units:	2,738
Square Miles:	4.40
Density:	1,730.5
Avg Per Household:	2.8

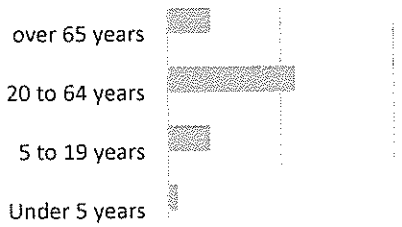
Calls for Service		
		Pct of Total
2019	957	8.2%
2020	953	8.4%
2021	859	6.3%
2022	1,069	7.0%
2023	1,134	7.5%

This zone is west of I-35 in the central section of the City. The zone represents the normal response area for Station Five.

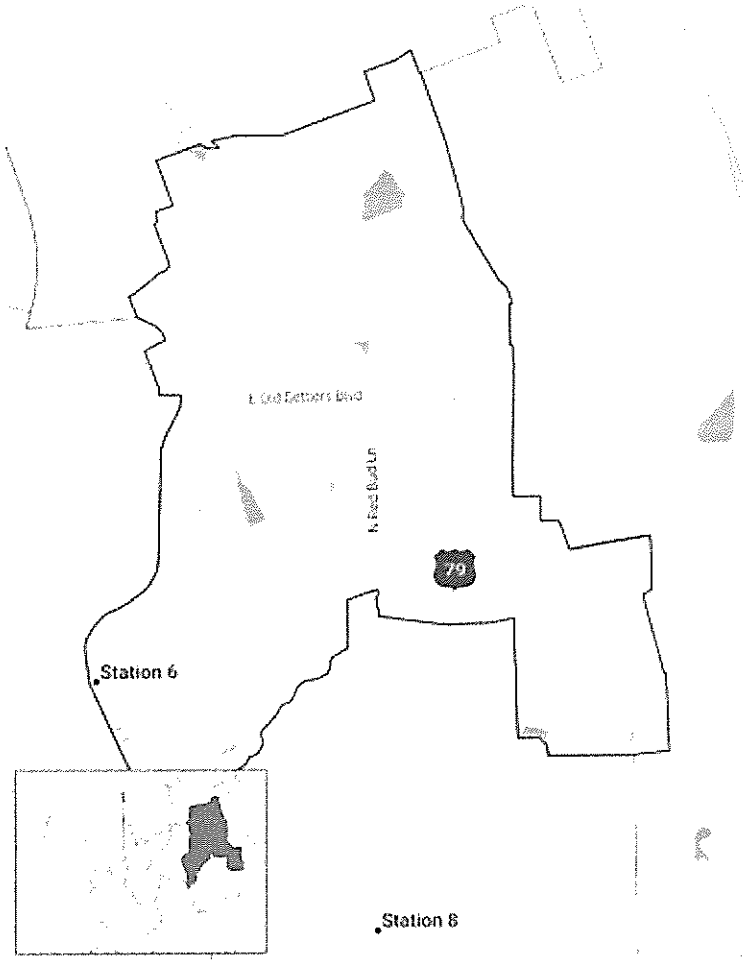
Target Hazards



Age Demographics



Planning Zone 6A Key Facts

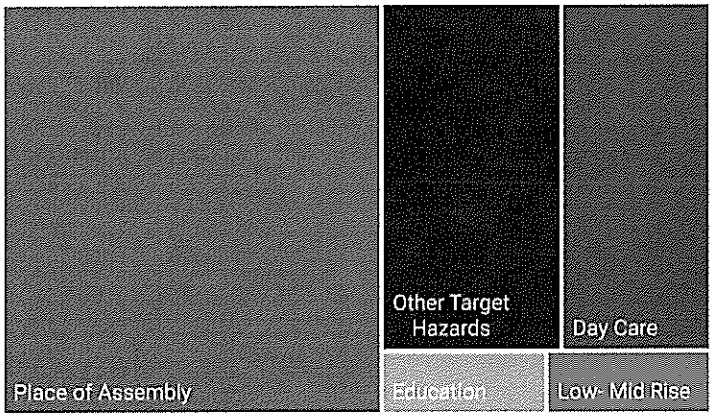


Population:	15,100
Housing Units:	4,862
Square Miles:	7.45
Density:	2,026.8
Avg Per Household:	3.1

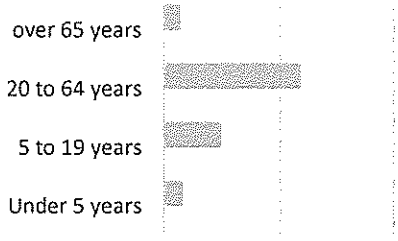
Calls for Service		
		Pct of Total
2019	663	5.7%
2020	620	5.4%
2021	963	7.1%
2022	863	5.7%
2023	827	5.5%

This zone is in the east-central section of the City. The area is predominately residential. The zone represents the eastern response area for Station Six.

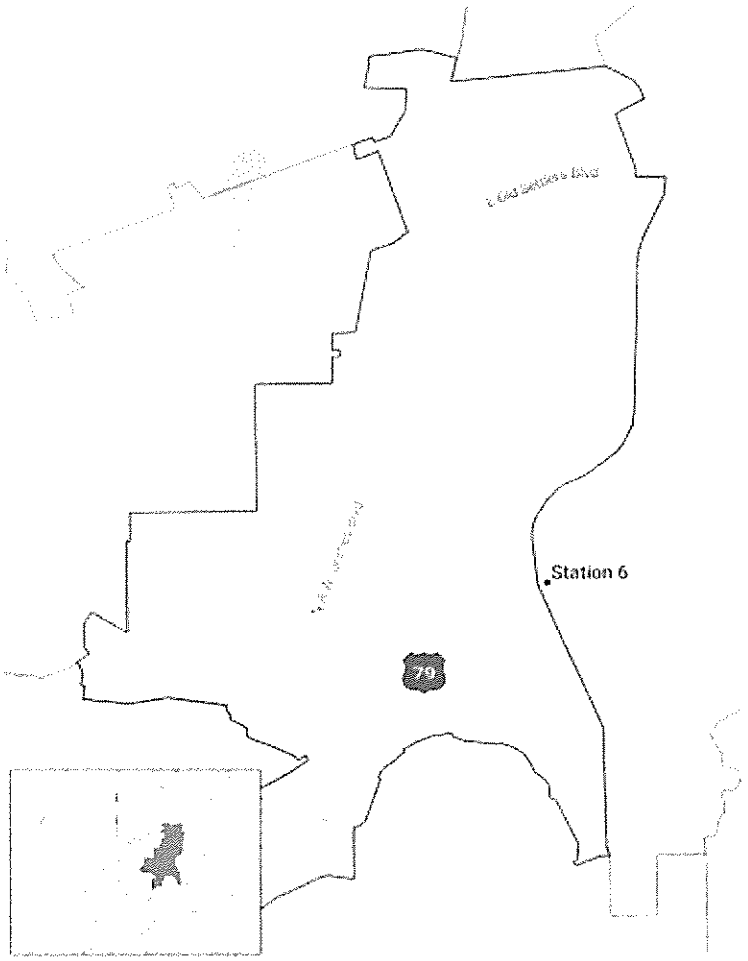
Target Hazards



Age Demographics



Planning Zone 6B Key Facts

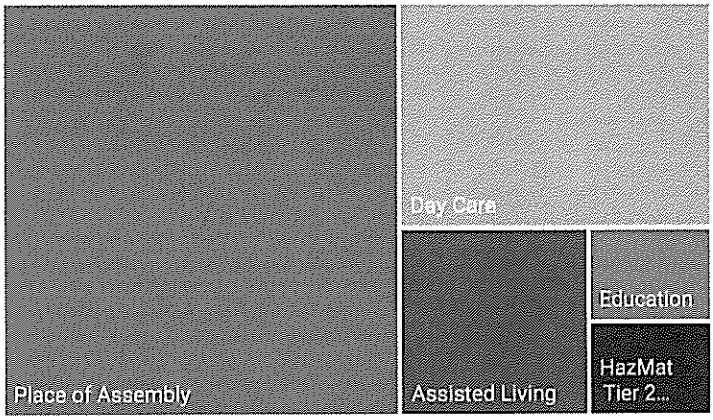


Population:	13,199
Housing Units:	5,223
Square Miles:	3.90
Density:	3,384.4
Avg Per Household:	2.5

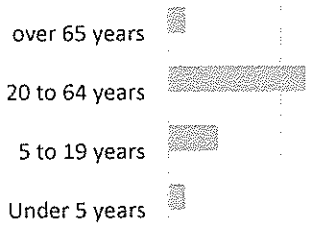
Calls for Service		
		Pct of Total
2019	832	7.1%
2020	935	8.2%
2021	1,077	7.9%
2022	1,297	8.5%
2023	1,203	8.0%

This zone is in the east-central section of the City. The area is predominately residential. The zone represents the western response area for Station Six.

Target Hazards

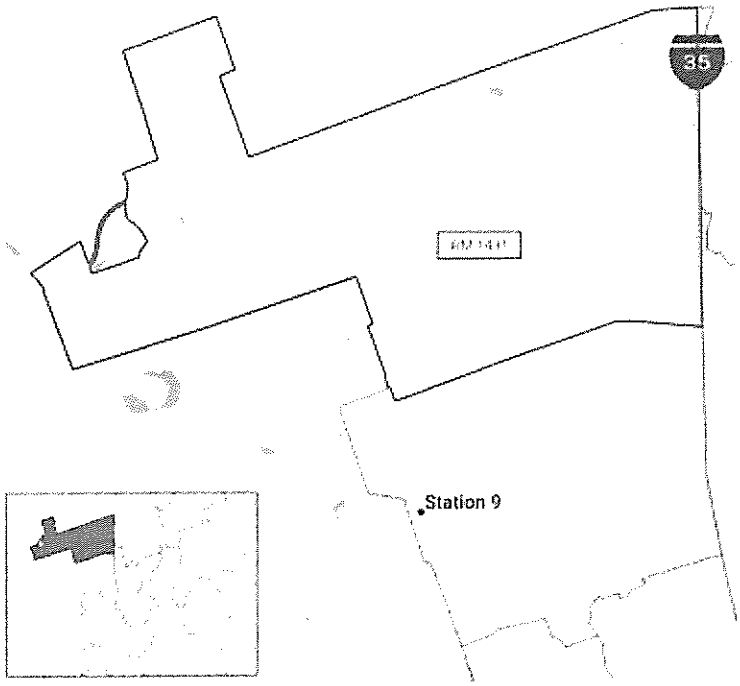


Age Demographics



Planning Zone 7A Key Facts

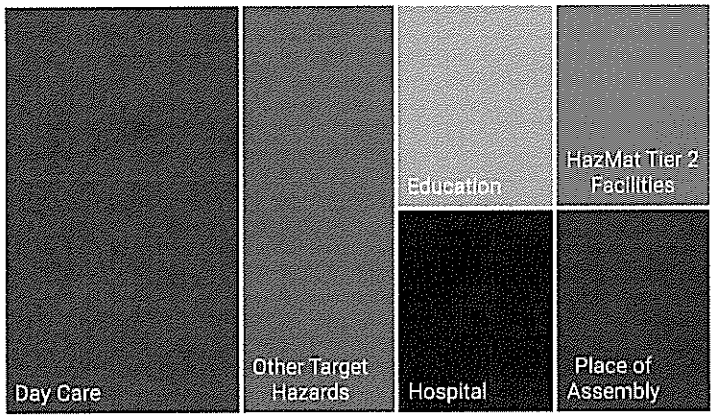
Population:	12,697
Housing Units:	4,291
Square Miles:	6.50
Density:	1,953.4
Avg Per Household:	3.0



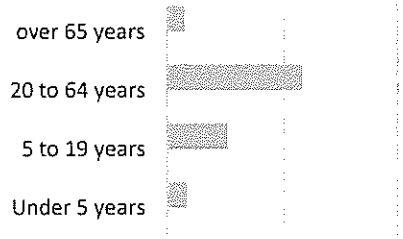
Calls for Service		
		Pct of Total
2019	248	2.1%
2020	249	2.2%
2021	256	1.9%
2022	290	1.9%
2023	307	2.0%

This zone is in the northern section of the City. The zone represents the western response area for Station Seven.

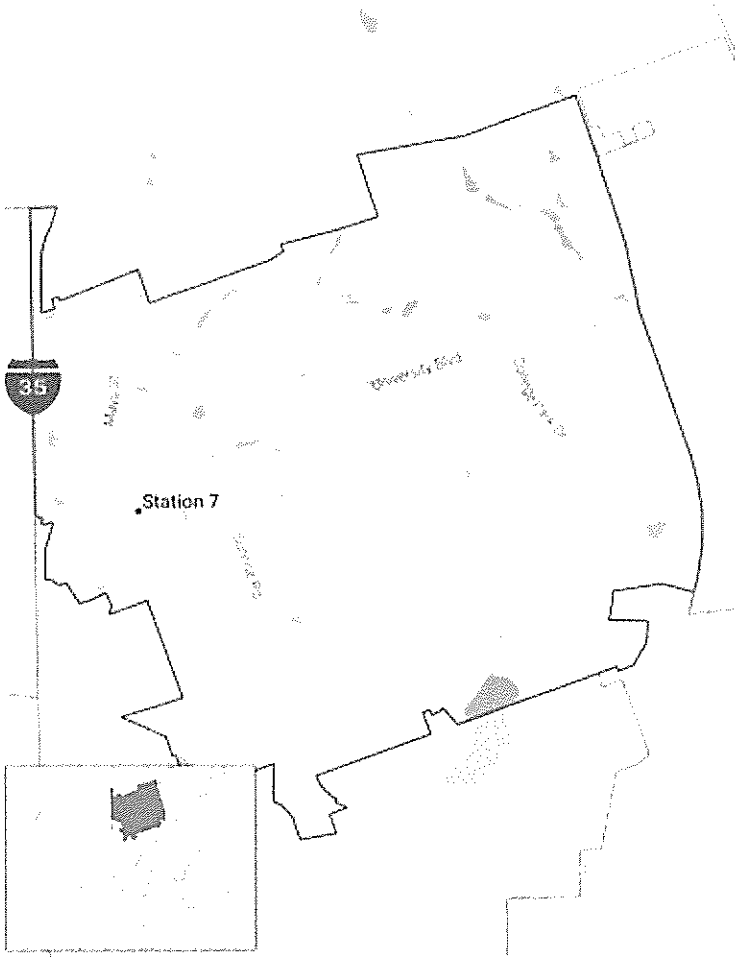
Target Hazards



Age Demographics



Planning Zone 7B Key Facts

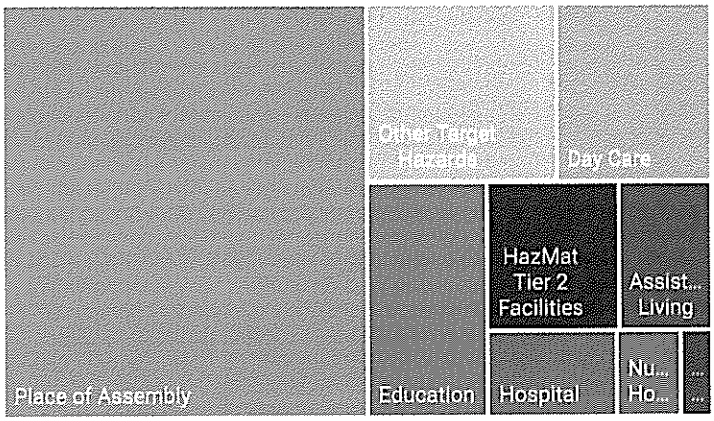


Population:	21,374
Housing Units:	8,642
Square Miles:	5.50
Density:	3,886.2
Avg Per Household:	2.5

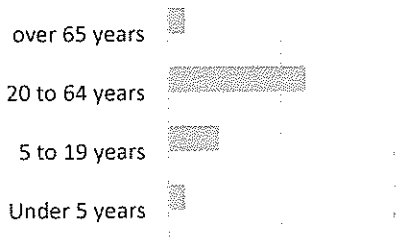
Calls for Service		
		Pct of Total
2019	1,696	14.5%
2020	1,713	15.0%
2021	2,098	15.4%
2022	2,260	14.8%
2023	2,259	15.0%

This zone is in the northern section of the City. A large retail area is at the interchange of I-35 and University Blvd. The zone represents the central response area for Station Seven.

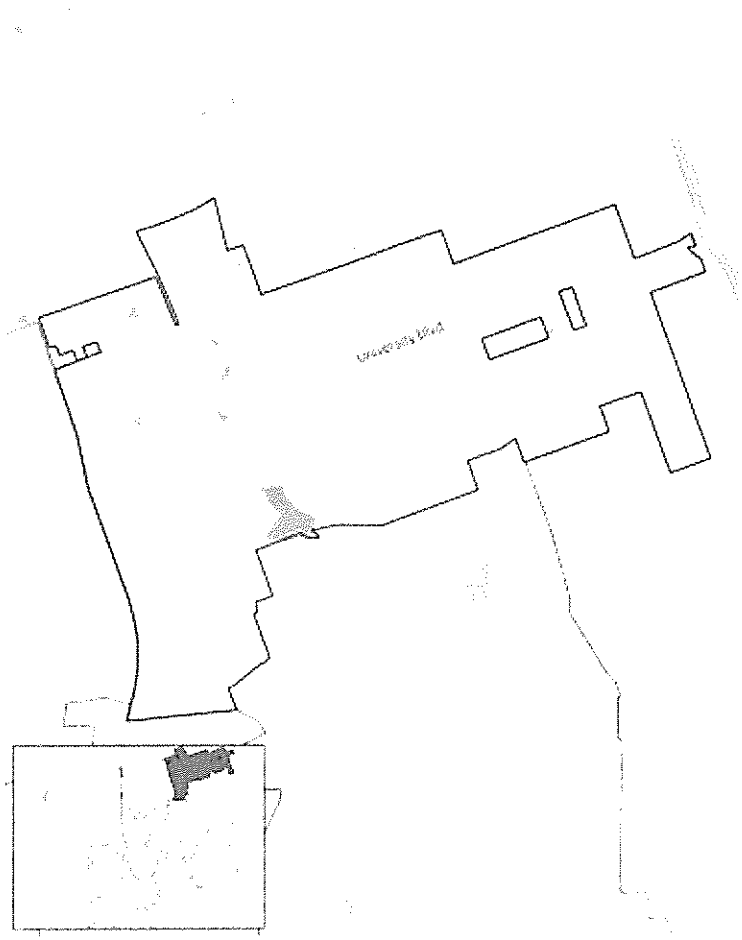
Target Hazards



Age Demographics



Planning Zone 7C Key Facts



Population:	4,188
Housing Units:	1,688
Square Miles:	5.10
Density:	821.2
Avg Per Household:	2.5

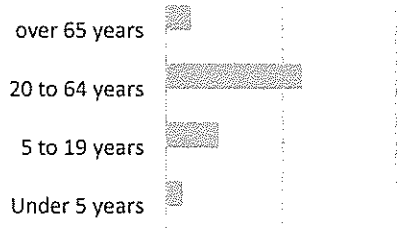
Calls for Service		
		Pct of Total
2019	36	0.3%
2020	70	0.6%
2021	78	0.6%
2022	110	0.7%
2023	148	1.0%

This zone is in the northern section of the City. The zone represents the eastern response area for Station Seven.

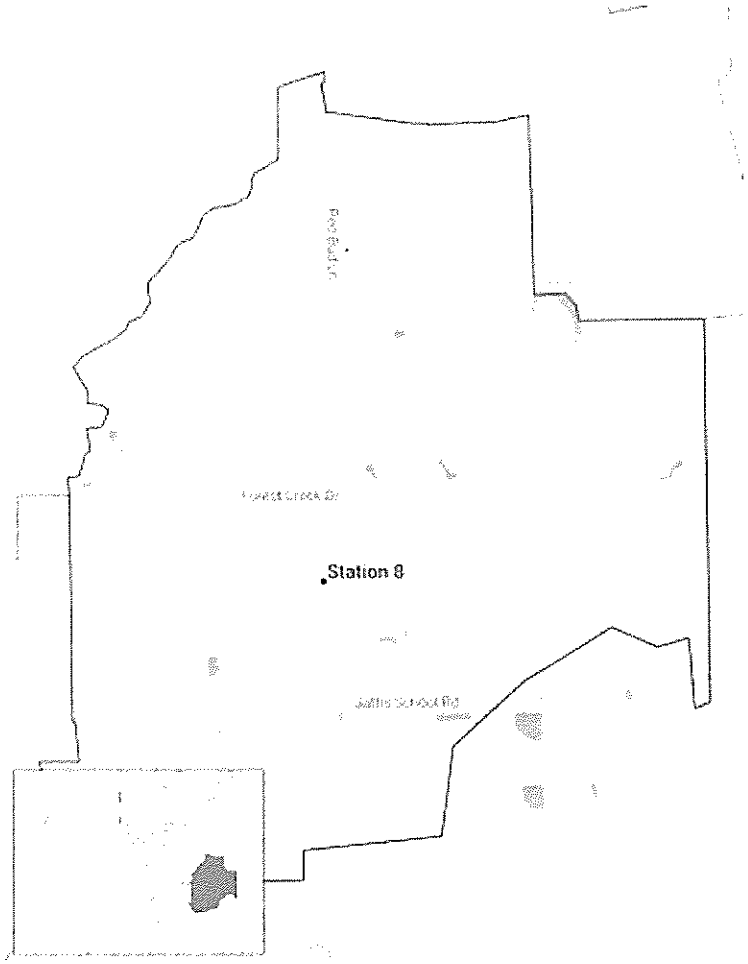
Target Hazards

No Target Hazards

Age Demographics



Planning Zone 8 Key Facts

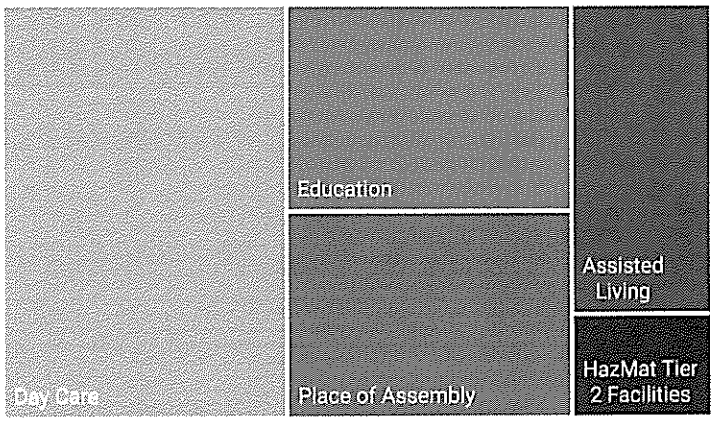


Population:	19,423
Housing Units:	6,141
Square Miles:	5.00
Density:	3,884.6
Avg Per Household:	3.2

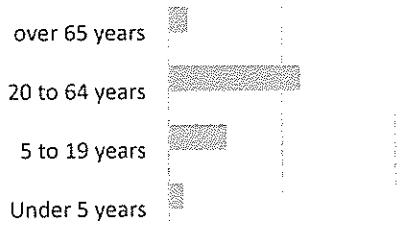
Calls for Service		
		Pct of Total
2019	764	6.5%
2020	781	6.9%
2021	844	6.2%
2022	875	5.7%
2023	845	5.6%

This zone is in the southeastern section of the City. The zone represents the eastern response area for Station Eight.

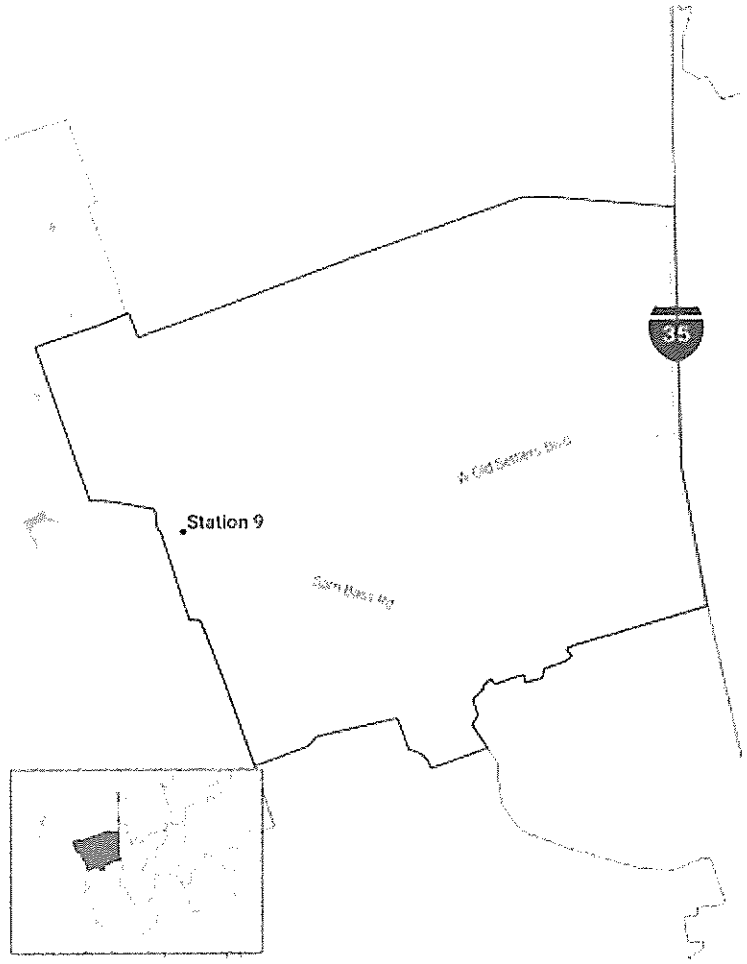
Target Hazards



Age Demographics



Planning Zone 9 Key Facts

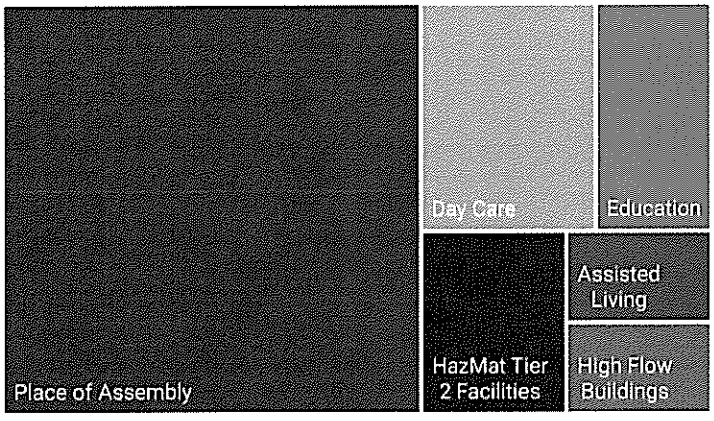


Population:	9,475
Housing Units:	2,983
Square Miles:	3.40
Density:	2,786.8
Avg Per Household:	3.2

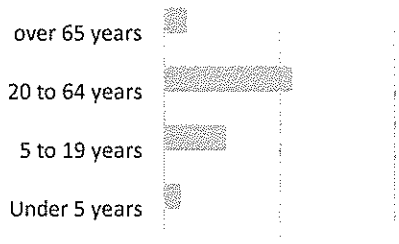
Calls for Service		
		Pct of Total
2019	608	5.2%
2020	586	5.1%
2021	766	5.6%
2022	809	5.3%
2023	801	5.3%

This zone is in the central section of the City west of the I-35 corridor. The zone represents the eastern response area for Station Nine.

Target Hazards



Age Demographics



Emergency Services System Dynamics

In making decisions about the emergency services system, the leadership and residents of the City need to understand the science behind the location of resources, the deployment strategies of those resources, and other parts necessary to form an effective emergency services system. For many years, the Insurance Services Office (ISO) has set the standard for deployment through its Public Protection Classification system. This system was designed to provide insurers with a basis for setting insurance rates and to limit their exposure to significant losses and catastrophic events. While these efforts provided a good starting point, there is much more for the leadership and residents to know while making decisions about the emergency services in the City.

Nationally, the National Fire Protection Association (NFPA), Center for Public Safety Excellence (CPSE), American Heart Association (AHA), United States Fire Administration (USFA), Underwriters Laboratories (UL), Factory Mutual (FM), National Institutes of Standards and Technology (NIST), and Insurance Services Office (ISO) have put considerable effort into data collection, analysis, and the eventual development of performance objectives for the delivery of fire, rescue, and emergency medical services (EMS). This effort is critical for local governments to decide on the deployment and location of emergency resources. The objectives promoted for Fire/Rescue and EMS providers have their basis derived from research that has been conducted on these two critical issues:

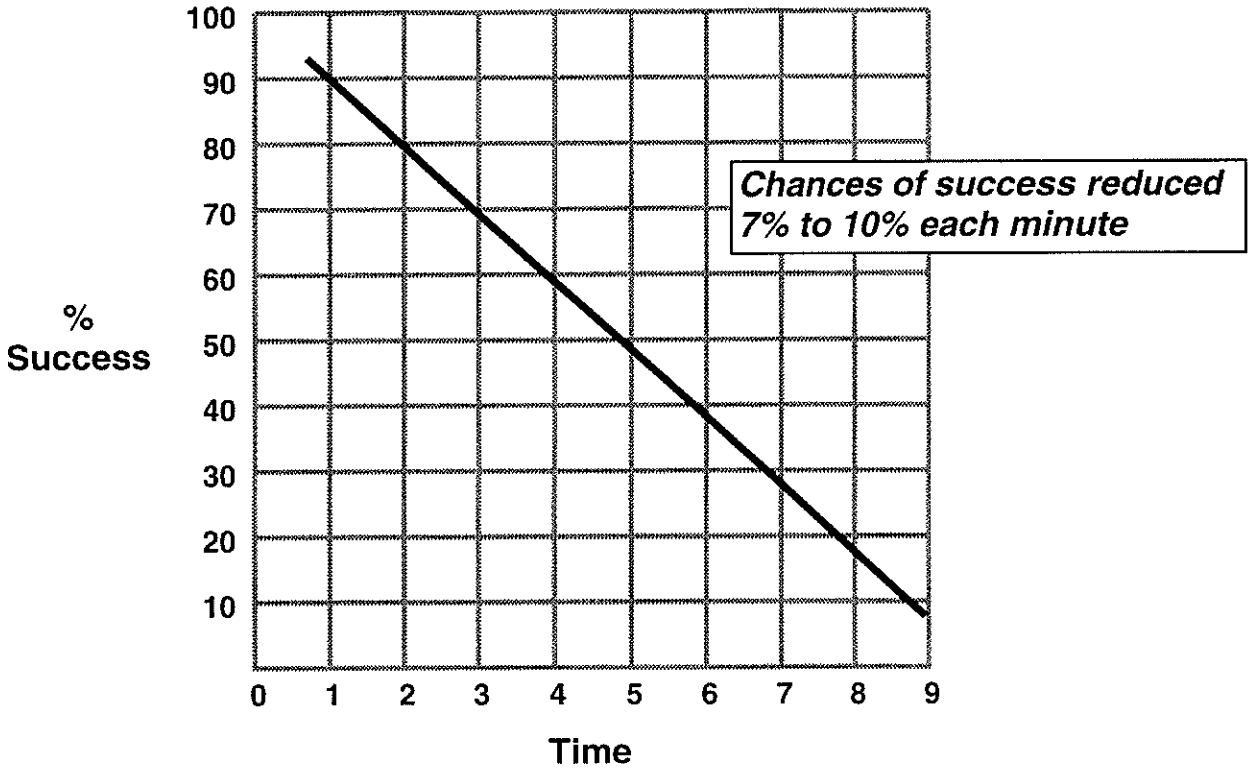
- What is the impact of the passage of time on survivability for victims of cardiac arrest?
- What is the key point in a fire's "life" for gaining control of the blaze while minimizing the impact on the structure of origin and those around it?

The following sections describe the decision points for these factors.

Emergency Medical Services

The delivery of EMS is a function of the emergency services system that must be considered. Emergency medical calls are rising within the RRFD, and the types of calls are wide-ranging. However, as a part of a community's healthcare system, one of the primary factors in the design of the emergency medical response is the ability to deliver high-quality cardiopulmonary resuscitation (CPR) that emphasizes correct hand position, proper depth and compression rate, full recoil, and minimization of pauses in combination

with timely defibrillation to victims of cardiac arrest. The graph below demonstrates the survivability of cardiac arrest patients as related to time from onset:



This graph[4] illustrates that the chances of survival of sudden cardiac arrest diminish by approximately 10% for each minute that passes before the initiation of CPR and/or defibrillation. These dynamics are the result of extensive studies of the survivability of patients suffering from cardiac arrest. While the demand for EMS is wide-ranging, the survival rates for cardiac arrests are often utilized as benchmarks for response time standards as they are more readily evaluated because of the ease of defining patient outcomes (a patient either survives or does not). This research results in the recommended objective of providing basic life support (BLS) within four minutes of notification and providing advanced life support (ALS) within eight minutes.

Considering the response time continuum, the response time goal for EMS is to provide BLS within 6 minutes of the onset of the incident (including detection, dispatch, turnout, and travel time) and ALS within 10 minutes. This is often used as the foundation for a

[4] https://www.ahajournals.org/doi/full/10.1161/circ.102.suppl_1.I-60

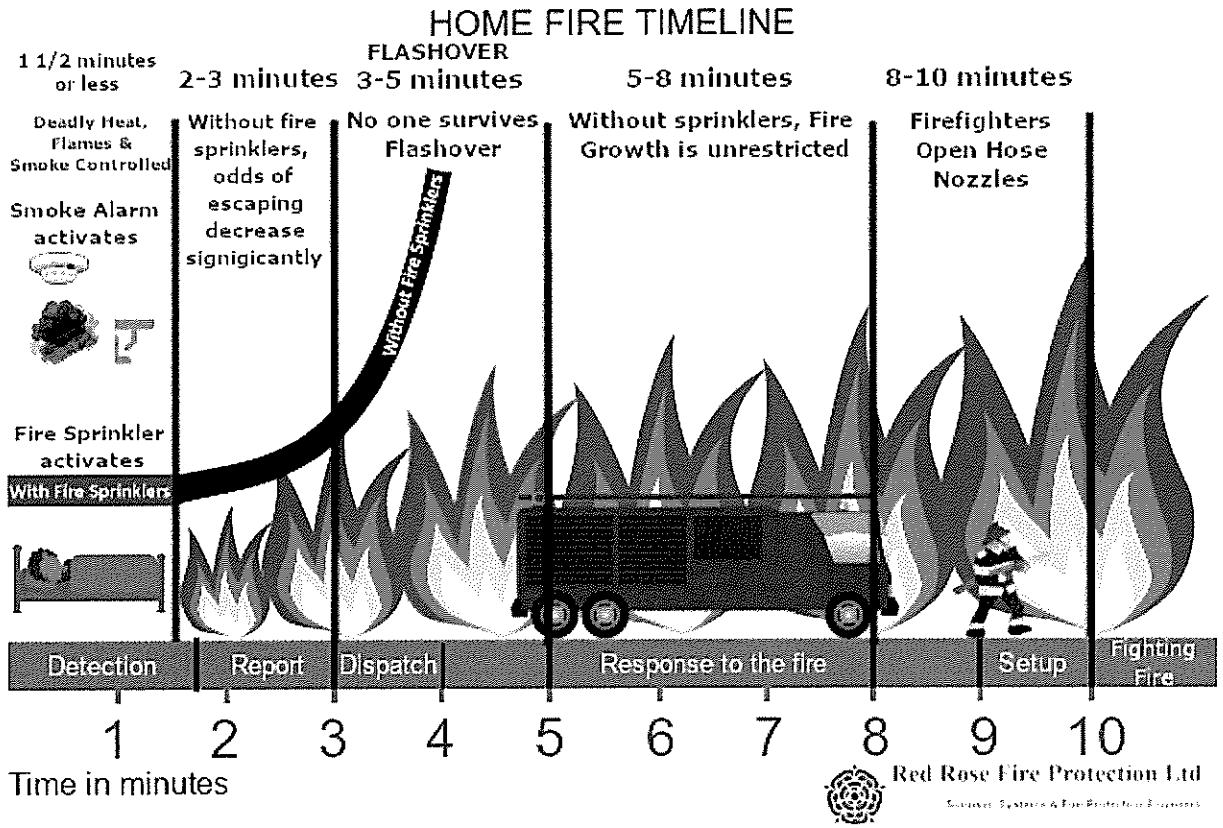
two-tier system where fire resources function as first responders, with additional ALS assistance provided by responding ambulance units and personnel.

Additionally, research has shown the impact and efficacy of rapid deployment of an automated external defibrillator (AED) to cardiac arrests. This research – conducted in King County (WA), Houston (TX), and as part of the Ontario Prehospital Advanced Life Support (OPALS) study in Ontario, Canada – shows that the AED can be the most significant single contributor to the successful outcome of a cardiac arrest – particularly when accompanied by early delivery of CPR. It is also important to note that these medical research efforts have been focused on a small fraction of the emergency responses managed by typical EMS systems – non-cardiac events make up most EMS and total system responses, and this research does not attempt to address the need for such rapid (and expensive) intervention on these events.

Fire Suppression Services

The following chart[5] shows a typical flashover curve for interior structure fires based on NFPA, NIST, and ISO data. The point in time represented by the occurrence of flashover is critical because it defines when all the contents of a room become involved in the fire. This is also the point at which a fire typically shifts from room and contents to a structure fire – involving a wider area of the building and posing a potential risk to the structures surrounding the fire's original location.

[5] https://homefiresprinkler.org/wp-content/uploads/2018/03/flashover-chart.jpg



Note that this illustration depicts a fire from the inception, not when a fire is detected or reported. This timeline demonstrates the importance of early detection, fast reporting, and rapid dispatch of responding units. This also shows the critical need for a rapid (and sufficiently staffed) initial response – by quickly initiating the attack on a fire, a flashover can be averted. The points below describe the significant changes that occur at a fire when a flashover occurs:

- It is the end of time for effective search and rescue in a room involved in the fire. It means the likely death of any person trapped in the room – either civilian or firefighter.
- After the flashover is reached, portable extinguishers can no longer have a successful impact on controlling the blaze. Only larger diameter fire hoses will have enough water supply to affect a fire after this point.
- The fire has reached the end of the growth stage and has entered the fully developed stage. During the fully developed stage, every combustible object is subject to the full impact of the fire.
- This also signals the changeover from contents to structure fire. This is also the beginning of collapse danger for the structure. Structural collapse begins to

become a significant risk and reaches its highest point during the decay stage of the fire (after the fire has been extinguished).

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

- Use of a master stream device, using a handline through a window, or other fast attack methodology.
- Ventilating the room to allow hot gases to escape before they can cause the ignition of other materials in the room.
- Not ventilating a room – under some circumstances, this will stifle a fire and prevent flashovers from occurring.

Each of these techniques requires the rapid response of appropriately trained fire suppression resources that can safely initiate these actions. Without automatic fire suppression systems, access to interior fires can again be limited by a safety requirement related to staffing levels. The Occupational Safety and Health Administration (OSHA) and related industry standards require the presence of at least two firefighters on the exterior of a building before entry can be made to a structure in which the environment is "immediately dangerous to life or health (IDLH)" due to being contaminated by fire, unless "life is in jeopardy." Staffing levels also impact property damage, loss of business, and other economic impacts such as utilities, sales and income tax, and property taxes.

The results of the research efforts previously noted have been utilized by communities and first responders, often on their own with no single reference, to develop local response time and other performance objectives. However, there are four significant sources of information to which responders and local policymakers can refer when determining the most appropriate response objectives for their community:

- The ISO provides basic information regarding distances between fire stations. However, this objective does little to recognize the unique nature of every community's road network, population, calls for service, call density, etc.
- The NFPA promulgated a document entitled: "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." This document (NFPA 1710) was last published in 2020.

- The Commission on Fire Accreditation International (CFAI), in its "Community Risk Assessment: Standards of Cover" manual, places the responsibility for identifying appropriate response objectives on the locality. These objectives should be developed following a comprehensive exercise in which the risks and hazards in the community are compared to the likelihood of their occurrence.
- The AHA provides information on the response to cardiac events, the preferred methods of treatment, and the timing of the delivery of medical care and treatment.

The following section examines the issue of response time.

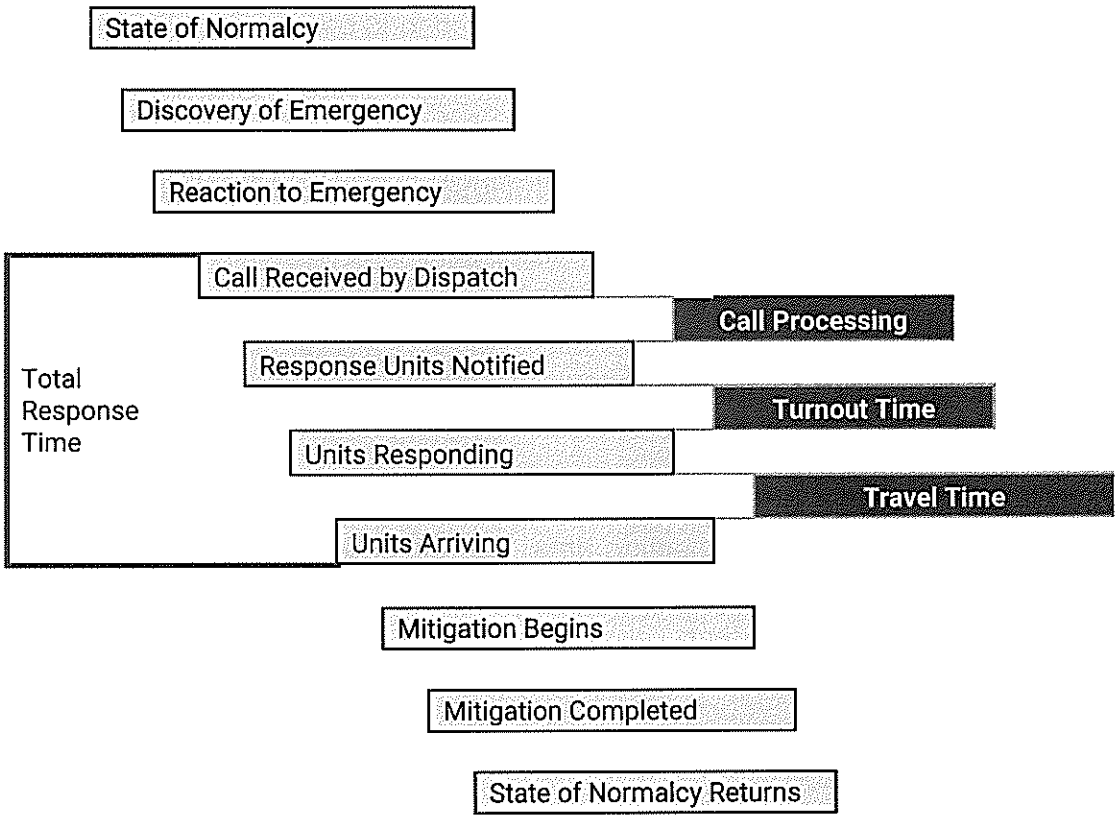
National Response Time Criteria

The expression of response time has changed. In years past, the measurement was expressed as an average of time. This represents how the emergency services system or Department performs 50% of the time and is not a true reflection of how a fire department performs most of the time. With the research conducted in developing performance standards and practices, fractal time has become the best practice for measuring and presenting response time components. Fractal response time measures how often (as a percentage of calls) a department can perform within each response time component. The NFPA and CPSE use the 90th percentile as the standard to meet benchmark and baseline criteria. The definitions for baseline and benchmark performance follow.

- **Baseline performance** is what the agency can perform based on the performance of call processing, turnout time, and travel time over the previous five years.
- **Benchmark performance** is the agency's target level of performance and should show what the agency is striving to perform based on community risk and expectations.

Response time to an emergency or call for service has been broken down into measurable and non-measurable segments. The response time continuum begins when normalcy changes to a recognizable emergency. The following chart outlines the cascade of events that occur once an emergency starts or is recognized. The highlighted points represent hard data or that which is quantitative versus soft data or that which is subjective and unknown.

Response Time Continuum



The highlighted points in the chart above represent three segments that can be used for evaluation: call processing, turnout time, and travel time. Each of these components represents a different point in the response time continuum, and through their measurement and evaluation, areas for improvement can be identified. Below are the definitions for the three components:

- Call Processing is defined as beginning when the call taker answers the call and ends with the dispatching of appropriate emergency services.
- Turnout Time begins when the emergency service receives the dispatch notification and ends when personnel are on the apparatus responding (wheels rolling) to the call.
- Travel Time begins when the apparatus and personnel begin the response (wheels rolling) and ends once at the emergency location (wheels stopped).

The NFPA, CPSE, and ISO offered reference points for communities to follow relative to fire service responses; however, only NFPA 1710 offers any specificity. It is important to note that the performance objectives (regarding response times) provided in the NFPA 1710 document are derived from the previously described basic research. These include the following (all are taken from section 4.1.2.1 of NFPA 1710):

- "One minute four seconds (64 seconds) for the processing of an incoming emergency phone call, including the completion of the dispatching of fire response units."
- "One minute twenty seconds (80 seconds) for turnout time for fire and special operations incidents." This is also called reflex time, reaction time, "out-the-chute" time, etc. This is the time that elapses between dispatch and when the units are actively responding.
- "One minute (60 seconds) for turnout time for emergency medical incidents." This is also called reflex time, reaction time, "out-the-chute" time, etc. This is the time that elapses between dispatch and when the units are actively responding to an emergency medical incident.
- "Four minutes (240 seconds) or less for the arrival of the first arriving engine company at a fire suppression incident."
- "Four minutes (240 seconds) or less for the arrival of a unit with first responder or higher-level capability at an emergency medical incident."
- "Eight minutes (480 seconds) or less for the deployment of a full first-alarm assignment at a fire suppression incident."
- In section 4.1.2.4, NFPA 1710 states: "The fire department shall establish a performance objective of not less than 90 percent for the achievement of each response time objective specified in 4.1.2.1."
- The American Heart Association (AHA) does not promulgate or identify performance objectives; it does, however, provide the background information and motivation for the responses to cardiac arrest and other health-related issues.

It is critical to note that Appendix A contained in the NFPA 1710 document provides additional information and background as it pertains to service delivery objectives for the jurisdiction as follows:

> "There can be incidents or areas where the response criteria are affected by circumstances such as response personnel who are not on duty, unstaffed fire station facilities, natural barriers, traffic congestion, insufficient water supply, and density of population or property. The reduced level of service should be documented in the written organizational statement by the percentage of incidents and geographical areas for which the total response time criteria are achieved. Additional service delivery performance objectives should be established by the AHJ for occupancies other than those identified within the standard for benchmark single-family dwellings. Factors to be considered include specific response areas (i.e., suburban, rural, and wilderness) and occupancy hazards."

This passage acknowledges that the authority having jurisdiction (AHJ), in this case, the City, is responsible for determining the level of service to be provided by the City. Considerations for the level of service include but are not limited to how the fire department responds, travel time, staffing, emergency calls versus non-emergency calls, roadways, financial resources, and those calls involving different occupancies and demographics. The service levels provided to the City should be written and documented so the residents of the City know and understand the expectations of their emergency services system.

Effective Response Force

Several tasks must occur simultaneously to adequately combat diverse types of fires. The absence of adequate personnel to perform these tasks requires each task to be prioritized and completed chronologically. These fire ground tasks include command, scene safety, search and rescue, water supply, fire suppression, pump operations, ventilation, backup, and rapid intervention.

An initial full alarm assignment should be able to provide personnel, an effective response force (ERF), to accomplish the following tasks:

- Establish incident command outside of the hazard area. This will allow coordination and direction of the incoming emergency response personnel and apparatus. A minimum of one person should be dedicated to this task.
- Establish an uninterrupted water supply of at least 400 gallons per minute for 30 minutes. Once established, the pump operator can maintain the supply line to ensure an uninterrupted water supply. A minimum of one person is assigned to this task who can then assume a support role.

- Establish an effective water flow rate of 300 gallons per minute. This will be supplied to a minimum of two hand lines, each operating at a minimum flow of 100 gallons per minute. Each hand line must have two individuals assigned, with one hand line serving as the suppression line and the other as a backup line.
- One support person will be provided to manage the hydrant hookup, utility control, and forcible entry and assist in deploying fire hose lines.
- Establish a search and rescue team. Each team will consist of a minimum of two personnel.
- Establish a ventilation team. Each team will consist of a minimum of two personnel.
- If an aerial ladder is used in the operations, one individual to function as an aerial operator.
- Establish an initial rapid intervention team (RIT). Each RIT team shall consist of a minimum of two properly trained and equipped personnel.
- A total effective response force with a minimum of 16 (17 if an aerial ladder is in operation)

Critical tasks will vary depending on the size and nature of the incident. The previous list from NFPA 1710 and templates provided in the "Community Risk Assessment: Standards of Cover" manual from CPSE provided the basis for the following tables to illustrate the minimum required personnel to mitigate the initial emergency response requirements by occupancy risk:

Table 42: Critical Tasks for the Effective and Efficient Control of Structural Fires

Critical Task	Maximum Risk	High Risk	Moderate Risk	Low Risk
Attack Line	4	4	4	2
Search and Rescue	4	2	2	0
Ventilation	4	2	2	0
Backup Line	2	2	2	2
Rapid Intervention	2	2	2	0
Pump Operator	1	1	1	1
Water Supply	1*	1*	1*	1*
Support (Utilities)	1*	1*	1*	1*
Command	1	1	1	1
Safety Officer	1	1	1	1
Salvage/Overhaul	2	0	0**	0
Command Aid	1	1	0	0
Operations Chief	1	1	0	0
Logistics	1	0	0	0
Planning	1	0	0	0
Staging Officer	1	1	0	0
Rehabilitation	1	1	0	0
Division Supervisors	2	1	0	0
High-rise Evacuation	10	0	0	0
Stairwell Support	10	0	0	0
Total Personnel	**50 – 51**	**21 – 22**	**16 – 17**	**8 – 9**

*Tasks can be performed by the same individual.
**Task can be performed by the attack crew

Adding to the critical tasks and staffing issues is the OSHA 1910.134(g)(4) requirement of two in – two out. These regulations state that if entry into an IDLH atmosphere is necessary, two firefighters must enter together and remain in contact with each other. In addition, two firefighters must be located outside the IDLH atmosphere for potential rescue if needed. This is a mandatory requirement unless life is in jeopardy.

The concept of an ERF carries through to other response types by the fire department. The tables below outline the critical tasks for an ERF for those response types.

Table 43: Critical Tasks for Hazardous Materials

Critical Task	High Risk	Low Risk
Command/Safety	2	1
Liaison	1	1
Decontamination	4	4
Research Support	2	1
Team Leader, Entry Team, Backup Team	6	6
Total Personnel	**15**	**13**

Table 44: Critical Tasks for Initial Wildland Urban Interface Fires

Critical Task	No Hydrants	With Hydrants
Command/Safety	1	1
Pump Operations	1	1
Attack Line	2	2
Structure Protection	3	2
Water Supply	1	0
Tender Operator	2	0
Exposure Lines	2	0
Total Personnel	**12**	**6**

Table 45: Critical Tasks for Technical Rescue Operations

Critical Task	Swift Water	High/Low Angle	Confined Space
Command/Safety	1	1	2
Rescue Team	3	2	2
Backup Team	2	2	2
Patient Care	2	2	2
Rope Tender	2	0	0
Upstream Spotter	2	0	0
Downstream Safety	2	0	0
Rigger	0	1	1
Attendant	0	1	1
Ground Support	0	4	4
Edge Person	0	1	0
Shoring	0	0	0
Total Personnel	**14**	**14**	**14**

The previous tables illustrate the staffing needs for a sampling of hazardous materials, wildland-urban interface, and technical search and rescue incidents, keeping in mind that there are numerous other response types. Each of the technical rescue incidents will

require similar numbers of personnel or more depending on the complexity of the incident. Further, many positions require personnel to be certified in those positions or that particular discipline.

As with fire, hazardous materials, and technical search and rescue incidents, an ERF is needed to effectively and efficiently deliver EMS. A task analysis for emergency medical calls analyzes three types of calls or patient conditions. These three types of calls usually require the most effort from the response team. Other calls or patient types can generally be handled with two or three personnel. Many times, especially in trauma calls, there are multiple patients. The following table outlines the tasks for assisting these critical patients and the number of responders it may require for a successful outcome. It is important to note that the same personnel accomplish some tasks, so the total is not a simple addition of the positions noted.

Table 46: Critical Tasks for Effective Patient Care

Critical Task	Cardiac Arrest	Stroke	Multi-System Trauma
Patient Assessment	2 per patient	2 per patient	2 per patient
Airway Management/Intubation	2 per patient	2 per patient	2 per patient
Cardiac Defibrillation	1	N/A	N/A
CPR	1	N/A	N/A
EKG Monitoring	1	1	1
IV/Pharmacology	1	1	1
Splint/Bandage/Immobilization	N/A	N/A	1
Patient Lifting/Packaging	2 – 4	2 – 4	2 – 4
Medical Information Collection	1	1	1
Total per Patient	**6 - 8**	**5 - 7**	**6 - 8**

Evaluation of the Round Rock Emergency Services System

This chapter compares and evaluates the current deployment and performance of the fire department.

Response Time Data

Computer Aided Dispatch (CAD) data for 2019, 2020, 2021, 2022, and 2023 was evaluated. The data has coding problems, transcription errors, and equipment failures. The project team used the following mechanism to address these issues.

Only qualified data is used to calculate response time and any related components. To be considered, the data must meet the following criteria:

- The incident must have been unique.
- The incident must have involved at least one Fire and Rescue Department unit being dispatched to the call.
- Calls missing data are not used in the computations for call processing, turnout time, travel time, or call duration.
- Any calls with usually long times or times sorted incorrectly (arrived before dispatch time) were removed.
- Non-emergency responses are removed; only emergency responses are included.

After filtering the data using the methodology outlined above, the remaining incidents represent the response time for calls for service handled by the Fire Department. With the pandemic in 2020, many departments and agencies had different experiences, including decreased call volumes, other types of calls, and deviations in call times. Many of these same departments and agencies are now reporting their call volumes have increased significantly over pre-pandemic times. While these differences will interfere with any trends, it is equally important to note how a global event can affect an emergency services system.

Call Processing

Performance Standards

The City of Round Rock Support Services Division of the Police Department provides dispatching services for the Round Rock Fire Department.

The NFPA 1221 Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems establishes the call processing benchmarks outlined in the chart below.

Table 47: NFPA 1221 Performance Objective

Component	Target	Performance
Calls Answered	Within 15 seconds	90%
	Within 20 seconds	95%
Call Processing	Within 60 seconds	90%
Call Processing for: * Language Translation * TTY/TDD Device Services * Hazardous Materials * Technical Rescue * Text Message * Calls Received during a Disaster * Unable to Determine location	These types of calls are exempt from the call processing time illustrated above.	

ISO uses the 60-second call processing time as a benchmark performance objective outlined in NFPA 1221 for their requirements.

System Performance

The table below summarizes the performance of the Support Services Division.

Table 48: Call Processing Performance

All Emergency Calls – 90th Percentile Times		2019 - 2023	2019	2020	2021	2022	2023	NFPA Benchmark
Call Processing	Pick-up to Dispatch	1:02	1:34	1:36	0:00	0:00	0:00	1:00

Over five years, the communications center has processed emergency calls in 1 minute and 5 seconds for 90% of the emergency calls handled for the Fire Department. Data was either unavailable for analysis for the past three years, or the time received and the dispatch time was identical.

Turnout Time

Performance Standards

Turnout time is a measurable time segment that begins when the emergency service unit receives the call and is on the apparatus responding (wheels rolling). The following table compares the three models for benchmark performance objectives.

Table 49: Turnout Time – Benchmark Performance Objectives

Call Type	NFPA 1710	ISO	CPSE
Emergency Medical Calls	60 seconds or less 90% of the time	No Requirement	60 seconds or less 90% of the time
Fire or Special Operations Calls	80 seconds or less 90% of the time	No Requirement	80 seconds or less 90% of the time

System Performance

The table below illustrates the performance of the Round Rock Fire Department.

Table 50: Turnout Time Performance

All Emergency Calls – 90th Percentile Times			2019 - 2023	2019	2020	2021	2022	2023	NFPA Benchmark
Turnout Time	1st unit	Medical Calls	2:00	1:46	1:48	2:00	2:00	2:00	1:00
		Fire Calls	2:00	1:43	1:45	2:00	2:00	2:00	1:20

All times shown are the 90th percentile for each of the five years. The performance objective time shown to the far right represents the turnout time following the NFPA Standard. For the five years, the emergency medical calls have been over the performance objective time by 1 minute, and the fire-related calls have been over the performance objective by 30 seconds. Data for the past three years did not include seconds. Individual units for the past five years are all at two minutes, as the seconds were not included in the data.

Distribution of Resources

Distribution is the measure of getting initial resources to an emergency to begin mitigation efforts. It is measured in various ways, including the percentage of square miles, percentage of road miles, and travel time. The Insurance Services Office (ISO) has used road miles for many years, advocating one and a half miles for an engine company and two and a half miles for a ladder company. With the advent of GIS technology and improved computer-aided dispatch (CAD) systems, the use of actual travel time is another more accurate measure for the distribution of resources.

Performance Standards

Travel time is a measurable time segment that begins when the apparatus and personnel begin the response (wheels rolling) and ends once at the emergency location (wheels stopped). It is the most appropriate measurement available for the distribution of resources with a proven record of success.

Table 51: First Arriving Unit – Benchmark Performance Objectives

Demand Zone	Demographics	NFPA 1710	ISO	CPSE
Urban	Greater than 1,000 per sq. mile	4 minutes or less 90% of the time	1.5 road miles in the built-upon area	4 minutes or less 90% of the time
Suburban	500 - 1,000 per sq. mile	4 minutes or less 90% of the time	1.5 road miles in the built-upon area	5 minutes or less 90% of the time
Rural Area	Less than 500 per sq. mile	4 minutes or less 90% of the time	1.5 road miles in the built-upon area	10 minutes or less 90% of the time
Remote Area	Travel Distance greater than / equal to 8 miles	4 minutes or less 90% of the time	1.5 road miles in the built-upon area	No Requirement

System Performance

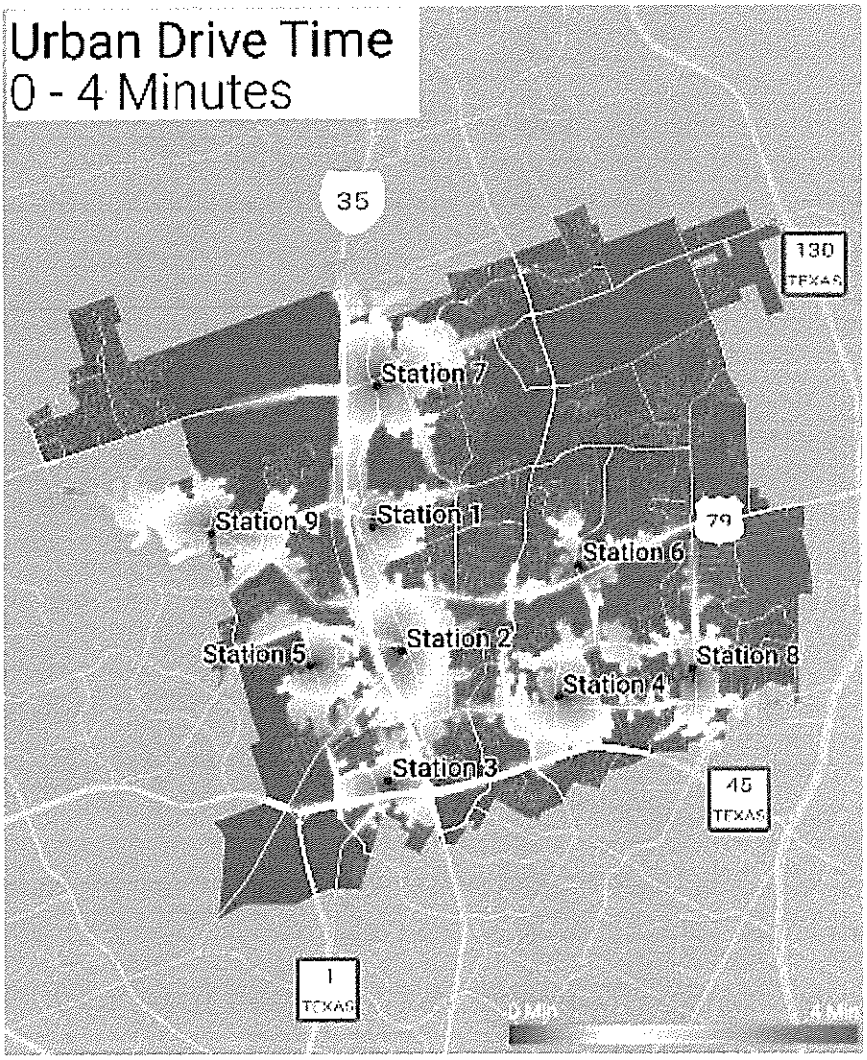
The following table illustrates the performance for the past five years.

Table 52: Travel Time Performance - Distribution

All Emergency Calls – 90th Percentile Times			2019 - 2023	2019	2020	2021	2022	2023	NFPA Benchmark
Travel Time	1st Unit - Distribution	Urban Zone	7:00	6:45	6:47	7:00	7:00	7:00	4:00
		Suburban Zone	10:00	9:42	9:23	9:00	10:00	10:00	4:00

All times shown are the 90th percentile for each of the five years. The performance objective time shown to the far right represents the travel time following the NFPA Standard. For the five years, the emergency calls are over the performance objective time by 3 minutes in the urban zone and six minutes in the suburban zone. The suburban zone is the area in the far northeast region of the City. This area is expected to expand with new commercial and residential development in the next several years.

The following map illustrates the 4-minute travel time using each existing fire station.



The City's southwest region is reasonably well covered in terms of travel time. Significant gaps have been noted in the northeast region of the City. The street network in the northeast is not fully developed, limiting access by apparatus.

Response Time – Distribution

Combining turnout time and travel time creates the response time for the Fire Department, which is 6 minutes for 90% of the emergency calls. The following table illustrates the performance of the Fire Department for the past five years.

Table 53: Response Time Performance - Distribution

All Emergency Calls – 90th Percentile Times			2019 - 2023	2019	2020	2021	2022	2023	NFPA Benchmark
Response Time	1st Unit Distribution	Urban Zone	8:00	7:58	8:02	8:09	8:00	8:00	6:00
		Suburban Zone	10:39	10:15	10:32	10:33	10:00	11:00	6:00

All times shown are the 90th percentile for each of the five years. The performance objective time shown to the far right represents the benchmark performance response time following the NFPA Standard. For the five years, the emergency calls are over the performance objective time by two minutes in the urban zone and four minutes and 39 seconds in the suburban zone.

Total Response Time - Distribution

While travel time is essential and allows for evaluating station locations, the total response is equally important as that is what the customer witnesses. The customer does not necessarily understand the different agencies involved or what the Fire Department must do to provide service; they do understand that when they call for assistance, they expect the help to arrive promptly. The following table illustrates the performance of the fire protection system for the past four years.

Table 54: Total Response Time - Distribution

All Emergency Calls – 90th Percentile Times			2019 - 2023	2019	2020	2021	2022	2023
Total Response	1st Unit Distribution	Urban Zone	7:07	9:13	9:03	0:00	0:00	0:00
		Suburban Zone	9:50	11:57	11:43	0:00	0:00	0:00

Concentration of Resources

The concentration of resources is generally described as the ability of the fire protection system to get the appropriate number of personnel and resources to the scene of an emergency within a prescribed time to mitigate the incident effectively. This component has two parts: the first is providing an effective response force, and the second is the time needed to get those resources in place.

Performance Standards

As noted, there are two segments for the concentration of resources: the first uses travel time, and the second involves the number of personnel. Again, these two segments

represent the most appropriate measurement available for the concentration of resources, and these measurements have proven successful.

The concentration segment has two travel time components that must be considered. The first is the travel time for the second arriving apparatus, and the second is the balance, travel time, and personnel of the first alarm assignment. The following table summarizes the differing viewpoints on the travel time of the second arriving unit.

Table 55: Second Arriving Unit – Benchmark Performance Objectives

Demand Zone	Demographics	NFPA 1710	ISO
Urban	Greater than 1,000 per sq. mile	6 minutes or less 90% of the time	No time or mileage requirement
Suburban	500 - 1,000 per sq. mile	6 minutes or less 90% of the time	No time or mileage requirement
Rural Area	Less than 500 per sq. mile	6 minutes or less 90% of the time	No time or mileage requirement
Remote Area	Travel Distance greater than / equal to 8 miles	6 minutes or less 90% of the time	No time or mileage requirement

As noted in the previous table, NFPA 1710 has requirements for the second arriving apparatus; ISO is silent. The following table illustrates the travel time for the first alarm assignment.

Table 56: First Alarm Assignment – Benchmark Performance Objectives

Demand Zone	Demographics	NFPA 1710	ISO
Urban	Greater than 1,000 per sq. mile	8 minutes or less 90% of the time	No time or mileage requirement
Suburban	500 - 1,000 per sq. mile	8 minutes or less 90% of the time	No time or mileage requirement
Rural Area	Less than 500 per sq. mile	8 minutes or less 90% of the time	No time or mileage requirement
Remote Area	Travel Distance greater than / equal to 8 miles	8 minutes or less 90% of the time	No time or mileage requirement

NFPA 1710 does not address any demographics regarding travel time in response to structure fires.

As mentioned above, the second part of the concentration of resources arrival time concerns the number of personnel arriving with the first alarm assignment. The following table summarizes NFPA, ISO, and CPSE standards for the number of personnel arriving for a first alarm assignment for a single-family dwelling.

Table 57: First Alarm Assignment - Recommended Personnel

Demand Zone	Demographics	NFPA 1710	ISO
Urban	Greater than 1,000 per sq. mile	16 personnel	No specific requirement
Suburban	500 - 1,000 per sq. mile	16 personnel	No specific requirement
Rural	Less than 500 per sq. mile	16 personnel	No specific requirement
Remote	Travel Distance greater than / equal to 8 miles	16 personnel	No specific requirement

As illustrated, ISO does not specify the number of personnel expected or anticipated to arrive and instead provides points for the personnel, meaning the more on-duty personnel there are, the more points are added to the overall evaluation. NFPA 1710 bases the personnel requirements on creating an effective response force using critical tasking.

In the following sections, the performance of the Fire Department is measured against the current NFPA 1710 performance objectives.

Performance

Computer Aided Dispatch (CAD) data was used to evaluate resource concentration. To be considered for inclusion, the following conditions were required to be met:

- Calls for service designated as a structure fire.
- All the units dispatched must have a recorded arrival time. It was assumed that if the unit did not arrive on scene, it was cancelled while enroute.

The data used were from 2019, 2020, 2021, 2022, and 2023. For apparatus staffing, engine, and ladder/truck companies are staffed with three personnel and chief officers with one personnel.

Second Arriving Apparatus

This part of the concentration model is slightly different because it only examines the travel time of a second suppression apparatus. This evaluation does not include a personnel component; however, the arrival of the second suppression unit would typically provide six personnel at the scene.

Benchmark performance objectives for the second arriving suppression unit are provided by NFPA 1710. NFPA 1710 only addresses the urban setting and has a travel time

performance benchmark of 6 minutes for the second arriving suppression unit. The following table illustrates the performance of the second arriving apparatus.

Table 58: Travel Time Performance – Second Arriving Unit

Structure Fire Calls – 90th Percentile Times			2019 – 2023	Number of Calls	NFPA Benchmark	Percent Met
Travel Time	2nd Suppression Unit	City Wide	5:21	159	6:00	100.00%
		Urban	5:21	159	6:00	100.00%
		Suburban	0:00	0	6:00	0.00%

Statistically, these travel times use a small data set and should be viewed skeptically.

With a smaller data set, the travel times shown in the previous table are limited to five years. Two viewpoints are provided in the last table. The second arriving suppression unit for the Fire Department was at the scene in 5 minutes and 21 seconds for 90% of the calls examined. A second viewpoint illustrates that for 159 calls evaluated, 100% of those calls met the 6-minute travel time performance objective. The structure fire calls were further examined based on the planning zones previously established. Note that over the five years, no structural fire calls have been made in the suburban planning zone in the far northeast region of the City.

First Alarm Assignment

The following table summarizes the travel time of the first unit and the remaining first alarm assignment for the Fire Department.

Table 59: Travel Time Performance - Concentration

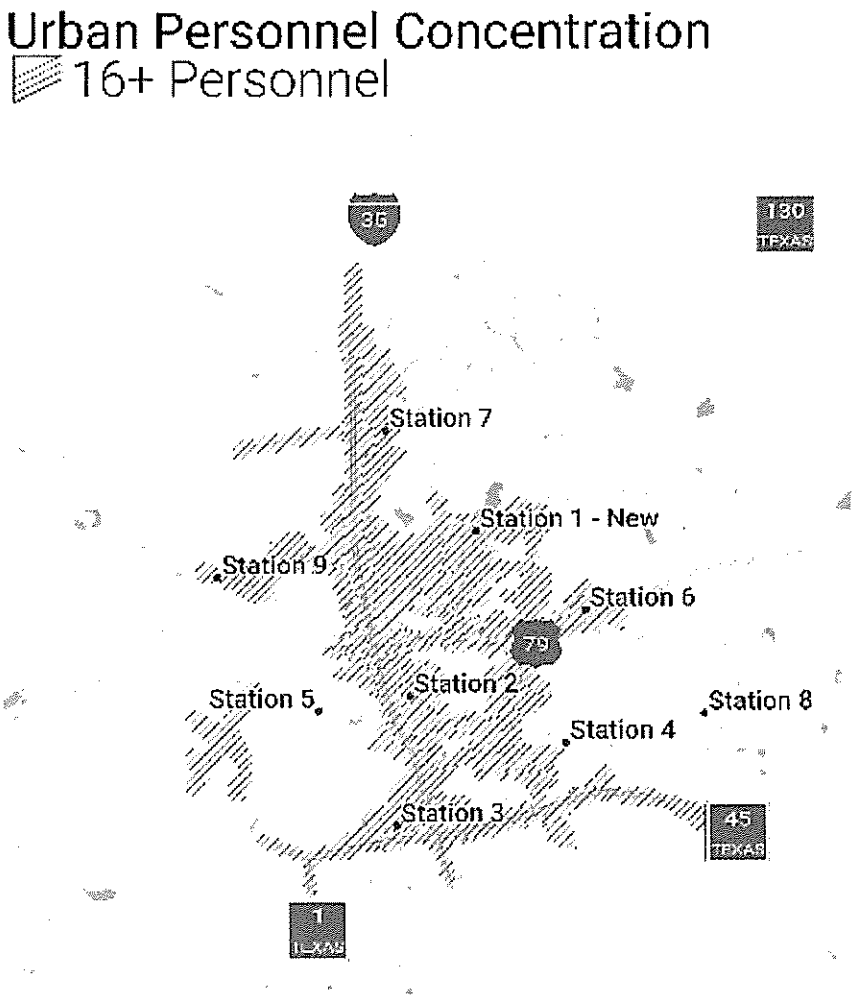
Structure Fire Calls – 90th Percentile Times			2019 – 2023	Number of Calls	NFPA Benchmark	Percent Met
Travel Time	1st Suppression Unit	City Wide	5:00	169	4:00	82.2%
		Urban	5:00	169	4:00	82.2%
		Suburban	0:00	4	4:00	0.0%
	Effective Response Force	City Wide	7:32	105	8:00	100.0%
		Urban	7:32	105	8:00	100.0%
		Suburban	0:00	0	8:00	0.0%

Statistically, these travel times use a small data set and should be viewed skeptically.

The previous table utilizes 16 personnel as the effective response force for a structural fire using the NFPA 1710 travel time performance objectives.

With a smaller data set, the travel times shown in the previous table are limited to five years. Two viewpoints are provided in the last table. For the Fire Department, the first arriving unit was at the scene in 5 minutes for 90% of the calls examined. The second viewpoint illustrates that for the 169 calls evaluated, 82.2% of the calls met the 4-minute travel time performance objective. The effective response force required a minimum of 16 personnel to arrive at the scene. For the Fire Department, an effective response force arrived at the scene in 7 minutes and 32 seconds for 90% of the calls examined, with 100% meeting the 8-minute travel time performance objective. Note that over 5 years, no structural fire calls have been made in the suburban planning zone in the northeast region of the City.

The following map illustrates the number of personnel that can arrive in 8 minutes travel time for a structural fire. Fire Station 1 is being relocated and is planned to be operational in August. This map shows the station in the new location.



The map is based on each station's staffing, assuming all units are responding from the station and are available to respond. Some areas are beyond the 8-minute travel time polygon, mainly along the City's outer edges.

System Reliability

Other contributing factors, including unit utilization and concurrent calls for service, can influence the concept of distribution and concentration of resources.

Unit Utilization

Unit utilization is another factor in determining whether there is an appropriate emergency services response. Unit utilization is calculated by dividing the total hours the unit is committed to an incident by the total hours in a year. Expressed as a percent, it identifies the amount of time the unit is committed and the amount of time it is available. The available time can impact meeting that standard in the framework of the 80th and 90th percentile performance standards. If rates are too high, units are often unavailable.

In 2016, Henrico County, Virginia, conducted a study of unit utilization. Through their research, they developed a scale to identify the community impact on travel time and availability of their emergency medical units.[6]

[6] https://www.fireengineering.com/apparatus-equipment/how-busy-is-busy/#gref

Table 60: Unit Utilization Scale

Factor	Indicator	Description
16% to 24%	Ideal Commitment Range	Personnel are able to maintain training requirements and physical fitness and can consistently achieve response time benchmarks. Units are available to the community more than 75 percent of the day. Units below 0.16 should be evaluated for more efficient use as additional operating capacity is available.
25%	System Stress	Community availability and unit sustainability are not questioned. First-due units are responding to their assigned community 75 percent of the time, and response benchmarks are rarely missed. At this level, agency leaders must understand that commitment factor increases are imminent. The community this unit serves will begin to see increasingly longer response times as neighboring stations send apparatus during one out of four calls.
26% to 29%	Evaluation Range	In this range, the community served will experience delayed incident responses. Just under 30 percent of the day, first-due ambulances are unavailable; thus, neighboring responders will likely exceed goals. Agency leadership should immediately begin identifying funding sources to provide relief. At this range, commitment factors are only expected to increase.
30% or more	Line in the Sand	Not Sustainable: Commitment Threshold – shows our community has less than a 70 percent chance of timely emergency service and immediate relief is vital. Personnel assigned to units at or exceeding 0.3 may show signs of fatigue and burnout and may be at increased risk of errors. Required training and physical fitness sessions are not consistently completed.

The following table illustrates the apparatus's unit utilization for five years.

Table 61: Unit Utilization Performance

Unit	2019			2020			2021			2022			2023		
	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.
Engine 1 Brush 1 Tender 1	1018:25:20	11.6%	36:03	630:52:02	7.2%	25:45	847:20:00	9.7%	25:11	1568:28:00	17.9%	41:02	1454:26:00	16.6%	42:12
Engine 6 HazMat 6	956:37:10	10.9%	40:48	570:25:44	6.5%	25:13	865:18:00	9.9%	27:18	1353:22:00	15.4%	40:32	1323:28:00	15.1%	42:53
Rescue 2	1022:25:56	11.7%	36:57	461:46:58	5.3%	21:39	1000:00:00	11.4%	29:14	1377:10:00	15.7%	35:39	1290:34:00	14.7%	36:34
Engine 4 Brush 4	919:00:22	10.5%	40:45	508:02:04	5.8%	25:32	731:30:00	8.4%	28:40	1230:38:00	14.0%	40:46	1245:58:00	14.2%	42:48
Engine 7	980:36:48	11.2%	31:12	531:49:12	6.1%	21:05	789:06:00	9.0%	26:00	1229:16:00	14.0%	35:27	1159:30:00	13.2%	35:32
Engine 3	853:13:02	9.7%	30:37	485:39:50	5.5%	22:31	636:54:00	7.3%	26:37	1057:24:00	12.1%	35:28	1059:20:00	12.1%	38:30
Truck 3	2:37:00	0.0%	31:24	0:00:00	0.0%	00:00	0:00:00	0.0%	00:00	893:46:00	10.2%	36:02	871:56:00	10.0%	39:03
Truck 7	558:42:56	6.4%	40:44	266:51:42	3.0%	23:56	617:14:00	7.0%	25:48	908:44:00	10.4%	35:44	839:06:00	9.6%	35:01
Ladder 8	0:00:00	0.0%	00:00	0:00:00	0.0%	00:00	0:00:00	0.0%	00:00	903:50:00	10.3%	41:14	810:22:00	9.3%	37:36
Engine 5 Brush 5	598:23:02	6.8%	37:03	378:00:12	4.3%	25:57	411:36:00	4.7%	24:17	774:18:00	8.8%	35:59	809:08:00	9.2%	35:32
Quint 9 Blocker 9	376:12:02	4.3%	42:55	164:54:12	1.9%	24:37	300:02:00	3.4%	28:08	506:20:00	5.8%	37:59	509:50:00	5.8%	39:31

Based on the Henrico Study, no units are over-committed regarding unit hour utilization. However, between 2019 and 2023, the utilization rates have increased.

Concurrent Calls

It is common for a fire protection system to have multiple requests for service occurring simultaneously. The larger the system, the more frequently this will happen. With the appropriate resources, this can be handled efficiently. The following table summarizes the number of concurrent calls for the emergency services system for the past five years.

Table 62: Concurrent Calls

Calls	2019	2020	2021	2022	2023	Total	%
1	5,042	4,302	3,257	4,856	4,900	22,357	37.1%
2	3,830	2,787	3,036	4,806	4,704	19,163	31.8%
3	1,789	1,107	1,753	3,058	2,992	10,699	17.7%
4	663	451	769	1,393	1,421	4,697	7.8%
5	203	142	320	656	583	1,904	3.2%
6	105	47	152	253	220	777	1.3%
7	42	23	48	105	107	325	0.5%
8	14	17	21	57	47	156	0.3%
9	5	3	9	24	32	73	0.1%
10+	11	12	34	44	62	163	0.3%
Total	**11,704**	**8,891**	**9,399**	**15,252**	**15,068**	**60,314**	**100%**

Of the 15,068 calls for service in 2023, there were 4,704 instances where two calls for service occurred simultaneously. Likewise, there were 2,992 instances where three calls were happening simultaneously. Approximately 63% of the calls occurred with multiple calls occurring in the City. Two or three calls can occur simultaneously in different areas of the City, such as one in the far south region and one in the far northeast region, which may not influence the emergency services system. Another factor that is not captured is the back-to-back calls. For example, Engine 7 could respond to a call in the northeast section of their response area and clear that call only to receive a second call in the northwest section. It would not appear as a concurrent call, but it would extend the travel time for the second call. It should also be noted that a single call for service may require a significant number of resources that could impact the delivery of services.

Total Response Time

Previous sections in this chapter reviewed and evaluated the different response time components individually. Call processing and turnout time are two components that are controllable either by the dispatch center or the fire department. Travel time is less controllable as this utilizes a stationary location, a fire station, as the starting point, and the existing roadway network to arrive at the call for service. For this reason, this component is a primary source used for distributing and concentrating resources. The

following table illustrates the response time components for all emergency calls for service and the arrival of the first resource. The table includes response time and total response time for comparison.

Table 63: Total Response Time Performance

All Emergency Calls – 90th Percentile Times			2019 - 2023	2019	2020	2021	2022	2023	NFPA Obj.
Call Processing	Pick-up to Dispatch		1:02	1:34	1:36	0:00	0:00	0:00	1:00
Turnout Time	1st unit	Medical Calls	2:00	1:46	1:48	2:00	2:00	2:00	1:00
		Fire Calls	2:00	1:43	1:45	2:00	2:00	2:00	1:20
Travel Time	1st Unit Distribution	Urban Zone	7:00	6:45	6:47	7:00	7:00	7:00	4:00
		Suburban Zone	10:00	9:42	9:23	9:00	10:00	10:00	4:00
Response Time	1st Unit Distribution	Urban Zones	7:07	9:13	9:03	0:00	0:00	0:00	5:00
		Suburban Zone	9:50	11:57	11:43	0:00	0:00	0:00	5:00
Total Response	1st Unit Distribution	Urban Zones	8:00	7:58	8:02	8:09	8:00	8:00	6:00
		Suburban Zone	10:39	10:15	10:32	10:33	10:00	11:00	6:00

In this table, response time represents the measurement of time from the time the call is dispatched to the initial arrival of resources. It illustrates the performance of the Fire Department as the Fire Department does not have control of the Communications Center. For the past five years, the response time for the first arriving resource has been 7 minutes and 7 seconds for 90% of the calls for service in the urban zone. The response time for the suburban zone is also illustrated.

The total response time illustrated in the previous table is measured from when the Communications Center receives the call to the initial arrival of resources. For the past five years, the total response time for the first arriving resource has been 8 minutes for 90% of the calls for service in the urban zone. The response time for the suburban zone is also illustrated.

Deployment Improvement Opportunities

In the previous chapter, several gaps in service levels were illustrated, presenting opportunities to improve the deployment of services. Other factors are related to changes in community demographics, growth, and the built-upon area of the city. This chapter provides recommendations intended to improve the deployment of resources in the emergency services system within the operational area.

Data Issues

During the analysis, several data issues likely influenced the results. Time stamps are in whole minutes, starting with the 2021 data. Without the seconds, it is possible for response time to be skewed by a full minute. For example, 02:00:00 could be 02:00:01 or 02:00:59. Also, beginning in 2021, the time stamps for the call received time was not captured. It does not allow for the analysis of call processing time and will skew the total response that the customer experiences.

Recommendations:

Establish a workgroup with the Communications Center to improve the capture of time stamps for apparatus and data points to measure the response time components effectively.

Work with the Communications Center to educate and establish call processing benchmark performance objectives.

Ensure that the Fire Department and Communications Center personnel are communicating properly to capture the time stamps and effectively measure performance.

Turnout Time

Several factors, including the station layout, will influence the turnout time for emergency incident responses. Such considerations include stairs, detours to the restroom, policy for signaling enroute, opening the bay doors, policy for gathering response information, and the personal protective gear that must be donned.

Round Rock does not have a benchmark performance objective for department turnout time. This objective should be established to inform staff about the Fire Department's expectations for their performance. This performance objective is typically outlined in the Standard of Cover document.

Improvement to the turnout time component can take several forms. Some departments have installed timers in the station at the apparatus bay doors, indicating the time elapsed since the dispatch was received. This allows the crews to see their turnout time performance instantly, and, according to some departments, it has helped to improve their turnout time. Many departments have also encouraged and required the on-duty crews to place their gear at or on the apparatus.

Another option is establishing a standard operating procedure for when a unit is to place itself enroute. For example, one shift will place themselves enroute from the living quarters while another will place themselves enroute once they are on the truck. Still, another shift may wait until they have cleared the bay doors, all of which will vary the reported turnout time and possibly skew the data related to actual performance. Establishing a procedure will improve the accuracy of the data.

Recommendations

Round Rock should establish a benchmark performance objective of two minutes for 90% of emergency calls.

Establish standard operating procedure updates to promote improvements in turnout time to emergency calls for service, including a procedure to place the apparatus enroute to improve accuracy.

Consider adding timers at the bay doors of the fire stations to indicate the time elapsed since the dispatch was received.

Distribution of Resources

Travel time is the response time component that provides the basis for the distribution of resources and is typically measured using a fixed location, a fire station, to the scene of the call for service.

Planning Zones

In the Community Risk Assessment, the operational area was divided into planning zones loosely following the station response zones and incorporating the population density as a secondary measurement. Each planning zone can be identified as an urban or suburban area based on the population density, allowing the RRFD to tailor the response to each area. The following tables highlight the travel time for the urban and suburban planning zones.

Table 64: Travel Time by Planning Zone - Distribution

	2019 – 2023	2019	2020	2021	2022	2023
Urban Zones	7:00	6:45	6:47	7:00	7:00	7:00
1	6:00	6:08	6:01	6:15	6:00	6:00
2	6:10	6:08	6:18	6:02	6:00	7:00
3	6:09	6:22	6:07	6:08	6:00	6:00
4	7:00	6:58	7:06	7:08	7:00	7:00
5	6:06	5:58	6:09	6:32	6:00	7:00
6A	8:19	8:18	8:20	8:14	8:00	9:00
6B	7:00	6:31	6:47	7:00	7:00	7:00
7A	10:00	9:19	9:31	10:00	10:00	10:00
7B	7:00	6:58	6:57	7:05	7:00	6:00
8	7:00	6:45	6:36	7:00	7:00	7:00
9	6:00	5:53	6:10	6:19	6:00	6:00
Suburban Zone	**2019 - 2023**	**2019**	**2020**	**2021**	**2022**	**2023**
7C	10:00	9:42	9:23	9:00	10:00	10:00

The previous tables illustrate the baseline performance within each planning zone. There is one zone that, by definition, is a suburban zone, while all others are defined as urban zones. To customize the response to calls for service, the RRFD will need to establish benchmark performance objectives based on the area's demographics. Neither NFPA 1710 nor NFPA 1720 offer any demographic data for their travel time requirements. Previously, the CPSE[7] defined benchmark response times for travel time based on the demographics. They have since determined they are not a standard-making organization and decided to leave the establishment of response time standards to others. However, their body of work is significant and has been used by numerous communities across the country to determine what benchmark services should be for a community. Lacking guidance from the NFPA, the suburban benchmark travel times from the CPSE can be used to provide that guidance. According to their guidance, the first arriving unit in a suburban demographic will have a travel time of five minutes for 90% of the calls for service.

[7] Fire and Emergency Service Self-Assessment Manual, 8th Edition

Recommendations

In keeping with the NFPA guidance, the RRFD should establish a 4-minute travel time benchmark performance objective for 90% of the emergency calls for service in the urban planning zones.

Following the CPSE guidance, the RRFD should establish a 5-minute travel time benchmark performance objective for 90% of the emergency calls for service in the suburban planning zone.

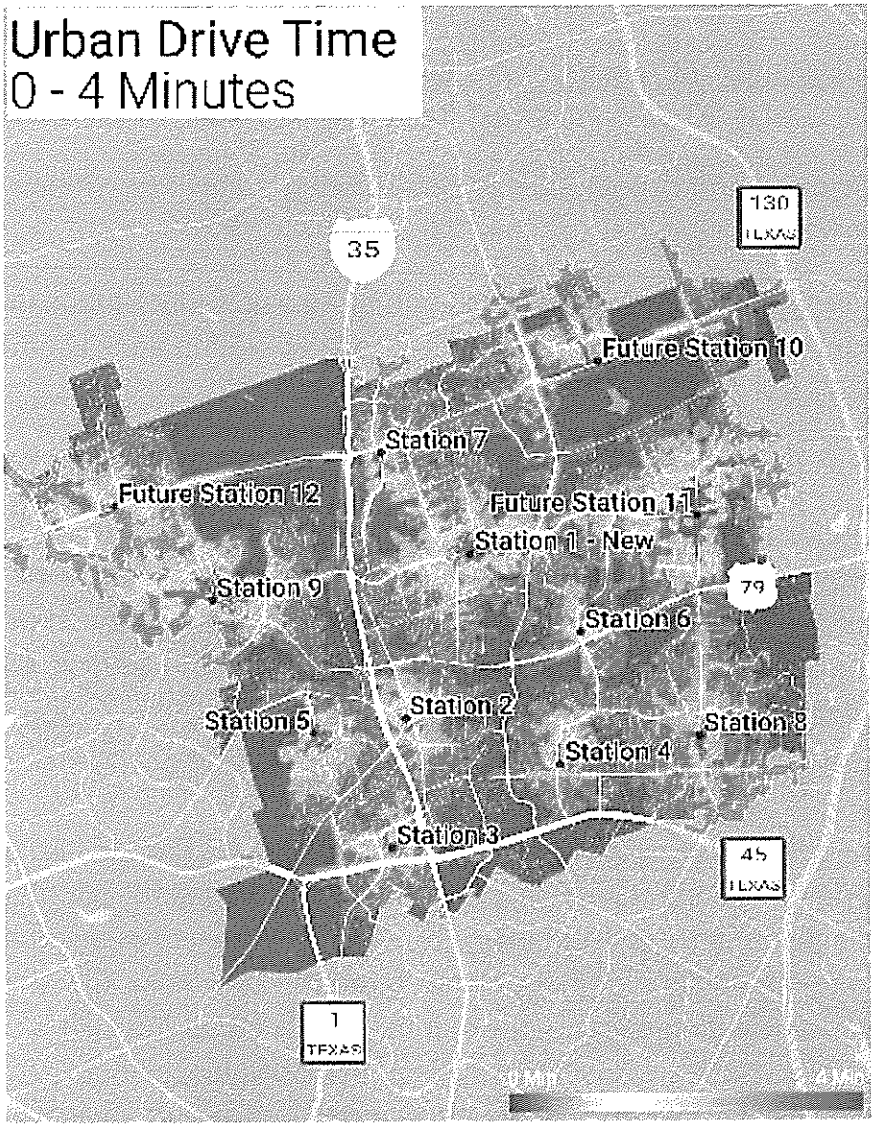
Additional Resources

The US Census Bureau Decennial Census population for the City is 119,468 residents. Projections from the Round Rock Population Projections report project the city's population to be about 161,136 residents in 2030, meaning the population will increase by about 35% over the next ten years. The City also identified large tracts of vacant land in the northern region, with most of the vacant land in the northeast area (Planning Zone 7C). Additional potential growth areas are the northwest (Planning Zone 7A) and the east-central (Planning Zone 6A) areas. As illustrated in the previous tables, these three Planning Zones have the most extended travel times.

The City has identified three new fire station facility locations and is currently relocating Fire Station 1 to 1730 Old Settler Blvd. The following table highlights the locations of the new facilities.

Station	Location
Fire Station 10	University Blvd. @ Lunata Way
Fire Station 11	Old Settlers Blvd. @ Red Bud Lane
Fire Station 12	3311 FM 1431

The following map illustrates the four-minute travel time for the existing network of stations, moving Fire Station 1 to its new location and including the three fire stations.



It is essential to note the gap between Stations 7 and 12 and south of Station 10 are undeveloped areas with no roadway network. As illustrated, there are improvements in the distribution of resources with the added resources. Based on the number of calls for the past five years, Fire Station 11 should be constructed first, as Planning Zone 6A averages 787 calls annually. Fire Station 12 should be built second, with an average of 270 calls per year in Planning Zone 7A. Fire Station 10 should be constructed based on the development of the vacant properties in the area. This Planning Zone (7C) has a longer travel time but is also the City's suburban area. With any area development, the roadway network may impact the actual location of Fire Station 10 and should be evaluated once the roadway network and development are known.

Recommendations

Improve the distribution of resources by constructing a new Fire Station in the area of Old Settler Blvd. and Red Bud Lane for $5.3M.

Improve the distribution of resources by constructing a new Fire Station in the area of 3311 FM 1431 for $5.3M.

Improve the distribution of resources by constructing a new Fire Station in the University Blvd. and Lunata Way area based on the increased population density and development of the area for $5.3M.

Concentration of Resources

The concentration of resources is generally described as the ability of the fire department to get the appropriate number of personnel and resources to the scene of an emergency within a prescribed time to mitigate the incident effectively. This component has two parts: the first is providing an effective response force, and the second is the amount of time needed to get those resources in place.

Planning Zones

As noted in the distribution section, the operational area was divided into planning zones loosely following the station response zones and incorporating the population density as a secondary measurement. Each planning zone can be identified as an urban or suburban area based on the population density, allowing the RRFD to tailor the response to each area. Unlike the distribution section, the number of structural fire calls in each planning zone may be very low, and a credible analysis of the individual planning zone may not be provided. This analysis is best when viewed as urban and suburban areas. The following table highlights the travel time for the arrival of an ERF. To evaluate the travel time, the only calls included are those that met the ERF criteria of 16 firefighters arriving at the incident.

Table 65: Travel Time by Planning Zone - Concentration

	2019 – 2023	Number of Calls
Urban Zones	7:32	105
1	6:29	15
2	6:51	16
3	8:34	18
4	8:28	9
5	4:00	6
6A	9:40	4
6B	8:50	11
7A	6:00	1
7B	7:52	13
8	7:55	8
9	6:00	4

There were no structural fire calls in Planning Zone 7C, the City's northeast area. Most planning zones meet or exceed the benchmark performance objective for an ERF of 16 personnel in an eight-minute travel time.

Recommendations

In keeping with the NFPA guidance, the RRFD should establish an 8-minute travel time benchmark performance objective for 90% of the emergency calls for service in the urban planning zones for the arrival of an effective response force.

Following the CPSE guidance, the RRFD should establish a 10-minute travel time benchmark performance objective for 90% of the emergency calls for service in the suburban planning zones for the arrival of an effective response force.

Effective Response Force Development

The development of an ERF begins with the arrival of the first and second suppression units. OSHA 1910.134(g)(4) states that if entry into an IDLH atmosphere is necessary, two firefighters must enter together and remain in contact with each other. In addition, two firefighters must be located outside the IDLH atmosphere for potential rescue if needed. This is a mandatory requirement unless life is in jeopardy. The minimum staffing for an engine and truck company is three personnel. This staffing pattern means that before any interior firefighting operations, the first arriving suppression unit will need to wait for additional resources. The second unit travel time in the urban zones for the past five years was 5 minutes and 21 seconds for 90% of the calls examined.

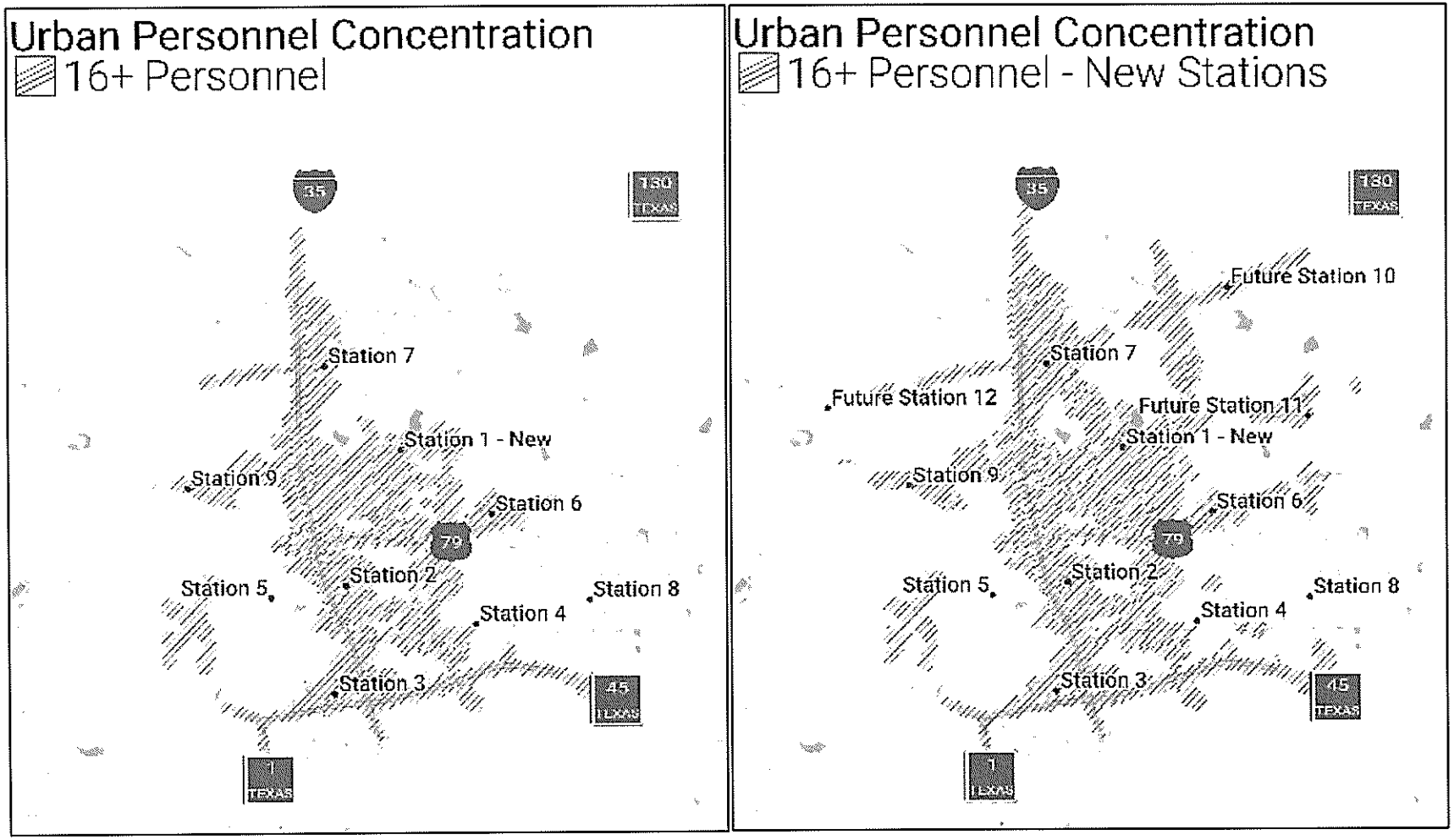
As previously noted, the travel time of an ERF for the urban area for the past four years was 7 minutes and 32 seconds for 90% of the calls examined.

In April 2010, the National Institute of Standards and Technology (NIST)[8] completed studies on the effectiveness and efficiencies of various crew sizes. Their work included numerous laboratory tests and actual field tests. The study used the response of three engine companies, a truck company, and a command officer with an aide for the field tests. They measured and timed twenty-two fire ground tasks using different crew sizes. The crews arrived at the scene staggered, much like what is common in communities across the country. The results of their sixty full-scale tests show that four-person crews were, on average, seven minutes faster than two-person crews at accomplishing the fireground tasks. Further, the four-person crews completed their tasks 5.1 minutes faster than the three-person crews. The field tests and tasks were performed using a typical one to two-family dwelling. The study concluded that adding a fifth person to the crews did not significantly impact the time on this type of occupancy. None of the tests performed used a one-person crew.

Skidmore College performed another component of the above-noted study on the physiological effects of crew size. The average peak heart rates for firefighters on the 1st engine were above 80% of age-predicted maximums when only two firefighters were deployed. In fact, the driver had an average peak heart rate of nearly 90% of age-predicted maximums when only two firefighters were on the engine[9].

While the ultimate goal would be to increase the minimum staffing of engine companies from three personnel to four personnel, not all engine companies would need to be increased at once. Increasing the minimum staffing in the more critical areas would boost the effective response force. It was previously illustrated that the arrival of an effective response force of 16 personnel within an eight-minute travel time is achievable in the City's central sections along the I-35 corridor. Some areas in the City's eastern and northern sections cannot meet this benchmark performance. To enhance the arrival of an effective response force of 16 personnel, the three new stations should have a minimum staffing of four personnel for the engine companies. The following maps illustrate the improvement for the arrival of an effective response force of 16 personnel in the eight-minute travel time.

[8] Robertson, Bill. Report on Residential Fireground Field Experiments. National Institute of Standards and Technology. April 2010.
[9] Smith, Denise, Ph. D and Benedict, Ron. Effect of Deployment of Resources on Cardiovascular Strain of Firefighters. April 2010.



The map on the left is the existing fire protection system and the map on the right illustrates the changes with the additional resources.

As noted in the distribution section, there are undeveloped areas in the northern sections of the City. Once the roadway network is built, there will be some expansion of the ERF.

Recommendation

Staff the new engine companies at Stations 10, 11, and 12 with a minimum of four personnel to improve the arrival and development of an effective response force.

Performance Objectives

There are two types of performance statements. The benchmark performance statement identifies the goal or target for the delivery of emergency services. The baseline performance statement identifies the actual performance of the fire department. The difference, or gap, between the two, provides the fire department with a measurable objective for improvement.

For purposes of evaluation and analysis, the following times are used in establishing the performance benchmark objectives:

- Call Processing – 1 minute.
- Turnout Time – 2 minutes.
- Travel Time Urban Zone (first arriving) – 4 minutes.
- Travel Time Suburban Zone (first arriving) – 5 minutes.
- Travel Time Urban Zone (ERF) – 8 minutes.
- Travel Time Suburban Zone (ERF) – 10 minutes.

Emergency Medical Services

Benchmark Performance Objectives

For 90 percent of all urgent emergency medical incidents located in the urban zone, the total response time for the arrival of the first unit on scene, staffed with two firefighter/EMTs and an officer, shall be: 7 minutes. The first arriving unit shall be capable of maintaining scene safety, establishing command, evaluating the need for additional resources, conducting initial patient assessment, and initiating basic life support care.

For 90 percent of all urgent emergency medical incidents located in the suburban zone, the total response time for the arrival of the first unit on scene, staffed with two firefighter/EMTs and an officer, shall be: 8 minutes. The first arriving unit shall be capable of maintaining scene safety, establishing command, evaluating the need for additional resources, conducting initial patient assessment, and initiating basic life support care.

Baseline Performance Objectives

For 90 percent of all urgent emergency medical incidents located in the urban zone, the total response time for the arrival of the first unit on scene, staffed with two

firefighter/EMTs and an officer, is: 7 minutes and 21 seconds. The first arriving unit is capable of: maintaining scene safety, establishing command, evaluating the need for additional resources, conducting initial patient assessment, and initiating basic life support care.

For 90 percent of all urgent emergency medical incidents located in the suburban zone, the total response time for the arrival of the first unit on scene, staffed with two firefighter/EMTs and an officer, is: 10 minutes and 37 seconds. The first arriving unit is capable of: maintaining scene safety, establishing command, evaluating the need for additional resources, conducting initial patient assessment, and initiating basic life support care.

Performance Comparison

The following table illustrates the performance of the Fire Department from 2019 to 2023 compared to the performance benchmark objectives.

Emergency Medical Calls – 90th Percentile Times Total Response Time	2019 – 2023	Performance Benchmark	Performance Baseline	Performance Gap	Number of Calls
First Arriving Unit	Urban	7:00	7:21	0:21	22,728
	Suburban	8:00	10:37	2:37	151

The performance gap noted in the previous table represents the difference between the benchmark and the baseline performance. The time in red is the time over the benchmark, and the green highlighted time represents the time under the benchmark performance. The Fire Department does not provide transport to a medical facility; additional resources are needed for this function and are not in control of the Fire Department. For emergency medical calls, the first arriving unit also represents the effective response force from the Fire Department.

Fire Suppression Services

Benchmark Performance Objectives

For 90 percent of all urgent moderate-risk structure fire incidents located in the urban response zone, the total response time for the arrival of the first unit on scene, staffed with two firefighter/EMTs and an officer, shall be: 7 minutes. The first in unit shall be capable of: conducting an incident size-up, establishing command, requesting additional resources, assigning incoming resources, securing a water supply, providing 500 gallons of water and 1,500 gallons per minute (gpm) pumping capacity, and initiating rescue or fire attack.

For 90 percent of all urgent moderate-risk structure fire incidents located in the suburban response zone, the total response time for the arrival of the first unit on scene, staffed with two firefighter/EMTs and an officer, shall be: 8 minutes. The first in unit shall be capable of: conducting an incident size-up, establishing command, requesting additional resources, assigning incoming resources, securing a water supply, providing 500 gallons of water and 1,500 gallons per minute (gpm) pumping capacity, and initiating rescue or fire attack.

For 90 percent of all urgent moderate-risk structure fire incidents in the urban zone, the total response time for the arrival of the effective response force (ERF) of 16 personnel shall be: 11 minutes. The ERF shall be capable of providing 4,500 gpm pumping capability, advancing an attack line and a backup line for fire control, establishing a rapid intervention crew, completing forcible entry, searching and removing victims from harm, providing medical care for the injured, ventilating the structure, securing utilities, and performing salvage/overhaul.

For 90 percent of all urgent moderate-risk structure fire incidents in the suburban zone, the total response time for the arrival of the effective response force (ERF) of 16 personnel shall be: 13 minutes. The ERF shall be capable of providing 4,500 gpm pumping capability, advancing an attack line and a backup line for fire control, establishing a rapid intervention crew, completing forcible entry, searching, and removing victims from harm, providing medical care for the injured, ventilating the structure, securing utilities, and performing salvage/overhaul.

Baseline Performance Objectives

For 90 percent of all urgent moderate-risk structure fire incidents located in the urban response zone, the total response time for the arrival of the first unit on scene, staffed with two firefighter/EMTs and an officer, is: 6 minutes and 41 seconds. The first in unit is capable of: conducting an incident size-up, establishing command, requesting additional resources, assigning incoming resources, securing a water supply, providing 500 gallons of water and 1,500 gallons per minute (gpm) pumping capacity, and initiating rescue or fire attack.

For 90 percent of all urgent moderate-risk structure fire incidents in the urban zone, the total response time for the arrival of the effective response force (ERF) of 16 personnel is: 9 minutes and 10 seconds. The ERF is capable of providing 4,500 gpm pumping capability, advancing an attack line and a backup line for fire control, establishing a rapid intervention crew, completing forcible entry, searching and removing victims from harm,

providing medical care for the injured, ventilating the structure, securing utilities, and performing salvage/overhaul.

There were no structure fires in the suburban zone during the evaluation period.

Performance Comparison

The following table illustrates the performance of the Fire Department from 2019 to 2022 compared to the performance benchmark objective.

Moderate Risk Structure Fire Calls – 90th Percentile Times Total Response Time	2019 – 2023	Performance Benchmark	Performance Baseline	Performance Gap	Number of Calls
First Arriving Unit	Urban	7:00	6:41	0:19	169
Effective Response Force	Urban	11:00	9:10	1:50	112

The performance gap noted in the previous table represents the difference between the benchmark and the baseline performance. The time in red is the time over the benchmark, and the green highlighted time represents the time under the benchmark performance. There were no structural fire calls in the suburban zone, which allowed for an analysis. All structure fires were under the benchmark performance objectives for the urban zone.

Administrative Structure

The primary purpose of the RRFD is to respond to and mitigate fire, rescue, and emergency medical services incidents within the operational area. To support these responses, there are a variety of other functions and responsibilities, such as fire prevention, administration, and other support services. Historically, the fire service has been tasked only with fire suppression. However, the RRFD is an all-risk organization meeting the community's needs well beyond traditional fire suppression.

Organizational Structure

The design of an organizational structure to best meet the needs of an agency is not only predicated on the traditional command and control within an emergency services organization but also established to help define job duties and responsibilities, ensure efficient and effective workflow, establish a reporting hierarchy, and ultimately determine appropriate lines of authority and accountability. To accomplish this, the design of an organizational structure and placement of employees within the organization should be established based on fundamental principles that provide the organizational cohesion necessary to accomplish the mission of the Fire Department. These principles include:

- **Accountability and responsibility are clearly identified:** The organizational structure must be consistent with the concept that clear lines of authority and decision-making are essential for any organization to achieve excellence. Areas of responsibility are clearly delineated, and points of accountability are readily identifiable.

- **Span of control or communication is optimal:** Effective organizations are structured so that lines of communication are identifiable, and where there are multiple reporting relationships, responsibilities for communication and control are clearly identified and understood.

- **Coordination of work efforts:** The organizational structure should facilitate communication and working relationships among staff and work units. Many functions need close or indirect alignment to maximize efficiency and effectiveness. The structure should also provide easy identification of job functions to people outside the Department, including other governmental organizations and outside stakeholders.

- **Degree of Organizational Risk:** This relates to how much risk a function incurs if an activity is not performed or is performed poorly. Risk might involve tactical,

financial, or political concerns. Generally, higher-risk functions have closer management oversight.

- **Supervisor and Management Span of Control:** This relates to whether supervisors are fully devoted to overseeing a select few primary activities or a broader set of duties and responsibilities. Appropriate spans of control are associated with the number of staff directly supervised and the complexity of activities overseen.

The nationally recognized best practice for the span of control in highly technical and professional positions is to limit direct reports typically to five or six positions, with nine direct reports considered the maximum to mitigate organizational risk[10].

Emergency Operations

The RRFD currently operates from nine fire stations, potentially adding three additional stations in the City's northern region. Operational staffing has two Battalion Chiefs assigned to manage emergency and non-emergency operations. Adding three stations would mean each Battalion Chief would manage six fire stations that are within nationally recognized best practice parameters. There is, however, an imbalance with the Assistant Chief of Operations having eight direct reports. This has the potential to increase organizational risk due to the operations and may have an effect on accountability and responsibility. To reduce the number of direct reports to the Assistant Chief of Operations, there is an opportunity to create a Deputy Chief of Operations to manage the six Battalion Chiefs. This is not only important for the mitigation of emergency incidents but also for the effective mentoring and development of supervisory personnel and succession planning. The following table illustrates the cost for a Deputy Chief.

Table 66: Deputy Chief Salary and Benefits

Line Item	Cost	Notes
Salary	$140,000	Based on FY 2024 Pay Step Plan, $10,000 above Battalion Chief Step 11.
FICA	$10,710	7.65%
Insurance	$22,358	
TMRS	$23,016	16.44%
Worker Comp	$3,866	
Total First-Year Cost	**$199,950**	

[10] Managing Fire Services. Washington, D.C. ICMA

Recommendation

Add a Deputy Chief of Operations to improve operational personnel's supervision, support, and development at a first-year cost of $199,950.

Operational Staffing

Staffing for emergency operations is slightly different than other Divisions or City Offices as these positions must be staffed. For example, a fire inspector who takes paid time off is not necessarily backfilled. This position is left unfilled while the inspector is off duty. In emergency operations, the position must be backfilled for the particular unit to be operational. To accomplish this, additional personnel are needed to ensure the operations are staffed. Occasionally, overtime is used to staff a position for a short period of time if there are more vacancies and absences than planned. The RRFD shift schedule is 48 hours on duty and 96 hours off duty using a three-platoon system that translates to 2,920 scheduled work hours. Using the average leave time in 2023, the following illustration outlines the personnel needed to fill one emergency services position.

Table 67: Relief Factor for Operational Personnel

Single Position based on Scheduled Hours	
2,920.0	Hours for one Position
112.3	Sick Days
136.3	FMLA
179.5	Vacation days
125.4	Other Types of Leave (military, personal, etc.)
2,366.5	Shifts Available to work
1.23	People to cover 122 shifts
3.70	People to cover 24 / 7 / 365

Single Shift	
37	Minimum Manning per Shift
45.7	Number Assigned per Shift
46	Number Needed per Shift

As shown, it will take 1.2 personnel to cover one position for each shift or 3.7 personnel to cover one position for the year. A minimum staffing of 37 personnel will require 46 personnel per shift.

Fire Prevention

Fire prevention and loss control is the first defense against unwanted fires. The goal of any fire prevention program is to prevent the fire from occurring, prevent the loss of life,

reduce the severity of a fire if one does happen, and if a fire does occur to enable the fire suppression forces to perform their tasks more effectively. These goals are accomplished through building inspections, public education activities, and planning before a building is built.

Plan Review and New Construction

The plan review function also includes inspections for new construction and fire protection systems. This function is not directly linked to the number of buildings in the city but rather to new development, construction, and renovation work. Reviews include site plans, fire protection systems, and life safety issues. In addition, new fire protection systems require acceptance testing that ranges from two hours to a full day, depending on the system and type of test needed.

This section also conducts the fire investigations for the RRFD. There have been an average of 19 fire investigations per year for the past three years. Fire investigations are best measured using the time to complete as some investigations do not require much time while others are more time-consuming. The following table estimates the number of hours to complete an investigation.

Investigation Type	Target Hours per Investigation
Incendiary - Structure	80
Accidental - Structure	10
Undetermined - Structure	10
Vehicle Fire Investigations	
Vehicle incendiary	30
Accidental/Undetermined	5

As illustrated, some fire investigations could take as much as 80 hours to complete, while others only take five hours. Based on an average of 22 investigations for the past two years and an average of 30 hours to complete an investigation, 660 staff hours would be required to complete the investigations during the year. This translates to about 31% of the time for one investigator for the year.

The following table illustrates the staffing needed for plan reviews, new construction inspections and testing, and fire investigations. The average of the past two years of activity provides insight into this function.

Table 68: Plan Review and Investigation Staffing

Plan Reviews and Investigations	Two year Average	Target per Staff	Staff Needed
Plan Reviews	1,084	1,300	0.8
Construction Consultations	741	1,300	0.6
New Construction Inspections	1,533	1,300	1.2
Total Plan Review Activities	**3,358**		**2.6**
Fire Investigations	22	31%	0.8
Total Staffing Required			**3.4**

Adding another 31% to the staff needed for plan reviews and new construction inspections accounts for the time required for fire investigations. The current organization for RRFD has three personnel assigned to this function.

Inspections

Using the number of occupancies to be inspected as a workload indicator varies by agency. This is because as the complexity and size of the occupancies vary, each will require a different amount of time to inspect properly. Target workloads are based on our experience working with hundreds of agencies across the United States. Round Rock has divided its buildings by occupancy risk type, with each building having a different frequency of inspections. The following table illustrates the inspection frequency for each of the occupancy type. The following table describes the staffing needed to inspect the current building inventory for this unit.

Table 69: Occupancy and Inspection Frequency

Risk-Based Occupancy Types	Number of Properties	Number of Buildings	Number of Suites/Units	Inspection Frequency	Number of Inspections
Restaurants/Assemblies	315		315	Annually	315
Hotels	40	40		Annually	40
Apartment Complexes	78	954		Annually	954
City Facilities	17	17		Annually	17
Tier 2 Facilities	47			Annually	47
Educational/Schools	30			Annually	30
Strip Centers/Malls	205	384	2,340	3 to 5 Yrs.	780
Licensed Facilities	119			Annually	119

Using the number of occupancies and the related frequency, the following table illustrates the number of inspectors needed to complete the inspections.

Table 70: Inspection Staffing

Inspection Type	Number of Occupancies	Target per Staff	Staff Needed
Initial Inspections	2,302	750	3.1
Follow-up Inspections	460	3,000	0.2
Inspection Activity Total	**2,762**		**3.2**

There are approximately 2,302 occupancy risks to be inspected annually, and an average rate of 20% will require follow-up inspections to correct violations. Using 750 inspections per year for each inspector and to include follow-up inspections, the staffing needed is three inspectors to handle the workload. In addition to the inspection workload, the unit also handles public education events.

Table 71: Public Education Workload

YEAR	Rock-Solid Programs at Schools	Fire Extinguisher Training	Other Programs / Videos / Talks	Total Public Education Programs
2019	39	8	25	72
2020	6	4	8	18
2021	16	8	10	34
2022	32	5	18	55
2023	27	5	20	52

There was a significant drop in activity in 2020 during the pandemic; however, the total number of events has slowly risen since then. These programs include presentations to senior centers, HOAs, and other programs such as National Night Out.

Community Risk Reduction

Community Risk Reduction (CRR) is a proactive approach to identifying and mitigating potential community hazards and risks. It involves working collaboratively with various stakeholders, including fire department personnel, local government officials, community leaders, and the public, to reduce the likelihood and impact of emergencies, disasters, and other adverse events.

The goal of CRR is to build resilience in the community by identifying and addressing the root causes of risk and vulnerability. This can involve a range of activities, such as:

- **Risk Assessments:** Conduct assessments to identify potential community vulnerabilities and develop plans to mitigate them.

- **Public Education and Outreach:** Providing educational programs and outreach initiatives to increase public awareness of potential hazards, how to prepare for them, and what to do during and after an emergency.
- **Code Enforcement:** Ensuring that building codes and standards are followed and enforced to minimize potential risks from construction or other activities.
- **Community Planning and Development:** Working with local government officials and other stakeholders to develop land use, infrastructure development, and emergency management plans.
- **Fire Prevention and Safety:** Educating the public on fire prevention and safety measures, conducting fire inspections, and enforcing fire codes.

By implementing CRR strategies, communities can better prepare for, respond to, and recover from disasters and other emergencies. This approach can help reduce the loss of life and property damage while enhancing the community's overall resilience and well-being.

The public education programs in the Fire Prevention Division are better suited for the CRR unit. Some of the programs currently being delivered include "Slips, Trips, and Falls" for the senior center, which is more a community risk reduction activity than a fire prevention activity.

Recommendation

Move the public education program management and delivery to Community Risk Reduction to combine similar resources and activities.

Strategic Initiatives

The following strategic initiatives were developed through input from the community, SWOT sessions with employees and analysis of the current performance and workload of the Fire Department.

Short Term Initiatives (1 – 3 Years)

The short term initiatives should be completed in the first three years of the strategic plan. The initiatives in this section should be accomplished up through 2027.

Strategic Initiative 1:	**Improve data collection and call processing.**
Accountability:	
Overall Timeline:	**Estimated Cost:**
Objective 1A Assigned To: Objective Timeline	Establish a workgroup with the Communications Center to improve the capture of time stamps for apparatus and data points to measure the response time components effectively.
Objective 1B Assigned To: Objective Timeline	Work with the Communications Center to educate and establish call processing benchmark performance objectives.
Objective 1C Assigned To: Objective Timeline	Ensure that the Fire Department and Communications Center personnel are communicating properly to capture the time stamps and effectively measure performance.
Objective 1D Assigned To: Objective Timeline	Performance to be monitored and reported for accuracy and compliance. Ongoing

Strategic Initiative 2:	**Improve turnout time performance of the crews and apparatus.**
Accountability:	
Overall Timeline:	**Estimated Cost:**
Objective 2A	Round Rock should establish a benchmark performance objective of two minutes for 90% of emergency calls.
Assigned To:	
Objective Timeline	
Objective 2B	Establish standard operating procedure updates to promote improvements in turnout time to emergency calls for service, including a procedure to place the apparatus enroute to improve accuracy.
Assigned To:	
Objective Timeline	
Objective 2C	Add time clocks at the fire stations' bay doors to indicate the elapsed time sine the dispatch was received.
Assigned To:	
Objective Timeline	
Objective 2D	Once established, the performance objectives are to be monitored and reported for compliance.
Assigned To:	
Objective Timeline	Ongoing

Strategic Initiative 3:	Establish performance objectives for the response to emergency calls for service and assess the performance at least annually.
Accountability:	
Overall Timeline:	**Estimated Cost:**
Objective 3A	In keeping with the NFPA guidance, the RRFD should establish a 4-minute travel time benchmark performance objective for 90% of the emergency calls for service in the urban planning zones.
Assigned To:	
Objective Timeline	
Objective 3B	Following the CPSE guidance, the RRFD should establish a 5-minute travel time benchmark performance objective for 90% of the emergency calls for service in the suburban planning zone.
Assigned To:	
Objective Timeline	
Objective 3C	In keeping with the NFPA guidance, the RRFD should establish an 8-minute travel time benchmark performance objective for 90% of the emergency calls for service in the urban planning zones for the arrival of an effective response force.
Assigned To:	
Objective Timeline	
Objective 3D	Following the CPSE guidance, the RRFD should establish a 10-minute travel time benchmark performance objective for 90% of the emergency calls for service in the suburban planning zones for the arrival of an effective response force.
Assigned To:	
Objective Timeline	
Objective 3H	Once established, the performance objectives are to be monitored and reported for compliance.
Assigned To:	
Objective Timeline	Ongoing

Intermediate Term Initiatives (3 – 5 Years)

The intermediate term initiatives should be completed in years 3 to 5 of the strategic plan. The initiatives in this section should be accomplished through 2029.

Strategic Initiative 4:	**Improve the distribution of resources by constructing a new Fire Station in the area of Old Settler Blvd. and Red Bud Lane.**
Accountability:	
Overall Timeline:	**Estimated Cost:** $5,300,000
Objective 4A Assigned To: Objective Timeline	Identify potential locations for the new fire station taking into account roadway access, response area and proximity to high-risk areas.
Objective 4B Assigned To: Objective Timeline	Develop a comprehensive capital budget for the station to include land acquisition, design, construction, furniture, fixtures and equipment and apparatus to meet the needs of the Fire Department.
Objective 4C Assigned To: Objective Timeline	Hire an architect and construction firm for the design and construction of the station.
Objective 4D Assigned To: Objective Timeline	Plan for the acquisition of the needed apparatus, equipment and supplies to meet the needs of the City and response area.
Objective 4E Assigned To: Objective Timeline	Engage the community and keep them informed of the construction progress.
Objective 4F Assigned To: Objective Timeline	Develop the operational plan for the response area assigned to the station. Determine staffing needs and budget for staffing prior to completion.

Strategic Initiative 5:	**Add a Deputy Chief of Operations to improve operational personnel's supervision, support, and development.**
Accountability:	
Overall Timeline:	**Estimated Cost:** $199,950
Objective 5A Assigned To: Objective Timeline	Determine the knowledge, qualifications, skills and experience required for the position.
Objective 5B Assigned To: Objective Timeline	Calculate the salary and benefit cost associated for the new position.
Objective 5C Assigned To: Objective Timeline	Request the position through the budget process.
Objective 5D Assigned To: Objective Timeline	Develop a job description outlining the roles, responsibilities, reporting structure and qualifications.
Objective 5E Assigned To: Objective Timeline	Work with Human Resources to recruit candidates for the position.
Objective 5F Assigned To: Objective Timeline	Develop an onboarding plan to ensure the successful candidate can easily integrate into the Department and ensure training is provided.
Objective 5G Assigned To: Objective Timeline	Ensure there is an appropriate work area for the employee.
Objective 5H Assigned To: Objective Timeline	Determine how this position will coordinate with existing teams in the Department

Strategic Initiative 6:	Realign Fire Prevention and Community Risk Reduction activities to take advantage of similar resources.
Accountability:	
Overall Timeline:	**Estimated Cost:**
Objective 6A Assigned To: Objective Timeline	Move the public education program management and delivery to Community Risk Reduction.
Objective 6B Assigned To: Objective Timeline	
Objective 6C Assigned To: Objective Timeline	
Objective 6D Assigned To: Objective Timeline	
Objective 6E Assigned To: Objective Timeline	
Objective 6F Assigned To: Objective Timeline	
Objective 6G Assigned To: Objective Timeline	
Objective 6H Assigned To: Objective Timeline	
Objective 6I Assigned To: Objective Timeline	

Long Term Initiatives (5 years or longer)

The long-term initiatives of the strategic plan should be completed in year 5 or beyond. The initiatives in this section should begin during 2029 or as determined by the growth of the northern regions of the City.

Strategic Initiative 7:	**Improve the distribution of resources by constructing a new Fire Station in the area of 3311 FM 1431.**
Accountability:	
Overall Timeline:	**Estimated Cost:** $5,300,000
Objective 7A Assigned To: Objective Timeline	Identify potential locations for the new fire station taking into account roadway access, response area and proximity to high-risk areas.
Objective 7B Assigned To: Objective Timeline	Develop a comprehensive capital budget for the station to include land acquisition, design, construction, furniture, fixtures and equipment and apparatus to meet the needs of the Fire Department.
Objective 7C Assigned To: Objective Timeline	Hire an architect and construction firm for the design and construction of the station.
Objective 7D Assigned To: Objective Timeline	Plan for the acquisition of the needed apparatus, equipment and supplies to meet the needs of the City and response area.
Objective 7E Assigned To: Objective Timeline	Engage the community and keep them informed of the construction progress.
Objective 7F Assigned To: Objective Timeline	Develop the operational plan for the response area assigned to the station. Determine staffing needs and budget for staffing prior to completion.

Strategic Initiative 8:	**Improve the distribution of resources by constructing a new Fire Station in the University Blvd. and Lunata Way area based on the increased population density and development of the area.**
Accountability:	
Overall Timeline:	**Estimated Cost:** $5,300,000
Objective 8A Assigned To: Objective Timeline	Identify potential locations for the new fire station taking into account roadway access, response area and proximity to high-risk areas.
Objective 8B Assigned To: Objective Timeline	Develop a comprehensive capital budget for the station to include land acquisition, design, construction, furniture, fixtures and equipment and apparatus to meet the needs of the Fire Department.
Objective 8C Assigned To: Objective Timeline	Hire an architect and construction firm for the design and construction of the station.
Objective 8D Assigned To: Objective Timeline	Plan for the acquisition of the needed apparatus, equipment and supplies to meet the needs of the City and response area.
Objective 8E Assigned To: Objective Timeline	Engage the community and keep them informed of the construction progress.
Objective 8F Assigned To: Objective Timeline	Develop the operational plan for the response area assigned to the station. Determine staffing needs and budget for staffing prior to completion.

Strategic Initiative 6:	**Improve the concentration of resources in the northern and eastern sections of operational area.**
Accountability:	
Overall Timeline:	**Estimated Cost:**
Objective 6A	Staff the new engine company at Station 10 with a minimum of four personnel to improve the arrival of an effective response force.
Assigned To:	
Objective Timeline	
Objective 6B	Staff the new engine company at Station 11 with a minimum of four personnel to improve the arrival of an effective response force.
Assigned To:	
Objective Timeline	
Objective 6C	Staff the new engine company at Station 12 with a minimum of four personnel to improve the arrival of an effective response force.
Assigned To:	
Objective Timeline	
Objective 6D	Evaluate the impact on the emergency services system
Assigned To:	
Objective Timeline	Annually
Objective 6E	
Assigned To:	
Objective Timeline	
Objective 6F	
Assigned To:	
Objective Timeline	
Objective 6G	
Assigned To:	
Objective Timeline	
Objective 6H	
Assigned To:	
Objective Timeline	
Objective 6I	
Assigned To:	
Objective Timeline	

Appendix A: Stakeholder Comments

While getting input from the employees and having them ranked is vital, it is equally important to capture all the discussion items. The following tables illustrate the comments and notes from the employee stakeholder sessions.

Strengths of the Organization

The following table illustrates the strengths as identified by all twelve groups. All the comments are included in the table.

TABLE 72: Employee Forums Organizational Strengths – All Comments

Group 1	Group 2	Group 3	Group 4
• Passion of personnel	• Training Facility	• Equipment	• High performing personnel
• Non-Fire based EMS	• Internal training staff and programs	• Quality of stations	• Training facility
• Training Facility	• External training opportunities	• Apparatus	• Training programs
• Vehicle Maintenance	• Quality equipment	• Training opportunities	• Professional growth opportunities
• Pay	• Apparatus replacement schedule	• Current shift schedule	• Apparatus and equipment
• Community Risk Reduction	• Quality of personnel	• Community relations	• On scene capabilities and proficiency
• Crisis Response Unit (CRU)	• Competitive pay and benefits	• Community risk reduction efforts	• Patient care
• Training Opportunities	• Adaptability (Accept new ways of doing business)	• Public event participation	• Department reputation
• Apparatus and Equipment	• Support of the community		• Organizational resiliency
• Facilities	• Budgeting process		• Suppression staff focused on core services
• Employee Resilience			• Apparatus and fleet maintenance
• Employee Retention			• Logistics
• Active Special Teams			
Group 5	**Group 6**	**Group 7**	**Group 8**
• Customer Service	• Comradery	• Apparatus and equipment	• Personnel (Do more with less, knowledge)
• Rapid Initial Response	• Experience	• Training Opportunities	• Facilities (stations)
• EMS skills	• Training Opportunities	• Training Facilities	• Equipment
• Continual improvement mindset	• Apparatus, equipment and stations	• Station Conditions	• Positive standing in the community

- Training Resources
- Training Programs
- Quality stations, equipment and apparatus
- SCBA Maintenance program
- Apparatus maintenance
- Organizational culture
- State and Federal deployments
- Shift schedule
- Compensation
- Personnel are in correct positions
- Internal support and logistics program
- Reserve fleet
- Organizational culture of high performance
- Ability to do more with less
- Health and wellness programs
- Fleet maintenance
- CRR/CRU programs
- Community trust
- Community partners (non-profits, churches) help clients
- 48/96 shift
- Pay
- Benefits
- Overtime
- Training opportunities (college, specialty training)
- Availability of light duty

Group 9	Group 10	Group 11	Group 12
• Community Image	• Apparatus and Equipment	• Training Programs	• Training Programs
• Training facilities	• Training Opportunities	• Training Facility	• Training Facility
• Training Programs	• Benefits	• Training Opportunities	• Training Culture
• Adaptability	• Compensation	• Quality of Apparatus	• Adaptability
• Fleet Maintenance	• Autonomy and Trust	• Apparatus Maintenance	• Quality Personnel
• Apparatus and Equipment	• Organizational Culture	• Water system	• Well Equipped
• Crisis Response Unit	• Quality of Training programs and personnel	• Stations	• Public Image
• Quality of Personnel	• Public support and relationship	• Comradery	• Specialty Teams
• Quality of Services	• Health and Wellness Programs	• Personnel	• CRU Team
• Crew Integrity and Culture	• Strong divisional cooperation	• Equipment	• CRR Efforts
• Health and Wellness Programs		• Specialty Teams	• Fire Prevention
		• Public Relations	• Training Opportunities
		• Logistics personnel	• Logistics personnel
		• Organizational Culture	• Apparatus Maintenance
		• CRU Team	• Organizational Culture
		• Relationship with PD	

Weaknesses of the Organization

The following table illustrates the weaknesses as identified by all twelve groups. All the comments are included in the table.

Table 73: Employee Forums Organizational Weaknesses – All Comments

Group 1	Group 2	Group 3	Group 4
• Operational Staffing (3 person when protocols and training use 4 person)	• Apparatus design and specs	• Minimum staffing levels of 3 personnel	• Minimum staffing levels of 3 personnel
• Squad Program - Deployment plan not working	• Shift minimum staffing of 3 personnel	• Squad deployment plan	• Training staffing levels
• Long response times in several fire zones	• Deployment plan not aligned with growth, risks and community needs	• Lack of adequate civilian support personnel	• Staffing not able to support high-rise developments
• Not effectively using data for decision making	• Response districts not aligned with community risk profile	• Promotional assessment centers not selecting the best candidate	• Long response times to developing areas of the City
• CAD/RMS systems	• Future station location planning	• Station locations	• Lack of follow through on strategic initiatives
• Selling needs of the FD to the City Council/City Management	• Data not used for effective decision making	• Long response times to developing areas of the City	• Micromanagement of FD by HR
• FD keeping pace with the growth of the City	• Poor implementation of planning decisions	• Not able to develop an effective response force on multi-box alarms	• Not able to develop an effective response force on multi-box alarms
• Apparatus replacement plan not aligned with supply chain timing	• Lack of updating planning when changes occur	• Internal Department communication	• Lack of consistency in hiring practices
• Current apparatus deployment plan	• Poor implementation of new services	• Specialty teams unable to fill needed positions	• Lack of trust in department leadership
	• Poor implementation of new technology (acquisition and training)	• Difficulty meeting 2 in 2 out	• Squad implementation and deployment
	• ALS first responder program not fully implemented	• Lack of effective data driven decision making	• Poor data driven decision making

	• Prioritization of health and wellness of FD response personnel	• Excessive overtime requirements	• Poor implementation strategies
	• Lack of administrative support personnel	• Change occurring faster than FD can implement services	• Squad staffing plan
	• Lack of appropriate budgeting for operational needs (supplies, uniforms)	• Ineffective/inefficient RMS system	• Feedback from line personnel ignored by management
			• Lack of focus on important departmental issues
			• FD not keeping up with community growth
			• Too reactive, little proactive planning
Group 5	**Group 6**	**Group 7**	**Group 8**
• Officer development/mentorship	• Long response times to developing areas of City	• Staffing apparatus with 3-personnel vs. 4-personnel	• Manpower
• Transitioning from experienced to less experienced personnel	• Staffing apparatus with 3-personnel vs. 4-personnel	• Support staffing levels (Administration and logistics)	• Future planning
• Internal Department communication	• Deployment plan not aligned with staffing	• Inability to say no to low priority requests of FD	• Disconnect between line and admin
• Turnover and lack of leadership in Logistics	• FD ability to keep up with community growth	• Use of blocker unit on non-fire related incidents	• Internal communication
• Staffing apparatus with 3-personnel vs. 4-personnel	• Deployment not aligned with training and regional response plans	• Lack of 3-person staffing on squads	• Automatic aid used too frequently to cover first due areas
• Lack of execution of strategic plans	• Budget not aligned with operational needs	• No specking and deploying squads according to the implementation plan	• Lack of adequate civilian staffing
• Reliance on automatic aid partners for initial response	• Lack of appropriate administrative and support staffing	• Administration does not listen to line staff	• Budget not meeting needs of FD
• Lack of effectiveness between FD leadership and City Leadership	• Lack of using data for decision making	• Too much interference of FD by HR and City Hall	• Reactive mentality

- Operational supply budget not keeping up with growth in Department
- Lack of using data for decision making
- Multi-company training does not occur with response partners
- Program implementation process
- Lack of implementation on strategic plans
- Lack of accountability
- Budget dictating plans versus budgeting for service needs
- Input from line staff ignored by FD leadership
- Lack of appropriate supervisory and command training
- Station location planning
- Lacking training staff to support academies and training events
- Benefits (healthcare/healthcare post-retirement)
- Planning for overtime during specific dates and training classes
- Scheduling issues
- Not following through with outside recommendations/plans
- Inventory management (uniforms)
- Management in logistics
- Poor implementation of the squad program
- Not enough engine companies to cover the City
- Not valuing experience over college
- Assessment centers are of little value in promotions
- Opportunity to test, but not promote in the organization
- HR influence over administration
- Continuing education hours
- HR issues all around
- No replacement program for equipment
- Mismanaged budget
- Asset management systems not utilized
- CRU facilities will not support needs/24 hour staffing
- FD not keeping up with City growth

			• No fire integrated IT • iPad not functioning well in the field • IT systems not appropriate for FD needs • Implementation of new software and IT programs • Overuse of mutual aid • Operating on different radio frequencies
Group 9	**Group 10**	**Group 11**	**Group 12**
• Shift staffing of 3-person minimum	• Shift staffing of 3-person minimum	• Shift staffing of 3-person minimum	• Response Times
• Support staffing levels	• Risk reduction staffing	• Logistics staffing and supply chain issues	• Minimum Staffing on apparatus
• Administrative staffing levels	• Administrative staffing levels	• Administrative staffing levels	• Unable to meet NFPA 1710
• Station coverage	• Succession planning	• Prevention staffing	• Over reliance on Automatic Aid
• HR interfering in non HR related issues	• Officer development	• Training staffing	• AA partners can't provide like services
• Current heart screening program	• Cross divisional training	• Community Risk Reduction efforts	• Robbing Peter to pay Paul
• Lack of identity	• Implementation of new programs/projects and services	• FD services not keeping pace with growth	• Design and implementation of squad
• No Nepotism allowed	• HR involvement in non-HR issues	• Squad program implementation	• Cost cutting without evaluating service level impacts
• Fire Chief's lack of vision for the future	• Lack of advancement for civilian personnel	• Overall implementation of new programs/services	• Poor implementation of new services
• Forcing Technology implementation/lack of needed access	• Logistics staffing and supply chain issues	• Lack of dedicated Fire Dispatchers	• Poor planning on land acquisition for new stations
• Unmet CRU needs (privacy, covered parking, technology)	• Lack of dedicated IT support	• Lack of EMD in dispatch	• Lack of focus on true FD needs
• Proper budgeting for operational line items	• Internal communication	• Staffing not aligned with community risk profile	• Budgetary management and appropriations

- Poor implementation of technology
- Making things work that need to be fixed
- Lack of dedicated IT support
- Logistics staffing and supply chain issues
- Reactive versus proactive mentality in Department
- Lack of implementation of strategic plans
- Lack of administrative support for operations
- Community Risk Reduction Staffing
- Robbing Peter to pay Paul
- Overcommitting staff resources
- Over reliance on technology
- Implementation of new technology
- Full utilization of employee skill sets
- Lack of civilian/administrative staff training
- Lack of long term vision and planning
- Annexation without adding service capabilities
- Station placement
- Budget process for operational line items
- Station designs are too elaborate
- Knowledge base of apparatus committee
- No backup for Class B pumps
- Station staffing levels
- Lack of financial transparency
- Administrative and support staffing
- Logistics staffing
- Non-sworn wages not competitive
- No execution on strategic plans
- Overreaching HR practices
- Lack of consistency in hiring
- CRU Facilities

Opportunities for the Organization

The following table illustrates the opportunities as identified by all twelve groups. All the comments are included in the table.

Table 74: Employee Forums Organizational Opportunities – All Comments

Group 1	Group 2	Group 3	Group 4
• Vertical growth in the downtown	• Using FD generated revenue to support FD needs	• Dedicated fire dispatchers in emergency communications	• Charging for lift assists at skilled care facilities
• Full utilization of ESD Funds for FD purposes	• Improvements to health and wellness initiatives	• Embracing corporate partnership opportunities	• Increased staffing of Critical Response Unit to allow 24/7 coverage
• Charging outside agencies to use the Training Center	• Partnering with AA agencies (annex Hutto 3 into Round Rock ESD)	• Public private partnerships for new stations	• Competitive pay for civilian FD personnel

• Charging skilled care facilities for non-emergent lift assists	• Increasing participation in external recruitment efforts (conferences)	• Implementing fire impact fees for development/re-development	• Dedicated fire dispatchers in emergency communications center
	• Partnering with EMS on community paramedicine	• Charging for external agencies using the training center	• Improved recruiting efforts (conferences, trade shows, career days)
	• Increased focus on acquiring available grant funding	• Charging for lift assists at skilled care facilities	• Partnering with PD to improve background investigations
	• Service level agreements with support departments (IT, HR, etc.)	• False alarm ordinance for repeated nuisance false alarms	• Updating the apparatus replacement timelines to align with supply chain
	• Dedicated internal IT personnel in FD	• Billing for hazardous materials response to recoup cost of supplies/equip.	• More in-depth cancer initiatives and screening
	• Strategic partnerships with local corporations (Dell, Amazon, etc.)		• Increased community involvement
	• Effective use of technology		

Group 5	Group 6	Group 7	Group 8
• Having dedicated fire dispatchers in the Communications Center	• Using ESD funds to effectively service the District	• Improved community outreach (community risk reduction)	• Training
• Planning FD resources to align with growth in the City	• Charging for external use of the training facility	• Effective staffing/compensation of the Crisis Response Unit	• Growth within the Department
• Implementing fire impact fees	• Impact fees for development impacting FD services	• Improved media relations/public communication/social media efforts	• Implementing 4-person staffing
• Breakeven cost allocation (fee's match cost of service)	• Purchasing land before a station is needed	• Charging for lift assists at skilled care facilities	• Building relationships with medical and clinical expansion in the City
• Charging for lift assists at skilled care facilities	• Using excess fund balance money for immediate needs (construction finance fund)	• Charging for recurring false alarms	• Cross training administrative and support personnel
• Charging for external use of the training facility	• Use of temporary stations in annexed or developing areas	• Billing for non 9-1-1 services	• Hiring a behavioral health specialist

- Accounting of deployment reimbursements to offset FD budget
- Citizen and Council education of FD services and needs
- Improving the use of data to make decisions
- Take advantage of ESD and build stations to serve area
- Staffing dispatch and logistics with uniformed personnel
- Increasing dispatch staffing (dedicated fire dispatchers)
- Creation of useful positions (Civilians)
- Ride outs and additional training for support staff
- CRU moving to 24/7 staffing
- Constructing stations in annexed and developing areas
- Hire personnel with certifications needed to begin work
- Purchase apparatus for future growth needs

Group 9	Group 10	Group 11	Group 12
• Charging for lift assists at skilled care facilities	• Community support to fund bond initiatives	• Charging for outside use of training facility	• Implement the strategic plan
• Charging for multiple false fire alarms	• Seeking grant funding	• Increased outside training hosted at training facility	• Better planning for future needs
• Cross training administrative and support personnel	• Lost revenue due to tax abatements	• Specialized funds for fire services related to their revenue generation	• Fully staffing vacancies
• Better use of staff knowledge, skills and abilities in decision making	• Implementing fire impact fees	• Fire Impact fees	• Appropriate staffing in all divisions
• Outsourcing landscape and janitorial services	• Charging for outside use of training facility	• Individual station budgeting	• More availability of CRU later in the day
• Capitalizing on income opportunities related to growth (impact, inspection, plan review)	• Charging for County EMS using fire stations to house personnel and apparatus	• Protocol changes for dispatching of low priority service calls	• Dedicated Civilian PIO

- Separate accounting for reimbursable deployments
- Appropriate funding OT for the true relief factor
- Updating the fee schedule
- Outsourcing hose testing
- Accounting for deployment reimbursements to fund FD needs
- Charging for lift assists at skilled care facilities
- Improving the use of technology
- Improved use of data in decision making
- Education of Council more frequently on importance of key FD issues
- Improved health benefits
- Improved retiree benefits
- Full implementation of cancer screening program
- Charging for lift assists at skilled care facilities
- Incentive pay for specialty assignments
- Mobile integrated Health unit
- Maximizing opportunities from catastrophic events
- Less reliance on automatic aid
- Aftermath planning

Threats to the Organization

The following table illustrates the threats as identified by all twelve groups. All the comments are included in the table.

Table 75: Employee Forums Threats to the Organization – All Comments

Group 1	Group 2	Group 3	Group 4
• Property Tax Legislation	• Improved relationship between labor and city management	• Redevelopment/development outpacing FD service capacity	• Vertical growth without staffing to meeting deployment needs
• Future Pandemic	• Lack of consistency by City HR in personnel matters	• Property tax reform	• Loss of ESD district due to annexation from neighboring cities
• Natural/manmade disasters	• Too much oversight by HR on hiring and promotional processes	• Operational tactics are not equal to similar communities	• Budget allocations not funding staffing needs

- Priority of FD issues by City Management
- Acts of Terror
- Lack of adequate water supply as growth continues
- City Growth outpacing FD capacity
- Micromanagement of FD by HR/City Management
- Property tax legislation
- Costs outpacing budget
- Competitive agencies increasing pay and benefits
- Non-uniformed pay rates not competitive
- Turnover of emergency communications personnel in PD
- Inconsistent regional command system (blue card vs. pre-assignment)
- Over reliance on automatic aid partners for initial service delivery
- Loss of ESD district due to annexation from neighboring cities
- Robbing Peter to pay Paul (suppression staff pulled for academies)
- Aging population
- Heavy reliance on 9-1-1 system due to changing demographics

Group 5

- Reliance on automatic aid partners as first due resource
- Annexation of EDS areas by other communities
- Excessive oversight of FD by HR (too corporate)
- Change of workforce culture
- Ineffective implementation of technology
- Lack of accepted input from line personnel
- Continued reactive decision making
- Excessive mandatory overtime burning out personnel
- Growth outpacing FD service capacity

Group 6

- Continued development/growth outpacing FD capabilities
- FD leadership not effectively communicating FD needs to City Hall
- Continued lack of implementation of plans
- Lack of accepted input from line personnel
- Focus of FD admin on pleasing City Hall vs. fighting for FD needs
- Interference by City HR on FD issues not HR related
- Lack of 356 evaluations to allow line to evaluate leadership
- Continued lack of acceptance of line input and feedback
- Underutilization of BC's to inform leadership of line needs

Group 7

- HR interference
- Community growth outpacing FD ability to provide needed services
- Over reliance on automatic aid partners for initial service needs
- Not adding additional response resources as stations are built
- Economic downturn
- Not effectively budgeting for essential supplies to support FD
- Poor planning for true budgetary needs

Group 8

- Not staffing stations to meet community needs
- Squads not deployed properly
- Not budgeting for true FD needs
- Nothing coming from the input provided in these sessions
- Growth and call volume outpacing FD capabilities
- Burnout of personnel
- Lack of proper planning by admin/City/HR leading to service level decline
- Too much outside influence on how the FD should operate (HR)
- CRU not being appropriately staffed

	• Undermining of shift supervisors authority and decision making impacting morale • Roles and expectations not clearly defined		• Fire crews continuing to be short staffed • Civilian employee burnout due to being short staffing, lower pay and overworked • Increased response times and development and annexations occur • Road construction projects impacting response times • Influx of homeless population with no shelters or services • Non-wildland suppression equipment • Failing to address siloed operations and lack of communication
Group 9	**Group 10**	**Group 11**	**Group 12**
• HR Interference in FD issues • Lack of vision • Growth without assessment of impact on FD services • Ineffective/Inappropriate budgeting and funding of services • Increased demand for social services • Ineffective internal communication (Bottom - Up) • Growth continuing to outpace staffing and resource capabilities	• Budget allocations not meeting service needs • Administrative support not aligned with line staffing • Growth outpacing ability of FD to service community needs • Lack of critical infrastructure (water) • Future planning for land needs associated with station plans • Rising costs of construction materials and goods • Lack of covered parking	• Community growth and risks outpacing FD service capabilities • Ineffective succession planning • Lack of cross trained support personnel • HR interference in FD on non-HR related issues • Chief too focused on pleasing City Hall vs. leading the agency • Lack of knowledge by City leaders on true FD needs	• Economic downturn • HR interference in FD on non-HR related issues • Blanket HR policies not applicable to all departments • Automatic aid partners backing out of agreements • Changes in political climate • Hiring ineffective leaders • Growth of City outpacing FD ability to provide services

- Loss of personnel due to compensation and burnout
- Cultural decline due to integrity issues with leadership
- No following through on previous plans leading to declining morale
- Low priority calls impacting unit availability
- Natural disasters (weather)
- Continuing to Rob Peter to pay Paul
- Poor planning on deployment needs
- Educational requirements limiting career development
- Poor execution of new services
- Lack of adequate support staffing
- HR slowing down the hiring of new staff